

PART II

DESIGN PRINCIPLES

South Cambridgeshire consists of villages within open countryside, rather than towns and large urban contexts. This modest scale and rural setting is the basis of the local distinctiveness, which shows in the type, scale, density, details, materials and spaces characteristic of the existing settlements.

The district has a demand for major new development. Much of this is focused on extensions to Cambridge and a new town at Northstowe, but development will also take place, to different degrees, in villages set out open countryside.

The design of new development needs to create viable and vibrant spaces and buildings that also respect, preserve and enhance the special character of South Cambridgeshire.

The aim of this section is therefore to identify important design criteria for this new development in urban and rural contexts.

Many of the principles will apply to all types of development but some will apply to just one, for example creating a new town or adding to villages. The guide therefore should be used with discretion.



CHAPTER 4

URBAN DESIGN

INTRODUCTION

- 4.1 Good urban design addresses the interface between all the issues that influence the form and use of urban settlements, in order to create successful places where people want to live, work and visit, and which supports their needs. The purpose of urban design is to create good quality places, rather than just the provision of developments.
- 4.2 Urban design principles apply to all forms and sizes of development. For even one single house to be provided in an existing street, it will be best designed to integrate into its surroundings if urban design principles are followed. This chapter focuses on the full range of urban design principles that apply, in full or part, to all development proposals and addresses larger development proposals. Chapter 7 focuses specifically on the issues that are encountered with smaller scale developments.
- 4.3 Prior to any design work being undertaken, it is essential that the site is fully understood in its context. It must be fully understood how the proposed development will be integrated with the existing communities and their supporting facilities and services, from the sub-regional level down to the neighbourhood and block level; dependant upon the location of the site and the intended scale and nature of the proposed development. The residents and workers of, and visitors to, the new development must have ready and convenient access to existing facilities and services; with any new facilities and services, provided as part of the development supporting and integrating with those already existing. Provision for the community must go beyond a consideration of the provision of housing and facilities and must address how the whole and its component parts are designed to promote the integration of a healthy community, who will live, work and play there for at least one hundred years. This will require the integration of new developments into the existing social structure, movement patterns and public transport services and the wider landscape and/or townscape as appropriate. (Townscape is a generic term relating to the urban scene i.e. the appearance of a built environment, whether a hamlet or a city.)
- 4.4 Society and its requirements are constantly changing, therefore, development proposals should be designed in a manner that will allow future adaptation and alteration, to prevent developments becoming potentially unused or undesirable if they cannot accommodate future needs. The known changes that are likely to be encountered are, in household size and composition, lifestyle, work patterns, transportation patterns and climate.

- 4.5 The purpose for developers of properly understanding context is to enable them to promote development, which will integrate with its surroundings. Development proposals that are an imposition on a location and do not address the social, sustainable, economic, transport and ecological structure of the context will not be accepted.

QUALITY

- 4.6 Quality is not a matter of luxury, i.e. of expensive design details and construction materials. Quality is concerned with the whole approach to the planning and design of new developments, not just by the developer and the Local Planning Authority, but by all the partners involved, to ensure that new developments conveniently and efficiently provide the facilities, services and conditions that the people living and working in, or visiting them, require, within the capacity of the environment to sustain them and protect local distinctiveness.

- 4.7 “Bad planning and design and careless maintenance encourages crime, contributes to poor health, undermines community cohesion, deters investment, spoils the environment and, over the long term, incurs significant costs.” (p6)

“The places where people live have a profound effect on their quality of life and life chances. Places exercise this effect in a range of ways – through, for instance, crime levels, pollution levels, employment opportunities, social ties and opportunities for community engagement, and the range and quality of local services, transport links and green space. Quality of place can then be understood as that subset of factors that affect people’s quality of life and life chances through the way the environment is planned, designed, developed and maintained.” (p11)

(World Class Places – the Government’s strategy for improving quality of place, Department for Communities and Local Government, 2009)

- 4.8 It is important that new developments are designed and constructed in a manner that minimises the demand on natural resources:
- By minimising travelling, through the provision of mixed use developments and the provision of good and efficient public transport facilities, footpath and cycle networks;
 - By designing developments that respect the existing landscape and existing biodiversity and enhances them through the implementation of the proposals;

- By designing to avoid putting development at risk from flooding and ensuring the discharge of surface and rain water is by means of sustainable drainage systems to prevent creating flood risk for others;
- By constructing with robust materials, to ensure the long term durability of the development;
- By designing buildings in a manner that readily allows for their future conversion or adaptation;
- Designing and constructing buildings in a manner that minimises their energy consumption for heating, cooling and lighting; minimises the demand for potable water; and does not result in air, noise and light pollution; and designing developments that are not only valid today but remain so, in the face of changing climatic conditions, for at least 60 years for commercial buildings and 100 years for all other buildings.

4.9 Achieving high quality development requires the co-operation of all partners involved in the planning, design and ongoing maintenance of new development. This requires all parties to adopt a flexible approach in securing their interests to ensure that the development, as built, is fully integrated. With such an approach high quality development should remain the goal and be achievable irrespective of the fluctuations of the economic cycle.

4.10 Quality is dependent upon design rigour, the quality and durability of the materials selected and the quality of the workmanship during construction, to ensure robust high quality designs appropriate to the intended uses are attained.

4.11 The following is a list of considerations that impact on design quality and should be considered in the design process:

- Develop a clear design concept.
- Set a realistic budget for design, implementation and management of the works.
- Select design components and apply the principles of design theory and composition in a manner appropriate to the concept.
- Select materials that are long lasting, good looking and durable.
- Portray the scheme in clear and comprehensive plans.
- Choose contractors carefully, give them clear instructions and ensure thorough supervision of them on site.

- Devise conveyance and management regimes at an early stage.
- Designs should be appropriate and affordable for Parish Councils or others to manage.

GREEN INFRASTRUCTURE

- 4.12 Green Infrastructure describes a network of public open spaces, routes, wildlife habitats, landscapes and historic sites. It includes a wide range of different types of element such as rivers and watercourses, country parks, historic landscapes, archaeological sites and rights of way, and combines a range of functions.
- 4.13 Green Infrastructure provides an essential environmental foundation and support system and is set within and contributes to a high quality natural, historic and built environment. It is key to creating places that are attractive, healthy and give a good quality of life, and delivers a range of other social, economic and environmental benefits. Green infrastructure is needed to meet the needs of existing and new communities and is a crucial part of successful new development.
- 4.14 The aim is to plan, deliver and manage green infrastructure at county, district and community or neighbourhood scales. Green infrastructure should be an integral part of new development and its surroundings and link with the wider network. Existing green infrastructure should be protected and well managed.
- 4.15 The Green Infrastructure approach is supported at national, regional and local levels. It is included in PPS12: *Creating strong, safe and prosperous new communities through spatial planning* and is promoted in Natural England's *Green Infrastructure Guidance* (2009) and CABI's *Grey to Green* (2009). Green infrastructure is also included in the *East of England Plan* (May 2008).
- 4.16 Green infrastructure elements and approaches are supported and described in Local Development Documents such as Area Action Plans, the Development Control Policies DPD and Site Specific Policies DPD, as well as a number of Supplementary Planning Documents e.g., Landscape, Biodiversity.
- 4.17 In 2006 Cambridgeshire Horizons and partners (including South Cambridgeshire District Council) produced the first Green Infrastructure Strategy for the Cambridge Sub-Region. This Strategy and its results have been reviewed and a new strategy is currently being prepared which will cover the whole of Cambridgeshire. Other planned work will identify the costs of green infrastructure and mechanisms for funding including through development.

- 4.18 Cambourne and Trumpington Meadows are examples of the successful provision of green infrastructure as part of new developments and their settings. They show how it can deliver a number of specific objectives including sustainable drainage and flood management as well as creating attractive places and encouraging people to walk, cycle and enjoy their surroundings.
- 4.19 The District Council strongly supports the planning, delivery and management of green infrastructure as an essential part of new development and crucial to its success. Green infrastructure should be fully integrated with development and its setting, and link to wider green infrastructure networks. It should also contribute to existing communities and environmental and other resources. Green infrastructure should be a fundamental part of development, design and planning processes from the start.

CREATING A SENSE OF PLACE

- 4.20 Everywhere is somewhere, irrespective of it having a strong, a weak, a unique, or a pattern-book identity and irrespective of it having desirable or undesirable associations.
- 4.21 The starting point for development proposals should be what is “the spirit of the place” (the genius loci); what is good, strong and desirable to harness and what is poor, weak and undesirable that presents the opportunity for change and improvement. In relation to new development the aim should be to create somewhere that is recognisably distinct, whilst simultaneously strengthening the larger local identity.
- 4.22 The development must create and enhance an effective network of streets and buildings that achieve a permeable network and encourage cycling and walking. A permeable network is one that is easy to navigate and easily accessible by means of interconnected routes. It will not contain cul-de-sac or no-through routes as these result in poor integration and tortuous routes between places. A key structuring principle should be the provision of a direct, safe and convenient movement pattern on foot, bicycle or public transport. Movement patterns for private motorcars may be less direct to discourage their use; therefore some routes may not allow a through movement for motorcars. It should be noted that not all villages have a form and structure that is conducive to the application of this principle.
- 4.23 Any new development designed as one and constructed in a short period of time, compared to the lifetime of the settlement, runs the risk of appearing uniform. The design of large new developments should be undertaken in a manner that reflects the incremental growth of the settlement the development, lies within, is attached to, or is nearby, in the case of a new settlement. To assist this the design of new developments should be split

into smaller parcels, with each parcel designed by a different architect; appropriate parcel sizes are relative to the location of the development, with parcels for separate architects not exceeding 70 homes in Northstowe or urban extensions, reducing to less than 5 homes in some villages. House sizes and tenures create a more effective community character when they are intermixed throughout the development.

- 4.24 Any new large-scale development should be designed around a pattern of connected streets and public spaces that can be easily understood, so that people know where they are. The street network should focus on busy pedestrian places which have an identifiable and accessible heart, the location of which is marked by a concentration of facilities (e.g. shops, offices, small-scale workspaces, civic functions, schools, clinic, a public square or park) and by an increasing building height, providing greater enclosure. The heart of the development, and other important spaces, should also include features and landmarks that define them as special places.

CHAPTER 5

APPRECIATING CONTEXT

LANDSCAPE SETTING

- 5.1 The landform in the Cambridge Sub-Region is not highly pronounced. Therefore wherever possible variations in landform within development areas should be harnessed to accentuate the local landscape character, and care must be taken not to obscure distinctive landform characteristics with development. Road alignments and drainage corridors should also respect local landscape character. Generally development should be aligned parallel to the contours not up and down slopes, accentuating slope profiles and preventing their loss beneath staggered or irregular development. See Chapter 3 for further details of Landscape Character.
- 5.2 Any new development must sit comfortably in its landscape, taking account of the topography and natural or man-made features. New development should not intrude upon the skyline, with the exception of specifically agreed features selected as landmarks, in the tradition of church spires or towers. If, for the general development, this is unavoidable, careful consideration must be given to the height and form of buildings, with the built form broken down to appear as a composition of forms, rather than one large form and utilising trees and other planting to soften the impact on long distance views. In some specific cases there may be an argument in favour of retaining a hard built edge to a development.
- 5.3 **Developers are required to undertake a design-led approach that demonstrates and justifies its appropriateness for the development and its location.**












AREAS		CITY	URBAN	SUBURBAN	RURAL
					
EXISTING	Cambridge				
	Market Towns				
GROWTH AREAS	Northern Fringe				
	Cambridge East				
	Southern Fringe				
	North West Cambridge				
	Northstowe				

Table identifying how new development areas fit into the varied character of Cambridgeshire, from the Cambridgeshire Design Guide.

THE LANGUAGE OF BUILDINGS

- 5.4 Chapter 3 described the particular characteristics of settlements, buildings and materials found in different areas of South Cambridgeshire; and described materials and details that are traditional and distinctive to the district.
- 5.5 The Listed Buildings SPD (Chapter 15, pages 123-130) highlights specific types of buildings and structures within South Cambridgeshire. These include farm buildings including barns, granaries, stables, dovecotes, and cart and stock sheds. The importance of food processing, as well as agriculture, to the district is reflected by mills and maltings. Traditional crafts and industries are represented by smithies and tanneries. Bake houses and wash houses, schools and war memorials are also included.
- 5.6 Alongside the details and building types that are typical of an area, buildings reflect the relationship between their type, form, function, status and other aspects. The pattern or arrangement of buildings also helps create the character of places.

The Relationship Between a Building's Form, Function, Date, Status and Other Aspects

- 5.7 In this section relationships between different aspects are considered separately. In reality, all the aspects work together in the design of buildings and contribute to the meanings they convey.
- 5.8 Schools are examples of how buildings' functions and details are reflected in their forms. Parts of Victorian and Edwardian schools are often divided equally between girls and boys. Tall windows and high ceilings give good light for reading and writing.
- 5.9 Industrial buildings can have limited numbers of small windows or, where illumination is important, long runs or areas of glazing.
- 5.10 Other examples of the relationship between function and details are: the louvred panels of drying sheds which encourage the passage of air; granaries lifted up on staddle stones to keep the rats at bay; and the snout and trotter resistant brick walls of pig sties. Some farm building types including barns and stores have no windows. When work is carried out, barn doors could be opened to give ventilation and light. Vents or slats in a farm building indicate that it housed animals or stored produce.



*(left) Granary on staddle stones
(right) Slatted vent for livestock*



- 5.11 Details also reflect the properties of the materials used to keep a building weathertight and relatively warm and light. For example, thatch roofs have wide eaves to throw rain water away from the building. Clay bat walls need a 'good hat and boots' to protect the bats from the weather and keep them above the ground.
- 5.12 The different use and status of buildings is reflected in their construction and materials. For example, a house built with tiles and bricks may have outbuildings with humbler and cheaper pantile roofs and timber-framed walls.

- 5.13 Differences in wealth and status are reflected in the houses of the district. (What we have inherited gives just part of the story of the past as poorer cottages and workshops are less likely to have survived.)



Mid / late nineteenth century Cottenham houses reflecting differences in social status.

- 5.14 Parish churches were centres of the village and historically the building and churchyard could be used for a range of community and other activities. They could be well supported by the local landowner and receive other donations and funds. The status of churches is reflected in their positions in the village and the settings they enjoy, their ambition and impact, and the quality of materials and craftsmanship. In many cases, the church is the focus of the settlement – other buildings are grouped around it; its tower is the tallest structure in the group; and it is prominent in views.
- 5.15 Chapels, by contrast, are normally less prominent and tended to be built amongst the houses of the working class. Their often modest designs and materials reflected nonconformist beliefs as well the limited resources of chapel communities.
- 5.16 Ownership and influence is reflected in the design of buildings. Landowner controlled villages were generally smaller and neater than the more haphazard ‘open villages’ and often feature characteristic estate cottages. Landowners sometimes demolished villages to make way for new landscaped parks and planned villages could be built to replace them. Wimpole is an example of a planned village.

- 5.17 Different types of shared purpose and community action are reflected in almshouses, buildings associated with land settlement movements, and the village halls built as part of the self-help movement in the 1930s. Public and private ownership and influence are reflected in the designs of council and social housing, and those built by builders and private developers.
- 5.18 Finally, buildings reflect the period they were built, and architectural fashion, developments in design, the materials available locally and from further afield, prosperity and depression, and changing needs and solutions.

Patterns of Buildings

- 5.19 This section looks at how buildings relate to each other and to the layouts of our villages.
- 5.20 Much of the character of villages is given by the patterns of streets, plots and buildings. The streets and open spaces create the 'skeleton' of a village and can remain little changed for centuries. The division of the land next to historic streets into plots is often long lived but is likely to change more frequently than the streets. At a smaller level of scale are the buildings that occupy the plots. These are more likely to be replaced or changed than the plots though some buildings outlive them. Extensive redevelopment can sweep away this historic pattern.
- 5.21 Villages can be dispersed (for example, made up of a number of 'ends' or small collections of buildings) or focused on one or more centres. Two of the standard models are buildings grouped around a village green and buildings running along a main street. Most settlements do not follow a simple pattern, however, and can combine features from different models in a complex whole. Villages reflect centuries of dynamic change in response to wide range of factors. As each settlement has its own set of circumstances, so each village is unique and special.
- 5.22 Different sizes and shapes of plots give places a very different feel. Medieval plots were typically long and relatively thin, and could lead on to a back lane and common fields beyond. The social hierarchy of a village was reflected in land divisions, with manor houses and vicarages sitting in larger plots.
- 5.23 Plot divisions in at least the same street were often reasonably regular. In many places more variety is given by the buildings which fill them. Unlike modern estates, it was unusual in rural villages for whole streets or areas to be built by the same people and at the same time. Individual houses or short terraces were constructed by different people at different times. The variety of building forms, types and uses found in most traditional villages is a key part of their character and appeal.

- 5.24 The way buildings are positioned on plots makes a significant difference to their settings and the way they are perceived and to sense of space and character of streets and villages. Many historic buildings were on or close to the street. Detached houses often had generous space either side. Where plots were less wide, then houses would be more likely to be joined together. This contrasts with modern suburban developments where houses are set back and individual or semi-detached houses can have relatively small gaps between them. Whether traditional houses form terraces or are individual buildings obviously affects their design and ability to change and extend over time.
- 5.25 In many village centres, buildings or substantial walls characteristically define the boundary of the public realm, usually the edge of a road or green. Typically, the front elevation and line of the main roof follow the direction of the street. Within some villages, such as Cottenham, occasional buildings are located perpendicular to the road with a prominent gable in the streetscape. Historically, the most important buildings were usually on the frontage, though farmhouses were often set back beyond a courtyard of farm buildings.
- 5.26 Beyond the main frontage buildings, the outbuildings are subservient and often orientated to follow the site boundaries at 90 degrees to the main building, becoming smaller as they become further from the main building. Farmsteads within villages often extend further to the rear of the street frontage than other development and this distinction should be retained rather than used as a general building line.
- 5.27 Towards the edges of villages, development is generally more open and the building line of development is often set back further from the road edge. It usually still follows the direction of the street but provides less enclosure. The front garden and the front boundary are more prominent and important in the streetscape. The front boundary changes character, often from walls and picket fences typically closer to the village centre to hedges leading towards the open countryside.
- 5.28 The size, shape, position and orientation of buildings in the streetscape will define the 'weave' of the built fabric. For example, detached buildings which are placed in the centre of larger width plots define a looser-knit settlement pattern than lines of terraced houses. Also, buildings that directly front on to the pavement generally define a narrower street and more enclosure than buildings set back with front gardens and garden walls.
- 5.29 Along with the variety of buildings already mentioned, their grouping, for example along a street or around a green, creates distinctive and attractive places. Farmsteads are an example of buildings and structures of different but related functions found on the same large plot. A variety of different

forms come together with buildings arranged to reflect the hierarchy of uses and the way the buildings and the whole farmstead works. This included the relative importance of easy access to the fields.

- 5.30 The relationship of the farmstead and its buildings to the countryside can be that of enclosure with a courtyard, or of openness to the fields, or its relationship can be within a larger settlement.
- 5.31 Individual and groups of buildings in the countryside or close to the edge of villages have specific characters and landscape qualities in which fields and trees predominate. Views can be more open and far-reaching with softer and less solid boundaries such as traditional hedges and simple open fencing such as post and rail.
- 5.32 Villages should always be seen within their wider landscape setting with its pattern of fields, woodlands, boundaries and routes. Dividing villages from the countryside that surrounds them ignores history and context. Rural communities were supported by agriculture with most people working on the land or in related trades. The countryside needed to be easily accessible from the village and the fields, common land, meadows and woods all supplied different needs. Villages should always be seen as part of and indivisible from the countryside.

VILLAGES

Character, Significance and Models

- 5.33 South Cambridgeshire is a particularly rural area. Agriculture was the main employer well into the last century and despite significant growth its population density is currently little more than a third that of the country as a whole.
- 5.34 The district almost entirely consists of villages (over 100) and countryside, and it is the rural settlements and landscapes, and their relationships, which gives it its special character.
- 5.35 Historically, each village was supported by an area containing agriculture and other natural resources. The boundaries of many of these areas were set by prehistoric times. Most of our rural settlements existed in some form by Domesday and the pattern of villages was more or less fixed by the fourteenth century. Our settlements and landscapes are a rich mix of survivals from the past, continuity, loss and change.
- 5.36 The relationship between villages and the surrounding countryside is crucial. For example, routes through and to the countryside often helped shape the forms of settlements. Some villages, for example in the Bourn valley, were laid out over earlier medieval field systems and their origins are

reflected in grid plans and the shape and size of fields and tofts. Tofts were generally developed as individual plots with a detached house in each. Medieval boundaries and long fields can be still identified in parts of the district such as the fen edge.

- 5.37 Medieval villages provided shelter and sustenance, but also reflected people's ideas of what a village should look like, including those of the community. Many villages were entirely planned and evidence of the earliest medieval planning still shows in the street patterns and narrow burgage plots of many of the district's villages.
- 5.38 The historic development of villages and landscape is complex but it can often be interpreted with sufficient attention and expertise. Such an understanding is an essential starting point for the design of new development.
- 5.39 The district's villages give historic models which should influence modern development. For example, these aspects of historic layouts could usefully be repeated:
- Grid plans and structures of roads and lanes and single and double rows.
 - Development along interconnected routes (including tracks and paths leading into the countryside).
- 5.40 Small fields surrounding and within villages (usually early enclosures) which give have an appropriate scale and provide screening trees and hedgerows. Villages and landscapes are therefore important and interesting because of their long and complex histories and relationships. They are valuable culturally as well as physically and visually, and the survival of villages shows that they have been a successful and flexible type of settlement. Villages need to be understood to inform the design process. Finally, their historic development provides useful models for future development.
- 5.41 Villages need to be given the attention and importance they deserve. This will help generate imaginative designs which come out of individual places and avoid standard village pastiches.

Challenges for Modern Development in Villages

- 5.42 Development of any site must be understood and planned in terms of the history and future of the entire village. Developing individual sites in a piecemeal way is likely to detract from the village as a whole and its sense of place. The widespread use of culs-de-sac encouraged by such a piecemeal approach, often but not in all village locations, conflicts with historic structures and character and urban design principles. Piecemeal

development in villages should also be careful to retain existing visual links through to the countryside.



Glimpses of the surrounding rural area between buildings in Cottenham.



Views of the surrounding rural area down side streets in Oakington.

- 5.43 Many villages include areas of countryside and open spaces. The more built-up parts generally had low densities, for example, a row of detached historic houses could have a density of ten dwellings per hectare. Making successful responses to the historic patterns and densities of villages, which are important parts of their character, is a key challenge.



A paddock in the heart of Little Shelford provides views of the church across open space within the heart of the village.

- 5.44 The context of any new design will be informed by the established character of the area. This will include views, roads and paths, trees and landscapes and the scale, proportions, orientation, positions, building lines, styles, and materials of existing buildings.
- 5.45 The uniformity of much modern development – such as much criticized ‘anywhere housing’ – often contrasts with local character. Some accommodation for home and shared work use, and for local services, could increase the variety of building types.
- 5.46 Responding to existing variety in building design is a key challenge for new development as is the need to reflect the distinctive character and identity of each village.
- 5.47 Proposals should identify the focus of the context, whether countryside or settlement. Within the countryside it may be the long views and clumps of trees, and within the village it may be more intimate views or glimpses of countryside, and of the church, that is generally the focus of the settlement. The character of each part of the settlement or context is distinctive and careful consideration should be taken to preserve or enhance it.



Cottenham approaching from the east; the village development is subservient to the church and the village tree line.

- 5.48 The layout of each settlement also defines the positions, forms and footprints of new urban structure. The development within a nucleated settlement is contained within a roughly rounded perimeter, and in rolling landscapes such as the west, south and east of the district the settlement is often located on higher or lower ground than the land around it. In nucleated settlements new development is often limited to small or infill sites as it would risk being in competition with the original settlement if it extended significantly from one edge of the original group or overflowed onto the next ridgeline. A linear settlement follows the line of a road and does not extend significantly beyond the roadside buildings. Small lanes may extend outwards but they are characteristically short, often leading to a church, manor house group, farmstead or small farm cottages. New development therefore is generally restricted to the road edge.

- 5.49 Each village has a defined village framework shown on the Local Development Framework Proposals Map, outside of which there is a presumption against development. Certain villages have also prepared their own Village Design Statements and, where available, these should always be consulted. The Local Development Framework also outlines Conservation Areas, and a number of these are described in full detail in Conservation Area Appraisals. These Appraisals also contain summaries of Listed Buildings. The Council keeps a register of Listed Buildings and lists and descriptions are available at English Heritage's Images of England website (www.imagesofengland.org.uk). The grade of listing defines the special attributes of the building and setting, and a full analysis of the special characteristics of the Listed Building and its setting will inform the extent and type of new development possible.
- 5.50 Villages need to respond to the implications of climate change and scarce resources by reducing vulnerability and increasing the opportunities for sustainable action. Traditionally houses in the countryside had plots that allowed people to grow fruit and vegetables, and large gardens should be encouraged. (Many modern developments have small gardens.) Local food production, community orchards and community farms should also be supported and preserved. Existing and new small fields next to settlements provide opportunities for these along with accessible wildlife and other beneficial uses.
- 5.51 The movement of people living in villages can be severely restricted by the lack of safe, and suitably surfaced and connected, routes within and between settlements, and into and across the countryside. New development should allow and support these rather than act as barriers.
- 5.52 It is a challenge to combine some sustainable forms of construction and other approaches with local character, but this could provide a spur to imaginative design.
- 5.53 New development in villages should reflect the settlement's position in the spatial, historical and physical hierarchy of villages. Such an approach will help ensure the development's design is appropriate to its context and reflects the differences between villages.

URBAN EXTENSIONS

- 5.54 Urban extensions are the addition to the outer edge of an existing settlement, of a new neighbourhood, district or township. All major urban extensions identified are for extensions to Cambridge.
- 5.55 Urban extensions will be of sufficient size to be able to establish their own identity and character and provide a focus for the building group. The extensions should, however, relate to the existing urban areas with which

they share a common boundary. It is also essential that urban extensions present an urban edge that is sympathetic to the character of Cambridge, or any other settlement extensions they are proposed for, as well as relating to the rural context they abut.

- 5.56 Urban extensions will often be of sufficient scale to enable the incorporation, from the outset, of high levels of sustainable technology to minimise the environmental impact of the development. Such considerations should include local heat and power generation, sustainable drainage systems, direct and convenient footpath and cycle routes to access the settlements primary facilities, direct and frequent public transport routes to access other facilities.

NEW SETTLEMENTS

- 5.57 The focus of new development is on brownfield sites within existing urban areas; however in the Cambridge Sub-Region it is recognised that there is a need for a new settlement, at Northstowe, to provide the number of new homes required, without damaging the character and integrity of Cambridge, its surrounding settlements and their rural and Green Belt setting. New settlements require careful integration into the community structure of the Cambridge Sub-Region and should not undermine or compete with the existing settlements and their facilities, but rather be complementary to them to support both the existing and proposed population. They should form settlements that are connected to Cambridge and other local settlements via efficient public transport links.
- 5.58 South Cambridgeshire is a rural area with Cambridge being the only large urban area and the other settlements being mainly villages. New settlements should harness the characteristics of the setting and form of the existing settlements in the sub-regional landscape, see Chapter 3 for information on the varied local characteristics. Innovative design solutions that sympathetically address the requirements of modern development in historical contexts are encouraged, whilst pastiche design solutions that inappropriately attempt to mimic historical design styles on modern buildings are discouraged.
- 5.59 New settlements should be designed from the outset to incorporate high levels of sustainable technology to minimise the environmental impact of the development. Such considerations should include local heat and power generation, sustainable drainage systems, direct and convenient footpath and cycle routes to access the settlement's primary facilities, direct and frequent public transport routes to access other facilities, both within and outside the new settlement. Further detail is contained in Chapter 8.

INFILL DEVELOPMENT

- 5.60 Infill plots are small-scale plots within existing developed areas and will always have a significant impact on the character of the established streetscape and on neighbouring properties, therefore good design is essential to ensure a positive impact is achieved. Infill sites will be expected to complement the street pattern by continuity of form and design, or by an appropriate contemporary contrast. They will be expected to make best use of the site while enhancing the rhythm of the established street pattern. To retain the character of villages it is appropriate to retain some vacant plots.



Infill development in Madingley designed to be sympathetic to the scale and form of its village setting.

- 5.61 A detailed analysis of the adjacent built environment should form the foundation of any design, in order to understand how the proposal will relate to its surroundings. Considerations include: the distance of building fronts from the pavement edge; heights, positions and types of boundary treatment; storey-heights of buildings compared to their widths; depths and character of surrounding gardens; and typical building types: whether detached, semi-detached, terraced or courtyard developments.



Large scale mixed use infill development, Papworth Everard. Buildings include townhouses and flats around a new public open green space and a new public library with retail development.

DEVELOPMENT TYPES

Mixed Use

- 5.62 Traditionally many villages and towns in the Cambridge Sub-Region developed at the intersection of roads, or close to bridging points. Service facilities usually became established at or close to the intersections, with incremental growth spreading out from the historic core along the roads, with infill development following between the roads in the larger villages and towns.
- 5.63 Mixed-use areas maintain more even levels of activity throughout the day, preventing residential areas becoming inactive during the working day and preventing non-residential areas becoming inactive outside the working day.
- 5.64 Mixed-use development may not be acceptable in some villages. Proposals therefore must conform to what is acceptable in accordance with the Local Development Framework.
- 5.65 The benefits of mixed-use development include:
- More socially diverse communities.
 - Greater safety arising from more people being around at most times of the day.
 - Increased vitality and street life.
 - Potential for increased viability of urban facilities, arising from increased support for small businesses such as corner shops.
 - More convenient access to facilities.
 - Greater opportunities for social interaction.
 - Increased stimulation arising from an increase of different buildings within close proximity.
 - Some travel to work journeys are reduced, reducing traffic movements and congestion.
- 5.66 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.

- Places and spaces where a variety of activities are encouraged to take place.

Providing Mixed-Use Centres

- 5.67 Mixed-use centres are not self sufficient therefore they need to be part of an integrated larger urban structure that has the population to support the facilities and services provided. They are best located therefore at the intersection of the main movement routes through both the neighbourhood and the larger urban structure. The mixed-use centre is the core of a neighbourhood within which the local shops, commercial uses and amenities will be located. Llewelyn-Davies (2000) states “to create a strong community focus, a shop, bus stop and primary school will usually be considered a bare minimum”. Other facilities that could be located there are nurseries, libraries, community centres, police stations, other business premises and other retail premises.
- 5.68 A diversity of uses can result in conflict if they are incompatible, but this is not an argument for avoiding the provision of mixed use. Careful consideration is required as to what is an acceptable mix of uses, both within the development and with its neighbours, supported by strong site planning to acceptably separate any potentially conflicting uses.



Great Shelford library with residential development above.

- 5.69 Opportunities should be taken to incorporate in the main urban areas, uses such as office and retail premises and industrial units that have become located in out-of-town locations. As such uses often have large building footprints out of scale with residential properties, they should not be located in the urban fabric as islands, but rather surrounded by other smaller development to help integrate the larger unit into the locality.



Papworth Everard local centre, containing shops, café, library, Parish Council offices and business premises.

- 5.70 The location of such premises in urban areas should not result in unacceptable traffic levels from people accessing and leaving the facility, nor create other unacceptable nuisance for residents, nor should it undermine the primary town and village centres. Travel Plans and Transport Assessments will be required to justify the development proposals.

CHAPTER 6

THE ELEMENTS OF DESIGN

URBAN STRUCTURE

- 6.1 The urban structure, of hamlet, village, urban extension or town, is formed by the interrelationship between the components of built-up areas, the blocks of development and buildings, the streets and open spaces. The urban structure creates an integrated framework that forms the foundation for any new development within it. The urban structure of new developments should ensure that the components work together to form an efficient and integrated whole.
- 6.2 The urban structure should seek to maximize opportunities for vistas towards landmarks, distinctive buildings, trees, open spaces or fields, or views to the rural setting. Building form, materials and details are informed by the immediate and wider surroundings (see Chapter 3) and in general, natural colours are used that relate to the landscape and traditional materials of the locality. However, cues should not be taken from poor quality examples.
- 6.3 Many South Cambridgeshire villages present important frontages to the surrounding landscape, contain Conservation Areas or an historic street framework and contain or frame numerous strategic views (both within the settlement and out to the landscape). This contextual development should be used as the basis for analysis to determine the character of new building structure appropriate for the area.

Table 6.1: Getting the layout right

To achieve this:	Do this (these may not all be appropriate in some villages):	Examples / Notes
A choice of interesting routes	<ul style="list-style-type: none"> • Create routes to link up broken routes on either side of the site. • Align routes along desire lines to provide direct links to schools, shops and other destinations. • Base movement on a loose grid, with new routes every 50-120m. • Avoid culs-de-sac. 	

Well defined street-spaces	<ul style="list-style-type: none"> • Join buildings to create well defined frontages. • Use smooth building alignments for continuity. • Use building fronts to define the street-edge. • Turn corners with buildings to prevent blank elevations presented to streets. • Incorporate focal spaces for human interaction at key nodes. 	Unless set-backs are characteristic.
Clearly defined public and private space.	<ul style="list-style-type: none"> • Use perimeter blocks with public fronts and private backs. • Incorporate flexible communal or private garden space in the core of blocks. • Avoid spaces where ownership and the opportunity to use it is unclear. 	Give all space a purpose.
Lively and safe street space	<ul style="list-style-type: none"> • Place building entrances on the front of buildings to ensure ground level interaction between buildings and the street. Individual entrances provide more activity than communal stairs. • Incorporate non-residential uses in the ground floor at key nodes for activity. • Ensure public spaces are overlooked by windows/buildings. 	

6.4 The following table identifies a categorisation of urban sites, based on shared physical characteristics and/or common issues. This results in shared urban design issues and the potential for similar urban design solutions.

Table 6.2: Layout guidance for different types of site

Type of site	Specific layout considerations (these may not all be appropriate in some villages)
Infill to road frontage	<ul style="list-style-type: none"> • Building alignments to define the road frontage are important. • Complete perimeter blocks. • Building scale, form and alignment should be determined primarily by the immediate townscape context.
Sites with more than one frontage	<ul style="list-style-type: none"> • Turn the corner with a double fronted building. • Where the junction is a node can justify an increase in scale over immediate surroundings to emphasise the node. • Trading amenity and parking standards against townscape benefits can achieve a perimeter block fronting more than one space.
Edge of open space	<ul style="list-style-type: none"> • The extent to which the size and type of space being addressed justifies an increase in building scale. • Using a good outlook and useable balconies to justify a reduction in garden sizes, subject to not losing privacy for properties and the character of the area.
Backland with no frontage	<ul style="list-style-type: none"> • Whether the proposal would fit with the grain and spatial character of the area. • Whether the site is big enough to enable a new inward looking enclosed courtyard space to be formed (typical minimum site dimensions 30m x 35m). • Ensuring the new space has a satisfactory relationship with an existing place e.g. a vista stop within 65m of a main street, or a maximum access length between side walls of 40m – measured from highway boundary to the first new frontage. • Whether the access can be designed to appear as an approach to a new area; ensure at least one of the units at the front incorporates an active frontage to the new access way wherever possible.

	<ul style="list-style-type: none"> • Whether satisfactory access can be formed from a functional point of view; 2.4m min for shared drive off a lower category road, this may need to be wider to attain the desired visual impression; 3.7m minimum where fire appliance access is required; 4.1m minimum access width where access taken of higher category road. • Securing quality of life for new and existing residents (see privacy/garden size criteria).
Limited road frontage and space in depth	<ul style="list-style-type: none"> • Carefully address the corner turnings at the access. • Is the site big enough to enable frontage and in-depth development • Securing a good quality of life for new and existing residents.
Public road and space network required	<ul style="list-style-type: none"> • Get the interface between the new and existing development right. • Create routes that take people where they want to go. • Front buildings onto routes and spaces to provide natural surveillance. • Create workable blocks between active roads or routes that enable permeability; the spacing between roads can be as low as 60m in areas of high movement, near town and local centres; a spacing between roads of 80m and 100m is ideal for most circumstances; and a spacing between routes of up to 120m can be appropriate in areas of low movement; generally the spacing between roads should not exceed 120m as this is a barrier to permeability. • Create areas of strong character.

- 6.5 These typologies cover the majority of typical development sites with groups of buildings but are not necessarily exhaustive. Sites that are unique or special will always warrant careful appreciation of context, assessment of potential and an appropriately responsive design solution.

DISTRICTS / NEIGHBOURHOODS / COMMUNITIES

- 6.6 Successful communities require a range of local services and facilities, including retail, educational, health, civic and spiritual. These need to be conveniently located and accessible by safe and comfortable routes.
- 6.7 From the mid twentieth century different uses in development became segregated. This segregation of uses reduces the overall activity in areas restricting the periods of activity, making them less attractive locations for the establishment of supporting services.
- 6.8 Local facilities bring residents together, reinforce community and discourage car use, by reducing the need to travel by car. Including mixed-use in larger housing developments can help to foster a more vibrant and cohesive community. It also introduces a variety of building scales and forms, creating diversity and interest in the streetscape. The needs of non-residential uses should be identified at the outset and incorporated into the masterplan, with sites reserved for future provision where necessary.



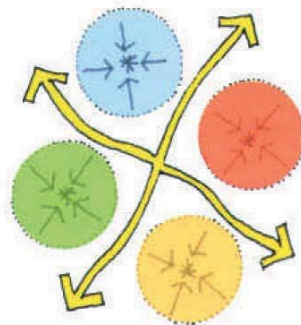
Sawston village centre illustrating the vitality arising from mixed uses.

- 6.9 Mixing tenures promotes social diversity; it is important therefore to spread different building types and tenures throughout a neighbourhood, rather than group them into single areas, which divisively subdivides the neighbourhood, instead of supporting the integration of the neighbourhoods differing components. Accordingly mixed-use areas are preferable locations for the establishment of supporting services and facilities.
- 6.10 Higher density developments are better located close to the local centres to maximise the numbers of people able to support those facilities within the 400 and 800 metre walking distances. The scale and density of a potential neighbourhood centre is dependant upon where the development is located within the urban hierarchy. High-density development may not be acceptable in some villages. Proposals therefore must conform to what is acceptable in accordance with the Local Development Framework.

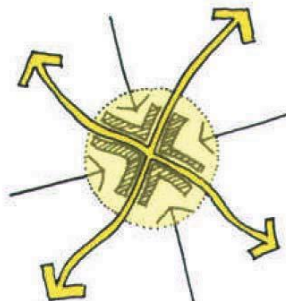
- 6.11 Local facilities provide a natural focus to towns, districts and neighbourhoods, drawing people together at informal meeting places. Facilities should be provided at convenient locations and distances from homes. Convenient local facilities are within an average 5 minute walking time, which equates to a 400m walking distance. Developments should be designed so that all residential properties are within 400m of a bus stop to encourage people to use public transport in preference to private cars. Local shops, a primary school and a doctor's surgery should ideally be located within an average walking time of 10 minutes, which equates to a 800m walking distance. If such facilities are provided further away than 800m from residential properties residents will be discouraged from walking and be more inclined to use private cars to access those facilities, and once people have opted to use a car to access facilities, they may not automatically use the local facilities. To support sustainable communities facilities should be provided within 800m to ensure they are easily accessible and supported by the local community.
- 6.12 The Urban Task Force report, Towards an Urban Renaissance, illustrates preferred walking distances to facilities from homes, see diagram. Barton et al. develop this work in, Shaping Neighbourhoods A Guide for Health, Sustainability and Vitality, where they identify illustrative catchment populations for various facilities, together with the catchment radius required to support those facilities at different residential densities, see table.
- 6.13 Local facilities to efficiently support the new communities should be within easy walking distances and the routes to these should be of high quality for both pedestrians and cyclists. The walking distances to facilities are the keystone of any movement framework. The Urban Task Force recommends that residents should have to walk no more than 2 to 3 minutes to a post box, or local open green space; 5 minutes to the newsagents and there should be local shops, a health centre and a primary school within 800 metres, or about 10 minutes walk. This is based on an environment that does not present obstacles to walking, such as busy roads.

Facility / Service	Population required to support facility or service	Maximum walking distances from service
Local Shop	1:1,500	Within 400m
Nursery	1:2,000	Within 600m
Primary school	1:4,000	Within 600m
Pub	1:6,000	Within 800m
Local Centre Cluster (consisting of 4 or more shops)	1:6,000	Within 800m
Post Office	1:5000	Within 800m
Proximity to Bus Stops	-	Within 400m
Proximity to Cycle Routes	-	-
Proximity to Public open space	Park Allotments Playing field	800-1000m Within 400m 800-1000m

Population required to support local facilities and desirable distances for them from homes.

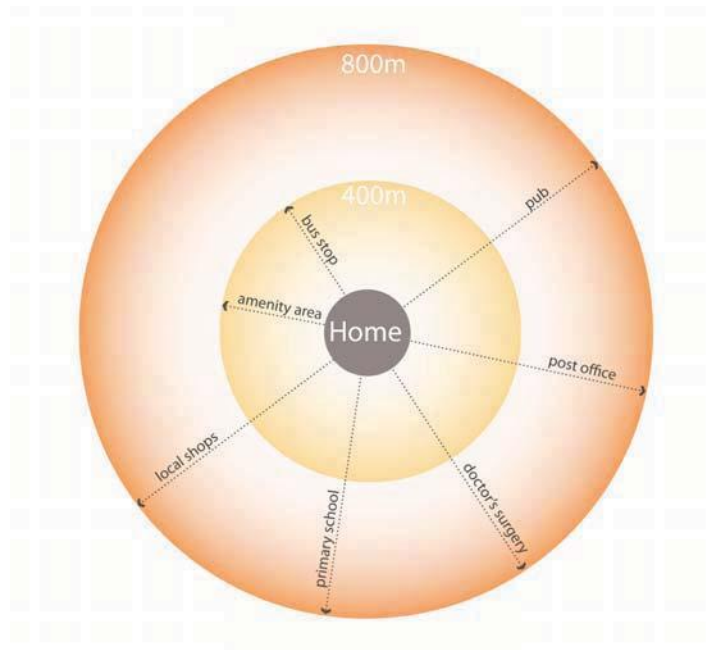


Positioning local centres away from main routes deprives them of life and passing trade

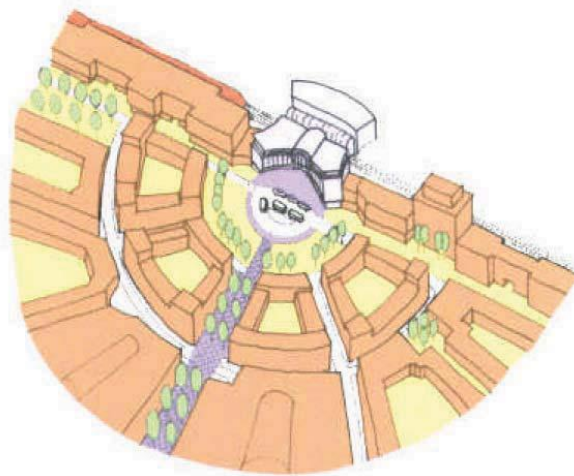


The answer is to create pedestrian and public transport-orientated centres at key focal points

Locating local centres. (Urban Design Compendium, Homes and Communities Agency)

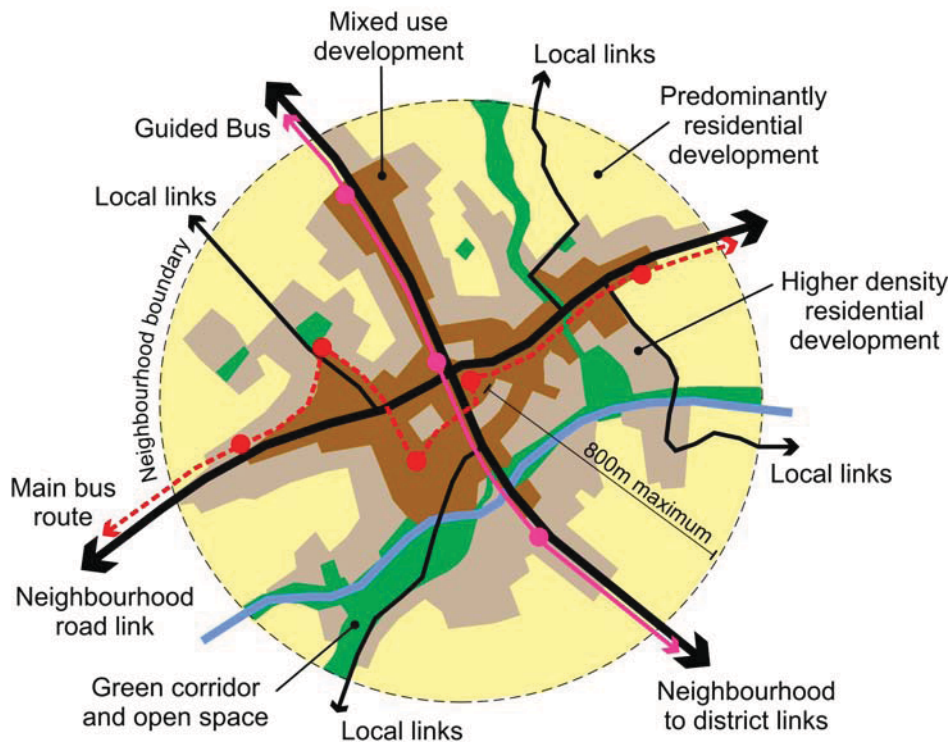


Desirable walking distances to facilities from the home.



Public transport orientated development ensures that a mixed use community has a railway station or bus stop within walking distance at its heart

Facilities and transport focused development. (Urban Design Compendium, Homes and Communities Agency)



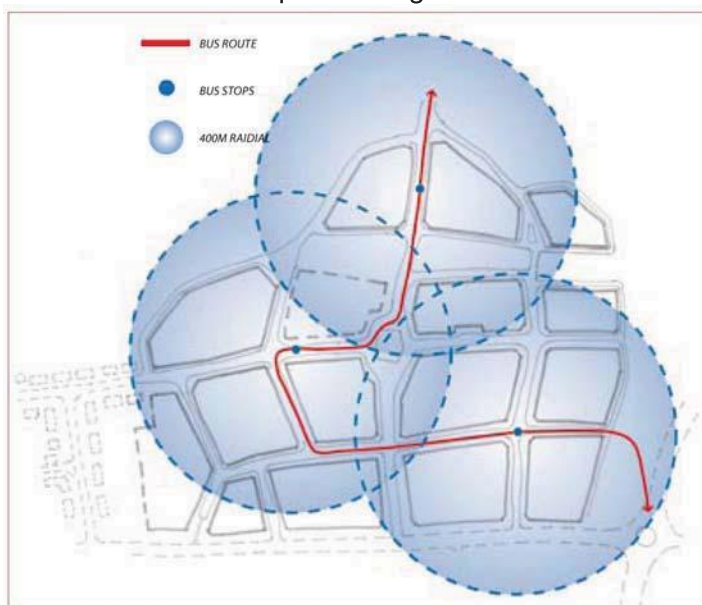
The components of a sustainable 'walkable' neighbourhood. Source Adapted from Urban Task Force 1999

EDGES

- 6.14 Places are often defined by linear objects e.g. rivers, railways, busy roads, etc. that often form physical barriers to movement and therefore define the edges of places. Less obvious are psychological barriers that can be physically crossed but which people may prefer not to cross e.g. open spaces which no one overlooks, major roads, areas of different tenure of housing or use, etc. New developments adjacent to such features must be carefully considered so that they do not create a barrier to movement within the development. Sometimes it may help strengthen identity to retain such edges, whilst on other occasions it may create new opportunities to create new identities or break down actual or perceptual barriers to create routes that cross these barriers.
- 6.15 The edges of new development should blend into the landscape by means of lower density towards the perimeter, with increased planting predominately of native species. The use of close-boarded fencing along development edges is not appropriate within a rural context, which is generally local hedging species or a post and rail fence.

ROUTES

- 6.16 A key to successful development is good access and connections between the site and its surroundings, whatever the size of the development and, the opportunities presented by the context should be harnessed. The structuring of routes in the new development should effectively address the following issues: How will the routes from the new development integrate with those existing in the surroundings? What are the existing movement routes around and possibly across the site? Who is moving from where to where and when? How will this influence the movement into, out of and around the site?
- 6.17 Movement affects uses, activities, density, security and the impact on neighbouring developments. A successful movement framework takes full account of the movement requirements the development will generate, provides maximum choice for how people will make their journeys and makes clear connections between the new and existing routes and facilities. The movement framework should make it as easy and attractive to walk, cycle or take a bus, as it is to travel by car. Direct attractive routes should be established to connect residential areas with facilities, maximising the number of properties, especially residential properties, that can access bus stops within a 400m walk and a local centre within a 800m walk. The maximum number of direct connections to the main streets should be provided. The greater the number of links to the main access roads, round or through developments, the greater choice people have as to which route to take and the greater are the opportunities for successfully establishing mixed use developments and, the greater is the discouragement of crime and antisocial behaviour as the greater the uncertainty for perpetrators that they may be disturbed. These aspects of the design rationale should be clarified in the developer's Design and Access Statement.

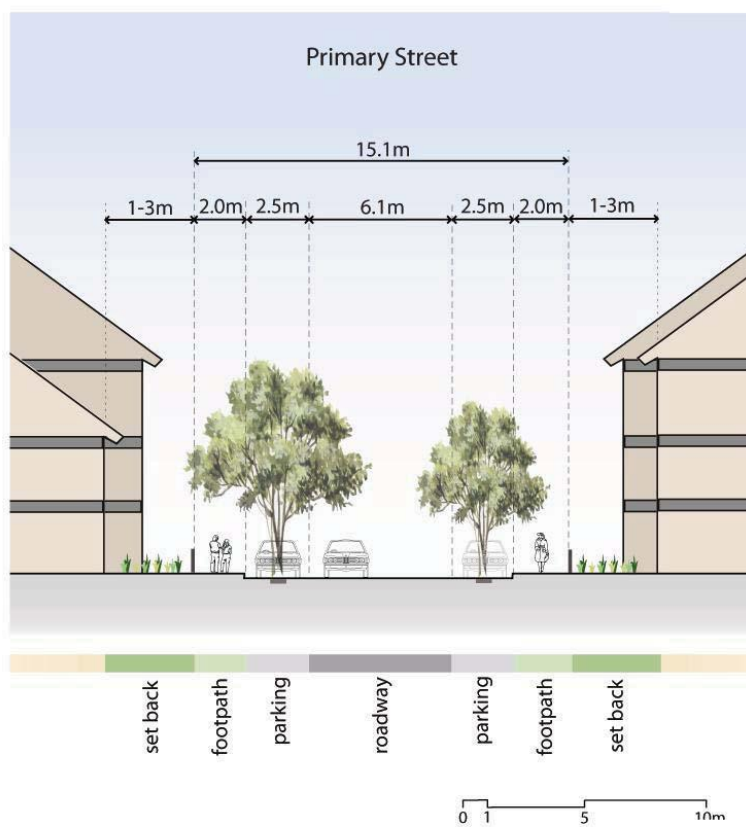


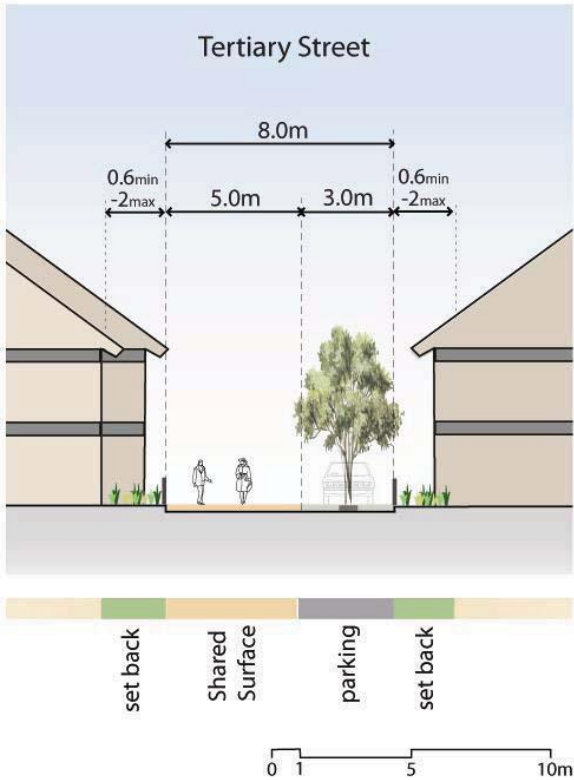
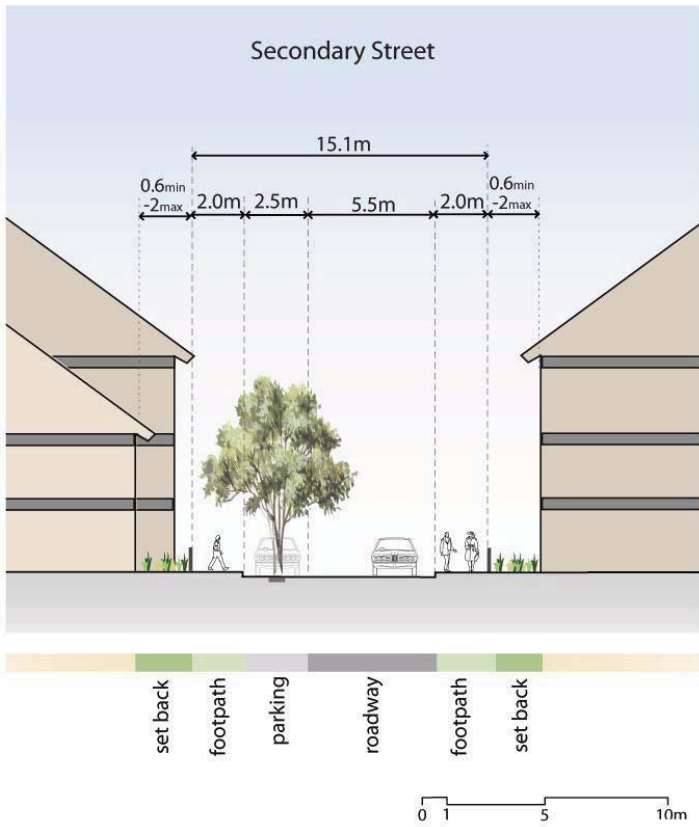
Bus routes and stops (Cambridgeshire Design Guide)

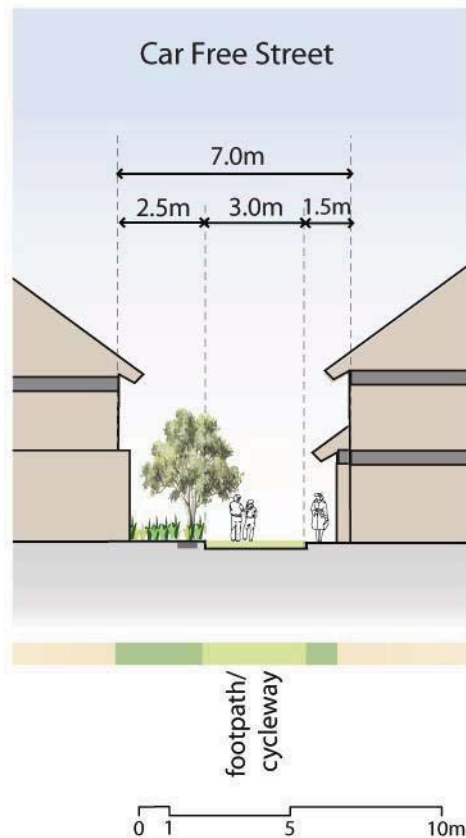
- 6.18 Linear spaces facilitate movement, which may be formal or informal in character. The movement network includes all the routes and all types of travel, and should allow easy access. The cycle and pedestrian routes will require a finer grid than those for cars and public transport. Lower order roads should be used wherever possible, while tortuous routes and culs-de-sac, i.e. a street closed at one end, should be avoided. The development should also take into account the type of movement it will generate and promote movement on foot, cycle or public transport.
- 6.19 The better connected a development is, the stronger is the case for a higher density of development and a lower car parking provision. However, the provision of good public transport connections may only result in the reduced usage of private cars rather than in reduced car ownership and provision is always required for visitor car parking spaces.
- 6.20 A hierarchy of routes should be established to aid legibility for those moving through an area, so it is clear if people are on a main route through an area, a secondary route providing access into development areas, or are within development areas on tertiary routes.
- 6.21 All routes should have buildings and windows facing onto them to provide natural surveillance of the routes to deter crime and antisocial behaviour. At the same time, buildings and how they address the routes should be designed to provide privacy for residential properties and any others requiring privacy such a health centres.
- 6.22 Public realm spaces should be well contained by the buildings that edge them. The fewer breaks there are in the built frontage and the narrower any breaks are the stronger will be the containment of those spaces. The character and built form of a village will determine the level of containment.
- 6.23 Routes should not be the divide between development parcels. Routes should run through development parcels to ensure continuity of development for those travelling along the route.
- 6.24 The management of pedestrian, cycle and vehicle movement, together with vehicular parking should be integrated into the design of the routes, streets and public spaces, and not dealt with as an afterthought through the use of painted lines and bollards.
- 6.25 In order that residents make the best use of the more sustainable travel options presented by the integrated route network, a residential travel plan should be included for new large developments.

STREETS AND SQUARES

- 6.26 Street design should aim, wherever possible, to reduce the dominance of vehicles, and thus create an accessible and friendly environment. There should be spaces to encourage people to meet, spaces for social and 'spill out' activities, and places with seats on routes to local facilities.
- 6.27 Development should be designed to accommodate and reflect a hierarchy of street types:
- Primary distributor road for movement through the larger urban area.
 - District distributor routes for movement through an area.
 - Secondary routes for movement into and out of an area.
 - Tertiary routes for movement within development areas.
 - Mews courts for access to small numbers of residential units creating an intimate semi-private place.







6.28 A focus on highway design specifications has in the past led to many residential developments having a poor appearance, becoming car dominated and lacking local distinctiveness. In conjunction with Cambridgeshire County Council, the District Council has collated examples of good practice from other areas and the following points should inform highway design in new developments:

- Engineering standards should be used imaginatively and interpreted alongside other design considerations.
- Highway design should not be the leading factor in determining settlement form; there should be a hierarchy of spaces rather than a hierarchy of road types.
- Buildings should be arranged to fit the local context and to create interesting urban forms.
- Roads should fit within the spaces created; with adjustments as necessary to ensure that minimum road widths and other essential clearances are accommodated.

Reference should be made to the Cambridgeshire Design Guide for Streets and Public Realm (2007):

<http://www.cambridgeshire.gov.uk/transport/trafficmanagement/networkmanagement/Cambridgeshire+Design+Guide.htm>

6.29 As outlined in Places Streets and Movement (DETR 1998) the use of vehicular tracking models can help in laying out buildings to suit the intended character of the street. The following design issues should be considered:

- All forms of movement need to be considered, but pedestrian, cyclist and access to public transport should take priority in the design process.
- Where possible streets should encourage social interaction with shared spaces rather than segregated areas and routes.
- Where segregated routes cannot be avoided they should be convenient, attractive and safe to use.
- The aim should be to achieve traffic calming by passive means through the arrangement of buildings and spaces coupled with surface materials. This may include smaller corner radii rather than sweeping curves, the use of frequent junctions and fewer straight lengths of road, buildings, walls, hedges and trees close to the road and allow for some on street parking.
- Traffic speeds within neighbourhoods should not exceed 20 mph.
- Bus routes may require suitable adjustments to roads. A permeable grid-based layout assists access and obviates the need for turning areas.
- Bus stops should be sited to achieve convenient access for as many people as possible and designed to allow for level boarding.



A 'homezone' that has been retrofitted to an existing development, Groningen, Holland.

GRIDS AND BLOCKS

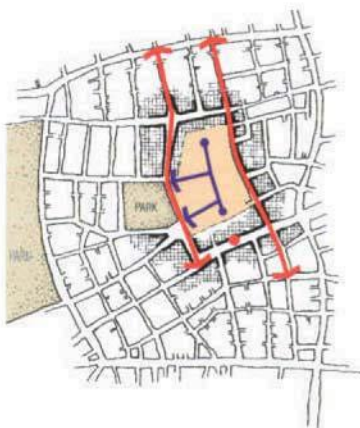
- 6.30 Grids are widely used ways to achieve convenient connections through developments. Such grids can be of rigid geometry or may be less rigid and more fluid. Route spacing in a grid of 80 to 100 metres provides an optimum network for pedestrian, cycle and vehicular movement, although it may not be necessary for all routes to be open to vehicular traffic. In town centres route spacing in grids for pedestrians and cyclists can be reduced to 65 metres where high volumes of pedestrian activity will be experienced. Conversely in suburban locations where pedestrian and cycle movement levels will be lower route spacing on grids can increase to 120 metres; spacings greater than this can impede permeability and discourage pedestrians and cyclists. Neighbourhood centres will not all have all facilities present, therefore a network of mutually supportive neighbourhood centres that share certain facilities should be established. To allow neighbourhood centres to be mutually supportive and easily accessible for pedestrians, cyclists, buses and motorcars, a larger grid at 800 metre centres should be established to link the neighbourhood centres.
- 6.31 Many historic settlements comprise an informal, grid of interconnected roads, streets alleyways and space. This is in marked contrast to the visually and socially less successful twentieth century 'tree hierarchy' type layouts that contain culs-de-sac, dead ends and unnecessarily tenuous through routes.



Consider how best the site can be connected with nearby main routes and public transport facilities



A more pedestrian-friendly approach that integrates with the surrounding community links existing and proposed streets, and provides direct links to bus stops



The typical cul-de-sac response creates an introverted layout, which fails to integrate with the surroundings



This street pattern then forms the basis for perimeter blocks, which ensure that buildings contribute positively to the public realm

Key



Principal routes



Internal streets



Bus stop

(Llewelyn-Davies 2000)

- 6.32 It is desirable to create an informal, permeable grid for new developments that connects into the existing street pattern. The layout of grids and blocks should be determined by the grain and visual character of the surrounding area, and the atmosphere that is sought for the new development, coupled with the need to control the degree of permeability (to ensure adequate security), which will focus through routes on 'desire lines' and destinations. The specific location within the South Cambridgeshire district will also affect the type of layout appropriate to a new development (see Chapter 3 on Village Landscape and Settlement Character).

- 6.33 The orientation of blocks within the grid should, where possible, be arranged to enable the principal living rooms in the dwellings to face south and thereby maximise passive solar gain. Opportunities should also be taken to provide shading when the sun is higher in the sky, such as overhangs, louvres or tree planting. Further detail on passive solar gain is contained in Chapter 8.
- 6.34 Perimeter blocks that are secure in their core should be provided.
- 6.35 Developments should not be designed in isolation without due regard to their collective appearance, particularly as a skyline. The collection of buildings within a block should create a varied and interesting skyline; and a collection of blocks should create an interesting wider skyline.

HOUSING TYPES AND MIX

- 6.36 All large residential areas should include a mix of sizes, types and tenures of property, within neighbourhoods, to cater for all stages in the life of households, from single young people through to residential care facilities, so that whatever their needs, residential opportunities exist for people without having to leave the neighbourhood, if they so wish, in accordance with the principles of 'Lifetime Homes'. Residential development will provide a range of types, sizes and affordability, including Affordable Housing, to meet the identified local needs. Certain types of development may not be acceptable in some villages. Proposals therefore must conform to what is acceptable in accordance with the Local Development Framework.

DENSITY

- 6.37 High-density residential development is often misconstrued as being synonymous with poor quality and high-rise urban housing. In comparison medium rise high-density buildings of 3 – 4 storeys maximises density whilst minimising perceived intensity or overcrowding. Density is a product of the design and should not be used as a determining factor in the design approach adopted. Therefore, a design led approach to residential areas should be adopted, that is appropriate to the site, its location, surrounding density and context. High-density development may not be acceptable in some villages. Proposals therefore must conform to what is acceptable in accordance with the Local Development Framework.
- 6.38 Higher density residential developments can locate greater numbers of people within the 400 and 800 metre walking distances of local centres improving the viability of the services located there.

- 6.39 Higher density developments can provide economies of scale in relation to the provision of infrastructure, making such things as district heating or undercroft or basement car parking more viable.
- 6.40 Higher density developments can make public transport services more viable. The Local Government Management Board's rule of thumb that densities of 100 persons per hectare are often regarded as necessary to sustain a good bus service. Within a walking distance of 800 metres, generating a walkable neighbourhood covering an area of 97.5 hectares, equates to 45 dwellings per hectare, assuming an average household size of 2.2 persons.
- 6.41 Policy HG/1 in the Development Control Policies DPD seeks average net densities of at least 30 dwellings per hectare, except in exceptional justified circumstances; and net densities of at least 40 dwellings per hectare in more sustainable locations close to a good range of existing or potential services and facilities, or the potential for good public transport services.
- 6.42 To assist in place making the density of development should be varied and not uniform in order to create variety of built forms. The higher density development should be provided at or close to the heart of the development, with density decreasing with distance from the heart.
- 6.43 Special circumstances may exist within a Conservation Area, within widely spaced buildings, or on the rural edge of a settlement. This is considered on a case by case basis and guidance is contained in Chapter 7, Part III and the Council's Conservation Areas SPD.

PUBLIC REALM AND LANDSCAPE FRAMEWORK

- 6.44 Everything in the public realm, from the design perspective, can be considered as landscape; all hard and soft landscape, relationship to the countryside, streets, and squares, open space, parks and water movement corridors. The landscape framework applies at two levels; the broader level is the structural landscape at the overall development scale; and the detailed level is landscape as setting for spaces and buildings.
- 6.45 The best development relates well to the topography and geography of a site and acknowledges the pattern of historical use of that site.
- 6.46 When setting out to design the landscape framework to a new development, the existing landscape character in its broadest sense should be respected, taking in issues of geology, topography, vegetation, hydrology, landmark features and local building character, as well as how to fully integrate the proposed development into landscape.

Table 6.3: Working With Site Features DC46

Achieve this:	By doing these things:
Use existing positive features to create character	<ul style="list-style-type: none"> • Work retained buildings into new blocks. • Use ponds and watercourses for outlook. • Use specimen trees and shrubs as the focus of new development. • Use existing hedgerows to create structure for new development. • Front established routes. • Formalise informal routes.
Work with the topography of the site	<ul style="list-style-type: none"> • Allow existing levels to suggest layout options. • Allow hedges and ditches to influence layout and add structure for new development. • Retain all trees and hedges where practical.
Retain uses that are important to the function of an area	<ul style="list-style-type: none"> • Work important existing uses into a layout in new or retained buildings.
Accommodate below ground constraints in a workable layout	<ul style="list-style-type: none"> • Avoid disruption to below ground archaeology where possible. • Where block structure permits align streets and spaces along utility easements for ease of access. • Explore the practicalities of rerouting services which preclude efficient layout options.
Ensure protected species are safeguarded	<ul style="list-style-type: none"> • Protect habitat. • Avoid conflict with the built form. • Build in appropriate protection/relocation or other mitigation measures.

6.47 Maximising the use of existing landscape features on the site will add instant maturity to any development. Existing views and vistas can be harnessed for the benefit of those who will live, work or visit the development. Care should be taken to ensure the development proposals do not obstruct such views and vistas spoiling people's enjoyment of them.

6.48 The landscape needs to be considered early in the design process. It is not something that can be successfully added after the event. The landscape proposals must therefore be included as an integral part of the design process and the Council will expect landscape proposals to be submitted concurrently with applications for full planning permission, rather than be left as a reserved matter to be sorted out later. A Landscape Design Statement will be required illustrating: how the design will integrate with the local character, how design will relate to the needs of the development and its future occupants, and that the design includes sufficient space (made up of practical areas) for the planting.

- 6.49 Developers should ensure sites are designed to integrate the built forms with their encompassing spaces to create a unified whole, with no spaces left over that are not properly incorporated into the design of any building plot or public realm area.
- 6.50 Attention should be paid to the retention, integration and future maintenance of important landscape elements such as trees, hedgerows and ground-slopes. Consideration should be given to the use of products such as the Deep Root Silva Cell to direct tree root growth.
- 6.51 Landscape is an integral part of any development. It applies equally to housing, business and industrial developments and can fulfil one, some or all of the following functions:
- Complement and/or enhance the proposed built form, providing both a setting and an outlook.
 - Assist in integrating development into the existing landscape – with consideration to both visual and landscape characteristic aspects.
 - Screen the development.
 - Be an entity in its own right.
 - Create a sense of place.
 - Provide shelter and ameliorate noise and/or air pollution.
 - Provide environmental benefits through carbon fixing, i.e. taking in carbon dioxide and emitting oxygen.
 - Provide wildlife habitats – assisting in meeting biodiversity requirements.
 - Create enclosure and define boundaries.
 - Soften and frame views.
 - Food production, either on plots, allotments, or smallholdings.
- 6.52 Spaces around buildings should be designed to integrate with the buildings to enable them to provide clean cool air for natural ventilation and to cool exhaust air from buildings; to provide shade in the summer to reduce the demand for artificial cooling; to reduce the heat island effect by cooling the urban areas.

- 6.53 The public realm should be designed and managed to enrich people's experience, it should allow for movement and interaction, it should delight the senses, make people feel comfortable and be easy to maintain. Reference should be made to the Cambridgeshire Design Guide.

Table 6.4: Public Realm Design

Achieve this:	By doing this:	Notes:
Safe space	<ul style="list-style-type: none"> • Ensure public open space is overlooked. • Provide lighting that is appropriate for its setting. • Make routes direct. • Relate spaces to routes. Plan focal space where footfall is greatest. • Create comfortable spaces where people enjoy spending time. • Predict misuse and design it out. 	<p>People help to police space.</p> <p>Create pride in civic space</p>
Accessible space	<ul style="list-style-type: none"> • Relate spaces to the movement network to ensure they are easy to get to. • Think about all users. • Make public space easy to use. • Avoid clutter. • Smooth the public/private transition. • Consider access for emergency vehicles and refuse freighters. 	<p>Ramp integrated into steps.</p> <p>Refer to 'Streets for All'</p>
Useful space	<ul style="list-style-type: none"> • Ensure all space has a clear purpose; avoid 'space left over'. • Design with the purpose of the space in mind to ensure space is fit for purpose. • Avoid unnecessary objects that clutter space. • Consider microclimate at site planning / layout stage and in determining the relationship to adjoining buildings. 	<p>Awkward shapes can be difficult to maintain.</p>
Attractive space	<ul style="list-style-type: none"> • Make use of natural assets; water, trees, hedges or slope. • Design space with the same care as the buildings that enclose the space. • Use good quality surfacing. • Be imaginative and make the most of small spaces. Create simple geometric patterns or informal designs that flow with and reinforce 	<p>All new shared surfaces in setts e.g. tegular.</p> <p>Avoid complicated patterns that are</p>

	<p>space.</p> <ul style="list-style-type: none"> • Use material changes to identify intentional changes in use or character. • Mark parking spaces out subtly, or by changes in material. • Play down arbitrary changes in surfacing in overly complex designs or at public/private boundaries. • Co-ordinate and combine street furniture. • Reduce visual clutter. • Place street lighting on buildings where practical. • Integrate public art into the design of spaces. • Incorporate appropriate tree, shrub and other planting. • Ensure boundary treatments work with the space. • Get the detailing right. 	<p>unintelligible to the user.</p> <p>See guidance on public art and Public Art SPD.</p> <p>Manhole covers etc Workmanship</p>
<p>Space that lasts</p>	<ul style="list-style-type: none"> • Consider future maintenance – keep landscape design simple where ease of maintenance is important. • Get clear management responsibilities put in place from the outset. Draw up maintenance regimes at the design/planning stage. • Use durable products; natural materials weather better than artificial ones. • Remember trees grow; think about both their immediate and eventual impact on buildings and space. • Use indigenous planting species where possible and foster biodiversity. Greater consideration of ecological principles at design stage can improve biodiversity in new open space. • Select species that do not require irrigation once established and will survive in predicted changes to climatic conditions. Get the right plant for the right place to ensure planting thrives. 	<p>Avoid the use of materials that will result in visible patches of reinstatement. Liaise with landscape managers to see what is practical.</p> <p>Avoid the use of materials that discolour or fade, or become brittle in sunlight.</p> <p>Brownfield sites can have surprising nature conservation potential. Open space is often too simplistic in design and too intensively /uniformly managed to have much nature conservation value, but this need not be the case.</p>

PUBLIC ART

- 6.54 Public art should be designed in parallel with the design of buildings and spaces, as an integral part of them and should not be seen as isolated features to be bolted-on to buildings or placed in spaces at a later time. South Cambridgeshire District Council has adopted a public art policy and published an SPD on Public Art. The term Public Art refers to works of art in any media, which contributes to the identity, understanding, appreciation and enhancement of public places. Public Art can promote a sense of place and pleasure for example by evoking local history, be inspiring and/or thought provoking. In South Cambridgeshire Public Art has a role to play in neighbourhood and community development.
- 6.55 Public art is described as; any work by a recognised artist in a public place, and this policy applies to:
- Residential developments comprising ten or more dwellings.
 - Other developments where the gross floor space created is 1,000 m² or greater, including offices, manufacturing, warehousing and retail developments.
- 6.56 The artwork may be large or small, mobile or static, integral to a building or freestanding, fine art or functional. For example, public art may be produced in the following forms:
- External Public Space** – Sculpture; Mural; Relief; Feature Window; Canopy / Entrance Feature; Paving; Landscape Art; Bespoke Street Furniture; Bespoke Signage.
- Internal Public Space** – Sculpture; Mural; Painting; Textile; Glass; Flooring; Crafts; Exhibition space for changing exhibitions.
- Non-Site Specific** – A contribution may be considered though the general public art strategy for off-site works that may be more easily accessed by the public.
- 6.57 The Council’s policy encourages developers to dedicate between 1% and 5% of the associated construction costs of the capital project to Public Art. The council will initially negotiate the principle of an agreement with developers and their agents to commission art within the development, which will then be secured through a Section 106 agreement that will be attached to the planning permission for the development.
- 6.58 The Council encourages the use of local artists from within South Cambridgeshire, but developers are free to choose and appoint any recognised artist and work by nationally notable artists is also encouraged.

The developer's architect or landscape architect/designer should be able to assess possible types and most appropriate locations of art in relation to the project design and context. Ideally the appointed artist will work alongside the architect. It is important that at the outset an artist's brief is prepared. This will clarify what kind of artist is required for the particular development and establish: a theme and character, location(s), budget, programme, identity of the client and any requirements for community involvement (including contacts).

6.59 Developers are advised to ensure that technical consultations and approval for the artwork are carried out in advance of the installation. These may include:

- Statutory utility companies (for underground services in the location of the installation).
- The Highway Authority (for traffic safety and works within public highway land).
- Parish Councils (for works on public open spaces).
- Health and safety issues and Environmental Health issues.
- Whether the art installation requires planning permission in its own right.

6.60 Any resulting art installation will require maintenance during its life. The maintenance will vary depending on the nature of the intervention, but may include running costs for lighting etc, and responsibility for maintenance of the artwork will need to be carefully considered when the artist's brief is prepared. It is anticipated that the investment in the artwork includes a sum for maintenance. Provision for future maintenance should be included within the Section 106 agreement.

6.61 More detailed advice on the public art policy and the procurement process is available in the Public Art SPD or from the Council's Arts Development Officer.

LANDMARKS AND WAY MARKERS

6.62 A variety of built forms and public realm spaces provide identity and interest that enables people moving through an area to navigate by. This can be greatly enhanced through the provision of key landmarks that people can identify. Such landmarks could be distinctive places at the intersection of routes, distinctive buildings at key locations such as intersections and at the end of vistas, or the provision of towers to provide landmarks in a wider context. Existing buildings of special note, or individual mature trees,

should be considered to create landmarks. Similarly visual stops need to be carefully considered and achieved using buildings or other focal points.

- 6.63 Small-scale points of reference that aid orientation and the creation of a local sense of place, such as war memorials, village notice boards, post boxes and distinctive, architectural features. These way markers give the sense of an unfolding journey when travelling through the development.



A feature corner building acting as a way marker, Orchard Park.



A corner turning building acting as a way marker, Great Shelford.

- 6.64 Using a particular house type as a landmark or way marker is acceptable, but if the same house type is repeated it loses its effectiveness and becomes commonplace and confusing.

DAYLIGHT AND SUNLIGHT

- 6.65 Daylight and sunlight are primary considerations in any proposal, both for the new accommodation, and for that of the neighbouring development and gardens. This depends on orientation and the built form, but buildings must

not significantly overshadow a neighbouring property's windows or garden, or where possible block their views, and evidence will need to be shown that this is the case. Buildings will not normally be allowed to protrude beyond a 45-degree line drawn horizontally from the nearest window of a neighbouring property.

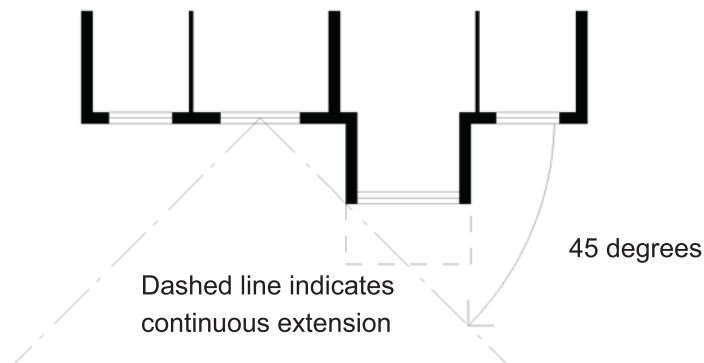


Diagram of 45-degree "rule of thumb" concerning daylighting. The dot/dash line indicates the 45 degree line drawn sideways from the centre of the nearest adjacent window. This also applies upwards from the top of a window.

- 6.66 Consideration should be given to orienting buildings to the south or within 30 degrees of south to maximising the potential for harnessing solar gain to reduce the demand for space heating and solar power for energy production.

PRIVACY AND OVERLOOKING

- 6.67 Protecting privacy and avoiding overlooking of neighbouring houses should be given high priority in any residential context and the Council is required to consider any relevant objections received from neighbours.
- 6.68 To prevent the overlooking of habitable rooms to the rear of residential properties and rear private gardens, it is preferable that a minimum distance of 15m is provided between the windows and the property boundary. For two storey residential properties, a minimum distance of 25m should be provided between rear or side building faces containing habitable rooms; which should be increased to 30m, for 3 storey residential properties. Where the opposing alignment of facing windows is significantly offset, these distances may be slightly reduced. Where blank walls are proposed opposite the windows to habitable rooms, this distance can be reduced further, with a minimum of 12m between the wall and any neighbouring windows that are directly opposite.

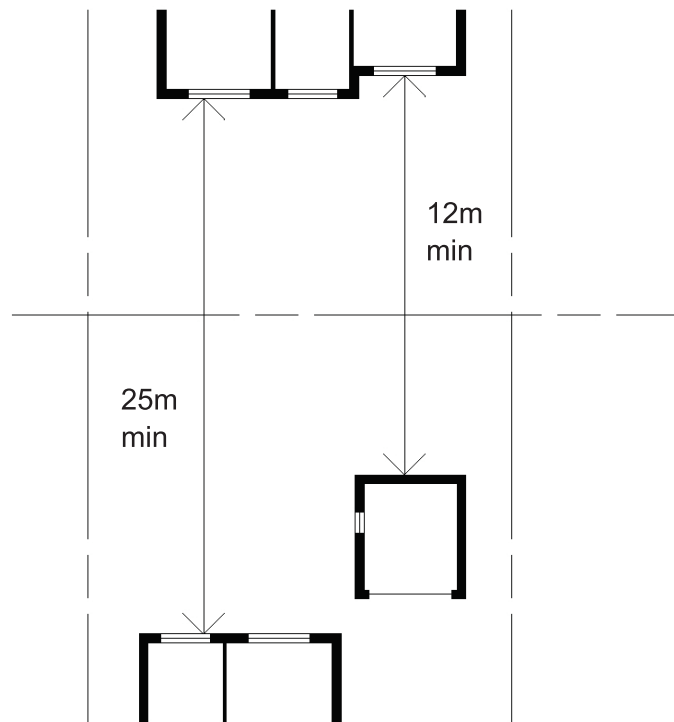
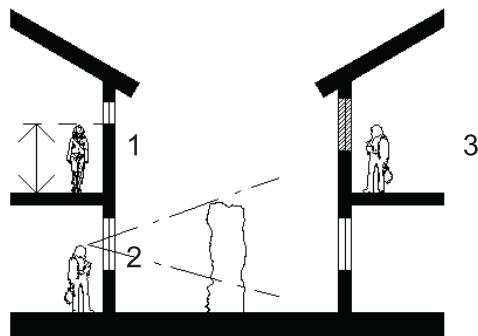


Diagram of 12m and 25m "rules of thumb" concerning daylighting and overlooking. The plan shows two residences with back-to-back gardens. The 25m rule of thumb refers to primary habitable rooms that face each other. The 12m rule of thumb refers to a blank wall that faces a neighbouring room.

- 6.69 Careful consideration must also be given to minimise the impact of direct overlooking from a new dwelling into a neighbouring garden, particularly from upper floor windows. Where a potential problem is evident, the careful internal planning of rooms will assist, if necessary windows could be of obscured glass and fixed shut (apart from any top vent), or could be at high level. Protective boundary treatments, garden walls and planting, can assist in obscuring views, but as these cannot be relied upon to remain in perpetuity they should not be utilised as the primary means of creating privacy.



Diagrammatic section illustrating acceptable types of windows in walls parallel to a boundary to minimise overlooking of neighbouring gardens.

- 1. Cill of window higher than 1.7m from floor level.*
- 2. View blocked by hedge/wall/fence, etc.*
- 3. Use of obscured glass in fixed window.*

PRIVATE GARDENS AND AMENITY SPACE

- 6.70 The design of the grounds surrounding buildings are as important as the design of the buildings themselves and the two should be designed as an integrated whole.
- 6.71 Every home should have the benefit of some private or communal outside amenity space. This can take the form of private gardens, communal gardens, roof terraces or balconies. Within denser development of new settlements and urban extensions, the careful design of outside amenity spaces is required to optimise the benefits of good locations and ensure these spaces offer maximum benefit to new residents. In such compact developments within appropriate urban contexts there will be an emphasis on private balconies and communal gardens / terraces. Relatively modest balconies, roof terraces and communal decks can offer significant benefit to residents of urban developments where they are properly integrated into new development, respect local character, are secure, quiet, attractive and have good microclimate.
- 6.72 Private gardens should:
- Be of a size and shape to allow effective use for the number of people the property is designed for, for growing plants or vegetables, for general amenity, for play in family housing, etc. and where possible be oriented to allow sunlight into each garden.
 - Incorporate a private sitting out area positioned close to internal living accommodation.

- Incorporate means of enclosure that do not undermine the quality of adjoining, especially communal, spaces; whilst avoiding excessive wall or fence heights, which could overshadow small gardens and discourage interaction between neighbours.
- Be placed away from public areas within the development.
- Feel safe and secure.
- Enable flexibility of use and personalization.
- Provide accessible yet discreet locations for clothes lines.

6.73 Communal gardens including roof terraces should:

- Be convenient to use.
- Be clearly distinguished from the public realm.
- Not be bisected by vehicular routes to parking courts.
- Feel safe and secure.
- Not unduly affect the privacy of residents' internal accommodation, particularly those at the same level as the communal space, or below in the case of roof terraces.
- Incorporate a variety of semi private sub spaces to permit flexibility of use.
- Provide accessible yet discreet locations for clothes lines.
- Be designed with interesting planting, hard surfacing and places for sitting and socializing.
- Be properly managed and maintained.

6.74 Balconies should:

- Benefit from sunshine and good microclimate (including air quality).
- Be well related to internal accommodation.
- Be of sufficient size as to permit outside sitting / dining.
- Have good outlook.

- Be secure and relatively private.
- Be placed on the quiet side of the building where possible.
- Relate well to the architecture of the building on which they are placed.



*Usable sized
balconies,
Orchard Park.*

6.75 Ideally residential units should be provided with access to the following sizes of private amenity space. Each one or two bedroom house should have private garden space of 40m² in urban settings and 50m² in rural settings; whilst each house with 3 bedrooms or more should have private garden space of 50m² in urban settings and 80m² in rural settings. Ground floor apartments should have a minimum of 10m² private amenity space immediately outside their living accommodation, or use of a communal garden, where 25m² is allowed for each apartment. Upper floor apartments should have use of a private balcony, of a minimum of 3m², plus use of a communal garden, where 25m² is allowed for each apartment. This provision is in addition to the stated requirements for car parking and bin storage. Residential properties in some villages, historically, have small private gardens, in the context of which it may not be appropriate to provide private amenity space in accordance with the above guidelines.

PLOTS

- 6.76 A settlement may contain numerous different sizes and shapes of plot, but usually an overall pattern can be identified and, when subdividing larger plots, this pattern and scale should be respected, as it adds to the unique character of a cumulative settlement. The pattern will need to be varied to suit the individual location, be it along a straight street, a curving street or at a corner junction. The proportion of width to depth of a plot often distinguishes the density and character of the built environment.
- 6.77 All plots should promote a human scale with a frontage to the street that reflects the local characteristics. Larger buildings may sometimes be disguised using a smaller building in front to suggest a more human scale where viewed from the public realm.
- 6.78 Corner plots present special challenges, as the building must relate to more than one frontage. Building position, garden layout and boundary walls can all define their success in the structure of the built environment. Attention should be paid to the layout and orientation of similar corner plots in the same settlement. Access into the plot and the locations of openings within the defining boundary should be carefully considered in relation to the adjacent plots and those on the opposite side of the street.
- 6.79 Neighbourliness will be an important consideration; therefore privacy and the avoidance of overlooking, particularly from window to window, but also from window to private garden space, should be given high priority in any residential context, as should any effect on day lighting and a sense of 'overbearing' of adjacent properties.
- 6.80 Developers should always generate innovative design solutions that exhibit architectural excellence. However, where a site is in a landmark location within a settlement, or may be difficult to develop, such innovation and excellence are essential.

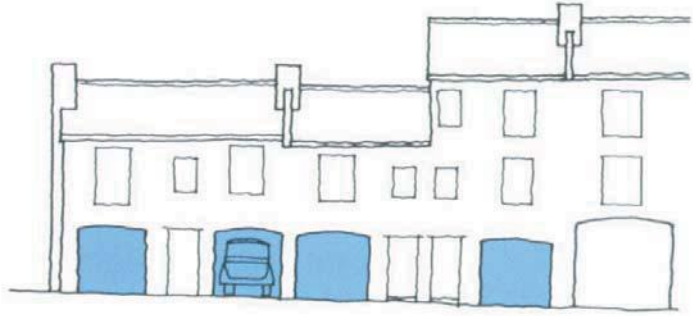
PARKING

- 6.81 One of the major challenges in the design of new residential developments is to accommodate the car in ways that are visually unobtrusive, convenient and safe to use. The number of parking space to be provided should be assessed using the Council's adopted Parking Standards as set out in the Development Control policies DPD. These are a maximum level of provision and it may be possible to provide fewer spaces where there is good access to facilities and public transport. Where appropriate and viable, consideration should also be given to the provision of car clubs and dedicated shared parking bays. Reference should also be made to the need to consider design implications of providing adequate cycle parking as part of new developments.

6.82 Parked cars should not be allowed to dominate the street scene; they should preferably be accommodated within, beneath, or at the side or rear of buildings. If parking is not on-plot it should be as close to the house as possible for convenience and to prevent people parking on the roads. In most cases parking spaces and garages located within the dwelling plot should be recessed from the building frontage so as to lessen their visual impact. Within villages the urban form will dictate the manner of parking and to retain the village character parking may need to be provided in a similar manner.

13. On plot: mews court

Terraced or grouped on plot garages in yard serving homes above. Found within perimeter blocks. Differs from the off plot flats-over-garages of a mews street (page 9) where frontages usually face each across a lane equal in width to building height.

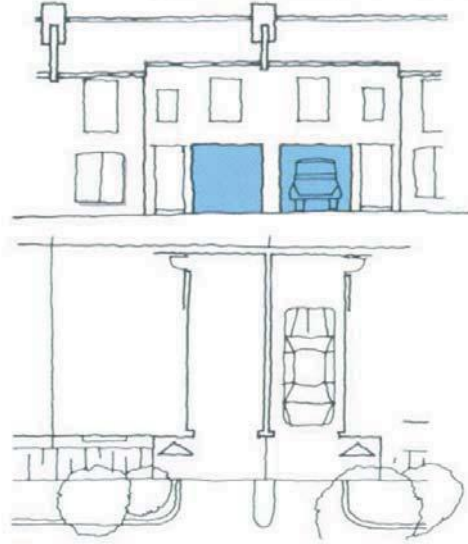


Aptness	
Central	<input type="radio"/> <input checked="" type="radio"/> <input type="radio"/>
Urban	<input type="radio"/> <input type="radio"/> <input checked="" type="radio"/>
Suburban	<input type="radio"/> <input type="radio"/> <input checked="" type="radio"/>

(Car parking what works where. Homes and Communities Agency)

15. On plot: integral garage

Garage within footprint of house gives direct access to home, accommodation continues above or around. Risk of inactive street so best used with double-fronted bay windows for surveillance. Garage doors best placed close up to highway.



Aptness	
Central	
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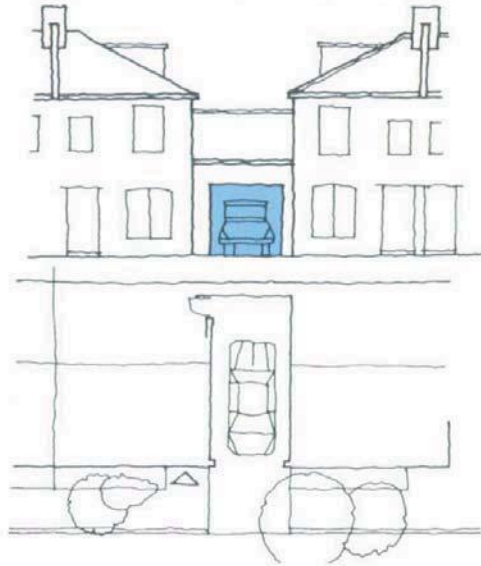
(Car parking what works where. Homes and Communities Agency)



On plot integral garages, Sawston.

16. On plot: attached garage

Garage is located to side of house giving direct access to home, often with "bonus" rooms over. May be paired with neighbour. Garage best placed close up to highway

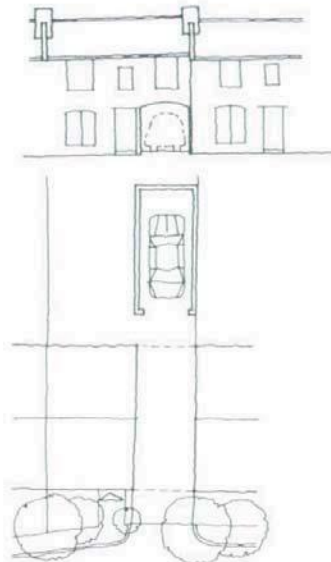


Aptness	
Central	
Urban	
Suburban	

(Car parking what works where. Homes and Communities Agency)

17. On plot: cut out or drive through

Arch formed at street level allowing driveable access under first floor accommodation to hardstanding or garage at rear of plot. Cut out may be shared with neighbour if hardstandings or garages paired.



Aptness	
Central	
Urban	
Suburban	

(Car parking what works where. Homes and Communities Agency)

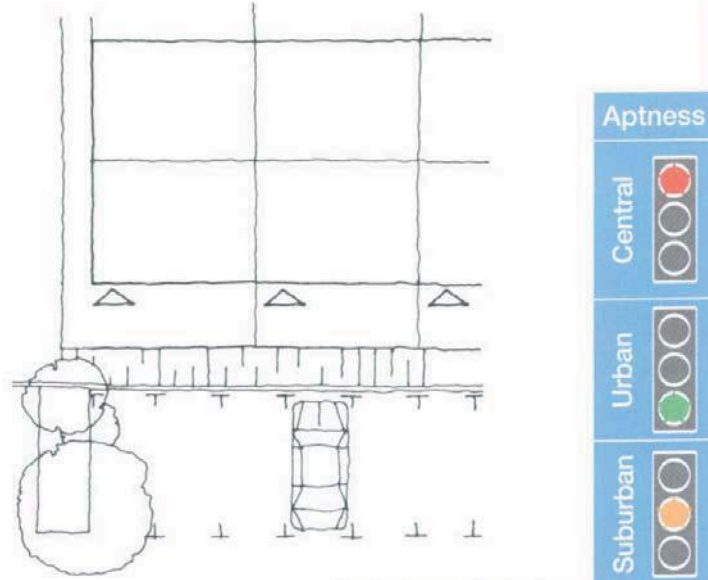


Drive through car parking with garages to the rear of the parking space, Highfields.

- 6.83 To avoid cars being displaced from garages into the street, it is important that garages are of sufficient size to accommodate a large car together with cycle storage, some degree of other storage and room to pass garaged cars with wheeled bins, if the primary route for taking them to the back-of-footpath is through the garage. To provide garages of adequate size, a minimum of 3.3m X 6.0m should be allowed for car parking and circulation, with an additional allowance of 1.0m at the end or 650mm – 750mm at the side to allow for cycle or other storage.
- 6.84 Parking facilities should be viewed as public spaces that have cars in them at certain times, and should be created as attractive functional spaces, with planting used to avoid the street scene becoming dominated by the view of cars. The retention of existing trees, in combination with appropriate landscape materials and detailing, can create low key and attractive parking areas.

6. Off plot: front court

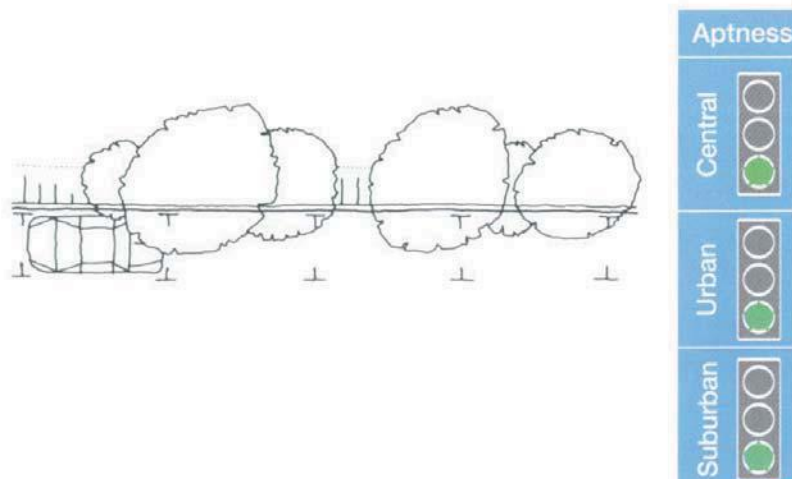
Marked or unmarked bays overlooked by fronts of homes partly enclosed by building/walls and within depth of pavement.



(Car parking what works where. Homes and Communities Agency)

11. On street: in line with pavement

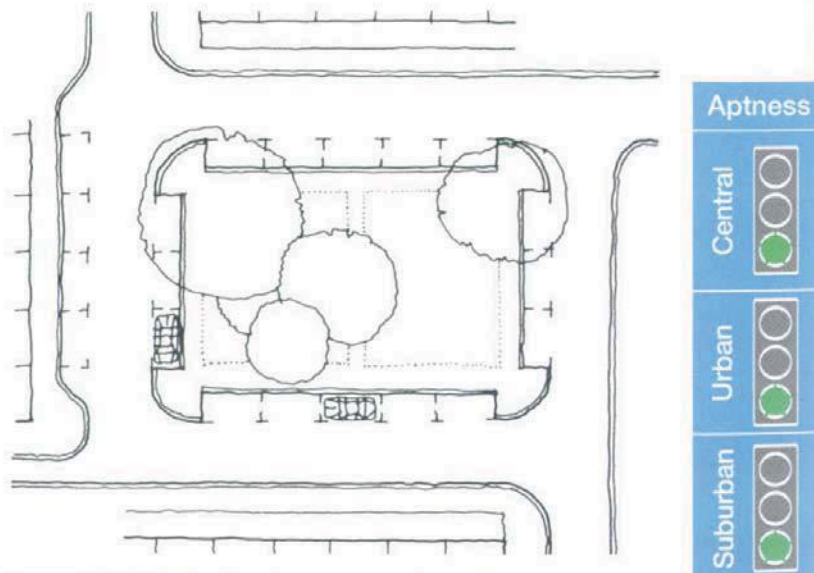
Kerbside parking parallel to the axis of the pavement, bays may be either marked or unmarked. Landscaping a benefit.



(Car parking what works where. Homes and Communities Agency)

12. On street: housing square

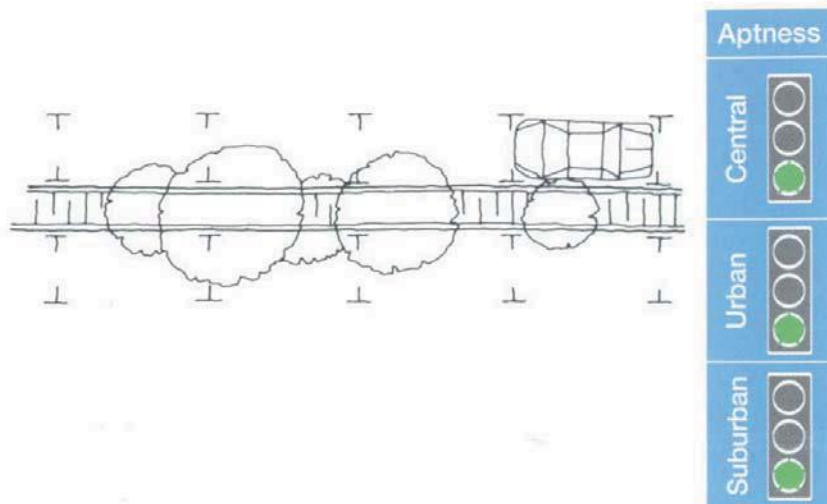
In line kerbside parking arranged around sides of landscaped central space, further parallel parking to other side of surrounding streets.



(Car parking what works where. Homes and Communities Agency)

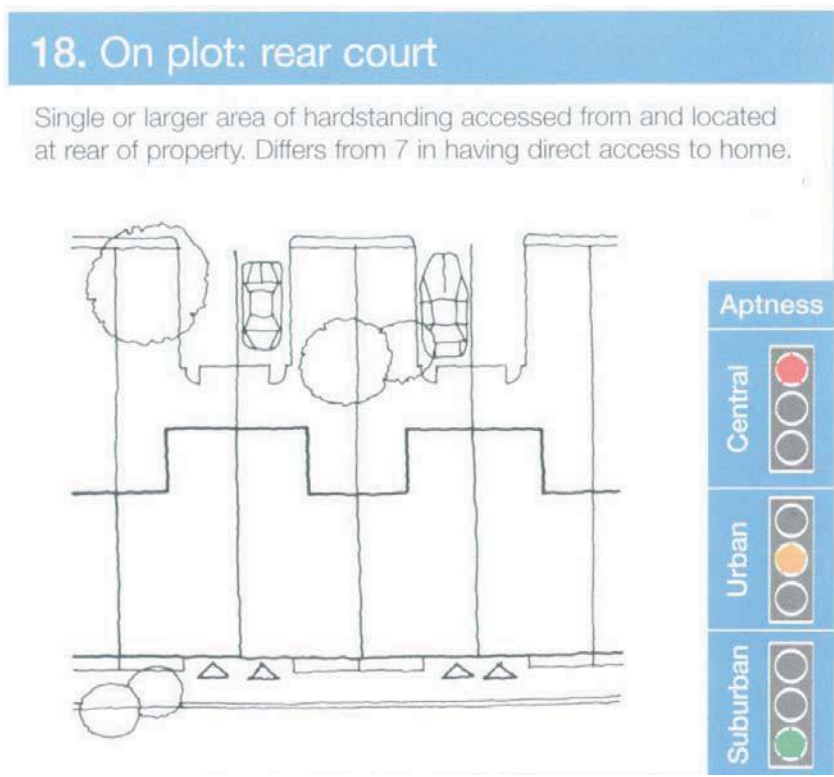
8. On street: central reservation

Kerbside parking arranged both sides of strip dividing traffic flows with marked bays for parking in same direction as the traffic flow. Landscaping a benefit.



(Car parking what works where. Homes and Communities Agency)

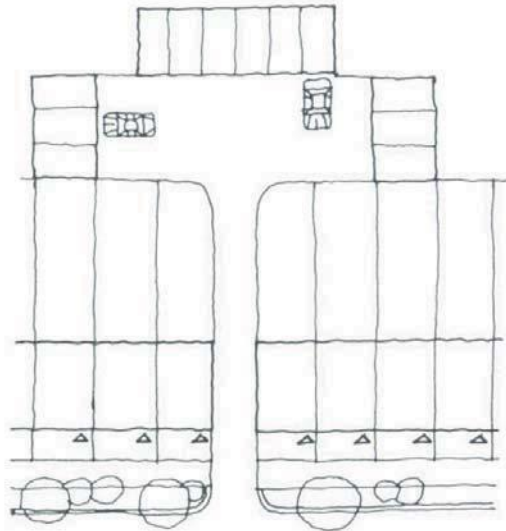
- 6.85 Any off-plot provision of communal parking courts must be in small, well lit, and overlooked by neighbouring properties, for security, otherwise they may become underused, problem areas. Larger unsupervised parking courts, especially in the heart of blocks that remove the security of the rear of properties are not acceptable as they will be little used, resulting in cars being parked on the streets. One of the benefits of higher density development is that it makes undercroft or basement parking economically viable; this is an option that minimises the visual impact of parking while maximising the land for development. However it is important that it does result in awkward or unbalanced elevations. Reference should be made to English Partnerships' Car Parking What Works Where, especially to the golden rules on p18.



(Car parking what works where. Homes and Communities Agency)

7. Off plot: rear court

Grouped (often terraced) garages or hardstandings (marked or unmarked) around shared court, accessed between and located to rear. Court should serve no more than six homes.

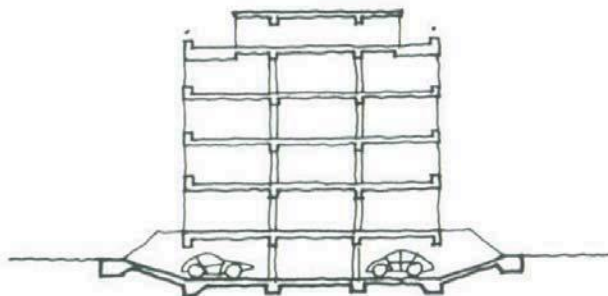


Aptness	
Central	<input type="radio"/>
Urban	<input checked="" type="radio"/>
Suburban	<input type="radio"/>

(Car parking what works where. Homes and Communities Agency)

3. Off plot: undercroft

Open sided parking bays at street level or half level down for natural ventilation, best secured with grill or other bar to access from street. Accommodation over. No direct access to homes.



Aptness	
Central	<input type="radio"/>
Urban	<input checked="" type="radio"/>
Suburban	<input type="radio"/>

(Car parking what works where. Homes and Communities Agency)

- 6.86 Adequate provision must be made in all cases for visitor parking and service vehicles.

UTILITIES

- 6.87 Developers are strongly encouraged to locate all services underground to minimise visual clutter. Common service trenches should be employed to maximise the areas available for planting of trees and shrubs for the visual enhancement of the public realm spaces and the improvement of the setting of the buildings themselves.
- 6.88 Building Regulation B5 requires access for fire tenders to 15% of a dwelling's perimeter or to within 45m of every point of the building's footprint.
- 6.89 The location of external meter boxes needs to be considered as part of the detailed design process to ensure they are not unduly prominent in the street scene, with careful attention paid to their position and colour.

SOLAR PANELS

- 6.90 The Council encourages the design of all new buildings to minimise their environmental impact and be robust in changing climatic conditions.
- 6.91 Solar panels should be incorporated into the design of the roof rather than be add-on units above the roofline, this will retain the visual integrity of the built form.
- 6.92 Where solar panels are not incorporated into a building from the outset, the roofs should be designed to enable their easy later addition with minimal visual disruption of the roof form. See Chapter 8 for further details on building integrated renewable energy technologies.
- 6.93 Where the proposals affect a Conservation Area or Listed Building, the siting of the solar panels should be carefully considered and unobtrusive. Further guidance is contained in the Council's Listed Building and Conservation Areas SPDs.

SATELLITE DISHES AND OTHER PARAPHERNALIA

- 6.94 Satellite dishes need careful consideration, especially when they are to be located in proximity to a Conservation Area or Listed Building. As a general rule satellite dishes should be located on secondary elevations and rear elevations. Where this is not technically feasible or affects a Listed Building or Conservation Area, alternative options should be considered, such as siting the satellite dish on a pole in the rear garden, or on an outbuilding, subject to not being visually intrusive into public areas or the setting, or detrimentally affecting the amenity of neighbours.

DESIGN THEORY AND AESTHETICS

- 6.95 In this section the following terms are used in the manner indicated by the following definitions:
- Design theory is the deliberate application of the design elements and the principles of composition to formulate high quality design solutions.
 - The design elements are the basic building-blocks of design theory; point, line, shape, form or mass, texture, tone and colour.
 - The principles of composition is the aspect of design theory that addresses the combination of the design elements into an integrated design; pattern, rhythm, repetition, variety, contrast, emphasis, dominance, simplicity, unity, harmony, balance, scale and proportion and sequence.
- 6.96 Good design complements and enhances new development, but poor quality design detracts from the development. Architects, urban designers, landscape architects / designers and engineers should pay careful attention to the application of design theory in their designs, to ensure visually strong design compositions in which all the viewer / user observes / experiences is intentional and not undermined by ill-considered accident. Good architects and designers who possess a strong and controlled command of the use of design elements, may, intentionally break the following 'rules of grammar' to create strong individualistic design solutions.
- 6.97 Design can be subjective with different people having different preferences of the things they like and dislike. However, a meaningful discussion can be had about designs, free from personal preference, through focusing on design theory, i.e. how the design elements and the principles of composition are used. The following is a guide to how design theory will be assessed in designs submitted to the Council and how design language will be used when providing comments on design considerations will be referred back to designers.

DESIGN ELEMENTS

Point

- 6.98 These are the aspects of a design intended to act as points of emphasis to catch the observer's eye and direct vision to a particular place or feature. They may be singular, such as a tower on the corner of a building or a statue in a square, or they may be repeated throughout the design, such as a particular feature window, or a particular species of plant. However, too many points of emphasis cause distraction and visual confusion.



The column in Paternoster Square, London, is the focal point of the square. The column is not located at the physical centre of the square, but the paving pattern radiates out from the column leading the observer's eye to it as the focal point.

Line

- 6.99 Line is the joining up of two or more points, to lead the eye. This is often intentional, such as with a stringcourse, or eaves line, or a path linking two spaces. A line may also be implied by the intentional or accidental repetition of points of emphasis, such as the use of a particular colour, or feature such as trees, resulting in the observer's eye following a line that was not intended by the designer and thus distracting the eye away from the features intended to act as the primary visual attractions.



A gulley used to form a visual line in the paving at Broadgate, London, to draw the eye into the space between the buildings.



The size, shape and alignment of windows on a plain background of the building elevation, creates a primarily horizontal emphasis, giving the impression of a long low terrace. Orchard Park.



Vertical bays on similar terrace to the one above, creates a primarily vertical emphasis, giving the impression of a shorter and taller terrace than the one above.



A change of level results in the deflection of an intended strong straight line.

Shape

- 6.100 Shape is a two dimensional area on a surface, such as on the floor or a wall, etc. Such intentionally created physical shapes are referred to as 'positive shapes' e.g. areas of panels or windows in a building wall, a building or boundary wall, fence, hedge, paving, grass, plants, water, etc. However, a shape can be implied by the things that surround it, acting as its boundaries, referred to as 'negative shape', e.g. the wall space between door and window openings. Shapes should be co-ordinated to form a harmonious composition to attain the design intention.



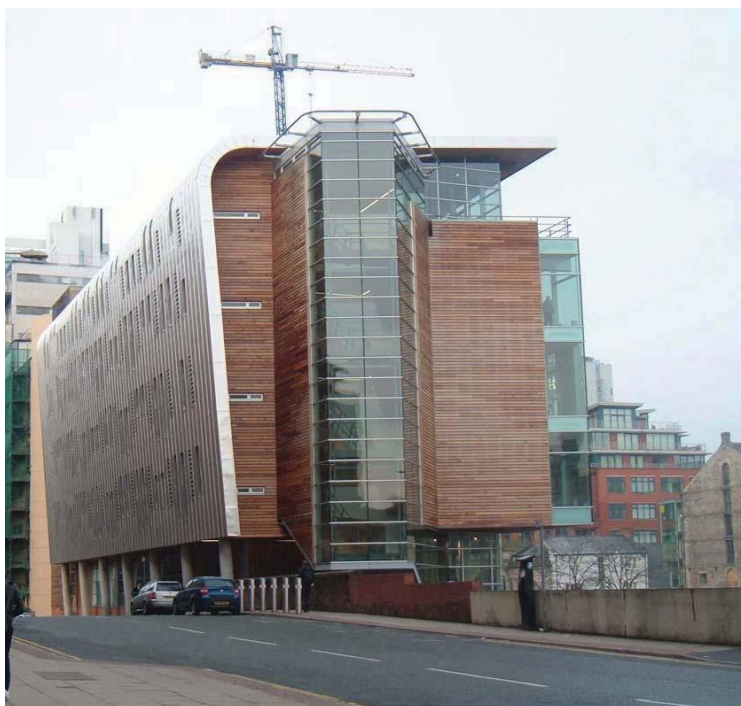
The use of colour emphasises the shapes created in the design of the building elevation. Orchard Park.

Form or mass

- 6.101 These are three-dimensional objects, buildings or features in the landscape used to divide space or to provide points of visual emphasis e.g. pavilions, buildings, plant groups. Such physical objects are referred to as 'positive form or mass'. However a space can be defined by the boundaries that contain it, which is referred to as 'negative form or mass', e.g. a 'public square' is defined by the buildings that edge it.



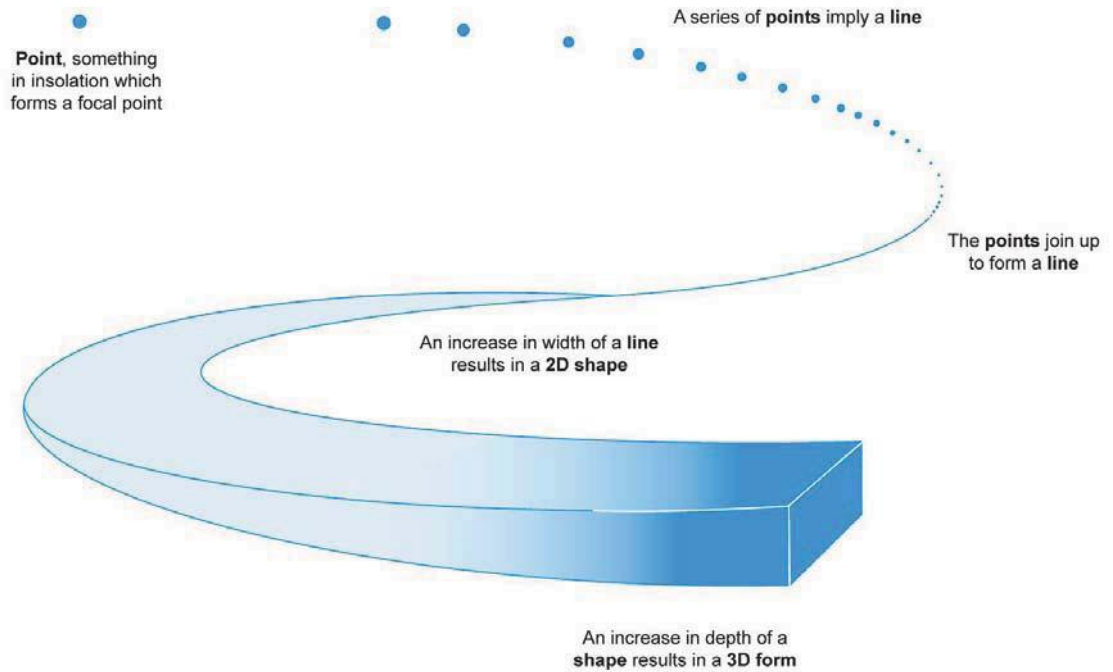
An innovative approach to the form of a building creates the visual impression of 3 separate forms stacked one on top of the other. The CHIPS building New Islington, Manchester.



A building with an unconventional form creates interest in the urban fabric, Piccadilly Basin, Manchester.

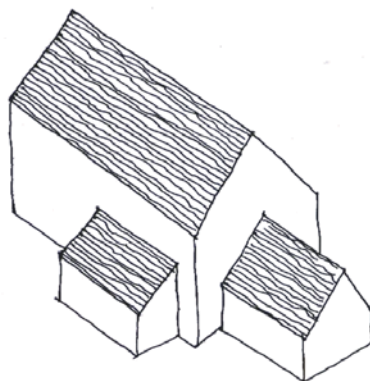


Two rows of trees suggest edges and imply enclosure of a space.



The general relationship between point, line, shape and form. How points, lines, shapes and forms are perceived is dependent upon the context in which they are seen; for example a road is a shape as it has width, but from a distance it may be seen as a line running through a landscape.

- 6.102 Additive forms comprise the composition of a number of building structures joined together to give a balanced whole. They are derived from traditional buildings where the original structure is added to and extended over time. Subtractive forms involve the cutting away of shapes from the original to leave it truncated or with hollows and, though sometimes they may be architecturally interesting, are not typical of local buildings.



Additive forms

Texture

- 6.103 Texture is determined by the size and arrangement of the constituent parts of an object and is seen by the pattern they create and intensity of shadows cast. Texture is not an absolute aspect of an object but is relative to the size and shape of the object and the texture of the things around it. The observer's perception of an object is influenced by the texture perceived e.g. coarse, medium or fine.

Tone

- 6.104 Tone is the observer's perception of how dark or light an object is. Tone is not an absolute aspect of an object but is relative to the tone of the things around it. The observer's perception of an object is influenced by the tone perceived e.g. light, medium or dark.

Colour

- 6.105 Colour is identified in relation to the positioning of the colour in relation to the colour spectrum and modified by the tone, from white to black, to produce shades. The perception of an object's colour varies according to the colours of other objects it is seen in association with. Some colours make objects appear larger or nearer, whilst other colours make objects appear smaller or further away. Great care therefore needs to be taken in their selection.

PRINCIPLES OF COMPOSITION

Pattern

- 6.106 This is the use of the design elements, point, line, shape, texture, tone and colour, to create the visual design, to create an integrated whole. Too much use of the same element can become monotonous, but the use of too much variety can confuse the unity of the design.

Rhythm

- 6.107 This is the frequency of the repetition of a feature at regular intervals to create an intentional series, at regular intervals, which breaks a design down into sub-sections, e.g. a row of windows, pillars, or trees. Too many of the same repetition can become boring, whilst an inconsistent rhythm can destroy any form of unity.



A rhythm of openings in an elevation unifies a terrace of varied built forms. Cottenham.



Blind windows used to continue the rhythm of openings in the façade of a terrace. St. Neots.

Repetition

- 6.108 This is the repetition of a feature to create unity throughout the design, other than a structured rhythmical repetition. Too much use of the same repetition can become boring, whilst an inconsistent rhythm can destroy any form of unity.

Variety

- 6.109 This is the intentional variation of the design composition to create interest and prevent the design composition becoming monotonous. Too much variety can become distracting to the observer and disrupt the visual composition, whilst too little can result in monotony.

Contrast, emphasis, dominance

- 6.110 Contrast is used to create variety and emphasis. Too little contrast will result in the design becoming boring. Too much contrast can disrupt the unity of the design, giving too much emphasis to one particular point, or giving too many points of emphasis.



The addition of a central gable, carriage arch and panel, a different treatment to the window above the arch, the inclusion of a clock and date stone, all add visual emphasis to the centre of the building. Smaller windows to the upper floor add visual emphasis to the lower floors, with the string course between the ground and first floors creating a visual plinth to the base of the building.



On a smaller scale the different shaped window and lintel above the door add emphasis to the centre of the building, whilst the larger lintels above the ground floor windows add visual emphasis to the ground floor. The loss of the chimney stack on the right-hand side of the building imbalances the symmetrical balance of the elevation, as does the later addition the sign and burglar alarm.

Simplicity

- 6.111 Simplicity is the counterbalance to the multiple use of the other elements and principles, which ensures their repetition does not become cluttered and disunited.

Unity

- 6.112 Unity is the combination of the design elements and principles into a united composition.

Harmony

- 6.113 Harmony is the perceived comfort of the design composition to the observer.

Balance

- 6.114 Balance is readily identified in a symmetrical design where whatever occurs on one side of a centre line is repeated on the other side as a mirror image. Balance can also be provided by offsetting a large feature against a small feature, with the large feature set further away from the centre of a composition.



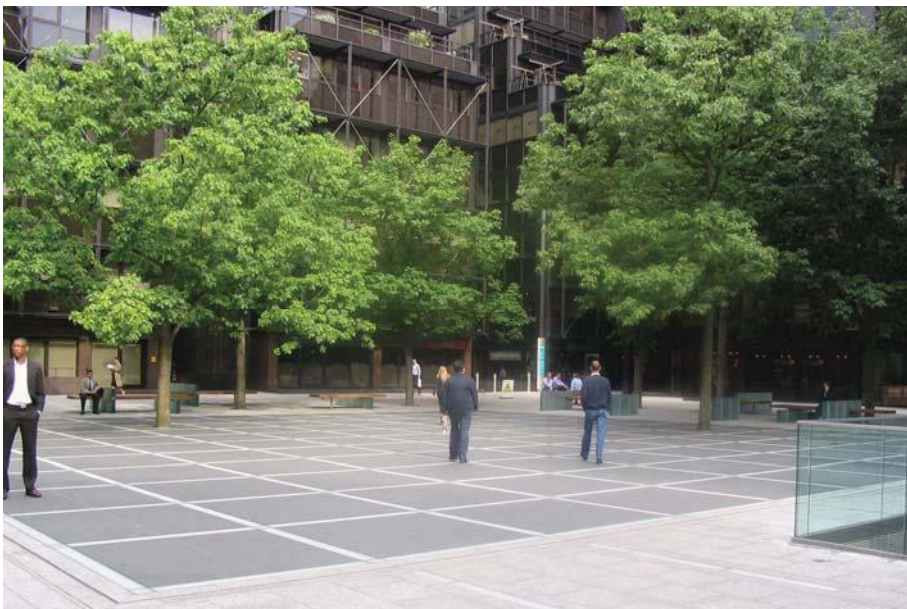
The asymmetrical Kingspan building at the Off-Site exhibition, BRE Watford.



Buildings designed to break the symmetry of the front elevation to ensure future personalisation or alterations by residents will not visually unbalance the elevation. New Islington, Manchester.

Scale and proportion

- 6.115 This is the size of features within the design in relation to each other and in relation to human beings, in terms of people's perception and comfort.



The tree group counterbalances the open space to create an asymmetrical balance; whilst the trees, paving pattern and street furniture maintain a human scale in a large space overlooked by large buildings. Broadgate, London.

Sequence

- 6.116 This is how the observer sees and perceives the overall design as they proceed through a series of spaces. This addresses how the design of spaces and places aids people to know where they are in a sequence, i.e. are they making an approach to a place, crossing an actual or perceived threshold to enter a place, or have arrived at a destination place.



1. The western approach to St. Neots provides a built edge to the town on the eastern bank of the river. Buildings edge on either side of the roadway create a narrow gateway to the town centre. The top of a church tower can be seen above the roofs on the right and the top of a church spire can be seen above the roofs left of centre.



2. Arriving at the gateway the roadway ahead meanders right and left passing through a visual pinch-point in the distance. The landmarks of the church tower and spire are obscured from view, whilst on the right hand side of the road a tall building as a new focal point.



3. Passing through the gateway the market square opens up to the right and the church tower becomes evident again.



4. Exiting the market square the street narrows through the pinch point and can be seen to widen out on the left hand side again ahead, whilst the tall building on the right acts as an intermediate focal point, with the white building at the end of the road acts as the primary focal point.



5. The roadway widens ahead, with the main route continuing off alignment to the right, with the central building ahead closing the view as an end stop at the opposite end of the main street to the gateway adjacent to the river.



6. On the right hand side a passageway providing a view of the church tower from the main street.



7. On the left hand side an opening in the built form fronting the street provides a view of the second church front with its spire.

BUILDINGS AND STREETScape

- 6.117 The relationship of surrounding buildings to the street and the placement of buildings within their plots create a precedent that should be considered when designing new developments.
- 6.118 Within a settlement it is usually the buildings that define the boundaries of the public realm (street or open space) and, typically, the front wall of a building and the ridge to the roof are placed parallel to the street. This relationship should be followed on new developments, although deviations may be appropriate in special circumstances.
- 6.119 The size, shape and orientation of buildings in the streetscape will define the 'weave' of the built fabric. For example, detached buildings, which are placed in the centre of larger width plots, define a looser-knit settlement pattern than lines of terraced houses. Also, buildings that directly front on to the pavement generally define a narrower street than buildings set back with front gardens and garden walls.
- 6.120 Buildings should be grouped together to create unity in the townscape. At the same time buildings should be designed to create some variety and interest in the street scene. In villages this will be dictated by the existing townscape context.
- 6.121 The street frontage typically forms a public face, behind which lie the more private interiors and gardens. It is the public face that people directly relate to on a day-to-day basis, but it is the density and depth of accommodation away from the street that defines the life on the street itself. New sites affect both of these aspects and the impact on the public realm should be considered as part of the design process.
- 6.122 The height and massing of buildings is traditionally greater towards the centre of towns and neighbourhoods. Reinforcing this trend will mean that most efficient use is made of land that is particularly central or well connected relative to local facilities etc.
- 6.123 Building depths should respect the local character. Uncharacteristically large building footprints should not be located in sensitive areas. Domestically scaled traditional buildings have spans of no more than 5 – 6 metres.
- 6.124 In order to achieve a degree of visual cohesion developments should incorporate the following general principles:
- Building lines should normally run parallel to the back of the pavement, not at an oblique angle to it.

- In more urban situations buildings should front onto streets and other public spaces, creating perimeter blocks.
- Buildings should be grouped together to create positive public spaces; these may be streets, squares, crescents or courts.
- Buildings should be properly linked or properly detached; narrow gaps between them create a cramped appearance.
- Specially designed buildings should be used to turn corners so that a building face is presented to both street elevations.
- Blank facades facing public areas should be avoided.
- Buildings should reinforce the local character whilst creating distinctiveness.
- Design detailing and materials selection should prevent monotony and create interest commensurate with the building's context.
- When access to parking at the side of properties or in rear parking courts is required, suitably proportioned archways or other openings should be used to maintain the building line (where appropriate), rather than leaving gaps in the street frontage.
- Well-designed front boundaries can provide continuity within the streetscape but generally façade lines create a stronger definition.
- To ensure that developments have a unified 'feel', particularly where several developers are involved, the Council will require the prior agreement of a set palette of materials and details. This will ensure an element of co-ordination between developers, their house designs and finishes, so that unconsidered changes in form and materials are avoided.

6.125 Consideration of larger scale buildings in less sensitive areas outside the closely built settlement centres should include efficiency of the building in use. A depth of 5-7 metres provides the most flexible form and where buildings are less than 13m deep, they can be lit and ventilated naturally.

ENCLOSURE AND BUILDING LINES

6.126 Buildings need to properly enclose the spaces between them in order to achieve cohesion and a satisfactory urban form. A key factor in this is the relationship between street or space width and building height. The number and size of gaps in street frontage also has a significant impact upon the degree of enclosure. Traditional urban areas tend, or appear, to feature

continuous building frontages punctuated by occasional streets, lanes and archways. By contrast many suburban housing schemes are dominated by detached and semi-detached properties separated by modest gaps and garages, providing little sense of enclosure.

- 6.127 The height / width ratio of a space influences the dynamics of the use of that space. If it is too low physical containment is lost, together with a loss of orientation; if it is too high a deep claustrophobic space results. Empirical studies have shown that certain height to width proportions are generally regarded as the most satisfying (The Planting Design Handbook, Nick Robinson, 2004). The following enclosure ratios between the height of the buildings and the distance between their frontages are used as a guide to achieve a satisfactory degree of enclosure:
- Squares Between 1:2 and 1:4
 - Streets Between 1:1 and 1:2.5
 - Mews Between 1:0.75 and 1:1
- 6.128 The way that buildings are aligned in relation to one another should be informed by the analysis of good examples of local urban form and the aim should always be to achieve a coherent, attractive and efficient layout.
- 6.129 The buildings enclosing the public realm create active frontages when the designs incorporate the provision of:
- Frequent doors and windows.
 - No blank walls.
 - Narrow frontages to create a vertical rhythm to the street.
 - Enlivening edges with articulation of facades with projections, bays, porches, balconies, colonnades, awnings, providing interest and a welcoming feeling.
 - Lively internal uses and activities visible from the street or spilling out onto the street.
 - Opportunities to enliven the space and create interest using a hierarchy of buildings, a landmark building or by positioning a building more prominently, subserviently or closely, relative to its surroundings; using a hierarchy of views within the space and enhancing the group using glimpses between buildings or long views over green spaces and countryside; and creating an element of surprise.
 - Opportunities for those inside to see out 'eyes-on-the-street'.

- 6.130 An increase in the height of a building relative to surrounding buildings can, in certain instances, be justified by the building's townscape role. Height can be used to provide variety to rooflines, form strong edges to otherwise undefined space, define nodes, provide increased presence for important spaces and act as local or district landmarks. The use of height other than in these instances undermines the legibility of a place to the detriment of the character of an area. A corner at the junction of two minor streets for example should be turned with a building that fronts both streets but the corner location in itself does not justify an increase in height.

Table 6.5: Enclosure and Building Line

Justification for increased height (above that determined by context bearing in mind the height/width guide)	Criteria
To provide variety to roofline. Townscape basis.	<ul style="list-style-type: none"> • Generally only appropriate where variation in roofline is already characteristic of an area. • Building should follow the plot width and building depth of adjoining buildings to avoid a massive appearance. • Height should not generally exceed 150% of the height of adjoining buildings.
To act as local landmark. Townscape basis.	<ul style="list-style-type: none"> • The townscape significance of a site revealed in a site and context appraisal should provide clear justification for a vista stop. • Height should not generally exceed 150% of the height of adjoining buildings.
To form an edge to a space. Townscape/functional basis.	<ul style="list-style-type: none"> • Appropriate where a large space warrants a built frontage for definition (e.g. a park).
To define nodes Townscape/functional basis.	<ul style="list-style-type: none"> • Typically only appropriate at the junction of two or more busy routes. • Importance of the node should be reinforced by the presence of non-residential elements in the block.
To provide presence to important spaces Functional basis.	<ul style="list-style-type: none"> • The space being addressed should have a clear civic or community function.
To act as a district landmark. Locational basis.	<ul style="list-style-type: none"> • The location should provide justification for a landmark.

Architectural Qualities

- 6.131 There are a number of general architectural qualities that come together in the design of a building and help convey a range of messages and meanings.
- 6.132 The size of a building is important but this is most often read and measured in relation to other buildings or features. The relative size of buildings and their parts is called scale.
- 6.133 The shapes of buildings are described as their forms. Massing of buildings often refers to the way different forms are combined together.
- 6.134 Proportion describes the relationship of one dimension or area to another. The proportions of a rectangle come from the relationship between the length of the long and short sides. Different proportions give different messages and some have a special balance or beauty.
- 6.135 Different proportions also give a building (or building element) a greater or lesser vertical or horizontal emphasis. Buildings with strong horizontal proportions can be seen as hugging the ground while those with strong vertical proportions take the eye up to the sky. The elements and details of a building can reinforce or play against these overall emphases. For instance, the walls of many traditional buildings have a horizontal emphasis but the windows can often have a vertical emphasis.
- 6.136 The proportions of the floor plans of buildings (the relationship of length to depth) and the proportions of cross sections (height to depth) are important, as is their shape and division. The plans of traditional houses in the district often had long walls running parallel to the street but were shallow in depth. Sections of vernacular house were often tall and narrow, and roof pitches were often steep, particularly those designed for thatch.
- 6.137 The impact of one part of a building relative to another is an important part of a building's expression. For example, a large roof which runs down to a low eaves can dominate a smaller area of wall below. Or walls can be dominant, with the impact of roofs reduced by screening parapets. Details emphasise these relationships: eaves and verges with deep overhangs make roofs more dominant.
- 6.138 Similarly, certain elements of a building – usually those most important and which the owner, builder or architect wants to highlight – are more prominent than others.
- 6.139 The way that the elements of a building, particularly doors and windows, are positioned is also a form of expression. (The windows and door at the front of a house can be compared to the eyes and mouth of a face). A

symmetrical balance of openings conveys a different message to other formal or informal arrangements and can give a sense of status, formality and completeness.

- 6.140 The degree of uniformity or variety in a building is an important part of its expression and is closely related to its function and meaning. A high degree of uniformity, for example, can suggest organization and discipline and has traditionally been used for military and institutional buildings.
- 6.141 Buildings with too much uniformity can appear dull and over-regimented and those with excessive variety, can seem haphazard and unsettling. Good architecture often combines and plays off the regular and irregular, the expected and the unexpected.
- 6.142 Buildings also have and combine different degrees of decoration and complexity. Traditionally, complex buildings are often of higher status than those that are simpler. Again the contrast between simplicity and complexity can be used to good effect.
- 6.143 Different materials inspire very different feelings. For example, stone walls can give a sense of strength and weight. Combinations of materials can make use of these differences so that a 'heavy' masonry plinth supports a 'light' timber frame wall above. Selected well, they can add to the sculptural qualities and interest of a building.
- 6.144 The way individual materials are used also increases or changes our associations and perceptions. Stone transformed into the delicate tracery of gothic windows creates a different feel to when it is used in massive castle ramparts. Deep window and door reveals can reflect or suggest a thicker wall and weight.
- 6.145 The ratio of wall to windows and doors is also important in terms of suggesting weight and how open, and even welcoming, a building is.
- 6.146 These architectural qualities combine with the relationship between a building's form, function, date, status and the other aspects described earlier in the chapter to give expression and meaning to a building. This is further enhanced by the 'patterns of buildings' considered next.

ARCHITECTURE

- 6.147 The detailed design needs to acknowledge the materials and vernacular traditions of the region (outlined in Chapter 3), but without resorting to pastiche. There are examples of contemporary design that have successfully achieved this, while others have been equally successful in adopting a more traditional design approach. Both approaches require a

rigorous and consistent design ethos, coupled with a careful attention to detail, proportions, scale and hierarchy.

FORMS, MATERIALS AND DETAILS

- 6.148 Building forms, materials and details can be drawn from surrounding examples, whilst also relating to the particular use proposed and qualities of space to be provided. Details and materials should be of as high a quality, or higher, as those found on existing adjacent properties. The existence of poor quality detailing and materials on existing properties will not be accepted as a reason for poor quality details and materials being proposed on a site.
- 6.149 The intention should be to specify new materials from local sources to minimise energy intensive transportation and costs.



Infill houses, Melbourn. The rendered walls and tall window proportions make reference to the listed house, with contemporary metal roofing and window frames (Plum Developments).

- 6.150 Traditional materials can offer guidelines for new buildings, although just as important is the quality of the element in its final form. For example, a wall may be designed to portray a feeling of mass and solidity, or be light and ethereal. Windows may be set deep within a recess, casting a shadow and appearing as openings 'punched' into a solid wall, or set flush with the face to maintain the plane of the wall. Each element carries a design intention, and appropriate justification should be presented for each.
- 6.151 Other than the purely decorative, detailing of materials should be related to the type of material and function of the new building. Timber rafters and beams may have expressed connections where they join, and brickwork may be detailed with projecting or recessed stringcourses. Careful study of historic details will reveal the design intent behind them; it is this intention that should be the starting point for new details, rather than the mimicking of form for its own sake.

- 6.152 Adjacent buildings should be studied for guidance on the proportion, form and spacing of window and door openings. The design should also take into account the orientation of the building (including the opportunity for passive solar gain) and the desired levels of daylighting. Architectural styles should be relevant to the particular location within South Cambridgeshire. Composition and elevational rhythms should clearly reflect context, even if the form of the building is contemporary.
- 6.153 Traditional forms may consist of simple wall planes with recessed windows under a pitched roof. Study and analysis will reveal the design intent of existing buildings; this could be based on historic use, or the status of the building, and it is this process that should be the starting point for the generation of new and appropriate building forms, related to choice of building materials and detail, whilst at the same time being specific to the village location.
- 6.154 The junction where a wall meets a roof is particularly sensitive. Eaves and verges may project or be cut tight back to the face of the wall. The wall may terminate with a dentil course or project past the roofline to form a parapet. Each type of detail places emphasis on a different element of the construction and should be consistent with the overall design intentions for the building.
- 6.155 Within the design of individual houses, chimneys are important elements of the skyline and help to provide an appropriate scale and articulation of the building and group.
- 6.156 Traditional walling materials found in South Cambridgeshire are, typically, buff coloured Gault Clay brick, stone (clunch, flint, claybatt and, occasionally, greensand) and timber weatherboarding. Windows are generally of timber or metal, and traditional roofing materials include clay tile (peg tiles and pan tiles), thatch and Welsh slate. Combinations of roofing and walling materials are common, often reflecting a hierarchy of building usage.

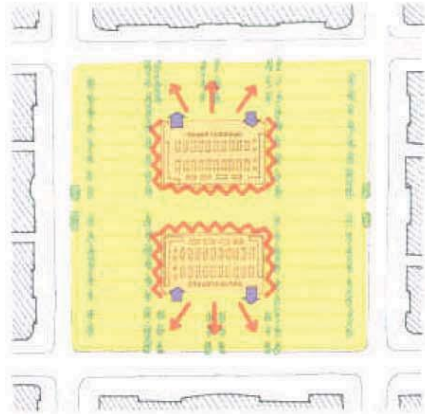
LARGE BUSINESS PREMISES

- 6.157 New buildings in business parks and on industrial sites are often large structures that can make use of 'state of the art' construction methods and materials. As a result they can have a significant visual impact on their locality and may be visible over a considerable distance, if sited in a prominent, isolated or exposed location.
- 6.158 Large buildings should be sited to avoid their mass breaking the skyline. Where this is unavoidable their design should mitigate the problem, possibly by breaking the building down into articulated blocks and through the use of landscaping as a screen and to break up the silhouette.

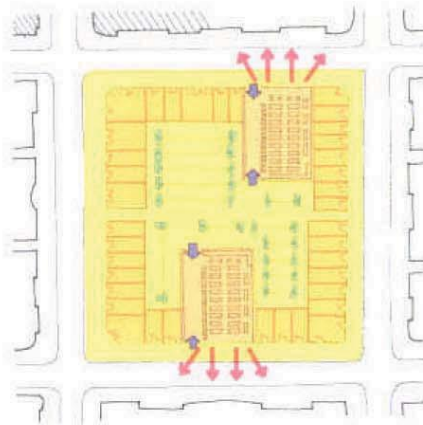


The large building form of South Cambridgeshire District Council offices has been broken down into sub-forms to reduce its bulkiness and visual impact.

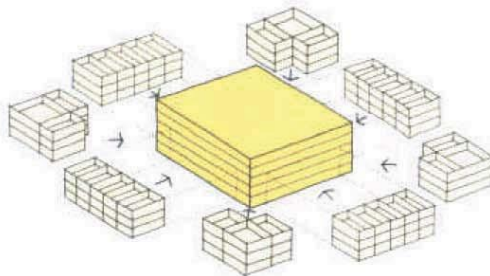
- 6.159 The blank 'boxes' of large retail, industrial and storage buildings are particularly difficult to successfully integrate into the streetscape. 'Big-box' uses should be mixed horizontally or vertically with other uses to remove or minimise the blank inactive frontages they present to their neighbours. As many of the active uses as possible that will take place in the building e.g. cafes, offices, etc, should be located at the outer edges of the building to create active frontages. Smaller units can be constructed along the faces of the building.



Big box sheds surrounded by parking: potential active frontage is projected into the car park, rear elevations exposed and the streetscape undermined



By turning the sales floor 90° and inserting the building into a perimeter block, access is provided from both sides but active street frontage is ensured



Wrap big boxes with smaller units to create active frontage

Reducing the visual impact of large buildings (Urban Design Compendium, Homes and Communities Agency)

- 6.160 Travel Plans will be required to minimise car parking provision. Other uses can be constructed above the main building. Car parking, subject to the context of the location of a building, could be provided in a basement or on the roof to remove the expanse of surface car parking, associated with such buildings, that creates a void in the urban fabric and divorces the units from their neighbours. Other methods to mitigate the impact of large structures include articulation (employing L or T shaped plan forms); multi-span roof forms to reduce overall height of deep plan structures; and the graded massing of buildings, whereby smaller buildings are sited in front of larger structures. Avoid roof-mounted plant that exacerbates the visual appearance of large structures. Design buildings to incorporate such plant requirements within the building structure.
- 6.161 A good example of a local business park is at Kings Road, Hardwick, where barns have been converted for business use.



Kings Road, Hardwick, view of the main barn from the car park.



Kings Road, Hardwick, view into the central core.



Kings Road, Hardwick, view from the main road.

MATERIALS FOR BUSINESS PREMISES

- 6.162 The choice of materials and their colours can have a significant affect on the overall impact of a large new structure. When making the selection consideration must be given to how the materials will perform over time; bright colours frequently fade, while ‘fashionable’ detailing may quickly appear dated and shiny or reflective materials can attract undue attention to a structure, whereas natural materials (such as brick and stained timber) have been proven to ‘grow old gracefully’ and are particularly suited for sensitive locations.
- 6.163 A more contemporary approach may be appropriate utilizing high quality, modern materials, whilst ensuring that the building complements the character of the surrounding development or its landscaped setting.

PUBLIC AND PRIVATE SPACE

- 6.164 The network of streets, squares, parks and greens, forms the structure of the public realm. These places need to have a clear function and should be easily accessible. High quality materials should be used to enhance the character and attractiveness of public spaces and maintain their quality in the longer term. House frontages should be visible from these public spaces and enable surveillance of the public realm by occupants.
- 6.165 Creating high quality public and private spaces requires all those involved to develop places that suit the needs and activities of people rather than for cars. It also means designing public areas that are attractive, safe and comfortable, which are easily accessible and provide a range of facilities for the local community.
- 6.166 Opportunities should be found to incorporate existing features and to create squares, market places (streets wide enough to accommodate a market), greens, small seating areas, and play areas. Development is best designed around a pattern of connected streets and public spaces that can be easily understood; which should focus on busy pedestrian places that have an

identifiable and accessible heart. The heart of the development should have a sense of enclosure and include features and landmarks that define it as a special place. Development should be designed to ensure there are no left over spaces, with each space having clear purpose and definition. They should provide a hierarchy of spaces with, spaces to go to, spaces to stop in and spaces to go through.

6.167 Spaces at and associated with the local centre should be designed in a manner that creates emphasis for the location, reinforcing its role as the heart of the neighbourhood. It should be of sufficient size to accommodate community activities, so they can take place in the heart of the community and not have to go elsewhere, where they would become disconnected from the community.

6.168 Policy SF/11 of the Development Control Policies DPD sets out the Council's open space standard of 2.8 hectares per 1,000 people, comprising:

- Outdoor Sport – 1.6ha. per 1,000 people;
- Children's Playspace – 0.8ha. per 1,000 people;
- Informal Open Space – 0.4ha. per 1,000 people.

Reference should be made to the Council's "Open Space in New Developments Supplementary Planning Document". "Sport England's publication 'Active Design', promotes the concept of integrating opportunities for sport and physical activity into master plans through good design."

6.169 Public open space requirements should be provided in a variety of forms, formal pitch provision, informal games areas, formal park space, informal amenity space within development areas, play areas for different age groups and areas for wildlife conservation. Open space areas should be connected to provide a co-ordinated network. Ensure buffers are provided to protect any existing wildlife habitats from the pressures associated with people in new development areas. The Urban Design Compendium recommends that all residents should have some form of park space within a 400 metre walking distance of their home.

6.170 When there is a clear distinction between public and private spaces, management responsibilities can be clearly defined. The involvement of the local community in the design and management of local spaces can help to foster a sense of ownership and responsibility amongst local people. The Parish Council should be consulted if they are to take on the maintenance responsibility for public spaces.

6.171 Within more dense developments the importance of the quality external public space increases.

PAVING

- 6.172 Paved areas, including carriageways, footpaths, cycleways and other hard surfaced areas, are a major element of any new development and, as such, have a significant impact on the character of that development. The design of paved areas should be considered in its entirety as a unified design from building face to building face. Paving should be designed in a manner that creates visual interest as well as meeting the functional requirements.
- 6.173 Natural, high quality paving materials, such as stone, gravel and brick, as well as quality modern materials, can contribute positively to the appearance of outdoor spaces. Materials should be appropriate to the character of the development and its context. In Conservation Areas it is especially important to complement local traditional patterns, textures, materials and colours, and in rural areas the character of simple gravel or grass finishes should be preserved.
- 6.174 Muted colours are generally considered more suitable for paving materials, while large, unbroken areas of any particular surface materials should be avoided, especially where there are in situ materials that are protected by Listed Buildings legislation or cannot readily be lifted and re-laid. Areas can be successfully broken up using materials of the same colour but with different textures or simple patterns. Creative approaches can result in an equally functional but significantly more attractive alternative for highways requirements such as avoiding dividing areas of paving with concrete edging strips to identify the limit of highway adoptions.
- 6.175 Concrete kerbs with a high up-stand create a harsh and over-engineered appearance. They are particularly inappropriate in shared use and low traffic areas. Changing levels to reduce or omit the upstand will improve the appearance and enable wheelchair access, and using natural materials such as granite will improve the texture and appearance of the edging.
- 6.176 Granite or concrete setts may be useful for defining areas such as parking bays and shared-surface roads. A bound gravel or shingle surface dressing may be suitable for paths, private driveways, squares, and other shared-surface areas designed for low vehicle speeds and movements. It is more appropriate to use changes in surface material rather than painted demarcation to define changes of surface use.
- 6.177 Consideration should also be given to the appropriateness of the materials selected, with the use of non-slip and non-trip materials, especially where the elderly or infirm will walk. Where possible permeable paving materials are encouraged to maximise surface water percolation into the ground and minimise run-off.

STREET FURNITURE

- 6.178 Street furniture is anything erected on pavements or streets, including seats, bollards, litterbins, railings, lamp-posts, post-boxes, street-signs, telephone-kiosks. These should be selected and designed into the public realm from the outset, in an integrated manner. It should be carefully selected for its appropriateness for its location. Street furniture is a necessary part of the street-scene in terms of giving information and ensuring the street is suitably lit and a safe place, but it is important that the location, amount, design and materials of street furniture is carefully controlled to avoid unnecessary visual and physical clutter.
- 6.179 Where appropriate, street lighting and street nameplates should be mounted on buildings. Where posts are required for street lighting or road information, these should be used in a co-ordinated manner and carry more than one sign, thereby reducing the number of posts in any one street. The street furniture, including lighting, seating and local direction signposts, should be chosen imaginatively to complement the building design.

ADVERTISING, LIGHTING AND SIGNAGE

- 6.180 Advertising, lighting and signage are aspects of commercial developments that can have a significant impact, but are frequently not considered as part of the design. This can result in excessive lighting and signage, frequently of poor quality, being added to a development after its completion. The Council will expect planning applications for commercial developments to show how advertising, lighting and signage are to be integrated into the design, with the expectation that they will be kept to a minimum, use suitable materials and avoid light pollution.
- 6.181 Where the proposals replace existing signage or affect a Conservation Area or Listed building, a traditional, simple and minimal approach is appropriate and the intention should also be to retain any historic signage in situ. Advice is contained in the Council's Listed Building and Conservation Areas SPDs.

LIGHTING THE PUBLIC REALM

- 6.182 As part of and integrated with the design of the public realm, a lighting strategy should be developed, appropriate to the location and context, as there are some places where lighting would not be required or be appropriate. This should not only ensure the provision of well lit public areas, to assist in the creation of a safe and secure environment, but should also support and add emphasis to the hierarchy of public real spaces. Key landmarks, building and features should be lit to provide visual interest and support legibility for people moving through the development.

- 6.183 Where possible, lighting should be incorporated into the design of buildings and spaces, or wall mounted, minimising the number of freestanding lighting columns. To reduce the overall number of columns and posts in the public realm, other signage and/or landscape furniture should be attached to lighting columns where they are used.
- 6.184 Lighting of external areas will have an impact on surrounding properties. Consideration should be given to the appearance of lighting units, their efficiency in lighting the areas and features intended, and prevention of light spillage that could cause light pollution to other locations and adjacent landholdings. Lighting should also be efficient in its consumption of energy to minimise the production of greenhouse gases arising from the energy generation to power the lighting.
- 6.185 Lighting affecting Listed buildings or within their curtilage or setting should refer to the Council's Listed Buildings SPD.

COMMUNITY SAFETY

- 6.186 Good places are safe and secure. Safety and security stem from good site planning and the careful design of buildings and spaces. As well as being inherently safer, such developments will have a sense of public ownership and civic pride. Developments that meet the need of communities and are well managed are safer.
- 6.187 Developers will need to ensure that crime prevention is considered as an integral part of the initial design of any development and not as an after thought. Development should incorporate the principles of 'Secured by Design'. In particular, they will need to demonstrate how their development proposal has addressed the following issues, in order to design out crime:
- Natural Surveillance of public and semi-private spaces, in particular, entrances to a development, paths, play areas, open spaces and car parks.
 - Defensible space and the clear definition, differentiation and robust separation of public, private and semi-private space, so that all the spaces are clearly defined and adequately protected in terms of their use and ownership.
 - Lighting of the development, in particular streets and paths.
 - Design and layout of pedestrian, cycle and vehicular routes into and within the site, including how these integrate with existing patterns.
 - Landscaping and planting, in particular, potential hiding places and dark or secluded areas should not be created.

- 6.188 The design and layout of access opportunities is of fundamental importance to designing out crime and needs careful consideration to avoid the creation of opportunities for crime. Manual for Streets provides advice on security issues in relation to the design of routes and connections. It emphasises that while clear and direct routes through an area for all forms of movement are desirable, they should not undermine the 'defensible space' of particular neighbours.



Avoid arranging buildings in a manner that does not afford surveillance of main cycle or pedestrian routes and bus stops, Histon road, Cambridge.

- 6.189 In practice this means that Secured by Design status for new housing developments can be achieved through careful design and the use of a limited number through routes, so that they are well used, effectively lit and overlooked, thereby creating a safe and secure atmosphere (www.securedbydesign.com). To aid this process, public spaces and routes should, where possible, be defined by frontages that are visible from the street and are able to offer surveillance of the street from their occupants.
- 6.190 Developers should, at an early stage, seek advice from the Police Architectural Liaison Officer on designing out crime.

Table 6.6: Designing Out Crime

	Do (subject to site size and context):	Don't:
Routes	<ul style="list-style-type: none"> • make routes direct; • ensure they follow desire lines so that they are well used; • ensure routes are overlooked; • make sure routes are well lit; • ensure routes feel comfortable. 	<ul style="list-style-type: none"> • make indirect routes; • provide unnecessary routes that will be little used; • create opportunities for people to hide close to paths, cycleways and entrances; • create dark alleys; • place routes between high fenced/walled/hedged gardens.
Structure	<ul style="list-style-type: none"> • use perimeter blocks; • create active elevations to routes; • plan in clear public and private space; • ensure public entrances are clear and visible; • gate accesses to private areas; • use robust, low maintenance materials; • mix compatible uses to create diversity of use. 	<ul style="list-style-type: none"> • create long culs-de-sac; • place blank walls against public routes; • create indeterminate space without clear purpose; • create public entrances that are hidden from view; • provide parking courts that are not overlooked; • use poor quality materials that can be damaged easily or are difficult to maintain; • create areas of mono-use or monoculture that will be inactive at certain times of the day.
Public space	<ul style="list-style-type: none"> • relate spaces to the movement network to ensure they are used; • design attractive public realm that people enjoy using; • ensure public spaces are defined by buildings and are overlooked; • use robust street furniture; • carefully consider the location of street furniture; • ensure soft landscaped areas are robust and clearly defined; • ensure spaces are well lit; • think about the integration of 	<ul style="list-style-type: none"> • create public spaces that are difficult to get to; • create non-descript spaces without a sense of place; • position back gardens against public space; • create undefined boundaries between public and private space; • use poor quality or weak street furniture; • position street furniture without considering its visual and functional impact on space or the potential for it to be used to assist in the execution of crime;

	<p>play equipment at an early stage;</p> <ul style="list-style-type: none"> • design with due consideration for the ongoing management and maintenance of public spaces. 	<ul style="list-style-type: none"> • use fussy landscaping without identifying a regime for appropriate management and maintenance; • place sub stations etc within public open space.
Security measures	<ul style="list-style-type: none"> • incorporate modest glazed panels or spy-holes in front doors; • specify good locks to all doors and windows; • ensure cycle stores are secure; • ensure bin stores and sheds are secure. 	<ul style="list-style-type: none"> • add in over specified or aggressive security measures that give a fortified appearance – they undermine the quality of buildings and space and give the impression that an area is particularly susceptible to crime; • create gated communities that weaken the scope for community integration.

6.191 Boundary treatments such as garden walls, fences, railings and hedges should relate in scale and material to the overall streetscape and the character of the context, whether urban or rural.

6.192 Streets can be characterised by trees, hedges and shrubs that overhang and define the edges of pavements and roads, but care should be taken when encouraging such features that they do not obstruct footpaths, cycleways or roads. Front, side and back gardens should be considered in conjunction with the new building(s), so as to create a plot design coherent with the street context. New indigenous planting will be encouraged, including trees. Such planting should be based on species and locations that take account of the implications of climate change.

ALLOTMENTS

6.193 Allotments provision is also required as part of the provision of community facilities. Provision of allotments on the Cambridge city fringe will be required in accordance with Cambridge City Council policy; and in the rest of the district in accordance with national guidelines of the National Society of Allotment and Leisure Gardeners.