E-SUPPLEMENT EIGHT: TECHNICAL ASPECTS OF SITE

SITE DEVELOPMENT CONSIDERATIONS

Introduction

This E-Supplement accompanies Chapter Thirteen on Urban Design and Place Making, which discusses and critiques approaches to designing local areas, and the role of culture, social and environment trends in shaping the attitudes to housing layout and local area design. This E-Supplement provides more technical information on how to design layouts with reference to current standards and requirements

Viability Issues

It is important to understand the basic issues that affect any site development before embarking upon a discussion of the wider urban design agenda. Therefore in this section the main considerations are summarised with reference to the development of a new housing estate. But many of the principles given could be applied to other types of development too. A ‘good’ design should take into account the special characteristics of the specific site and location in question and meet the needs of those who will live in the layout, in terms of income, class, family type, household size, age and so forth. when most houses are owner-occupied rather than rented, this is of commercial importance to the developer who is, essentially, undertaking the development to make a profit. However, on larger developments most local authorities will require, as a condition of the planning permission, that a certain percentage of the housing will be made available for community need, for example through a housing association, usually between 10-20 per cent, especially in brown field infill sites. Check the Planning Portal for current requirements and government design guidance at the time of reading this book at [www.planningportal.gov.uk](http://www.planningportal.gov.uk).

As explained in Chapter Three, regarding the process of property development, developers need to make a profit to stay in business, and matters of urban design may be of secondary importance to them, although to get planning permission they will have to satisfy the planners’ requirements on design and layout criteria. ‘It all comes down to sewers and drains in the final analysis’, because of the cost factor, and one cannot do effective urban design without taking these matters into account. If a site is too far from existing infrastructural service connections then it may not be cost effective to continue with its development. (Of course anything can be achieved if there is money available, and deserts can bloom and water can be pumped uphill, but such investment is normally not feasible in the UK.) Developers are required to pay the Community Infrastructural Levy (CIL), (as outlined in Chapter Three) towards the cost of infrastructure such as roads, drainage, sewerage as well as electricity, gas and internet connections. This legislation constitutes a formalisation of previous ‘planning gain’ agreements by which the developer contributed to these costs. Developers are also required to go through highways adoption procedures under various highways acts. The foundational legislation to this was the 1980 Highways Act, with subsequent legislation such as the 1991 New Roads and Street Works Act.

Choice of house type and architectural style is influenced by market conditions. For example in a desirable area near a golf course it might be advisable to build just a few really expensive houses on the site at a low density and get a good financial return. In a suburban infill site the best solution to capitalise on market trends is to build for young married couples wanting starter homes at the cheaper end of the price range, and so the developer would build more houses, at a higher density. Whilst in the past, house plots tended to be larger, and car parking more plenteous for more expensive houses, as a result of government policy aimed at reducing environmental impacts, densities are generally required to be higher as was required under the now cancelled PPS 3 Housing, and now updated under the National Planning Policy Framework (NPPF) (DCLG, 2011a) with often very small gardens. There has been a proliferation of high-end apartment development aimed at urban professionals, especially in the London Docklands development, where densities are high and car parking allocations are strictly controlled but prices are still very expensive because of the proximity to Canary Wharf and the surrounding marina facilities. By the time you read this book, oh reader, the situation may have changed again so always check what is going on in the present day.

Whilst private developers are concerned with getting the best return from the site, the planners have wider policy considerations to take into account. They are concerned with factors such as likely traffic generation, density, accessibility, social mix, employment opportunities and sustainability. The planners may look more favourably on a planning application for the development of the site which includes local shops and amenities, a school and community facility, or a scheme which does not develop the whole of the site but leaves some land undeveloped for amenity or environmental purposes. All of this would have to be negotiated and may be the subject of planning gain agreements, within the development control process. How far the developers will go all depends on how desperate they are to develop, and whether he also has his eyes on another comparable site elsewhere where the planning authority is less fussy. Clearly financial, rather than aesthetic or social considerations often predominate in this branch of planning, but good design can make a development more attractive to potential purchasers. Existing residents may be alarmed at the increase in house-building impinging in ‘their backyard’ and upon the Green Belt. As at December 2012, it was estimated by the Coalition government that over 9,000 acres of land would need to be removed from the green belt nationally to provide new housing land (*Daily Telegraph*, 26.11.12). But, in theory at least, with the introduction of the 2011 Localism Act, local communities can now have some say in ‘where’ new housing is built. But as raised in earlier chapters it is becoming increasingly clear they do not have much say in ‘how many’ are to be built under the Local Plan, but at least there is some measure of greater neighbourhood level participation in planning.

Site Constraints

In the past new suburban development was often laid out at quite a generous density, as is still the case in some other countries (Photo I.13.1 Suburbia Croydon, London). This is still reflected in the tone of some recommendations on housing layout, although some of the principles are still valuable. Whatever the nature of the development, certain basic 'physical' factors need to be taken into account. In designing a scheme for a site, an initial site analysis must be undertaken of its main natural and man-made characteristics. The slope and aspect of the site needs to be noted, not only with regard to drainage constraints, but also to see whether there are any good views out of the site that might be capitalised upon. The planning authority may be more concerned about views in, as that they do not want a development stuck on the skyline or half way up a hill which might constitute an eyesore. In the past developers used to be unwilling to build on slopes of more than 1 in 7, but much of the remaining available infill land is sloping and so a range of styles of split level housing has emerged to use this land. Very steep residential roads should be avoided, as with increasingly extreme winter conditions, with widespread snow, many councils are no longer willing to take their gritting lorries out on estate roads, concentrating on main roads, because of cost considerations. The level of the water table should be investigated and whether there are any areas liable to flooding. Flooding has been a growing problem, linked to global warming, which many authorities have had to address in recent years. There is no point in building on floodplain where insurers are unwilling to offer building or contents insurance. Around 1.3 million homes in England are located in areas of high risk and a further 12,000 new houses are built in such areas each year. Attention should also be paid to the micro-climate of the site, in particular whether there are any frosty hollows to be avoided, and any areas which receive more sun towards which the houses might be orientated. Previously PPS 25 dealt with flood risk but is now cancelled but flooding has continued to occur, in fact it has rained just about every day during 2012!

Increasingly developers are concerned with the taking into account the visual character of the site and its surroundings. For example, the nature of local building materials, style, and colour will investigated to ensure that the new scheme blends in with the surrounding area, especially in urban infill sites and rural locations. In many instances the use of materials will be controlled by the planners in any case, especially in conservation areas. Existing gates, fences, walls and other townscape features may be incorporated in the design to good effect as heritage features that may not only increase the saleability of the housing but will add to the overall quality of the area. spaces will need to be identified for the ever-increasing entourage recycling and ‘wheelie-bins’ which may seem a small matter but causes a great number of problems to residents who through age, illness or lack of strength need bins to be accessible and as near-as-possible to their house.

It is used to be said, in more leisurely times, or in respect of building for more affluent clients, that houses should be designed so that the bedrooms face the sun in the mornings, and the living rooms and the garden at the back of the house get the sun in the evenings. This is virtually impossible to achieve on more than half of the houses on an estate if the houses are built along roads facing each other (unless the internal layout is reversed). However reasonable levels of sunlight and daylight penetration should be provided, using Sunlight and Daylight Indicators (originally DoE,1971; Littlefair, 2009; Littlefield, 2012). Wind direction is another important factor that should be taken into account, especially on high, exposed ground. This affects the orientation of the road layout in residential areas and passage-ways which might become mini wind-tunnels. The power of the wind is an even greater problem in central area commercial developments of high rise office blocks which can increase the effects of wind eddies and air streams around the buildings. Most pedestrians have had the experience of fighting their way through the elements along the pavement at the base of a high rise building on a windy day (Roberts and Greed, 2000).

The legal rights over the land must be checked, including ownership and title. The tenure situation of the land must be established as to who owns what rights, and whether there are any outstanding restrictive covenants over the land, over and above any zoning controls the planners may have on it. Application can be made to the Lands Tribunal for the extinguishment or modification of such covenants. Even if the application is granted, the applicant may be required to pay compensation. A Local Search would be undertaken with the local authority in question by the purchaser's or developer's solicitor before the land was bought. The search will reveal any existing 'charges' on the land such as unexpired planning permissions, listed building designations, rights of way, tree preservation orders and so forth. A typical site is likely to be criss-crossed by a range of public and private rights of way such as footpaths. There may be private rights over the land, such as easements which give people, their cables and drains, and even their animals, the right of passage over the land. Clearance must be agreed with electricity, gas and other infrastructural service providers to divert or modify the routing of these utilities over the land, and to hook up with the new dwellings. So what exists ‘beneath the city streets’ has a profound effect on the nature of the final development (Kiminami et al, 2005). For example, major power cables and sewerage tunnels had to be moved to enable the Olympic site to be developed.

 A technical survey of the site will need to be undertaken to ascertain soil type, the load-bearing qualities of the site, and the likelihood of subsidence. This is important in mining areas. A special legal 'search' can be made with the relevant Coal Authority to establish the whereabouts of old tunnels and shafts. A wary eye should be kept on nearby spoil tips where imperceptible solifluction (soil creep) can threaten a development. The Welsh Development Agency undertook a commendable job greening the valleys and covering much of the dereliction and slag heaps. Pollution and contamination of the land through previous industrial activity, involving phosphorous, arsenic and other dangerous chemicals, needs to be investigated. For example much of the social on the London Olympic site at Stratford, which was heavily industrialised in the nineteenth century, had to be taken away, sifted and ‘cleaned’ using special machines, an exercise that cost millions, but was part of the ‘green’ commitment of the ODA (Olympic Development Authority) (see Chapter Eleven on regeneration).

 A survey should be made of existing vegetation of the site should be recorded. many local authorities require the retention of existing trees and hedgerows on new housing developments, and many would-be buyers are thrilled at the idea of real country hedges in their back gardens. Much green field site development on the edge of the city is on erstwhile farmland. Some trees may have Tree Preservation Orders (TPOs) on them. Therefore they cannot be removed, or if they are another tree of similar species must be put in its place. As to new planting, fashions vary, the traditional principles found in books such as Keeble (1969) are still to some extent applicable. Ash, beech, blackthorn and spruce used to be recommended as windbreaks (but take decades to grow). Ash, elm, oak, yew, poplar, and willow are good for open spaces, but require a wide radius for their roots, and so should not be planted near walls. Cedar, chestnut, lime and walnut are good for town squares, but are unsuitable for small gardens. Acacia, birch, horse chestnut, plane and laburnum are suitable for wide roads, and almond, cypress, holly, Lombardy poplar and rowan for narrower roads. But, trees with flowers and berries, especially flowering cherry are often seen as rather kitsch or suburban in taste. Trees that are likely to drop leaves and berries over cars and pavements should not be used. Many developers prefer 'instant', fast growing, maintenance-free, trees. At the time of writing a new fungus attacking ash trees was identified which is spreading in the UK and killing off historic woodland. Local authorities like to use vandal-proof trees, or prickly bushes that keep people on the footpaths and off the gardens, and dense plant cover which discourages weeds and dogs. On the other hand, as will be noted in the social aspects section, women's groups and crime prevention groups advise against putting tree cover, high walls, or screening near to footpaths which may obscure visibility. The whole issue of landscape, and the components of trees, urban parks, planting and so forth is a major subject on its own, and one that can be neglected in the rush to build yet more housing (Song,2012) and see Chapter Nine).

Increasingly green environmental planners prefer more natural approaches to landscaping, using native species and perhaps introducing wild flowers and ‘natural meadowland’. Traditional tree species that also absorb C02 are favoured, whilst foreign species such as Leylandii (high hedges) and Eucalyptus are increasingly banned (as explained in Chapter Three). Both have caused endless disputes between neighbours because of speed of growth blocking out light and views and impinging on pavements. But there is no absolute right of light under UK law for householders, either in respect of new buildings or trees blocking out the light. Wildlife and wild flowers (fauna and flora) also require protection. Science parks and other commercial developments have had to be relocated a short distance from the preferred location to allow rare species of frogs and newts to remain undisturbed in their ponds. Drainage of development sites without a preliminary ecological analysis is seen as a thoughtless approach to development. As stated in the Chapter Three on development control, Environmental Impact Assessment is required on larger developments, especially some residential schemes. Planners are unwilling for developers to develop on high grade agricultural land. But such development is often inevitable in spite of the emphasis upon prioritising brown field development. There are five Grades of agricultural land classification running basically from very good to very poor, with Grades I and II being seen as the most in need of protection from development. The highest grade land is known as 'blue land' because it is shaded blue on the DEFRA maps. But, blue land is often the most fertile because it is found in river valleys which are the locations most likely to flood and therefore the least suitable for development.

LAYOUT FACTORS

Density Considerations

Density is a key issue determining how many dwellings (that is houses or apartments) can be fitted on to the site, and, as stated, the government had previously sought to raise residential densities through national planning guidance (PPS3), which recommended that densities should be raised to above 25 dwellings per hectare. The NPPF continues to stress the importance of sustainable development and density. But, environmentalists have noted that very high densities and lack of garden areas, along with decking, hard paving and other ‘urban design’ features, can result in ground water being unable to soak away and increased risk of flooding, as well as decline in wildlife.

There are two main types of residential density net and gross. Net density is based on including the house plots themselves plus the immediate estate roads. Gross density includes all of the above, plus the land taken up for local shops, schools, amenity space, distributor roads. In other words it is a neighbourhood density, and therefore is likely to appear lower than the net density. It is important to check which type of density the planners require in respect of a particular site. These measurements should not be confused with gross and net floor space which are often used in relation to commercial buildings, Net refers to the amount of usable floor space for example in department stores, factories and offices, whereas gross includes all ancillary spaces such as toilets, lift shafts, stair wells, access corridors, boiler rooms and so forth.

To clarify residential densities measure the number of dwellings, that is the number of habitable units per hectare (or per acre), and not just the number of buildings. These two may coincide in a new housing suburban housing estate, but the two are not the same in the case of apartment blocks. In fact crude density is not always a good measure of actual plot coverage, which may need to be measured by other criteria for design purposes. For example the planners may stipulate that not more than 50 per cent of the site is developed to retain open space for play areas, or for carbon-offset sustainability reasons. Plot coverage is significant issues in respect of tall residential buildings where there may be an apparently high net density but low plot coverage because all the dwellings are piled up on top of each other.

As for definitions, an acre equals 0.405 hectares and a hectare equals 2.471 acres (see E-Supplement 6 for imperial/metric measurements and conversions). In comparison, large detached houses with big gardens on the edge of the city are likely to be built at 2.5-10 dph (1-4 dpa) which is the same as 8-30 pph (3-12 ppa). Typical interwar detached houses come out more like 20 dph (8 dpa), whereas semi-detached suburbia was normally built to around 30 dph (10-12 dpa). Moving further into the city, terraced housing averages around 37 dph (15 dpa), as does patio housing, which was much used in some new towns and inner locations where there is little garden space, the house forming an L shape around an internal courtyard. Three storey terraces and maisonettes come out around 50-70 dph (20-30 dpa). A maisonette comprises one self-contained dwelling above another, but, unlike flats, each has its own separate entrance. Maisonettes are known as duplexes in the USA. 6 storey blocks of flats result in around 90dph (40 dpa), and may be termed, according to British usage, as medium rise development. Higher densities does not necessarily mean poorer quality of area, as some expensive urban conservation areas consisting of Georgian town houses and mews may have quite high densities.

Levels of 200 dph (80 dpa) can be achieved in high rise development of 10-15 storeys, provided little ancillary space is allowed around the base of the blocks. However, in Britain, unlike Far East Cities, such as Hong Kong, where densities go far beyond this, it is impossible to achieve really high densities by going high rise because of the sunlight and daylight regulations which require that space must be left around the block, so little is gained by building higher. Very high densities are also achieved in older areas where there has been a great deal of subdivision into studio flats, in what are moderate medium rise buildings, such as 6 storey converted Victorian town house mansions. Using linked and clustered forms of low rise dwelling forms, such as patios, quite high densities can be attained without going high rise. It is important, therefore, not to confuse or conflate high-rise and high-density as they can exist separately.

Relatively speaking, density controls on commercial development are more concerned with the intensity of development on a particular site than overall density. For commercial development Floor Space Index (FSI) gives the relationship between the size of the plot (usually including half the width of the surrounding roads) and the total floor space. FSI has been used in the past in central London, particularly in relation to office building development. Plot ratio is also used for both commercial and residential development to determine how much of the site can be built over. The same FSI can be achieved in a variety of ways for example, by building one tall building on a small part of the site, or by spreading the building over the whole site, or by stepping the building back (like a staircase in tiers) as is done in New York.

Skyscrapers, generally defined as buildings over 150 metres (500') tall, have been making a comeback in the UK, for example at Canary Wharf, London (243 metres (800ft)). The Shard is 309 metres (1083 feet) tall, with 87 storeys and when opened in 2012 was the tallest building in Western Europe. But this is dwarfed by the Taipei 101 building in Taiwan and the Burj Khalifa Building in Dubai (see Table 7.1 on World’s Tallest Buildings). Tall residential buildings, unlike commercial buildings in Britain, are required to receive a certain amount of natural daylight so they cannot be built too closely to enable sunlight penetration (Littlefair,2012), it may be argued, that they are generally not popular with either urban conservationists or the general public. But as indicated in Chapter Eleven on urban regeneration they do increase densities, and enable local authorities to achieve housing targets. They are popular with young single professional people wanting to avoid commuting, and also as investment property. They have even been claimed to contribute towards creating sustainable cities. Indeed once one steps outside the UK, a whole different set of rules and cultural attitudes applies to high rise, as for example in the Far East they are seen as the height of modernity and the main component of many new Chinese cities over the last 20 years.

Roads and Access

When assessing a site for development, access and circulation within the site needs to be considered, in respect of existing road and other transport connections. There are some sites which look ideal, but on closer investigation they prove to be completely landlocked, that is surrounded by other properties with no access. Sometimes there will be just one possible access point through a strip of land, which because of the exorbitant price the owner is likely to ask for it is called the ransom strip. Lack of motor car access is not necessarily a major deterrent to development, in the light of government guidance on the need to restrict motorcar usage, and encourage walking, cycling and public transport use. At the more detailed level, most applications for development need to be accompanied by a ‘design and access statement’ which is meant to show how disabled access is integrated into the design. But other government policy areas also impact on disability design, such as social security For example under the Disability Living Allowance people were defined as disabled if they could not walk more than 50 metres, for example to a bus stop, whereas now it is coming down to 20 metres under the Personal Independence Payment.

For many years local authorities have specified the different widths of road according to their capacity, desired speed and function, with reference to Department for Transport guidance entitled *Manual for Streets* (DfT, 2007, 2011a) whereas local authority design guides have been very influential especially the Essex Design Guide in reshaping central government policy.

DfT guidance generally recommends local distributor and residential spine roads will be in the region of 7.3m wide (24') with as maximum intended speed of 20kph (30mph), whereas smaller access roads and culs de sac may be down to 6m (19') or less. Roads and driveways giving access to small groups of houses are likely to be down to around 4m (13'). Roads alongside schools may have a speed limit of 20mph, and play streets 15 mph. But in the recent versions of the Essex Design Guide widths as low as 2.7-3.4m (8-11') are stipulated (see online) Such narrow access roads are combined with a mixture of chicanes (zig-zags), road narrowing, speed bumps and other traffic calming devices to reduce the velocity of vehicles in residential areas.

Although road design is now more restrictive, the road layout still provides the skeleton of the estate in question for design purposes. Some say it is important to start the estate design process by sketching in the roads (taking into account their relationship with any existing sewers etc.) and then arrange the houses around them. Others block in the main areas of housing first, and subdivide them to the density required, and then add the roads. Some designers go for the 'creative intuitive leap' and cannot explain quite how they come to the final design. However, most housing estates are not architect-designed, but built by nation-wide bulk house-building companies who simply adapt their standard house type and estate layout to local site constraints. In cases of infill and brown field sites, particularly where there is an historical context and an existing architectural heritage, the design process is less straightforward. In all cases, preliminary discussion with the planners is advisable, with the presentation of a draft brief of what is in mind. Then an outline application can be made followed by the more detailed final application.

Visibility Splays

Whereas in the past roads were designed to enable cars to go fast, the trend is to reduce speeds especially in residential areas. Highways engineers also set standards as to the radius of the curves on all roads, and the dimensions of junctions, turning spaces, and hammerheads, which again vary from area to area, but 6m (20') to 9m (30') radii on the inner turning bends of hammerheads was common. However standards have generally been revised down in order to achieve higher densities and to impede rather than facilitate motor car movement within residential areas (Essex,1997:72; DfT 2011a and b). A critical factor was the design of junctions. For many years it was general policy to provide extensive visibility splays, (site splays) with generous dimensions (Photo I.13.2 Visibility Splay). These ‘triangles’ enabled drivers to have unobstructed vision along the main road. For example a Pythagorean triangle of 30' (9m) by 40' (12m) by 50' (15m) comprised a typical visibility splay. This is set out so that the 30' side runs along the white line in the centre of the side road out to where it meets the white line of the main road, creating a right angle with the 40' side which runs from this point along the white line of the main road to the right. The 50' hypotenuse side of the triangle slices off part of the right hand corner plot to ensure visibility, as described in *Roads in Urban Areas* (DoE, 1990b).

Subsequent guidance, such as *Residential Roads and Footpaths Design, Design Bulletin 32* (DETR,1999a); the *Essex Design Guide* (Essex,2005 and online updates) and in the *Design Manual for Roads and Bridges* (which comes in 15 volumes!) (DfT,2011a) all propose smaller visibility splays on residential access roads, generally of 2.4m by 3.6m by 4.3m. A smaller 1.5 by 1.5 by 2.2m right-angled triangle, is also recommended which chips off junction corners to increase pedestrian as well as vehicular visibility on smaller roads which give immediate access to groups of houses. Refer to DMRB (Design Manual for Roads and Bridges) (DfT, 2010, 2011). In all cases planting, that is ground cover should not be higher than 6cm. The whole topic of road design is complex and readers should consult their local authority highways documentation to find out to what extent newer, more restrictive standards, are required, and whether they are incorporated in design guidance by the local planning authority. Again check for updates at the time of reading, and also check local specific requirements.

Car Parking

Revised Planning Policy Guidance Statement (PPG3) on *Housing*  (DETR,1999b, as explained in Design Bulletin 32 (DETR,1999a and b) specified that car parking standards in any new development should not exceed 1.5 to 2 car parking spaces per dwelling off street, and that it should be significantly lower where possible (para.42).. However, it is most important to check the current situation as requirements still vary according to area and the type of development in question. But as the years have gone by the restrictions on car parking have increased from this golden age of the car. In social housing, e.g. housing association housing for the single person, elderly or the disabled, a minimum of one per dwelling is often permitted. At present there are around 50 blue badge holders (designating disabled drivers) per 1000 population (ONS, annual). Ordinary car parking spaces are 2.4 by 4.8 metres, that is approximately, 8 by 16 feet, whilst disabled parking spaces should be 4.8 x 3.6 (12 x 16 ft). Alternatively an additional strip of 1.2 should be provided between each two standard parking spaces, even if this means redrawing the lines and losing spaces overall (See Centre for Accessible Environments website). Around 10 per cent of the population are disabled but many do not drive (CAE, 2012,2013). When calculating for complete urban car parks allowance must be made for space for aisles between the rows and for the provision of access roads, which will add about half as much space again.

The question of how much parking space is to be allowed on non-residential development, such as offices, industry and retail developments depends on what the planners want to achieve in terms of sustainability and reducing carbon footprints of car drivers, but also issues of labour mobility, job opportunity and social inclusion. For example where there are no space restrictions one parking space per 200 square feet (19 square metres) of office space may apply, e.g. on a purpose built business park. But this means, the total space taking up for parking will be as much as the original office space itself! From a planning point of view it would make more sense to ensure that development only took place where there is adequate public transport alternatives: perhaps through the use of planning gain, Section 106 agreements and co-ordination with public transport providers. The 1999 edition of PPG 13 on *Transport* first signalled such changes, scrapping minimum standards and setting maximum parking allowances for different types of development. In central area locations where the planners want to discourage more congestion, and land is limited, figures of 1 parking space per 3000 square feet (284sq m) or even 5000 square feet (475sq m) of office space may apply. Over the years there has been an escalation of parking charges (and speed cameras), and many would argue this is more to bring in revenue rather than to control traffic in a positive manner.

There are schemes to charge for work place parking, ostensibly to encourage employees to use public transport (see previous chapter). Such restrictive measures need to be compensated for by better public transport provision as many commuters living in suburban areas poorly served by public transport (Greed,2011,a, b). The imposition of inadequate, restrictive parking standards may appear to be a disincentive to developers of commercial property. But they do not want to use up potential valuable site space on parking instead of actual office development, and are only too happy to let the office workers park on someone else's land or side roads elsewhere. As for retail, because of pressures on city centre parking many stores have moved out, and superstores provide extensive parking for their customers. Food stores above 1,000 square metres in gross floor space are generally permitted a maximum of 1 parking space per 18-20 square metres of gross floor space. Critics argued that this undermined the objectives of other government guidance documents, such as the attempt by PPS 6 to encourage developers to relocate in town centres. By 2011, most of the PPSes had been revoked by the Coalition government. Whilst the National Planning Policy Framework (NPPF) has advocated a continuing emphasis on sustainability, the Coalition government has given local authorities permission to set their own parking standards.