

The form-based development plan: bridging the gap between theory and practice in urban morphology

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Abstract. *The format of local development plans and site-specific guidance tends to be based on land-use allocations rather than physical form. This approach has serious limitations, especially when dealing with urban design issues. A solution is available in a format that takes the outline of physical form as its starting point with land use as a subsidiary consideration. This approach can be incorporated into spatial planning policy. Furthermore, urban design principles imply perimeter block structures whose approximate sizes are largely predetermined and can be incorporated in site-specific guidance. This paper draws attention to innovation in planning practice in Britain and a particular example is described in detail. Local spatial policy for the town of Chelmsford made physical implications explicit. Planning briefs identifying both the perimeter block form and the location and character of the urban spaces were successful in improving the standard of design of new development.*

Key Words: development plans, site-specific guidance, urban design, perimeter blocks, urban form

The world over, the format of local development plans tends to be based on land-use allocations rather than physical form. In other words, uniform parcels of land on a two-dimensional map are used to describe existing and desired land uses, and to propose locations for new development. It is not suggested that development plans are wholly map-based. They incorporate planning principles that are not directly spatial in character. However, the two-dimensional land-use paradigm is predominant in the thinking behind such plans. There is a paucity of reference to existing physical form and an absence of explicit three-dimensional proposals. It is as though land-use preferences are the basic structures on which policies are hung with the characteristics of the physical form of development being a matter that is handled at a later stage of the process.

This approach has serious limitations (Hall,

2000). It is not just restricting but can, in some cases, cause thinking to be misdirected. It is increasingly inadequate for modern requirements, especially in dealing with urban design issues. Both these deficiencies impede the pursuit of the more compact and sustainable design of settlements.

A solution is available in a format for development plans, and other policy guidance, that takes the outline of physical form as its starting point with land-use as a subsidiary consideration. There are two reasons why urban form can be seen as a fairly robust foundation. The first is that morphological studies show that certain elements of form, and combinations of these elements, persist over time as a settlement develops: this was demonstrated by the work of M. R. G. Conzen in his studies of Alwick (1960) and Ludlow (1988). The second, explained later in this paper, is that employment of proper urban

design principles leads to urban blocks with a standard range of dimensions.

This paper draws attention to innovation in this direction in planning practice in Britain. A particular example, incorporating an approach based upon urban form within a local development plan and site-specific planning guidance, is described in detail.

Space does not permit a discussion of form-based policy vehicles beyond development plans and site-specific guidance. It is true that one important area of innovation has been the use, in a few important cases, of design codes to correct the limitations of the planning systems of North America and Australia under the influence of the New Urbanism movement. However, although such innovations are of great interest, they deserve an article to themselves. In particular, the different legal and conceptual origins of the planning systems in these countries require special discussion. Also, this paper does not deal in detail with progress in the use of design guides. Britain, in particular, has a creditable record in the production of such guides, many of which are, by their very nature, concerned with urban form. However, as with design codes, the scale of the topic would merit an article in its own right.

The limitations of the land-use based plan

What are the inadequacies of a land-use based format for controlling the design of development? Take first the concern of urban design for the spaces defined by buildings. Uniform land-use notations make little provision for this. For example, boundaries are frequently drawn along the lines of roads, rivers and railways. Yet roads and rivers are urban spaces that are often bounded by buildings that should be designed in relation to those spaces. Similarly, parks on a land-use map may have their perimeters defined by the edge of the public open space. For urban design purposes, they should be seen as spaces in relation to their surroundings and the combination should be planned as a whole.

Consider next the elements of form of

which urban space is composed, such as streets, squares and building types. Without some indication of block structure, issues of permeability and legibility cannot be dealt with. Furthermore, the land-use map does not indicate those elements of the form of urban and rural areas that might be permanent as opposed to those that might be liable to change. This is a limiting factor in its effectiveness as a controlling mechanism. It also makes it difficult to deal with matters of urban history and conservation.

Urban form and spatial policy

The strategic and more detailed policies pertaining to the physical form of an urban area cannot be handled as though they were completely separate operations. One does not determine the other as a simple consequence. In other words, planning activities at different spatial scales cannot operate independently of each other. The aspect of policy where this is particularly noticeable is the pursuit of sustainability. Local actions by individuals connect through to phenomena at a global scale, such as climate change, with implications at all the scales in between. Physical planning cannot be divorced from the pursuit of sustainability and cannot be pursued at a local level in isolation from more strategic spatial policy.

A vision of a well-designed town or city has to be delivered, in part, through the spatial policies within development plans at town and city level. Not only do the physical consequences of the pursuit of more strategic spatial objectives need to be spelled out, but also an understanding of urban design principles needs to be fed into the preparation of these spatial policies. In other words, although the final presentation of a development plan may proceed from the general to the particular, and from the strategic to the detailed, an understanding of what is desired in physical form is necessary for the formulation of the goals, objectives and locational principles in the plan. Both general design principles and place-specific policies need to be situated within

wider spatial policy.

This is not just a matter of scale, but of time horizon. The physical form and structure of urban areas can persist over very long periods of time, far longer than the uses of land which may, in comparison, seem ephemeral. Major urban development has, in consequence, a significance far beyond short-term policy considerations. Physical planning needs, therefore, to be at the heart of spatial planning.

The role of perimeter block structures

The critique of local plan format from an urban design perspective rests on the idea that there are urban design principles that transcend issues of taste and stylistic preference. The design principle of permeability leads to a grid (albeit deformed) network of roads with no redundancy of routes and maximum social interaction (Bentley *et al.*, 1985). Buildings should have public fronts and private backs. These principles lead to a definite pattern of urban form, namely a 'perimeter block structure'. Such a street block provides privacy at the rear and surveillance of the public realm at the front, maximizing security. This is reinforced by the findings of urban morphology, which reveal the persistence of this form over several centuries (Conzen 1960, 1988). Designers would argue, pragmatically, that this is because it works. In other words, it provides an efficient setting for urban activities. Such a street-block structure can, and should, be used to guide development within development plans and site-specific guidance.

Both morphological analysis and urban design principles point to set thresholds in street-block dimensions. Take, for example, residential and mixed-use areas of two-to-three storeys in height. Street-block widths of 80-90 m are common, though the trend for much development in Europe over the last 30 years has led to much smaller street-block widths, of the order of 50-60 m. This is not accidental but arises from standard principles that can be used to plan new development. Bentley *et al.* (1985) note that the 90 m street block 'can do

for most purposes' but go on to argue for minimizing street-block size. A method is set out for determining street-block size from assumptions on parking, privacy, garden space and dwelling size. With regard to dwelling size, the design principle of robustness requires shallow plan structures that enjoy natural light and ventilation, at least in temperate climates, and can be readily converted to a variety of uses. Taking into account private open space and parking requirements, these arguments lead to a rule of thumb calculation of a street-block width for the typical British small town or suburb of 50-60 m across. Such dimensions are now typical of much contemporary house building at around 25-35 dwellings per ha. An equivalent approach, the 'ten metre sausage' (Hayward, 1993) yields 40-55 m width street blocks. A clear summary of the appropriate range of street-block sizes is provided in English Partnership's *Urban design compendium* (Llewelyn Davies and English Partnerships and the Housing Corporation, 2000, p. 65).

Although the exact range of dimensions may vary between different countries, the implication of these points is that perimeter block structures are a necessary part of the design of new development and their approximate sizes are known in advance. Failure to plan accordingly would have unsatisfactory results. For any infill on a medium-size site fitting in appropriately sized blocks with frontage to roads and backs to existing street blocks does not leave much room for manoeuvre and a street-block structure almost plans itself. The street-block layouts to be found in the existing form should guide infill. If good planning is to result, street blocks are, therefore, largely pre-determined and could, and should, be incorporated in site-specific guidance, if not in the development plans themselves.

Form-based approaches in Britain

British non-statutory plans produced during the 1940s, in anticipation of a new planning system, often referred to physical form and

included three-dimensional proposals, often clearly labelled as mere indicators of the position and mass of buildings to be designed in detail later. Unfortunately, the system introduced by the Town and Country Planning Act of 1947 explicitly required two-dimensional land-use maps and referred to the plans as 'Maps'. This approach was replaced in the legislation of 1971 by a system of development plans based on written policies that were objective-driven. The diagrammatic maps that accompanied them were land-use based but the policies could refer to physical form. Although the legislation of 1990, 1991, 2004 and thereafter changed names and procedures, a system of written policies that could accommodate form-based planning, but did not require it, was not just continued but strengthened.

However, these changes did not, in themselves, cause plans to be expressed in terms of physical form. This required policies that explicitly incorporated the control of design. Unfortunately, the government elected in 1979 was of the view that market forces should prevail. They sought to minimize planning intervention in design matters. However, the public mood was usually hostile to new development and favoured strict planning controls. There was also a substantial increase in the demand for housing. By the end of the 1990s, the government's only way to reconcile these opposing forces appeared to be to try to build at higher density and to try to increase the proportion built on 'brownfield' sites and on the edge of towns. This could only be achieved politically through high standards of design. Consequently, government support for design intervention by urban planning authorities, which had been discouraged through the 1980s, increased substantially during the 1990s. In addition, new legislation put stress on a plan-led system.

As the 1990s progressed, the pressure for higher quality in design merged with thinking on the desirability of more sustainable development. In 1998, government recognition of, and support for, both these trends was signalled by the publication of *Sustainable urban development* (Department for the

Environment, Transport and the Regions, 1998a) and by *Places, streets and movement* (Department for the Environment, Transport and the Regions, 1998b). The same trends resulted in many examples of improvement in the handling of design issues within the detailed content of development plans (Punter and Carmona, 1997). However, while the details continued to improve, plans embodying form-based principles in a comprehensive manner were not to be found.

Raising the standard of residential design

At the heart of this story lay the debates on residential urban design that had been in progress through the previous decades. The quality of design and layout for dwellings built for private sale had been problematic since at least the 1960s. Most new estates of houses tended to look the same all over the country. The way they failed to contain space properly resulted in poor aesthetics and did not make the most economic use of land. It was not always easy for people to find their way through the layouts nor to serve them efficiently by public transport. This situation had not arisen by accident, or negligence, but for important reasons of process. In the absence of design intervention by planning authorities, the economics of house building in a situation of limited land supply produced a standard product. The result was a narrow range of standard types with very simple, low-cost roof shapes and a narrow gap between the dwellings, as illustrated by Figure 1.

Where standards for road widths and curves were applied irrespective of the amount of pedestrian or vehicular traffic, then the space in front of the dwelling was wide in proportion to the height of the dwellings, resulting in a loss of containment of space. Parking in front of the houses resulted in a townscape dominated by cars. The density and, consequently, the efficiency of the layout were also reduced. Fitting the maximum number of dwellings along a given street encouraged deep-plan forms, which are difficult to light and ventilate naturally. Their narrow frontage



Figure 1. Example of development by a large-scale housebuilder in Chelmsford in the early 1990s. Photograph by the author, 2006.

also resulted in long thin gardens and there was a temptation to shorten them, resulting in very small back gardens. The exposure of blank ends of buildings and the backs and sides of properties was not only an aesthetic problem but reduced the security of dwellings.

The first significant attempt at change was the *Design guide for residential areas* (popularly known as the *Essex design guide*) (Essex County Council, 1973) and housing schemes were built according to its principles on sites in many parts of that county. This document was not a brief policy statement but a book that tried to address broad issues of quality in residential design and to propose solutions. It argued that the principal reason why the suburban housing of the time was aesthetically unsatisfactory was lack of visual enclosure. Outside towns space should be enclosed by trees and in urban areas it should be enclosed by buildings. In medium- to high-density areas, houses should be terraced and, in low-density areas, detached on spacious plots containing trees. Dwellings should have shallow plans with square-shaped back gardens, placed back-to-back in perimeter blocks with secure private backs and frontage

to the street. The real achievement arose from negotiation with the Council's own engineers. It was agreed to have carriageway widths that were the minimum consistent with the amount of traffic, thus facilitating the reduction of front-to-front distances between dwellings. Where the amount of movement was very small, shared surfaces could be employed.

Some local councils adopted the Essex Guide as policy and some did not. Even where the Guide had not been adopted as policy, some architects and developers implemented it because they found it a more interesting approach. They could also get more houses in and so it proved more, not less, profitable for them. Towards the end of the 1970s, the design of schemes influenced by the Guide evolved and became a more urban expression of its principles.

Across Britain as a whole, progress on the ground during the 1980s was inhibited by the lack of government support for design intervention. Nevertheless, during this period, thinking on urban design in academic and professional circles continued to advance. The publication of *Responsive environments* (Bentley *et al.*, 1985) provided a coherent

argument and practical guide for this growing trend.

What was, however, to become one of the most famous examples did not occur in Essex but at Poundbury (Hardy, 2006), an urban extension to the town of Dorchester in the County of Dorset. Poundbury was conceived in the late 1980s, and building started in the early 1990s. The scheme itself was promoted by the Prince of Wales, as landowner through the Duchy of Cornwall, but the more general role of the local planning authority, West Dorset District Council, was also significant. The layout embodied a variety of uses with shops, offices and small workshops closely integrated with housing. Continuous active frontage, with buildings close to the street and with small gardens behind, was the norm. Streets allowed access by car but were not designed around the car. The style expressed the Dorset vernacular.

What was controversial amongst some architects was the use in Poundbury, Essex, and other parts of Britain, of neo-vernacular style and form. This was a principle that could trace its pedigree back to the beginnings of the garden-city movement, notably the work of Parker and Unwin if not to earlier 'model' settlements. Whereas some saw it as an opportunity to be embraced, for others it touched a raw nerve and moved them to condemn the whole approach. There was both a belief that modernism represented the true spirit of the times and also that any controls would inhibit individuality and innovation. The argument regarding style in Essex and at Poundbury was that it should be specific to the locality. There should be a sense of place. Dorset should look like Dorset. Essex should look like Essex. Vernacular architecture is something that changes over time, as buildings evolve to suit their location using local materials. It is, of course, both possible and desirable to interpret vernacular styles and materials in new and varied ways. Not only do people want modern conveniences to be incorporated, but reinvention and adaptation are part of the true essence of vernacular form. Moreover, the only realistic alternative available was the housebuilders' standard

product. Speculative builders were not normally interested in new architectural ideas and did not construct modernist designs. Their product was a uniform one across the country and, aside from decorative fixtures, offered little scope for individual expression.

In Essex during the 1980s and early 1990s, although isolated examples of innovative housing schemes continued to be built, the need for a thorough revision of the Essex guide became increasingly apparent. When the revised guide (Essex Planning Officers' Association, 1997) was finally approved, a significant improvement was the tightening up of the criteria for 'urban' form. Continuous frontages were required at densities above 20 dwellings per ha. By using shallow-plan houses that were easy to light and ventilate naturally, and placing the garage in the back garden, entered through an archway from the front, two cars could be accommodated easily without putting them on the street. As the houses were close to the street, higher overall density could also be obtained.

From 2000 onwards the general support by the government and its agencies for higher standards of design and sustainability explicitly incorporated approval of the design approaches of the type initiated in Essex, West Dorset and other parts of the country. This message was stated in a concise, but coherent, form in *By design* (Department for the Environment, Transport and the Regions and Commission for Architecture and the Built Environment, 2000). In the same year, English Partnerships published their *Urban design compendium* (Llewelyn Davies, English Partnerships and the Housing Corporation, 2000) setting out both principles and advice in a comprehensive manner. They were followed in 2001 *By design – better places to live* (Department for Transport, Local Government and the Regions and Commission for Architecture and the Built Environment, 2001) and the many subsequent documents that reinforced the same theme. Government policy now required minimum residential densities of 30 dwellings per ha.

If the will and expertise is there, which is not always the case, there is now little to

prevent the adoption of form-based policy vehicles by local planning authorities. One recent, and outstanding, example has been the plans prepared for the Upton extension of Northampton (EDAW and Baxter, 2003, 2005). Although labelled a 'design code', the documents go way beyond a code and set out a three-dimensional block structure for a large-scale urban extension in considerable detail.

The Chelmsford example

The development plan policy and site-specific guidance prepared by Chelmsford Borough Council from 1996 to 2003 (Hall, 2007) merits consideration in some detail. Chelmsford is situated 50 km north-east of London in the centre of the County of Essex and its urban area has a population of approximately 100 000. Its significance stems from a change of policy that occurred in the late 1990s. What had been an average and unprepossessing town became liveable and sophisticated. A substantive and continuing urban renaissance had begun. High standards of design became the norm. This was recognized by the award of Beacon Status for the Quality of the Built Environment by the government in 2003 and in studies by the Commission for Architecture and the Built Environment, including their *Housing audit* (Commission for Architecture and the Built Environment, 2004). The town even achieved an entry in the *Good place guide* (Billingham and Cole, 2002).

The experience in Chelmsford showed how the gradual increase over time in both the quantity of published policy, and its degree of prescription, resulted in better quality architecture and a more vibrant public realm. This is not a result peculiar to Chelmsford or to the period in question. It has wide applicability. Chelmsford has similarities to many towns within the more prosperous parts of north-west Europe and other parts of the developed world. Because it had not been particularly well endowed, by British standards, with architectural heritage, its experience could be seen as all the more widely applicable.

In 1996, a new political administration started the process of achieving higher standards of design and sustainability in the built environment. The first significant changes to planning policies came in 1997 with the adoption of a borough-wide Local Plan (Chelmsford Borough Council, 1997) and the revised *Essex design guide* (Essex Planning Officers' Association, 1997). This provided a foundation from which further progress in design control in the town could be made, principally by providing clear and positive guidance to developers.

By 2000, every development was expected to achieve the required high standards. A new draft local plan, incorporating new spatial policy that made physical implications explicit, was published (Chelmsford Borough Council, 2001a). The rate of production of detailed site-specific briefs increased, as did the degree of prescription and delineation of desired physical structure within them.

Spatial policy

The new draft development plan (Chelmsford Borough Council, 2001a) was based on the goals of sustainability and quality of life. Principles of spatial organization were deduced from these goals and thence more detailed physical planning criteria. The general locational principles followed from this statement. They not only promoted biodiversity, mixed uses and preference for brownfield sites, but, most importantly, also required a pattern of development based on access to transport nodes and local facilities. They were given detailed substance by the locational policies. Effectively, all major new development was to be contained within 800 m walking-distance of the town centre, or other centres around new, or existing, public transport interchanges. The transport nodes had to be on an established public transport corridor. There was a high degree of correspondence here to 'transit-oriented developments', to use a term familiar in New Urbanist circles.

For a wide range of reasons, planning

Table 1. Implications of quantity of development within a site

	Central area	Neighbourhood policy areas	Rest of the urban area	Rural settlements
Density (dwellings per ha)	40 - 60	30 - 60	30 - 40	30 - 40
Minimum plot ratio	1.5:1	1.5:1	1:1	None
No. of storeys	3 - 6	3 - 4	2 - 4	2 - 3
Maximum vehicle parking (spaces per flat)	1	1.5	1 per 1 - 2 bed dwelling 2 per 3 bed dwelling 3 per 4+ bed dwelling	1 per 1 - 2 bed dwelling 2 per 3 bed dwelling 3 per 4+ bed dwelling
	Non-residential parking varies according to type of development	Non-residential parking varies according to type of development	Non-residential parking varies according to type of development	Non-residential parking varies according to type of development

Source: Chelmsford Borough Council, 2001a.

Table 2. Implications of quality of development within a site

	Central area	Neighbourhood policy areas	Rest of the urban area	Rural settlements
Built form	Continuous frontage defining public realm spaces Minimal private front space	Continuous frontage defining public realm spaces Small front private space Non-residential buildings on street frontages with hidden parking and servicing	Continuous, linked or clustered frontage Small front private space Non-residential buildings on street frontages with hidden parking and servicing	Continuous, linked or clustered frontage Small front private space or garden
Public space form	Urban open spaces, such as squares and small parks	Urban open spaces, such as squares and small parks	Gardens, squares, playing fields	Greens
Private space	Gardens, patios, balconies, shared courtyards	Gardens, patios, balconies, shared courtyards	Gardens, shared courtyards	Gardens
Parking format	Underground, undercroft, rear parking courts, parking streets, parking squares	Rear parking courts, parking streets, parking squares	On-curtilage, rear parking courts, parking streets, parking squares	On-curtilage, rear parking courts, parking streets, parking squares

Source: Chelmsford Borough Council, 2001a.

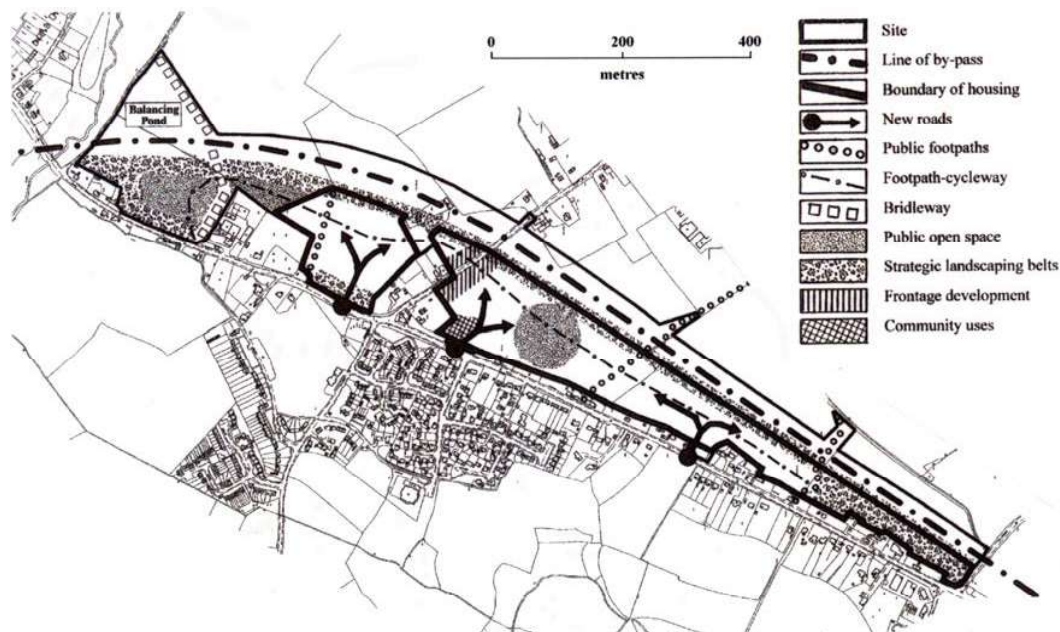


Figure 2. Diagram from the first brief for Great Leighs. There is little detail beyond the location of access and public open space. Specification of frontages is very limited. Reproduced by permission from Chelmsford Borough Council (1996a), p. 10 and the Ordnance Survey on behalf of HMSO. © Crown Copyright 2008. All rights reserved, licence no. 100048184.

policies and arguments in many parts of the world call for higher residential densities. However, high density should not be seen as an end in itself. In order to ensure that the finished product was consistent with the claimed liveability advantages of higher densities, locational principles for different levels of intensity of development were devised. The intensity of new development was to be related to the degree of accessibility. This policy then linked through to more detailed physical design not just by specifying the location of more intensive development but also by giving guidance on the physical nature of the different levels of intensity that should be permitted in different locations. The first step was the identification of ‘character areas’ where the intensity of development was made explicit through three-dimensional physical parameters (Hall, 2008). These formed a typology that could be used to structure the locational aspects of urban form. The physical implications for different levels of intensity of development for use in the development plan

were made explicit by the matrices shown in Tables 1 and 2. Table 1 shows the quantitative, and Table 2 the qualitative, measures. The ‘central area’ was defined as land within 800 m of the railway station or the town centre. ‘Neighbourhood’ policy areas were identified within the plan. Policies within the plan also provided for local public open space (47 m² per dwelling) and playing fields (25 m² per dwelling). Where there was no room for such open space within the development itself, payments were required in order to fund its provision elsewhere. Standards were also used to guide the provision of rear gardens for houses and communal private space for flats.

Site-specific guidance

Site-specific guidance should be used, as a matter of course, to specify location, linkages, uses, densities and the context for the design of buildings. In Chelmsford's case, the distinctive aspect was the attention given by the

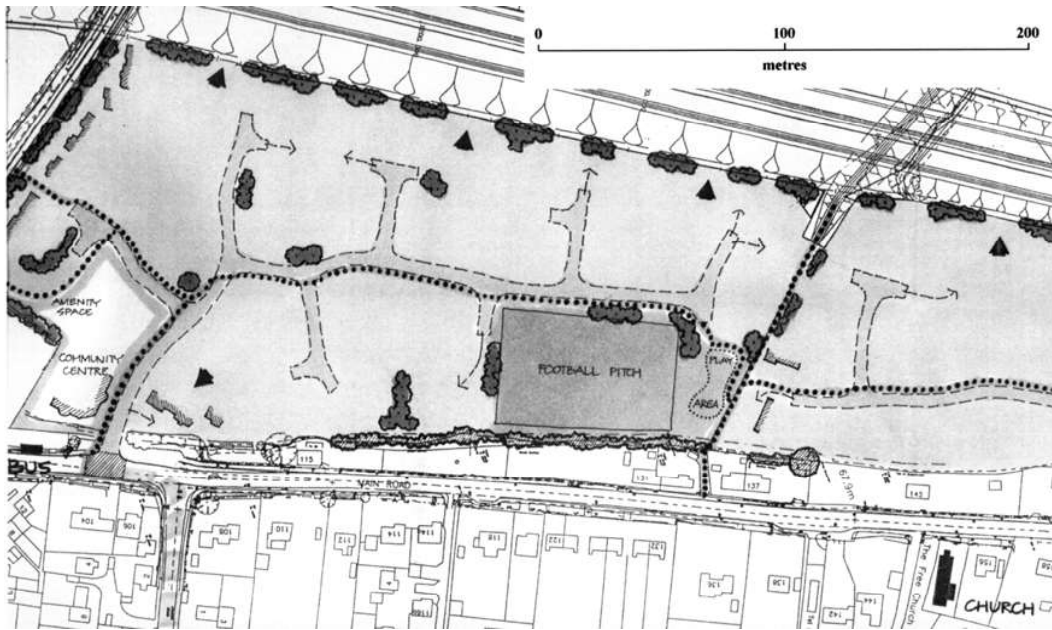


Figure 3. The developer's first schematic proposals for Great Leighs. Reproduced by permission of the Ordnance Survey on behalf of HMSO. © Crown Copyright 2008. All rights reserved, licence no. 100048184.

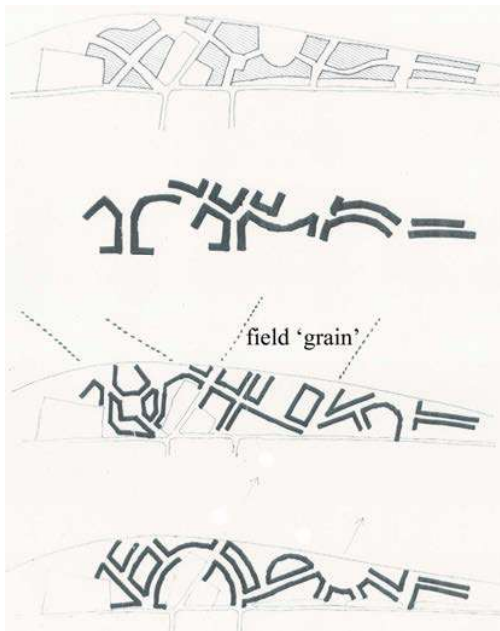


Figure 4. Examples of working sketches showing the evolution of block forms in the course of negotiations about the Great Leighs development. Reproduced by permission of Chelmsford Borough Council.

Council to the physical structure of the desired development in its site-specific planning guidance. Frameworks, master plans and planning briefs included diagrams of the desired physical structure, street blocks, frontages, access and uses, and guidance on issues relating to implementation. Perimeter blocks, active frontages and location of open space were all normally shown in outline. As argued earlier in this paper, perimeter blocks tend to have certain standard sizes with limited variation. The constraints on most sites were such that there was often only one, perhaps two, ways of fitting them in if proper frontages were to be maintained. Once the local open space requirements had also been calculated, both in terms of quantity and necessary dimensions for particular recreational activities, then the options were further limited. If these limited options were conveyed to potential developers in advance, it saved all parties a great deal of time and trouble.

The term 'area strategy' was used for a document that set out design principles for an area where there would subsequently be a complete set of detailed briefs prepared. The

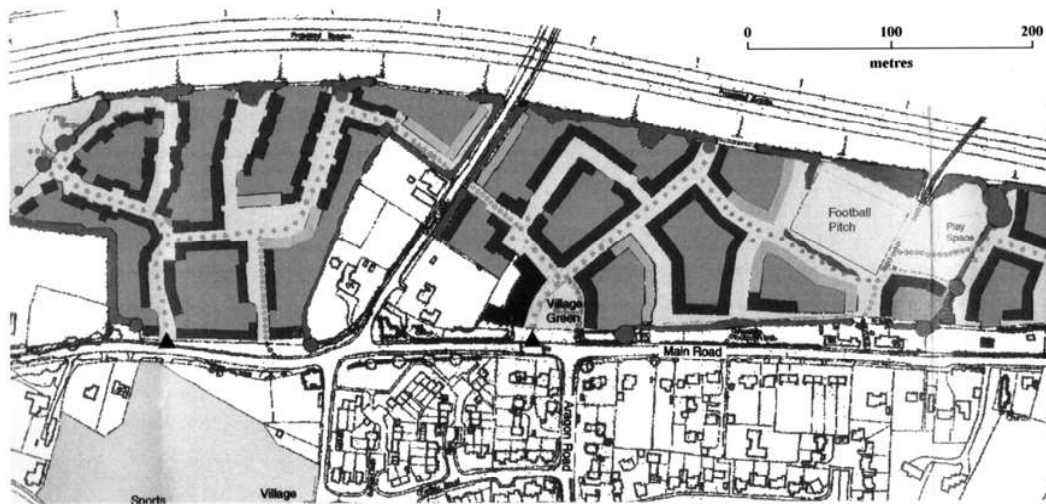


Figure 5. Part of the Great Leighs Master Plan diagram. The structure of blocks and frontages is clearly shown. Reproduced by permission from Chelmsford Borough Council (2011b), p. 4 and the Ordnance Survey on behalf of HMSO. © Crown Copyright 2008. All rights reserved, licence no. 100048184.

terms ‘frameworks’ and ‘master plans’ covered site-specific guidance for large and complex areas which could be developed at different times but which might not necessarily merit separate sub-briefs. The term ‘planning brief’ was used for guidance for smaller sites where development could be expected in the near future. However, there were no set definitions of these terms and there could be considerable overlap between them.

The changes that took place can be illustrated by the example of Great Leighs, a village 11 km north of the town centre. A significant area of land had been allocated for housing in the 1991-2001 Borough Plan (Chelmsford Borough Council, 1997) in association with the proposed construction of a by-pass. A very general planning brief had been published (Chelmsford Borough Council, 1996a) that specified only the location of vehicle and footpath access points and major public open space, but included brief written design principles, similar in content to the briefs for the other sites that were published at that time. A diagram from the brief is shown in Figure 2. Planning permission was conditional upon the construction of the by-pass but this, in the event, did not take place until 2002. The whole development was

subject to a far greater degree of design control than would have been the case if building had started in the mid-1990s.

The outline planning permission from 1997 required the preparation of a master plan, but serious work on it did not start until approval had been given for the by-pass. The developer’s first efforts at a master plan, shown in Figure 3, caused concern amongst the Council’s officers. It was based on a series of culs-de-sac off a spine road, with awkward links and no sense of built structure. The Council’s urban design team then took a leading role in developing a joint master plan with the developers and their consultants. Early discussions led to agreement on the linkages and routes through what was a difficult and narrow site. There followed experimentation with the structure and location of spaces. As the structure evolved, the urban design team used informal sketches and critiques to work out a layout and looked at the practicality of different approaches. An example of the results of one such session is shown in Figure 4, which shows how the block structure of phase two of the scheme evolved by stages. This led to the replacement of the original, and very general, planning brief (Chelmsford Borough Council, 1996a) by a

master plan (Chelmsford Borough Council, 2001b) drawn up by the urban designers of the Borough Council working with the developer. In contrast to the content of the planning briefs, and other 'master plans' produced by developers in the mid-1990s, it set out a structure of urban spaces and street blocks (Figure 5).

With regard to the detailed housing layout, the developer's original proposal for phase two (Figure 6A) had been fragmented, illegible, had a poor sense of space and was dominated by culs-de-sac. The layout that was eventually granted planning permission (Figure 6B) following the master plan exercise, demonstrated legibility, perimeter blocks with secluded private areas, character areas and clear routes. Figure 7 shows an aerial view of the first phase of the development under construction and Figure 8 shows a street scene. It had a higher density and much tighter urban form than would have been the case if the development had occurred earlier.

Another example of the changes to the content of site-specific briefs that took place between 1996 and 2001 was Beaulieu Park, an urban extension of 400 dwellings on the north-east boundary of the town proposed in the early 1990s (Hall, 2000). A planning brief (Chelmsford Borough Council, 1996b), of the more general type produced at that time, specified only the location of vehicle and footpath access points, major public open space and brief written design principles. The developers proceeded by means of their own 'master plan'. This set out not blocks but only a skeletal road network together with the location of the principal areas of public open space. The central and southern sections of Beaulieu Park were developed first, and by 2000 it had become clear that a new master plan for the northern part of the site was required. This new document (Chelmsford Borough Council, 2001c) was part of Chelmsford's new generation of planning guidance. The text provided a systematic appraisal of the site and included a new, strongly prescriptive, master plan diagram

specifying the location of the blocks, frontages, pedestrian routes and local open space. A further diagram identified the character areas that were to be provided within the urban form (Hall, 2008).

An example of a 'development framework' was the guidance provided for land to the east of the High Street (Chelmsford Borough Council, 2002a). This land had been viewed in the 1991-2001 Borough Plan (Chelmsford Borough Council, 1997) as an opportunity for the expansion of large-scale retailing, multi-storey car parks and additional open space. This development never took place and, by 2000, planning thinking had moved on. Multi-storey car parks were no longer being promoted and the attitude to retailing and open space was much finer grained. A new development framework was prepared that set out an intricate pattern of street blocks that would connect the existing shopping centre with an opened-up river bank via pedestrian routes with active frontages. Figure 9 shows the indicative development diagram. The requirements for pedestrian access, combinations of residential and types of retail use, and number of storeys, are indicated within the block structure. Figure 10 shows the same in an axonometric sketch indicating height and bulk in three dimensions. Figure 11 shows part of the completed development. A combination of residential and retail uses, active frontage to the street blocks and a lively pedestrian space had been achieved.

Another example of the control of higher-density-mixed-use development is provided by Capital Square, on the northern edge of the town centre. This was a key site for regeneration and was the subject of a detailed design brief (Chelmsford Borough Council, 2002b). An extract showing the street-block layout principles is shown in Figure 12. Part of the site was acquired by a developer for a mixed-use scheme of four shops and 108 flats. Guided by the brief this scheme was completed in 2005. Figure 13 shows the view of the development from the street. The important point was the way in which a mixed-

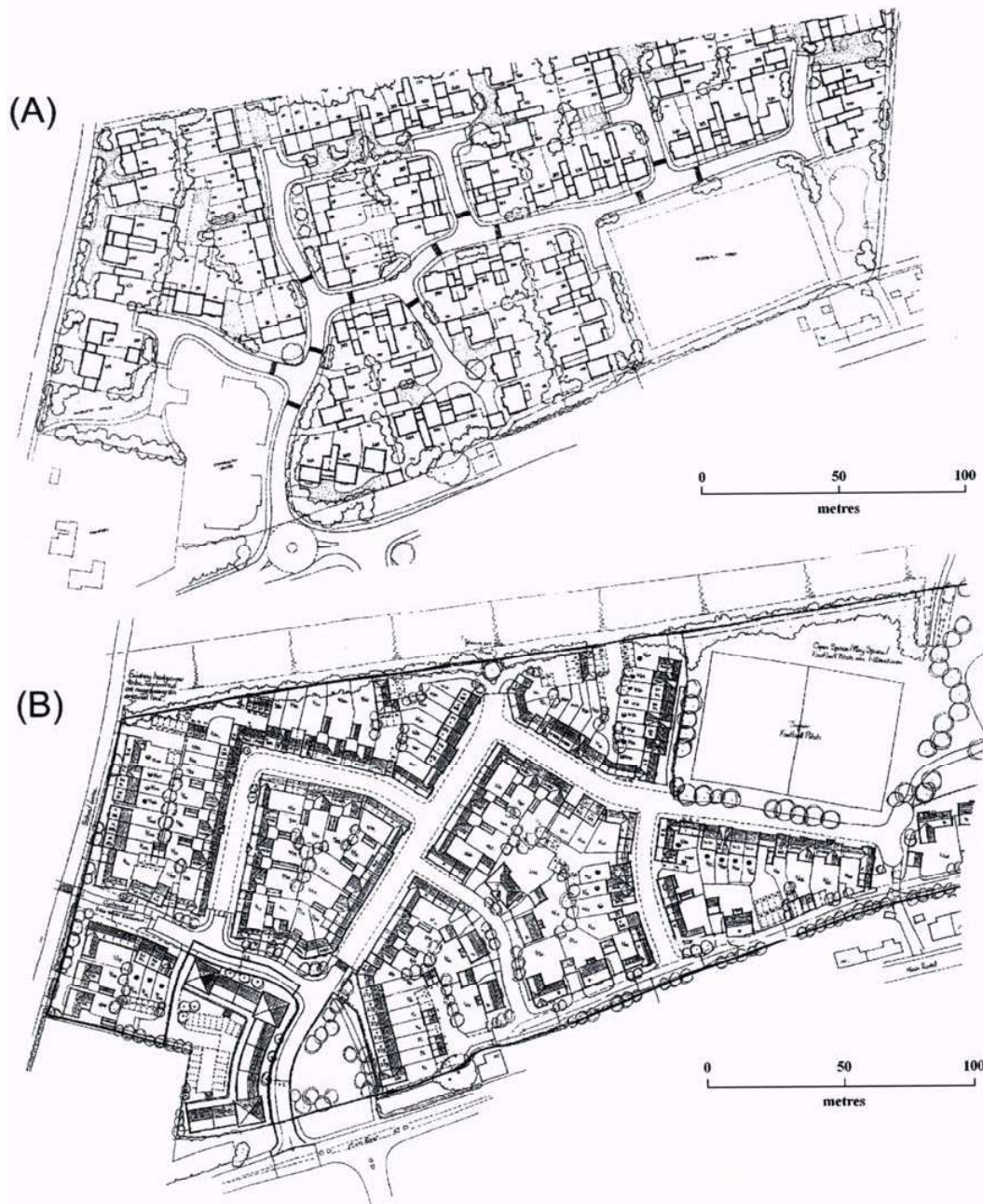


Figure 6. Layouts for phase 2 of the Great Leighs development. (A) Developer's original layout. (B) Approved scheme.



Figure 7. Phase 1 of the Great Leighs development under construction. Photograph by Peter Rodgers, 2002.



Figure 8. Main-road frontage of phase 1 of the Great Leighs development. Photograph by the author, 2006.

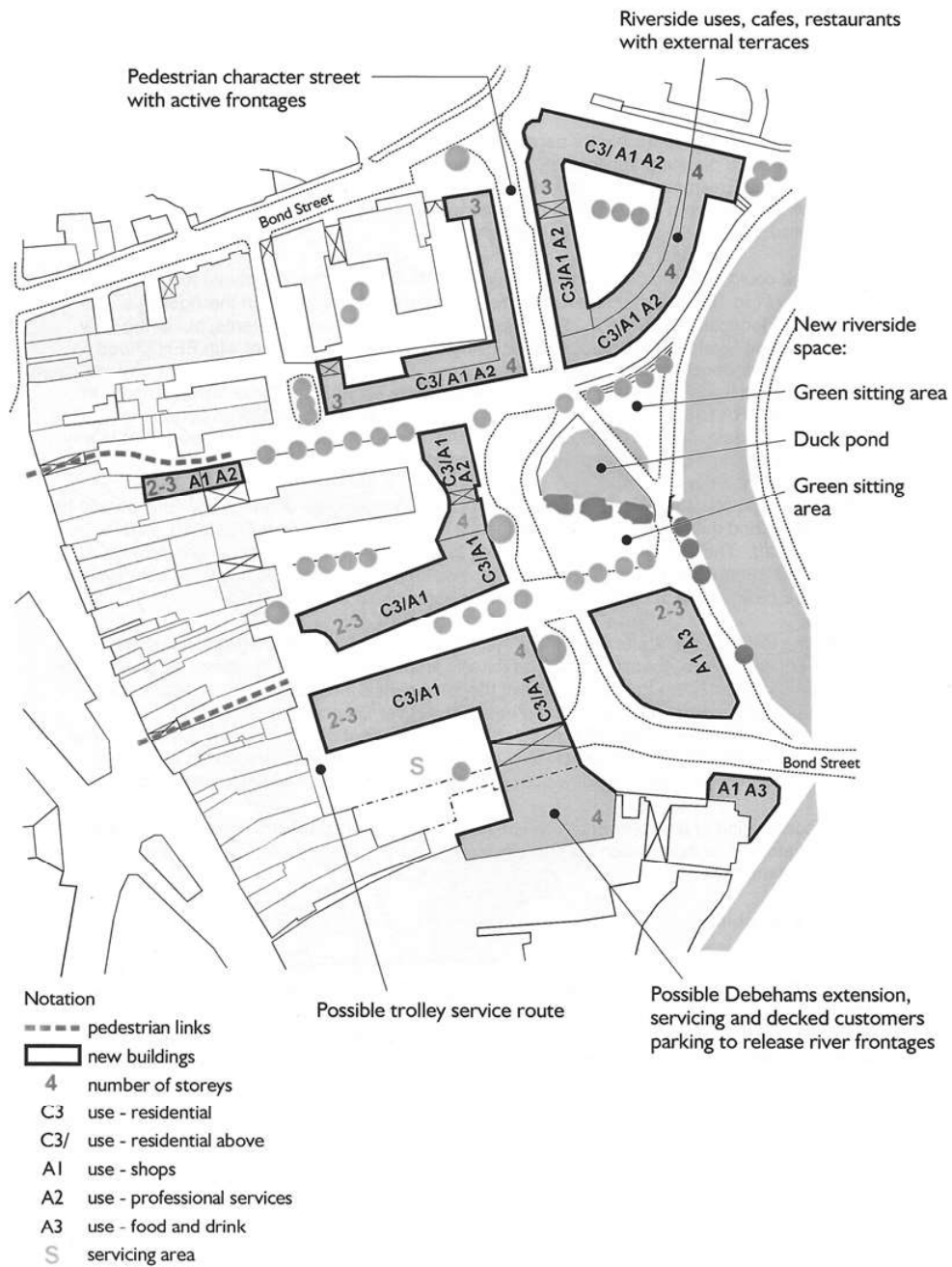


Figure 9. East of High Street Framework: indicative development. Reproduced by permission from Chelmsford Borough Council (2002a), p. 23 and the Ordnance Survey on behalf of HMSO. © Crown Copyright 2008. All rights reserved, licence no. 100048184.

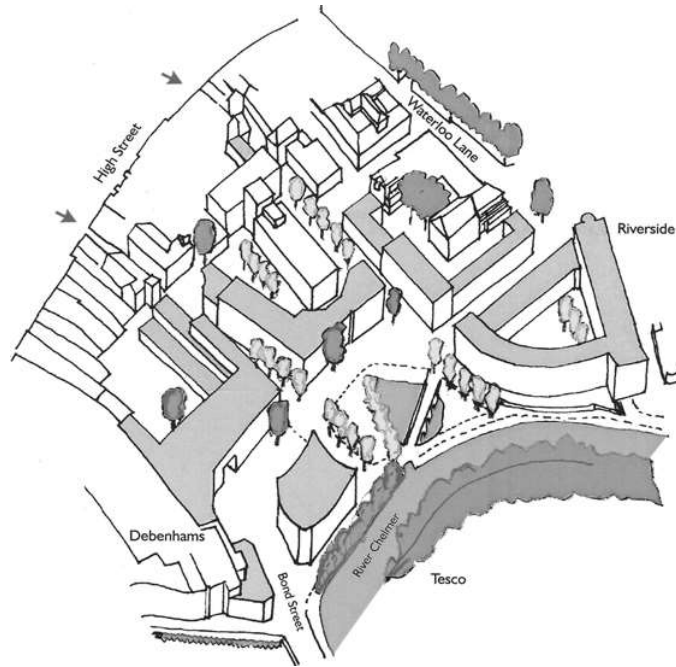


Figure 10. East of High Street Framework: axonometric sketch. Reproduced by permission from Chelmsford Borough Council (2002a), p. 25.



Figure 11. Part of the completed development east of the High Street. Note the mixture of uses and the active frontage to the block. Photograph by Roy Chandler, 2007.

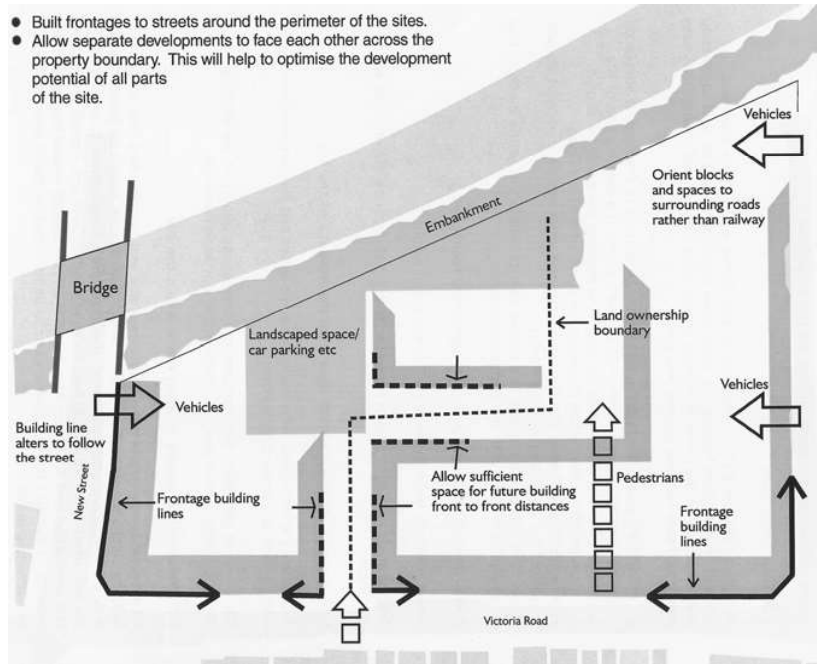


Figure 12. Diagram from Planning Brief for the site of Capital Square development (Chelmsford Borough Council, 2002b, p. 22) showing the desired arrangement of blocks, frontages and open space.



Figure 13. A street view of the Capital Square development. Photograph by the author, 2007.

use scheme at a residential density of 120 dwellings per ha had been successfully integrated into the urban landscape.

Conclusion

The Chelmsford example shows how far a form-based approach for site-specific guidance can be taken. It also demonstrates that such an approach can be successful in improving the standard of design in the development as built. It is important to draw out from the process exactly how a morphologically-based approach does this. It brings discussion of physical form not just earlier in the process but right to its beginning. When the site-specific stage is reached, all participants, developers, their architects, planning officers and local councillors can see what is being sought and what the issues are. Moreover, they see them at an early date. This contrasts with a more common situation where the physical outcomes are dealt with only at the end of the process when it is much more difficult to resolve problems they may present. Although the suggested approach may initially be seen as requiring more work, this is not the case when it is taken as a whole.

Whereas details of physical form may be expected in master plans, it is not at all usual in development plans. Properly applied, it should be present in the more general spatial planning policy. The particular example presented demonstrates that it is possible to introduce form-based content into local development plans in spite of the dominance of the land-use based paradigm in planning thinking. In particular, it shows how physical form incorporated into spatial planning policy can be used to govern the location of different levels of intensity of urban development.

It is hoped that examples from other parts of the world will be reported in due course. In the long term, however, not just examples but a general paradigm shift may be required. The justification for such an effort will lie in the quality and liveability of the built form and urban spaces that ensue. It is one thing to set out urban design goals but it is the results on the ground that ultimately count.

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Historic urban landscapes

The Twelfth International Seminar of Forum UNESCO will take place in Hanoi, Republic of Vietnam, from 5 to 10 April 2009. The theme of the Seminar is 'Historic urban landscapes'. It will be divided into three sections: (1) Physical integrity of historic urban landscapes; (2) Functional

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