# section three

## How to Develop Design Codes

- Background Information
- Contents of a Design Code

# 3.1 Background Information

## 3.1.1 Introduction

This section outlines the submission requirements for producing Design Codes. It aims to provide further clarity for developers by listing out the minimum requirements sought by WNDC within each of the components of the Design Code. It also sets out procedures to be adopted by WNDC in working with developers and third parties in formulating the Design Code.

Design Codes are used to plan and regulate development. By so doing they create some control over the design process and are therefore focused on securing higher quality places. This is exercised through clear instructions of how minimum design requirements can be achieved and allow for a diverse range of responses whilst retaining a common language of place.

WNDC's standard approach requires the submission/ approval of a Design Code prior to the submission of Reserved Matters applications. The Code will be required to reflect the principles established within the Design and Access Statement submitted and approved at Outline Stage. This section provides the necessary information to formulate Design Codes following WNDC's preferred strategic approach to delivering quality places.

Design Codes should respond to the local vernacular. In this regard, Section 2 of this Manual provides a context appraisal that serves as a base. It is expected that individual applicants, developers and design teams will add to this, by undertaking detail context appraisals of their respective sites.

Design Codes do not operate in isolation. Therefore the different topic areas covered should reflect back to the hierarchy of documents that accompany the original application. The function of Design Codes should be to finesse those documents and create a single tool along with the Masterplan to lead implementation.

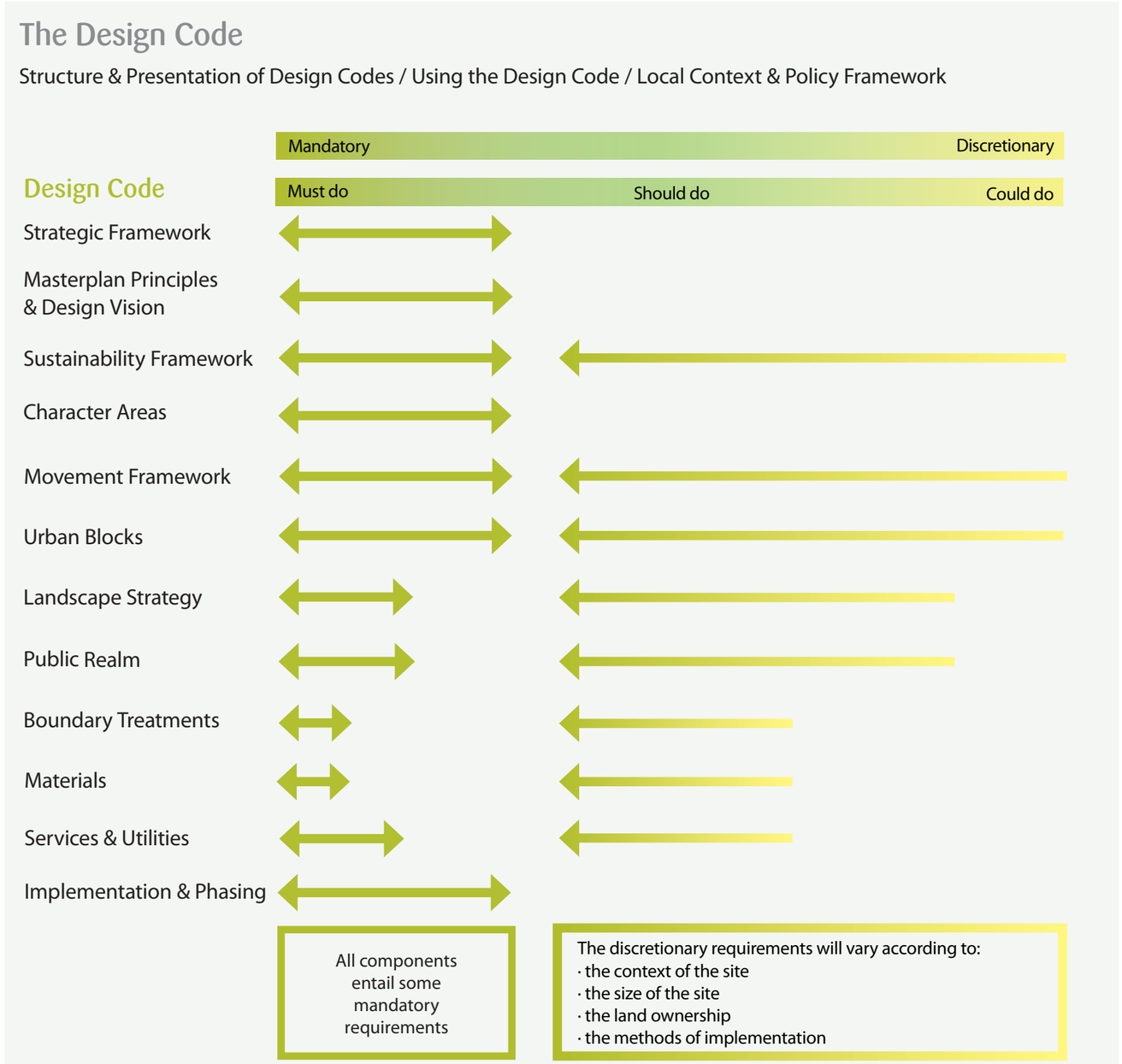


Figure 1: The above diagram lists the various components of a Design Code. It relates them to the level of control that Design Codes will administer during implementation. WNDC expects a relatively high level of control to be levied through the Design Code, giving consideration to the development context within which it operates. Therefore it is expected that each of the above components will entail a degree of requirements that is mandatory. The level of information that is discretionary will be dependent on the nature of the site and the proposed development, its context, size, nature of land ownership and method of implementation. The following chapters detail out the minimum requirements which WNDC expects as part of a Design Code Submission.

## 3.1.2 The Purpose of Design Codes

Design Codes constitute a set of written and illustrated rules that guide the design and physical development of a site. They present a number of benefits in that they provide a level of certainty in the development and delivery processes and as such improve the quality of the development. Finally, Design Codes also benefit developers by potentially facilitating the planning process.

## 3.1.3 The Process of Formulation and Review of Submitted Design Codes

This diagram sets out the essential procedures involved in the production of a Masterplan and its subsequent Design Code(s).

It indicates the iterative nature of the entire process. It also demonstrates that the production of Design Codes and their development and review is not a task carried out by a single body but is, in fact, to be produced through an interconnected process requiring the participation of a number of bodies: public, private and the local community/wider stakeholders. It is considered that whilst Design Codes are generally produced after the Masterplan has gained outline planning permission, it is important that in the process of the Masterplan design stage, the key principles for the Design Code should be considered and mapped out.

It is essential that WNDC and other stakeholders, interested parties and related local authorities remain an integral part of the process of the design and review of the Design Codes. This ensures that quality remains high on the agenda and that the Design Codes are set to deliver high quality and memorable places.

### Formulation and Review Process of Design Codes

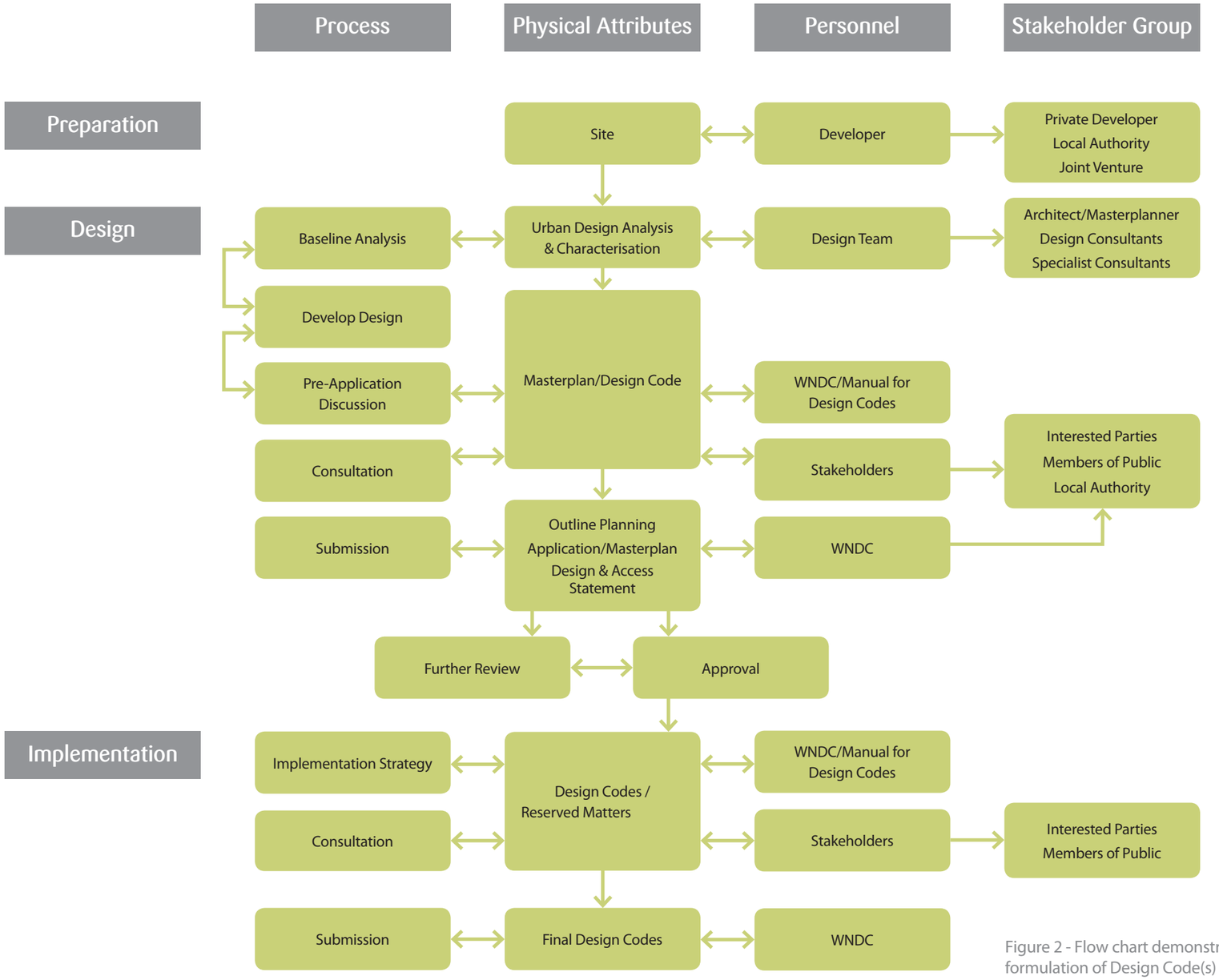


Figure 2 - Flow chart demonstrating the formulation of Design Code(s) with the parallel process of iteration and review

## 3.1.4 Approval & Implementation of Design Codes

### Approval of Design Codes

The approval of a Design Code will be based on a process of assessment, involving an Assessment Matrix which has been developed by WNDC and can be found in Appendix A. The assessment procedure should highlight issues of concern, help to achieve consensus, and lead to the approval of the Code. For this reason, it is unlikely that a Reserved Matter application would be rejected if it complied with the objectives and guidance of the Design Code.

Design Codes can be implemented and formalised in a number of ways. The two main means of implementation are either through adoption as part of a Local Development Framework (LDF), or through the development control process. A third, less frequently used method of adoption, is to create a legal agreement based on freehold rights of either publicly or privately owned land.

In the case of Design Codes required by WNDC, the Development Corporation will require development to comply with the Design Code through the development control process. To formalise the Code this way, it must be submitted as a component of a formal planning application, either as part of an outline application or a full detailed application.

### Implementation of Design Codes through Reserved Matters

In the case of an application submitted for the approval of reserved matters following outline permission and the approval of a Design Code, the reserved matters application will be assessed for conformity against the approved Design Code. In order to adequately assess the application appropriate information should be submitted to support the application and demonstrate compliance with the principles and/or criteria set out in the Code. The following table gives an indication of the submission requirements for a reserved matters application.

A proposal which is in conformity with the Design Code and is deemed to be acceptable in planning terms will be approved (subject to conditions if required). However, in the case that a proposal does not conform with the Design Code, the applicant will be required to revise the application accordingly. Where an application is not revised or the revisions are not considered to be acceptable in accordance with the Design Code, the application may be refused. The process of determination of an application submitted through the Design Code process which includes deviations to the Code, is set out in the following table.

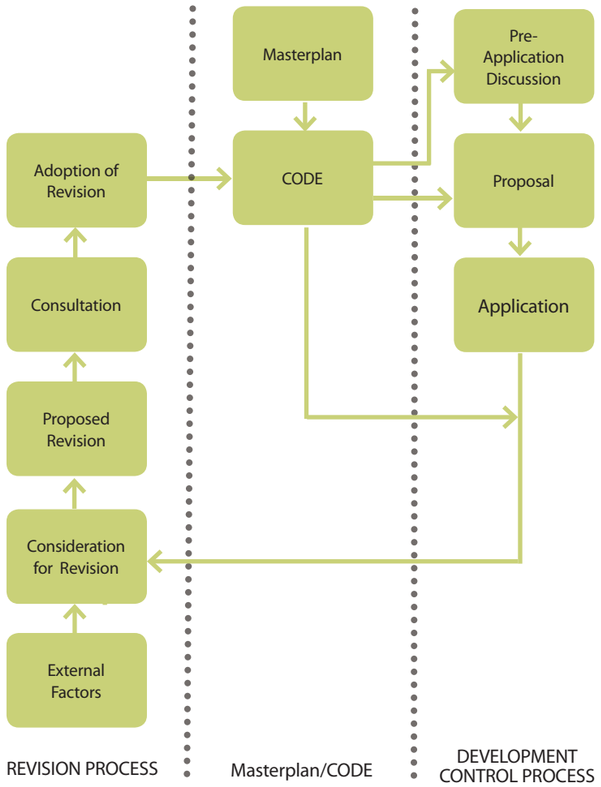


Figure 3: Flow chart demonstrating the three parallel processes involved in the development and consideration of a Reserved Matters application following the approval of a Design Code

| Item | Documents to be submitted as part of the Reserved Matter Planning Application | Scale |
|---|---|---|
| 1 | OS-based location plan with site outlined in red | 1:1250 |
| 2 | Block plan, showing surrounding development/context (including parking provision) | 1:500 |
| 3 | A Development Schedule indicating housing type and mix including affordable units | |
| 4 | Existing site plan showing levels, landscape features and services | 1:200 or 1:50 |
| 5 | Proposed site plan(s), to include external works, boundary treatments, proposed levels and designated plot parking | 1:100 or 1:50 |
| 6 | Building types including garages and ancillary structure, with floor plans and all elevations in colour, showing proposed materials and details | 1:100 or 1:50 |
| 7 | Sample street scenes | 1:100 or 1:50 |
| 8 | Sample cross-sections showing relationship with adjoining land/ development | 1:100 or 1:50 |
| 9 | Access and highways plans showing details of access, traffic calming measures and entrances, crossing points and surface materials | 1:200 or 1:100 |
| 10 | Full landscape scheme drawings including public art provision, boundary treatments, surfacing and footpaths/cycleways, protection measures of existing trees (where required) and planting species plans | 1:500<br>1:200<br>1:100<br>1:50 |
| 11 | Schedule of proposed materials for buildings, roads and hard landscape areas | |
| 12 | Design and Access Statement | |
| 13 | Report/list demonstrating compliance with Design Code | |
| 14 | Compliance statement for Sustainability (could be incorporated within the Design and Access Statement) | |
| 15 | Waste Minimisation Strategy | |
| 16 | Plan showing responsibilities for adoption and future maintenance | |

WNDC's current minimum submission requirements for Reserved Matter Applications submitted through the Design Code process

### Minimum Requirements

Design Codes should:

- Comply with existing policy and guidance
- Outline determination criteria
- Integrate minor amendments
- Outline the phasing strategy
- Flow from the Design and Access Statement and the Masterplan

## 3.1.5 Structure & Presentation of Design Codes

Design Codes are reference documents that regulate and guide the development of Reserved Matter applications following the principles established within the Design and Access Statement and Masterplan. The information they contain should be conveyed concisely and sequentially, from strategic design issues down to details. Clear illustrations are important to support the guidance provided. The overall structure of Design Codes remains standard for all development types whether mixed-use, residential, employment or commercial.

### Structuring Design Codes

Whilst it is not proposed to set a strict framework within which a Design Code should be written the following principles are applicable to the production of a functional and legible document;

- Inclusion (within an Introduction) of a guide to the use and status of the Code;
- Reference to the Masterplan and/or design vision for the site and how this would be implemented through the Design Code;
- Clear document structure which adopts consistent page layout and format including clear numbering of pages and sections;
- Progression through the document from strategic to detailed matters and include cross referencing between sections.

| | URBAN BOULEVARD (WEEDON ROAD) | NEIGHBOURHOOD SPINE | NEIGHBOURHOOD GENERAL | NEIGHBOURHOOD EDGE | CHAPTER |
|---|---|---|---|---|---|
| Street Type | Urban Boulevard | Main Street<br>Street<br>Mews | Main Street<br>Street<br>Lane<br>Mews | Main Street<br>Street<br>Lane | 6 |
| Land Use | Offices, Live work, Shops<br>Restaurants/Pub<br>Housing<br>Community Facilities | Housing<br>Local Shops<br>Community Facilities<br>School | Housing | Housing | 9 |
| Building Type | Mixed Use | Apartments<br>Townhouses<br>Mixed Use, Mews, School | Townhouses<br>Apartments<br>Mews<br>Semi-detached | Townhouses<br>Detached<br>Semi-detached | 9 |
| Height | Minimum 4 Storeys | Varies | Varies | Varies | 10 |
| Boundary Treatment | | Varies | Varies | Varies | 8 |
| Parks and Open Space | | Upton Square | Neighbourhood Square<br>SUDS<br>Upton Country Park | Ashby Wood<br>SUDS<br>Upton Country Park | 11 |

Figure 4: The Upton Design Code provides a quick guide which categorises the different coded elements according to the character area they fall in. This also provides a direct link between the character areas and their defining features. Character areas are colour coded further helping to navigate through the various elements and locating them within the layout plan and character area

| | Business Gateway | Neighbourhood Central | Neighbourhood General | Heartlands Park Edge | Heartlands | Pool Village |
|---|---|---|---|---|---|---|
| Street Type | Urban Boulevard<br>Main Street | Main Street | Main Street<br>Lane<br>Mews<br>Courtyards | Green Edge Street<br>Lanes | Green Edge Street | |
| Land Use | Education or commercial | varies | Residential | Residential or commercial | Mixed Uses - restaurant, education, visitor centre, park | |
| Building Type | Commercial/ educational blocks | Mixed Use | Town houses, apartments, Mews, semi-detached houses | Town houses | Refurbished Mining Buildings, New-build | |
| Height | 3-4 storeys | 2-3 storeys | 2-3 storeys | 2-3 storeys | Robinson's Shaft - approx 12m<br>2 storeys elsewhere | 2 storeys |
| Block Typology | Perimeter Block 1 - commercial/education | Perimeter block 2 - mixed-use | Perimeter block 3 - residential & infill | green edge block and perimeter block | Historic layout of mining complex | Historic street pattern of village |
| Boundary Treatment | consistent - private strip/verge | consistent - private strip or front garden | variable set-backs, front gardens | consistent set-back, front gardens | - | - |
| Parks and Open Spaces | Trevenson Park | Trevenson Park, Robinson's Street, Heartlands Squares & Park | Neighbourhood squares & parks | Heartland's Park, Retail Gateway Square | Heartlands Park, Squares within Heartlands | |

Figure 5: Colour coding of the different character areas within the Masterplan site

### Summary

- Information presented in a clear, concise and sequential manner
- Provide a navigation guide
- Differentiation of chapters through colour

### Further Guidance

- Preparing Design Codes, A Practice Manual – CABE and DCLG: London, 2006

## Presenting Design Codes

As Design Codes can be large documents laden with a lot of information, it is important that they are presented in a clear manner that is easy to understand.

When referring to the design of the built environment, plans, sections, elevations, sketches or other illustrative material provide much clearer guidance than the most detailed text. Photographs are also good to illustrate a concept, however it is important that they are marked as illustrative, so that their architectural details should not be copied.

When referring to a process or method, diagrams and tables should be used to provide simple and clear information.


Figure 6: This demonstrates how a mix of drawings with reference precedents and photographs provides a useful way of explaining and detailing a concept

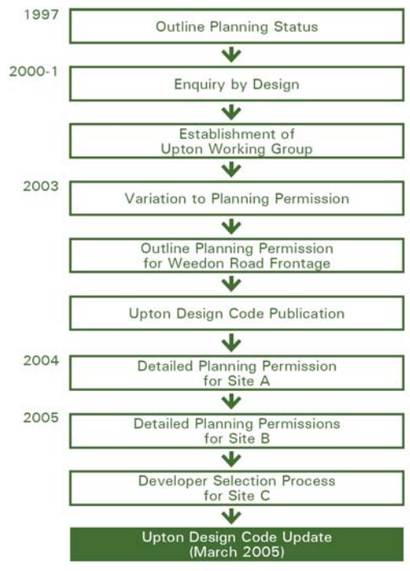


Figure 7: This chart identifies where this Design Code fits within the development process

## Summary

Design Codes need to be presented in a clear manner. It is therefore necessary:

- to use diagrammatic and illustrative materials with reference to photographs/ precedents
- to use consistent colour-coding of the document into key sections throughout the document drawings
- to ensure graphic consistency that creates a legible document with easy to understand drawings

# Contents of a Design Code

# 3.2 Contents of a Design Code

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3.2.2 Local Context & Policy Framework
3.2.3 Strategic Framework
3.2.4 Masterplan Principles & Design Vision
3.2.5 Sustainability Framework
3.2.6 Character Areas
3.2.7 Movement Framework
3.2.8 Urban Blocks
3.2.9 Landscape Strategy
3.2.10 Public Realm
3.2.11 Boundary Treatments
3.2.12 Materials
3.2.13 Services & Utilities
3.2.14 Implementation & Phasing

## 3.2.1 Introduction

This section details the information that should be provided in a Design Code. It gives a summary of the minimum requirements to be covered in each topic area. These requirements are highlighted in a clear table.

At the start of a Design Code document, it is important to provide an introduction to the overall development process including information on the:

- project team
- background history of the development with key dates relevant to the process
- what area of the site does the document refer to and which areas (if any) are or have been under reserved matters
- which other documents does the Design Code refer to, such as the Design and Access Statement and/or the Masterplan.

It is important to provide up-front information on the following:

- Purpose of the Design Code
- Structure of the Design Code
- How to use the Design Code

### Purpose of the Design Code

A Design Code should identify its aims and objectives for the development site concerned. A preliminary or introductory section should highlight where the Design Code sits within the overall development process, ideally illustrated by a diagram.

### Structure of the Design Code

The introductory section should outline the document's overall structure and provide basic information on each topic areas to be covered.

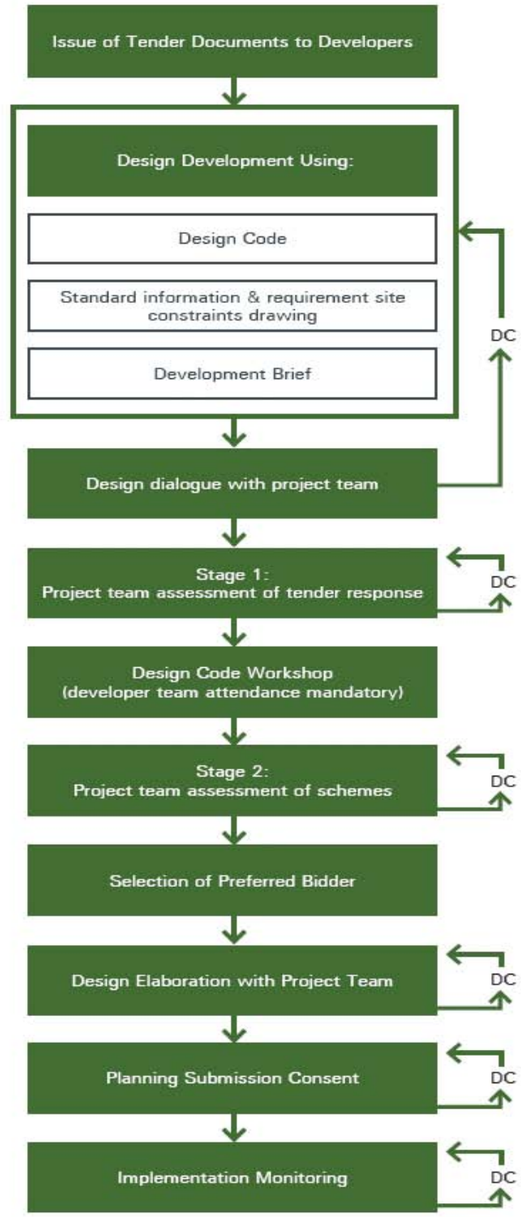


Figure 8: In the Upton Design Code, a simple diagram was used to illustrate where the Design Code fell within the development process for the site. This information provided a useful contextual backdrop for readers who had not been directly involved in the development process

The photograph to the left demonstrates the incorporation of Code Level 6 requirements within a contemporary form in Upton

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## Using the Design Code

A Design Code is an informative document that will be used by a number of professionals under varying circumstances and over a period of time. It is therefore important to provide a brief guide stating how the document is meant to be used. This guide should be provided up front in the document. If a development process has been set out within the document, then it should be stated clearly how this process is to be followed.

At this point, it is also useful to state the level of control to be executed by WNDC within the Design Code during implementation. This can be done through an overview specifying the level of control and flexibility allowed for.

## Level of Control

Whilst the overall structure of Design Codes remains fairly standard, the amount and type of information and requirements provided within each of the topic areas will depend on the level of control meant to be executed in accordance to the given context and size of the site, particularly those which may develop over a long time. In circumstances where the site may affect adjacent land uses, this should also relate back to the level of control.

The Design Codes need to strike a balance between flexibility and control to ensure that the development does not lose its intended character, or that requirements do not stifle creativity and individual response. The level of prescription also depends on the eventual delivery mechanism and on the level of influence that the project team, governing authority and stakeholders want to retain over the course of delivery.

There are three levels of control:

- In Level 1, a higher level of prescription is applied when a single landowner or developer is directly responsible for the site as there is preference to have complete control on the outcomes. The highest level of control is also required for sites which may be parcelled up and developed by a number of different developers.
- Level 2 is more suited to a strategic partnership involving at least one public authority that is open to varying outcomes.
- Level 3 allows for a basic amount of control. This is suited to a local governing body that is open to flexibility in the outcome.

Based on the level of control, the content and detail of the Design Codes can be categorised as the following:

Must do's ⟶ Mandatory
Should do's ⟶ Varying
Could do's ⟶ Levels of Discretion

Consultation is required in the compilation and production of Must do's and Should do's. The Could do's are usually discretionary and therefore may or may not require consultation although they would undergo consultation at the time of detailed design.

Further guidance on the level of control adopted in a Design Code is provided in Preparing Design Codes, A Practice Manual, CABE and DCLG, London, 2006.

## Site Ownership & Design Coding in West Northamptonshire

The majority of Design Codes reviewed by WNDC are generally submitted either by land-owners or private sector developers. The remainder of this document therefore outlines requirements that apply to Masterplans led by these groups on sites where there is a possibility of the overall control being passed between different bodies, where Design Codes need to ensure that a level of control is retained throughout the application of the document. Should the Design Code process be led by a strategic partnership between the local authority and developers, then the level of control may be reduced.

Upton exemplifies a development led by a strategic partnership, comprising the Homes and Communities Agency (formerly English Partnerships), NCC, NBC, WNDC and private developers, that is overseeing its implementation and delivery. In such a case, Design Codes do not need to be overly prescriptive. Similarly, in Poundbury, the Duchy of Cornwall retains overall control of the delivery.

### Summary

- State clearly how the development process should be followed
- State the level of control to be executed within the Design Code:
  - Level 1: higher level of prescription applied with single landowner or developer
  - Level 2: suited to a strategic partnership involving at least one public authority open to varying outcomes
  - Level 3: basic level of control suited to local authority open to flexible outcomes.
- Following the set level of control, state which topic areas are mandatory and which topic areas are discretionary
- The consultation is required for Must do's and Should do's elements

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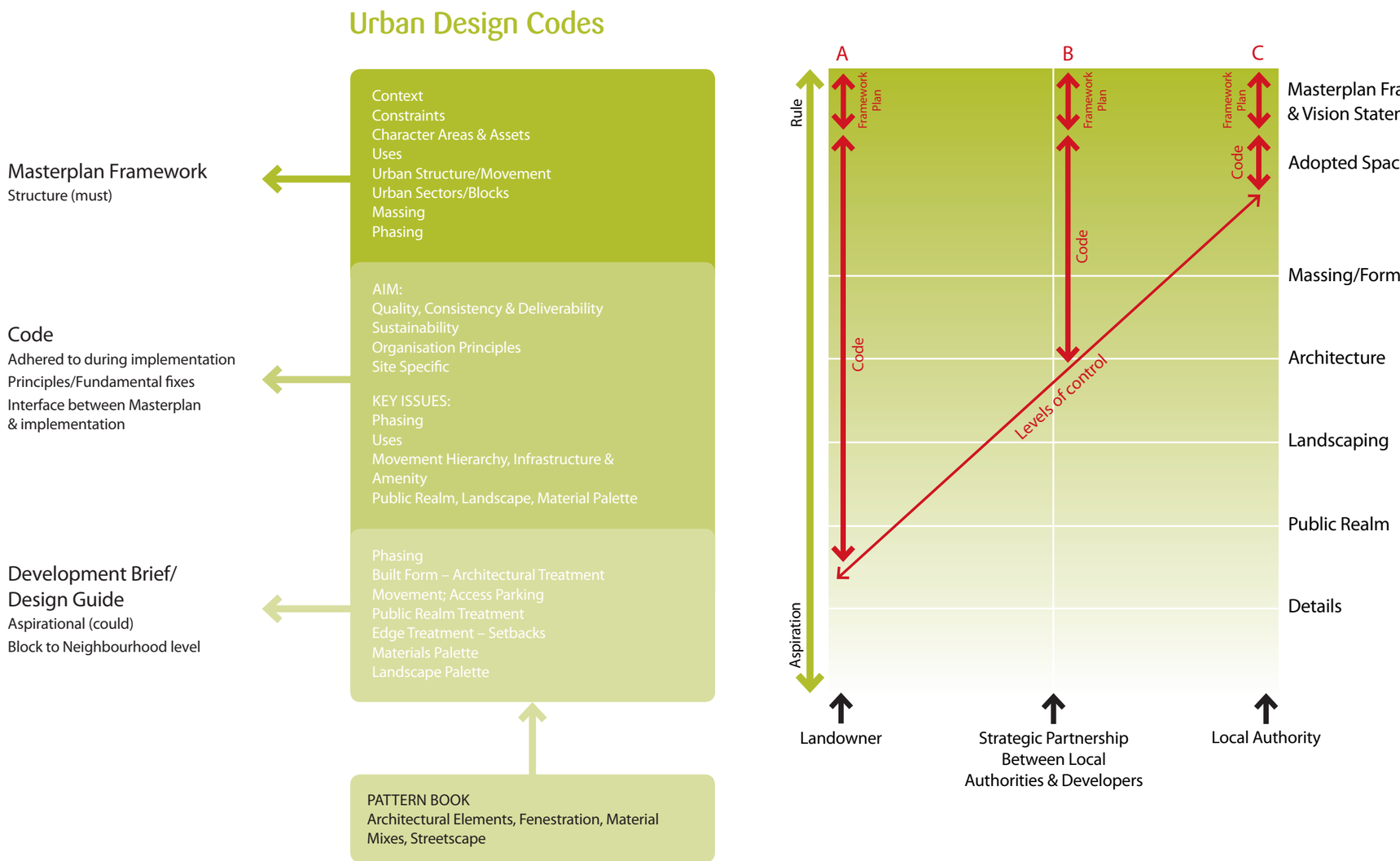


Figure 9: The above diagram charts out the three or four broad stages in the development of a site. The Masterplan Framework is the essential starting point which is required for all sites of a particular size and scale. A Design Code is necessary for sites of a certain size and complexity to be delivered over a period of time.

In case of a larger site that is made of several smaller ones, these may benefit from individual Development Briefs that lay down principles to guide the eventual development of the individual parcels.

Pattern Books may be considered if a degree of control is required over the architectural elements, type, material etc, though these tend to be most beneficial for sensitive sites that are within or adjoin historic areas.

The Level of Control that a Design Code is meant to adminster should be clarified early in the process. WNDC expects a relative high level of control and lays these requirements out through the provision of 'minimum requirements' that set out what amount of detail is expected within each topic area.

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## Must Do's

`Must do's' form the key principles of the Regulatory Plan and therefore refer to the development as a whole. They are mandatory and should be adhered to during the implementation process. The contents within this category are:

1) Design Vision and Strategic Principles

2) Site layout/Masterplan principles including:

- Urban Block Principles
- Massing Principles
- Sustainability including:
  - Social, Economic and Environmental
  - Sustainability
  - Community Safety

3) Character Areas including:

- Character Area Types

4) Movement Including:

- Street Hierarchy and Typology
- Parking Strategy
- Traffic Calming
- Pedestrian and Cycle Connections

5) Landscape and Public Realm including:

- Landscape Strategy
- Biodiversity Strategy
- Public Realm Strategy
- Implementation and phasing

## Should Do's

`Should do's' constitute those elements of a Design Code which have a greater degree of flexibility than `Must do's'. Whilst it is preferred that they are adhered to, they entail a degree of discretion within the process of implementation. They act as benchmarks to assess submitted applications and tend to incorporate detail which go beyond key principles. They can include:

- Block typology and form
- Massing
- Building form
- Building types and uses
- Boundary treatments
- Landscape including landscape/open space types
- Landscape details
- Recreation space provision
- Planting typology
- Sustainable urban drainage principles
- Materials and details including streetscape materials and public realm details
- Crime prevention

## Could Do's

`Could do's' constitute those elements of a Design Code which are discretionary and are provided as general guidance and/or suggestions. They therefore do not need to be adhered to in the form they are presented within the Code, particularly if the circumstances of the development are liable to change. This category allows for a level of flexibility and creativity so that the development can evolve over time. `Could do's' can be:

- Architectural Details including Elevation types
- Window and Door Details and Standards
- Porches
- Roof details
- Pattern Book

## Flexibility & Prescription – Getting the balance right

The balance between flexibility and prescription is difficult to strike. Very prescriptive Design Codes mean they are inflexible during implementation and can stifle design creativity. Similarly, overly flexible Design Codes tend to be open to greater interpretation and may compromise the quality of the developments.

Therefore enough detail should be provided to:

- increase certainty and consistency of development delivery
- identify clearly which elements are mandatory and which are discretionary and thereby outline what is acceptable and what is not
- ensure performance of design according to objectives of the design vision rather than specific outcomes
- focus on non-negotiable requirements and provide guidance on more flexible ones.

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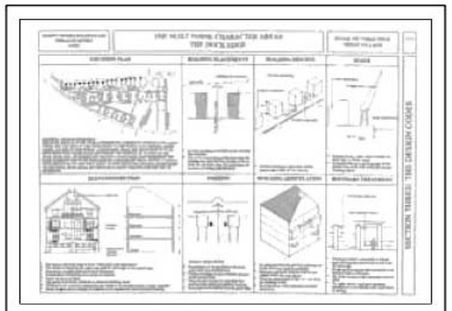
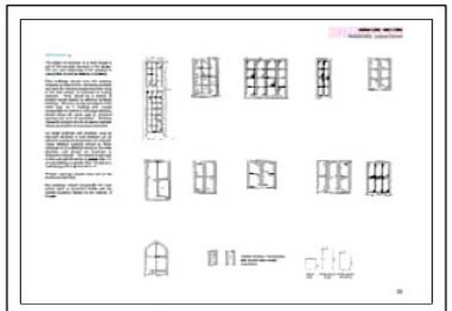
**Mandatory and Discretionary components compared**



| | Mandatory |
|---|---|
| **With options** | "Top storey **to be** brick, rendered or coloured cladding board" |
| **Without options** | "Windows **to be** vertical in proportion and windows of principal rooms to align vertically." |



| | Mandatory |
|---|---|
| **With options** | "Window openings **should have** one of the treatments indicated." |
| **Without options** | "Brick buildings **should have** the windows recessed at least 85mm." |

| | Mandatory |
|---|---|
| **With options** | "**It is required** that houses be linked by walls hedges, gates, garages or other devices to maintain continuity of the street line. Examples are given." |
| **Without options** | – |

| | Mandatory |
|---|---|
| **With options** | – |
| **Without options** | "Where indicated an additonal storey **may be provided** to emphasise key street corners and intersections in order to create visually distinctive massing or local landmarks" |

Figure 10: Explanatory note on differentiating between mandatory and discretionary items of a Design Code. Awaiting DCLG Copyright

## Summary

- Information on how the Design Code document is meant to be used
- Level of control meant to be exercised
- List of Must do's: all elements entail some mandatory requirements
- List of Should do's and Could do's which will vary according to:
  - the context of the site
  - the size of the site
  - the land ownership
  - the methods of implementation

## Further Guidance

- Preparing Design Codes, A Practice Manual – CABE and DCLG: London, 2006

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# 3.2.2 Local Context & Policy Framework

## Local Context

The guidance document, Preparing Design Code, A Practice Manual (CABE and DCLG, 2006) clearly states the importance of a contextual understanding of the site and its surroundings prior to the preparation of the Design Code. Whilst a large part of such an analysis is undertaken as part of the Design and Access Statement, it is important that this contextual information is reflected within the Design Code, particularly since the project team working on the Code may be different from the one who produced the Design and Access Statement.

Analysis of the local context should look at the form and character of places at different scales. The depth of this analysis should reflect the scale, location and complexity of the development proposed. A useful starting point is provided in Section 2 of this document and should include:

- the nature of landscape
- settlement and movement patterns
- the nature of the urban structure including the analysis of districts, streets and urban blocks and plots
- urban spaces, the built form, the use of materials and sense of townscape.

Again, the requirements of the Design Code will therefore be context specific, based on a robust comprehension of the locality and the relationship between different scales. This understanding will enable those writing the Design Code to judge if and where it is appropriate to maintain the local vernacular, to introduce elements of variety and/or to allow for a more contemporary built form.

## Policy Framework & Related Guidance

Along with the contextual understanding, further information should be provided on the policy background within which the Code sits.

It is important that reference to existing policy and guidance documents is made, namely national documents such as PPS1, PPS3, PPS22, etc. as well as guidance documents jointly produced by the Commission for Architecture and the Built Environment (CABE), the Department for Communities and Local Government (DCLG), the Department for Transport (DfT) and the Homes and Communities Agency (HCA).

In addition, for Design Codes produced for the WNDC, reference should be made to the relevant planning policy documents of the following local authorities:

- Northamptonshire County Council
- Northampton Borough Council
- Daventry District Council
- South Northamptonshire District Council
- West Northamptonshire Joint Planning Committee

### Minimum Requirements

- Contextual understanding of the site and its surroundings
- Policy framework background and guidance

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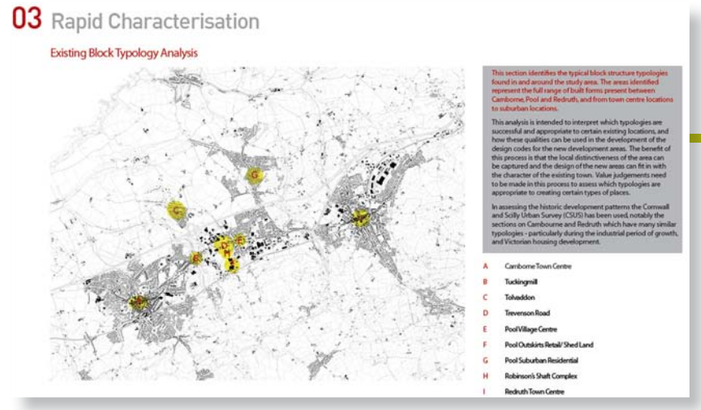


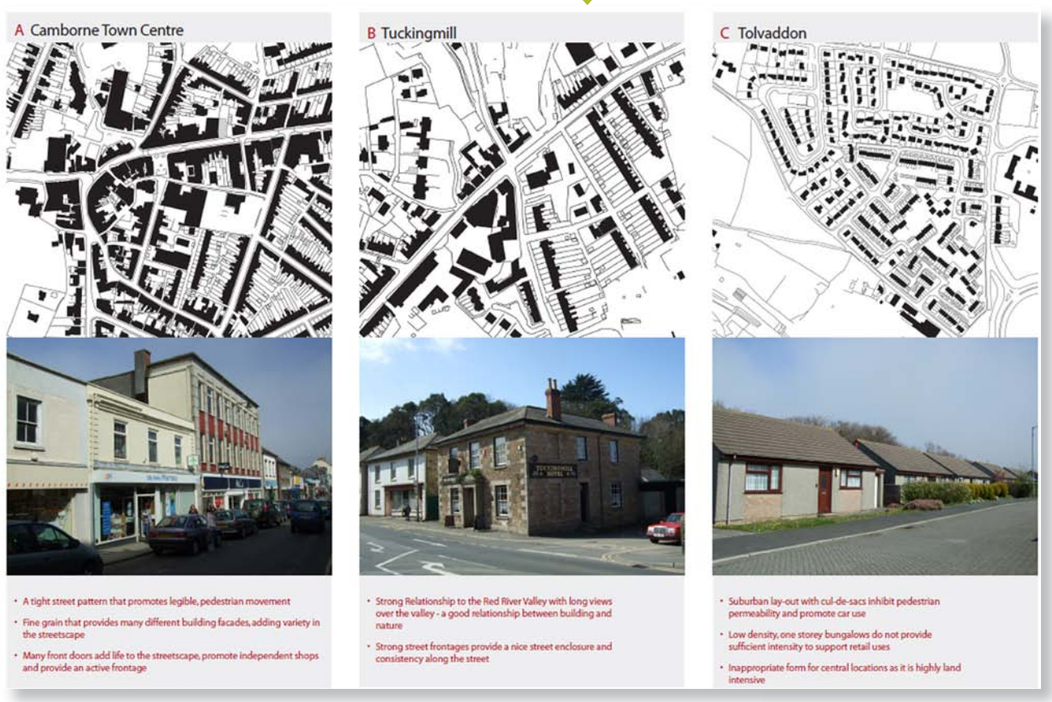


Figures 11 and 12: The Design Code for Pool dedicates a section on the characterisation of the area in which the Masterplan site is located. This section comes before the requirements of the Design Code. It provides a contextual background to the proposed development and its code

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## 3.2.3 Strategic Framework

The process for developing a Design Code is governed by a series of sequential and hierarchical components. The strategic framework tops this sequence. It is then followed by the Design Vision and by the Regulating Plan and Regulatory Matrix. These three elements flow directly from an applicant's Design and Access Statement and Outline Masterplan. Cross-referencing between the Design and Access Statement and the Design Code helps to avoid repetition between the two documents.

These three components in turn need to be linked to a detailed Masterplan. The remainder of the Design Code will then provide regulations and requirements to ensure the delivery of the latter.

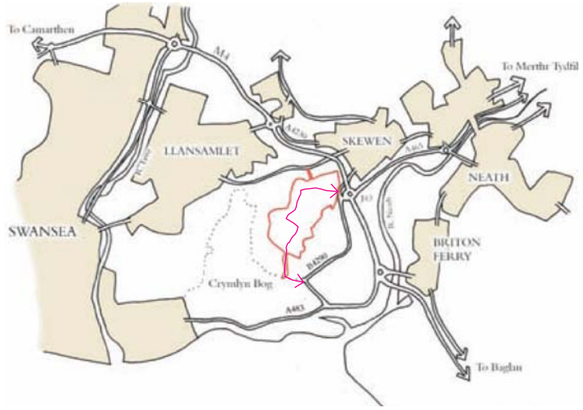


Figure13: Strategic framework for a site at Co-Ed Darcy that considers primary route connections across the site that link with the surrounding areas

Figure 14: Primary streets through the site providing strategic connections

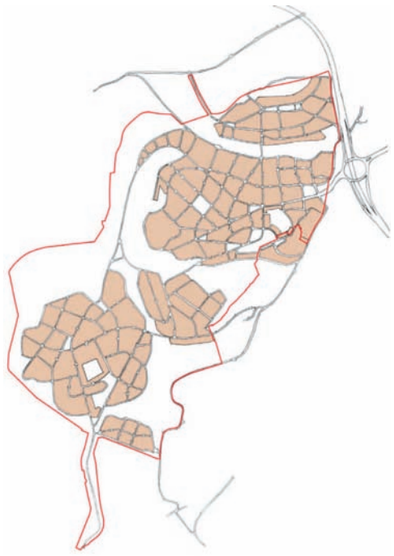

Figure 15: Secondary streets creating block divisions

Figure 16: Tertiary streets indicating the layout of individual blocks

### Strategic Framework

A plan that strategically links the development site to nearby settlements and main roads.

### Minimum Requirements

Hierarchy of components

- Strategic Framework
- Design Vision
- Regulating Plan and Regulating Matrix
- Detailed Masterplan (large phased sites only)
- Detailed sections of the Design Code

### Further Guidance

- Creating Successful Masterplans: A Guide for Clients – CABE, 2008
- Design Reviewed Masterplans: Lessons learnt from projects reviewed by CABE's expert design panel – CABE, 2004
- Preparing Design Codes, A Practice Manual – CABE and Department for Communities and Local Government, 2006
- The Urban Design Compendium 1 and 2 (English Partnerships & Housing Corporation 2007 (Homes and Communities Agency) )

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# 3.2.4 Masterplan Principles & Design Vision

## Design Vision

The design vision is defined in the indicative Masterplan and the Design and Access Statement approved at Outline stage and produced prior to the Design Code. The design vision should be in keeping with the site's context, relate to the scale and complexity of the application and be responsive to the needs and aspirations of the community. The Design Codes then build on this vision.

The design vision should be accompanied by a set of key principles or objectives that reflect the strategic framework. If the site is meant to be delivered over a period of time, then the objectives should be developed in a way that is flexible and adaptable to future needs. This is especially relevant for large scale developments and Masterplans. Any changes to the design vision should be undertaken at the Design and Access Statement level and then reflected in the Design Code.

These objectives are an important component of the Design Codes. Although they comprise a number of set requirements, as listed to the right, they should be specific to the type of development concerned. For example for a residential development, key objectives regarding the provision of affordable housing, sustainability and Secured by Design may be provided here.

For sites located in or surrounded by countryside, greater attention should be given to the key objectives regarding Green Infrastructure (GI), in terms of how the development responds to the GI, biodiversity and wider countryside.

For sites with a substantial quantity of employment premises, overriding objectives would be required which guide the types of employment, layout of premises and integration with adjoining land uses.

### Masterplan & Vision

Key principles are set out in the Masterplan Design and Access Statement

### Minimum Requirements

Key objectives should include information on the following aspects. These can be presented in one drawing or a layering of drawings:

- Key principles of the layout, including 2D and 3D sketches
- Access and movement
- Land use
- Landscape and open space
- Urban design principles/townscape
- Built form/height and massing
- Affordable housing
- Sustainability, including adaptability of objectives to future need
- Green infrastructure
- Phasing, implementation and delivery

**Key Principles**

- Strategic Connectivity
- Main Public Square and Main Route
- Western Edge (Waterfront)
- Eastern Edge
- Landmarks and Views
- Future redevelopment of the Waste Water Treatment Works in relation to the Special Protection Area (SPA)

Figure 17: Highlighting the key principles

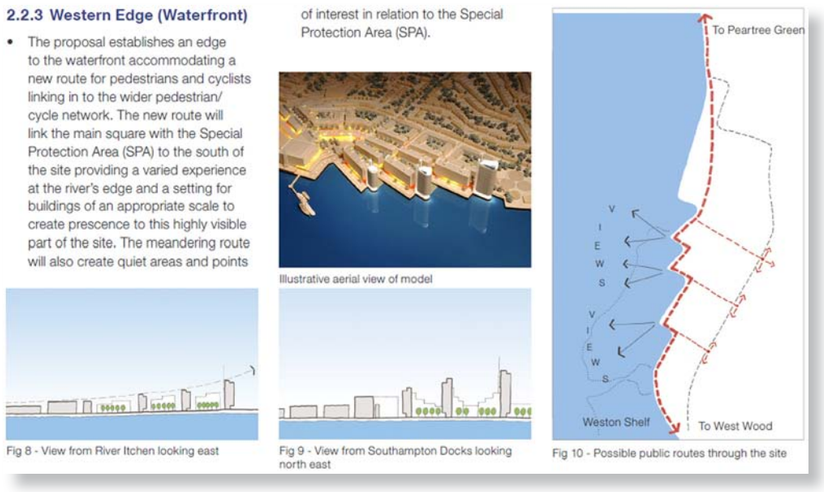


Figure 18: In the Design Code for the Woolston Shipyard Masterplan, the key Masterplan principles are highlighted in the blue box above. They are then illustrated individually, as in point 2.2.3 focusing on the waterfront of the development site

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## Regulatory Plan

The Regulatory Plan is the most important plan in a Design Code. It sets the precedent for the detailed information that is to follow. It is this plan that interprets the parameters that were established in the initial planning application and which also formed the basis of the Design and Access Statement. The plan takes these forward and becomes the principle tool for accessing subsequent planning applications.

It is important that this plan has been developed through the review process as demonstrated in the process diagram, set out in section 3.2.3 (Strategic Framework). This is to ensure that the plan is responsive to its context, and to the needs of the existing and future communities, any stakeholders, policy framework and is finally fitting with WNDC's and the local authority's aspirations for the site and the wider area. In this light, the plan should have been developed through an iterative process, with a good degree of engagement with concerned governing and public bodies, local councils, stakeholders, the community and interested parties.

The Regulatory Plan is a spatial manifestation of the design vision and therefore follows the vision in the development sequence. It serves as the over-arching plan that transfers the vision and the principles onto the site. It also forms the basis of the framework guiding the different elements of the Code.

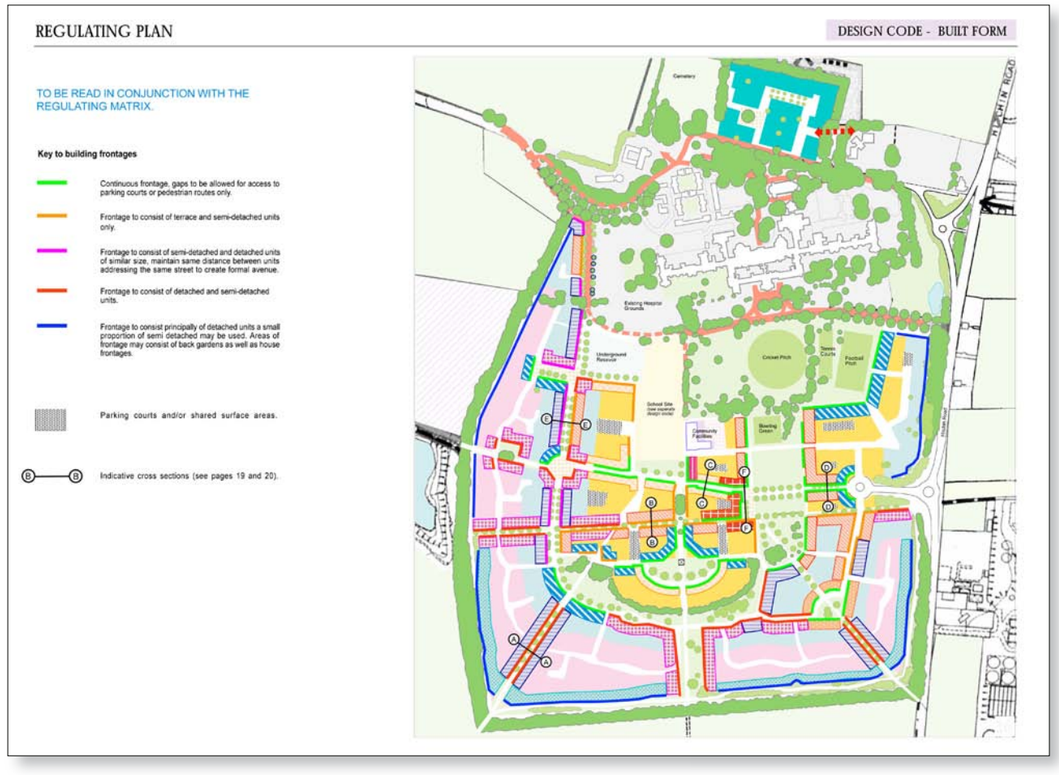


Figure 19: Example of a Regulatory Plan

### Regulatory Plan

A plan that interprets the design vision set out within the Design and Access Statement.

### Minimum Requirements

Information required prior to the Design Code:

- Regulatory Plan

### Further Guidance

- Creating Successful Masterplans: A Guide for Clients – CABE, 2008
- Design Reviewed Masterplans: Lessons learnt from projects reviewed by CABE's expert design panel – CABE, 2004
- Preparing Design Codes, A Practice Manual – CABE and DCLG, 2006
- The Urban Design Compendium 1 and 2 (English Partnerships & Housing Corporation 2007 (Homes and Communities Agency) )

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## Regulatory Matrix

While the Regulatory Plan forms the basis of the detail contained within the Design Code, the matrix serves as a quick guide to the key information provided within the Design Code. This information constitutes the building blocks of the layout and detail of the Design Code.

The matrix gives information on the standards that are expected to be followed within the development along with basic information on the block typology, building heights, setbacks etc. While the Regulatory Plan is a two dimensional spatial representation of the proposals, the matrix provides a level of three dimensional and detail information that strengthens the proposals.

The Regulatory Plan is a product of the Design and Access Statement whereas the matrix is completed once the Design Code is finalised. The matrix summarises the key requirements of the Design Code and should be read in conjunction with the Regulatory Plan. However, in order to regulate comprehensively, the Plan relates directly back to the Masterplan and must be found within this section of the Design Code.

The diagram in the Introduction indicates the process to be followed in the development of Design Codes and thereby the regulatory matrix. As with the Plan, this process should be an iterative one with the close participation of WNDC, local authorities and other public bodies, stakeholders and the local community, as required.

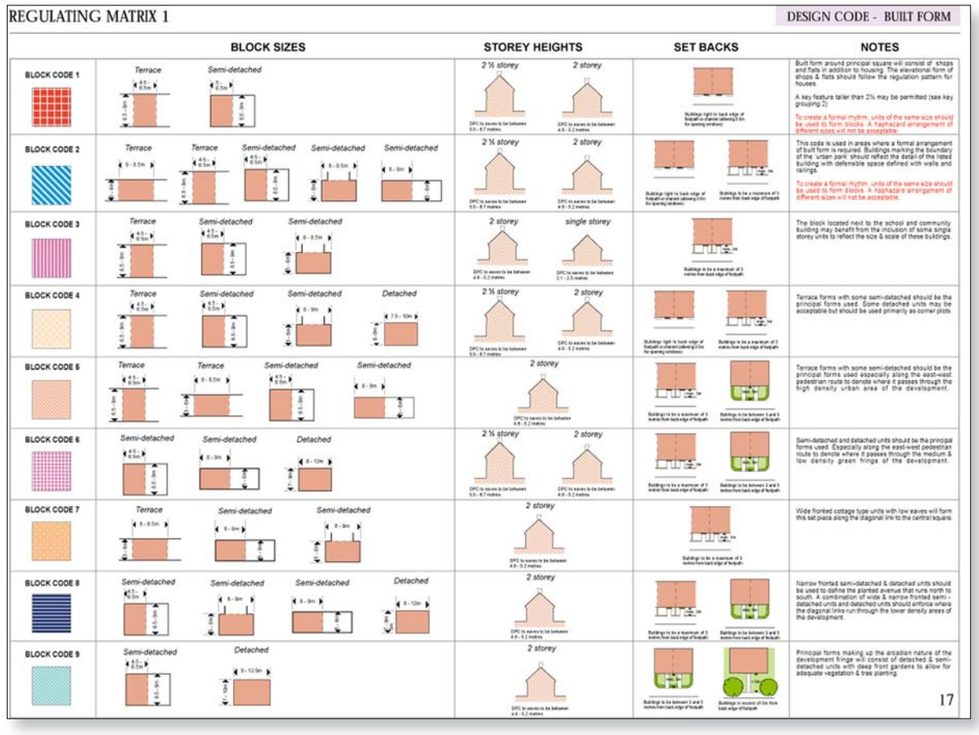


Figure 20: Example of a Regulatory Matrix

### Regulatory Matrix

A summary matrix of the Design Code's requirements.

### Minimum Requirements

Information required in the Design Code:

- Regulatory Matrix

### Further Guidance

- Creating Successful Masterplans: A Guide for Clients – CABE, 2008
- Design Reviewed Masterplans: Lessons learnt from projects reviewed by CABE's expert design panel – CABE, 2004
- Preparing Design Codes, A Practice Manual – CABE and DCLG, 2006
- The Urban Design Compendium 1 and 2 (English Partnerships & Housing Corporation 2007 (Homes and Communities Agency) )

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# 3.2.5 Sustainability Framework

The objective to achieve sustainable development has been incorporated within planning policy for more than a decade. It's importance is reinforced by documents such as PPS1 (2005) and the Planning for Climate Change Supplement, the Government's Sustainable Development Strategy (2005), Building for Life (2005), BREEAM, the Code for Sustainable Homes (CSH) and Secured by Design.

Sustainability is multi-dimensional and can be achieved through the social, environmental and economic aspects of development. The Sustainability Framework for a development would be developed in parallel with the Masterplan and would be submitted as part of an outline planning application. It lists the overall sustainability requirements that the development aims to achieve. Within its remit, it is expected that a Design Code would ensure that the objectives set within the Sustainability Framework are achieved through the implementation of the development.

The following list provides a general checklist of the elements that are found within a Sustainability Framework. The Design Code should ensure that through the implementation of the development, these aims and objectives are met.

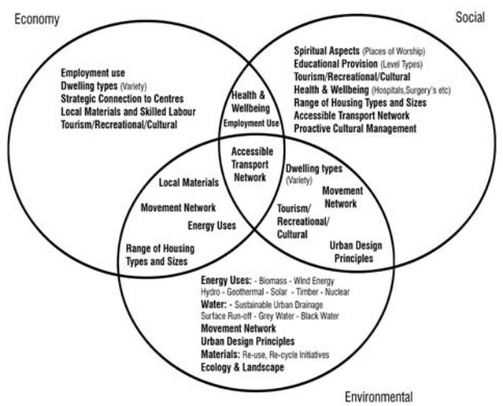


Figure 21: Elements of sustainability transcend into all areas of the Masterplan, from the environmental, to social and economic. Design Codes should ensure that principles laid down at the Masterplan stage are carried through to implementation

## Social

Social sustainability refers to all elements of development that will support the vitality, health and well-being of a community. This broadly comprises:

Convenient access for all to:

- public services such as schools, health care
- public transport
- work opportunities
- maintained facilities such as recreational areas and parks
- community facilities

Housing:

- appropriate density
- mixed tenure in terms of affordability, age and household composition
- responding to the community's needs

Safety through good urban design - The seven attributes of safer places:

- access and movement
- structure
- surveillance
- ownership
- physical protection
- activity
- management

Built Environment:

- maintain and enhance the quality and local distinctiveness of buildings and townscape
- protect and enhance cultural heritage

## Environmental

Environmental sustainability is more quantifiable and covers a wide range of interventions. It includes:

Biodiversity:

- the maintenance and enhancement of the indigenous fauna and flora
- the protection and creation of green spaces

Landscape:

- the maintenance and enhancement of the quality and local distinctiveness
- the assistance in urban heating and cooling

Prudent use of natural resources and incorporating energy efficiency:

- passive solar design and building orientation
- the incorporation of appropriate scale and types of renewable energy technologies
- the maintenance and improvement of the quality of water and air
- the efficient use of water, land and soil
- the management of flood risks
- the minimisation of energy consumption and efficient management of non-renewable energy
- the maximisation of recycling and minimising waste
- use of local and recycled material
- use of building methodology that reduces energy consumption (refer to BREEAM and CSH standards).

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## Economic

Economic sustainability is important to ensure that a development is viable and can be realised. To achieve this, it should be able to generate a minimum level of economic activity. Economic sustainability can be achieved through:

Employment:

- the maintenance and promotion employment opportunities for all

Wealth creation:

- the retention of factors conducive to wealth

Town Centres:

- the protection and improvement of the vitality and viability of town centres
- the promotion of a variety of local services
- the attraction of visitors
- the promotion of local distinctiveness and competitive advantage
- ensuring that infrastructure capacity matches development needs and plans.

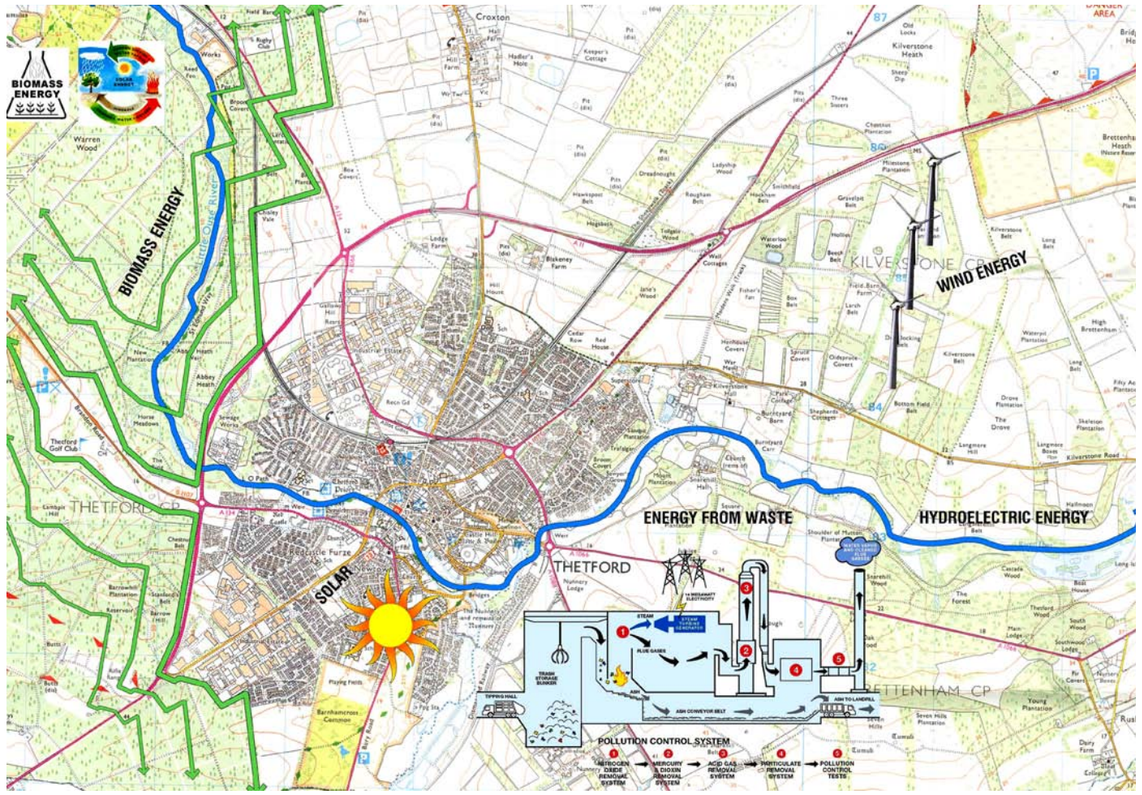


Figure 22: A Design Code should ensure that principles and objectives related to Sustainability, set out at the Masterplanning stage, are able to be taken onto the implementation stage by relating them to the physical reality of the site and its surroundings. In the above diagram, a potential masterplan for the extension of a Town considers its sustainability options, from sun and wind energy, energy from waste, hydroelectric energy and biomass energy from a nearby forest

### Minimum requirements

- The Design Code should ensure that sustainability aims and objectives set within the Design and Access Statement and Sustainability Framework are reflected in the Code's requirements and realised throughout the implementation process

### Further Guidance

- Codes for Sustainable Homes: A step-change in sustainable home building practice - DCLG, 2006
- BREEAM

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## 3.2.6 Character Areas

The Design Code builds on existing information on character areas documented in the Design and Access Statement, by providing further layers of information on each area. The number of character areas defined in a Masterplan varies depending on the size and typology of the site and the layout plan.

Character areas can be defined by their use, for example a local or neighbourhood centre would be defined by a mix of uses and a business park by the provision of commercial and employment uses. Alternatively, they may be defined by their location within the site or with respect to adjoining areas to the site. At times, a section of the site adjoining an existing area may reflect the character of that area.

It is important that this section is accompanied by a clear overall plan that marks the various character areas of the development. (If these respond to existing adjoining areas, then these should be marked on plan too.)

A table of specification summarising the key features of character areas, listed to the right, must be provided. It helps to provide local precedents for each of the character areas, especially if these are in keeping with the local context of the site. Precedents can be particularly helpful as they can maintain continuity with the context of the site and provide a level of pictorial imagery for the character area.

Sketches, cross-sections and/or 3D drawings are also helpful and must be provided. For potentially contentious character areas, supporting illustrations prove to be an invaluable tool to ensure that the key features are appropriately communicated.

Character areas should be colour coded and named and/or numbered. This ensures consistency across the document. Further information on topics that are related to character areas can be provided as sub-sections.

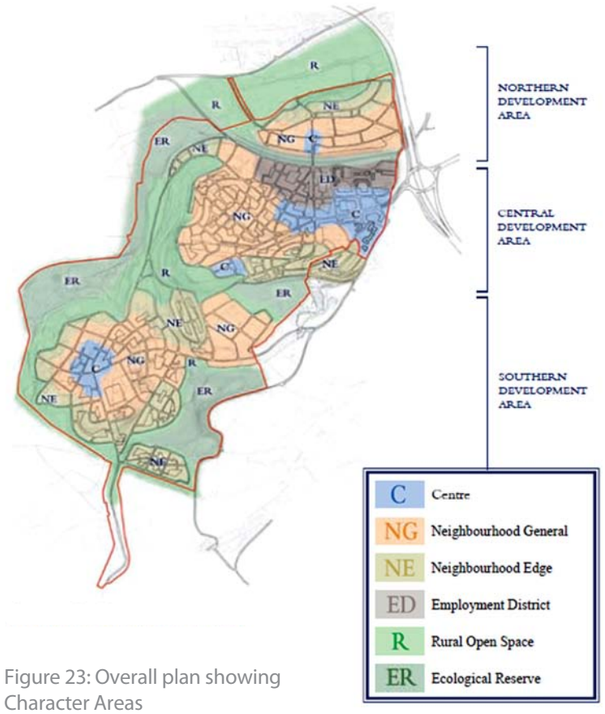


Figure 23: Overall plan showing Character Areas

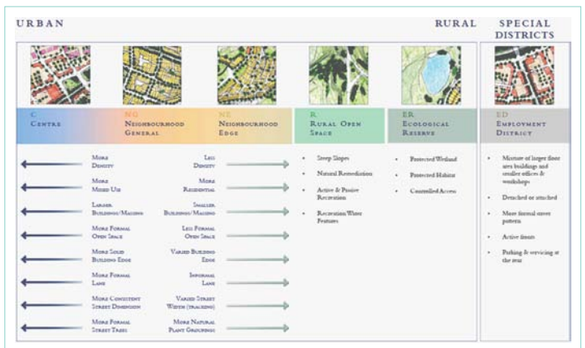


Figure 24: The table refers to the above map and outlines the features of each of the six character areas. The accompanying plan to the right locates the character areas within the development site

### Character Areas

Design Codes build on existing information on character areas, documented within the Design and Access Statement by providing further layers of information on each area.

### Minimum Requirements

Clear overall plan of character areas

Table of specifications for character areas, including key features such as:

- typology
- uses
- massing/height
- built form
- density
- setbacks
- average or range of plot sizes
- plot types
- street typology
- cross sections

Clear colour coding/numbering of character areas

Sketches, cross sections and/or 3D drawings

### Further Guidance

- The Urban Design Compendium 1 and 2 (English Partnerships & Housing Corporation 2007 (Homes and Communities Agency) )
- By Design: Better Places to Live – DETR and CABE, 2001

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# 3.2.7 Movement Framework

## Movement Framework

The Design Code should provide guidance on the movement framework building on the Design and Access Statement. The latter identifies existing and future desire lines, which are established by taking account of the movement patterns of the wider region around the site. As such, desire lines then form the basis of the overall movement framework and help to integrate a new development with its surroundings and connect it with the existing road network.

The key objective of Design Codes is to develop a set of movement routes based on key desire lines and to ensure that the street typology follows the street hierarchy and takes into consideration all levels of traffic - vehicular, pedestrian and cyclists.

## Legibility

The movement framework should be legible ensuring that routes are direct, easy to follow and the street character and typology is in line with the street hierarchy (discussed below).

Legibility is also achieved through a variety of recognisable elements that facilitate navigation and way finding. The positioning of these elements should be carried out with regards to the other spatial and functional elements of the Masterplan, such as character areas, urban blocks, building scales and uses, history and identity of the place.

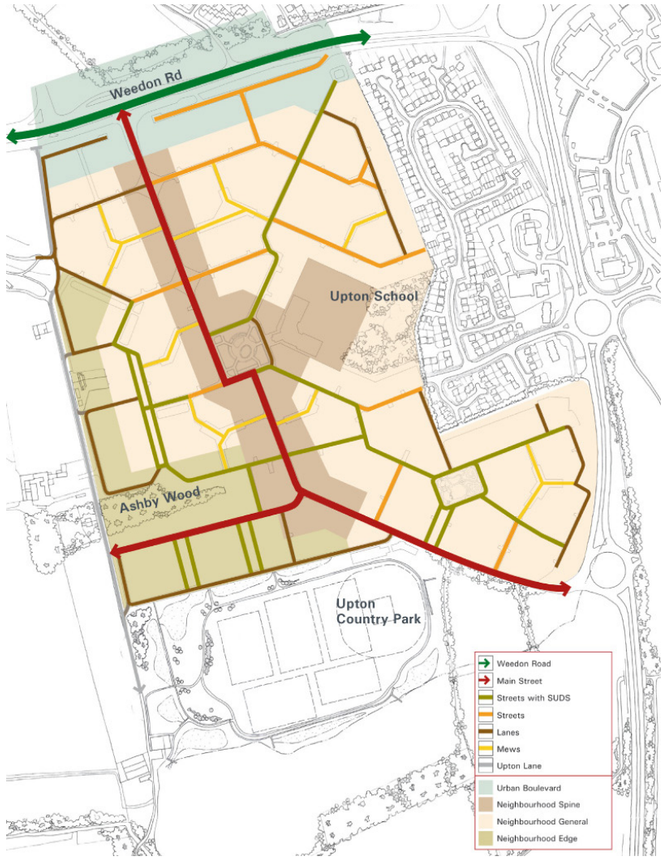


Figure 25: A plan of the development laying out the street hierarchy

## Movement Framework

The Movement Framework incorporates all key information regarding movement within a Masterplan. This includes information on strategic connections, desire lines, street hierarchy and typology.

## Minimum Requirements

- Plan showing the movement framework with key routes, desire lines and destinations

Legibility

Plan marking:

- Entrances or gateways
- Recognisable site-wide landmark buildings, key groups of buildings and key individual buildings
- Key views and vistas

Focal points in the form of buildings or public open space and/or public art

## Further Guidance

- Manual for Streets - DfT and DCLG, 2007
- Strong and Prosperous Communities - Local Government White Paper, 2006
- The Urban Design Compendium 1 and 2 (English Partnerships & Housing Corporation 2007 (Homes and Communities Agency) )

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## Street Hierarchy and Typology

Street hierarchy illustrates the hierarchy of the routes within the development. It ties in with the street typology to form a coherent streetscape and movement framework. The basic sequence of the street hierarchy is as listed:

Corresponding street hierarchy and street typology

| Street Hierarchy | Street Typology |
|---|---|
| Primary or Main Street | Boulevard<br>Avenue |
| Secondary Street | Local Road<br>Local Street |
| Tertiary Street | Mews<br>Lane |

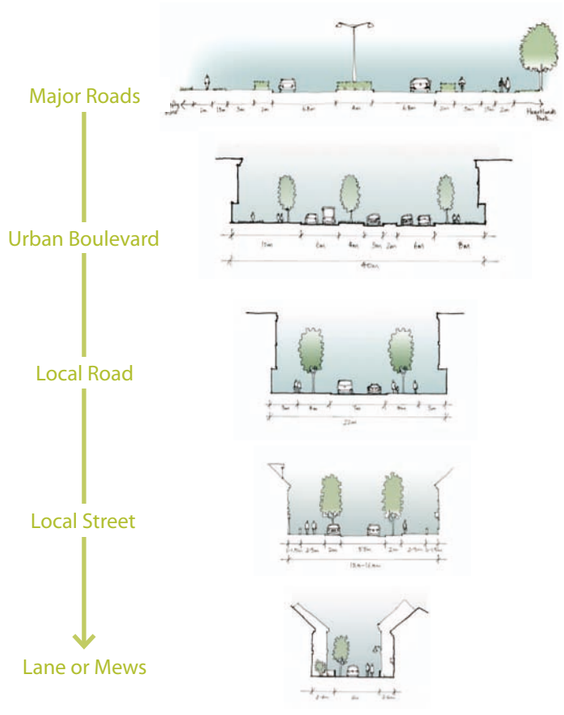


Figure 26: Sections of street typologies indicating street hierarchy

Primary or Main Streets

These streets follow key desire lines. They form the main movement routes through the development and connect it with its surroundings. Primary or main streets also connect between primary destinations. These routes should be direct and continuous. They tend to be mixed use streets and can be classified as Major Road or Urban Boulevard, taking on the bulk and speed of vehicles. The latter does not exceed 30 mph within urban areas.


High Street Kensington in London is a dual carriage street with dedicated bus lanes and frequent pedestrian crossings

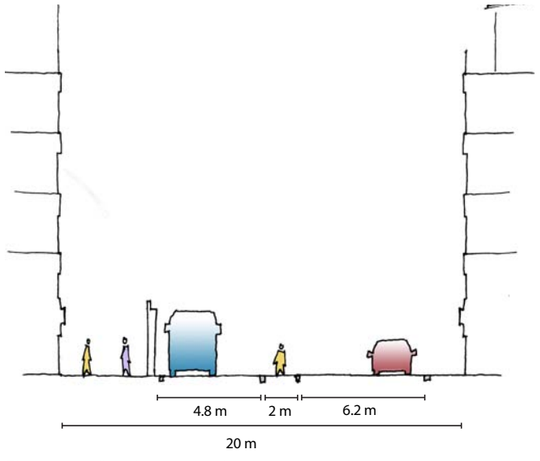


Figure 27: Section of a primary street with dual carriage way and bus lanes

## Minimum Requirements

Street hierarchy and typology including:

- Spatial arrangement of street hierarchy
- Scale of streets – size and width

Street sections and plans showing:

- Street width, carriageway and footway widths
- Junction spacing
- Building setback and heights
- Parking space (if relevant)
- Street furniture and materials (discretionary)

## Further Guidance

- Manual for Streets - DfT and DCLG, 2007
- The Urban Design Compendium 1 and 2 (English Partnerships & Housing Corporation 2007 (Homes and Communities Agency) )

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### Secondary Streets

These streets branch off from the primary street and accommodate local traffic. They also connect secondary destinations and may be flanked by a mix of uses. Vehicular traffic does not exceed 30 mph. Pedestrians and cyclists are also integrated within the overall movement flow. On-street parking may be integrated along the street edge.

Secondary residential street with on-street parking

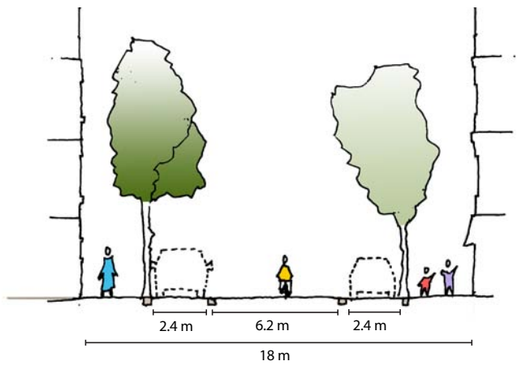


Figure 28 Section of secondary street (residential or mixed-use) with on-street parking


Figure 29: Section of secondary street (residential or mixed-use) no parking provision

### Tertiary Street

Tertiary streets usually branch off from secondary streets and tend to be residential streets, shared surfaces or mews. Equally, they can be communal or semi-private serving a small part of a development where the private realm is allowed to spill onto the street. Pedestrians and cyclists tend to take priority over vehicular movement, particularly on shared surfaces. Speed does not exceed 20 mph.

Parking can form an integral part of the street design with on-street parking located along the street edge.

Narrow residential lane for one-way traffic and with on-street parking and cycling facilities


Figure 30: Section through a tertiary street (predominantly residential) with provision for on-street parking

### Pedestrian and Cycle Route

Depending on the development, pedestrian and cycle routes can be provided as dedicated lanes or be part of the street in the case of a shared space. Pedestrian/cycle lanes or tracks can connect between streets and thereby increase pedestrian permeability.

### Home Zones

Home Zones tend to be tertiary, residential streets. These are shared surface streets with no clear segregation between areas for vehicles and pedestrians. Pedestrians and cyclists have priority and vehicular traffic calming is achieved through integrated public realm, highway and landscape design. The use of tree planting, bollards and a change in paving are common ways of directing traffic and reducing traffic speeds. Home zone principles can be applied to public squares and communal spaces. While these can be retrofitted, it is expected that with new developments, home zones spaces would be identified and designed as such, from the start.

Example of Homes Zones integrating traffic calming measures in the Borough of Southwark, London

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## Street Design and Facilities

By fulfilling a mix of uses comprising movement, retail, residential and office functions, streets constitute urban spaces and destinations in themselves. The facilities enabling the interplay between pedestrians, cyclists and vehicles on one hand and between the streetscape and the built form on the other are therefore important.

Street facilities enable the various users - pedestrians, cyclists, drivers, old or young, able or less able bodied - to navigate in a safe and user-friendly public realm and the following elements must be provided within the Design Code:

- Dimensions of pavements: these should allow sufficient space for wheelchair users and for pedestrians to pass each other. The dimensions will vary whether the area is residential or commercial and dependent on the street hierarchy and typology
- Gradients: they should be compliant with the DDA regulations
- Crossings: they should follow pedestrian desire lines
- Underpasses: they should be avoided, where possible, as they create unsafe and segregated crossings
- Steps: they should be avoided but if this is not possible, an alternative route should be provided for disabled users
- Tactile surfaces: they should be provided to indicate crossings and where pedestrian flows tend to be larger
- Location of cyclist routes: depending on the street hierarchy, they can be either integrated into or segregated from the carriage way
- Location of kerbs.

Local High Street which provides wide pavements, integrated traffic calming measures, changing textures and cycle parking facilities

Integration of stairs and ramps at the Brunswick Centre, London

Use of bollards to prevent vehicles from passing but to promote pedestrian and cyclist permeability

### Minimum Requirements

Street hierarchy and typology including:

- Pavement dimensions
- Gradients and facilities for disabled persons compliant with the DDA standards
- Crossings
- Tactile surfaces
- Kerbs
- Location and integration of cycle routes (if relevant)

### Further Guidance

- Manual for Streets - DfT and DCLG, 2007
- The Urban Design Compendium 1 and 2 (English Partnerships & Housing Corporation 2007 (Homes and Communities Agency) )

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## Public Transport

Well designed public transport amenities such as bus stops contribute to the quality of the public realm. The Design Code should build on the role of public transport as set out in the Masterplan and Design and Access Statement as well as consider how the public transport network would integrate into the street hierarchy. The Design Code should also pay attention to inter-modal connection spaces.

## Walking

Walking and pedestrian provision are crucial to promote permeable and sustainable communities. The Design Code should therefore provide guidance on pedestrian provision and amenities such as walkways, footways, pedestrian bridges, which should be compliant with DDA standards.

## Cycling

Whereas cycling was poorly catered for a few years ago, it is now clear that it contributes greatly to sustainability. Particular information should be provided on cycling networks and provisions throughout the development.

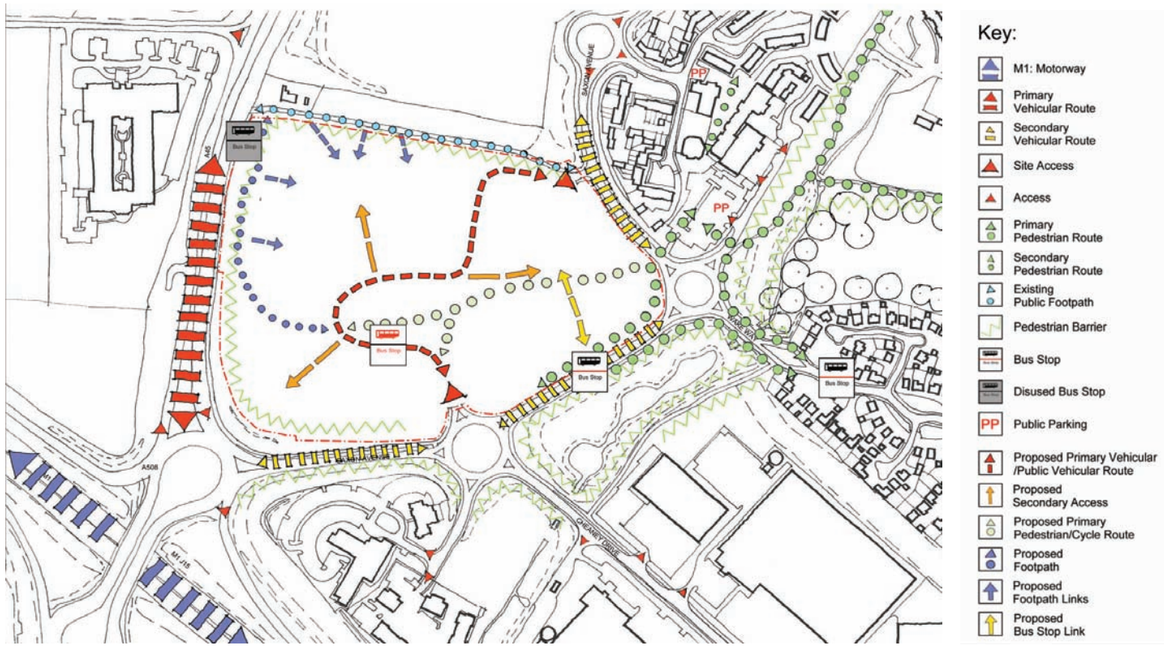


Figure 31: Drawing showing the overall movement framework in Grange Park, including the hierarchy of pedestrian routes, the proposed locations of bus stops, public footpaths, etc.

## Minimum Requirements

Public Transport

- Public transport provision and network throughout as defined by the Masterplan
- Provision of separate bus lanes, if appropriate
- Position of bus shelters
- Kerbs, crossings and changes in material
- Integration of various modes of transport

Walking

- Pedestrian network throughout the Masterplan
- Position of crossings
- Shared spaces and/or pedestrian areas, as appropriate
- Width and height of pavements
- Changing in materials and textures
- Visibility of streets and car traffic

Cycling

- Cycling network throughout the Masterplan
- Provision of separate cycle lanes, if appropriate
- Provision of appropriate signage for cyclists throughout the development

## Further Guidance

- By Design – Urban Design in the Planning System – CABE and DETR, 2000
- Manual for Streets – DfT and DCLG, 2007
- The Urban Design Compendium 1 and 2 (English Partnerships & Housing Corporation 2007 (Homes and Communities Agency)

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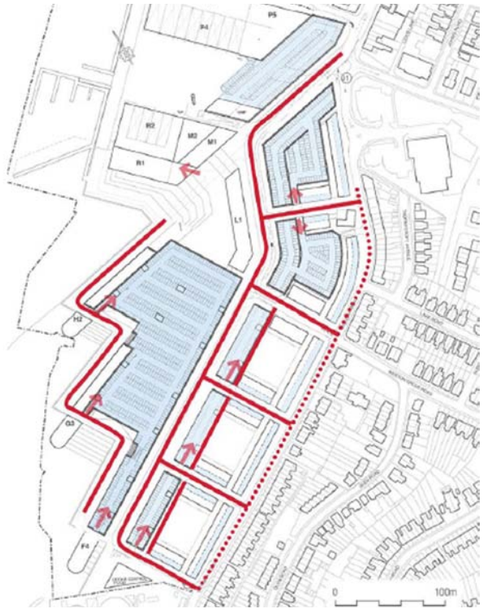
## Parking Strategy and Typology

It is mandatory to include information on the proposed parking strategy, provision and typology. This information needs to be referred to the current standard parking requirements.

Information can be provided on the parking types within the overall block types as these tend to be related. Particular attention should be given to passive surveillance, lighting, boundary treatments, parking locations and landscaping to ensure that crime prevention has been addressed.




| | |
|---|---|
| | Streets that allow for on street parking (indicative) |
| | Victoria Road: opportunity to retain existing on-street parking in different format |
| | Basement parking |
| | Access to underground parking |

Figure 32: Overall plan locating the type of parking types throughout the Masterplan site

## Cycle Parking and Storage

Parking facilities for cyclists are essential to promote this mode of transport. They should therefore be provided throughout the development and take on an appropriate form according to the use (residential, commercial, mixed-use) and type of place (public or private).

In curtilage parking

Parking court

On-street parking

Garages

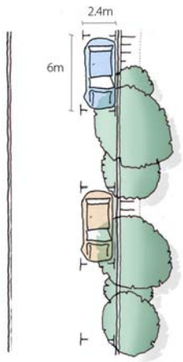



Figure 33 - Types of on street parking : Parallel

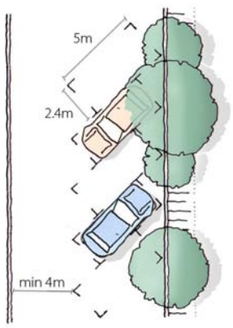



Figure 34 - Types of on street parking : Angled at 45 degrees

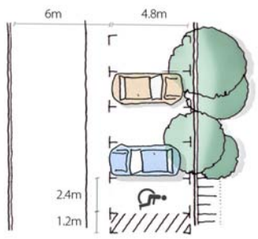



Figure 35 - Types of on street parking : Perpendicular

## Minimum Requirements

Parking

Overall plan locating the various parking typologies

- Illustration of those typologies
- Overall number of parking spaces
- Access to parking areas
- Measures taken to ensure visibility and surveillance
- Landscape
- Boundary treatment
- Materials used
- Lighting
- Provision for disabled parking

## Further Guidance

- Manual for Streets – DfT and DCLG, 2007
- Daventry Design Codes – Daventry District Council, 2005
- Car Parking: What works where – English Partnerships, 2006
- Northamptonshire Place and Movement Guide – Northamptonshire County Council, 2008 (Draft)
- Parking SPG – Northamptonshire County Council, 2003
- The Urban Design Compendium 1 and 2 (English Partnerships & Housing Corporation 2007 (Homes and Communities Agency)

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## Traffic Calming

Traffic calming intends to enhance the safety of all street users and encourages a pleasant street environment. Whilst signage is beneficial, several design measures built into the streetscape can be more effective at reducing vehicle speed. It also allows for an improved quality of public spaces which are not dominated by traffic. Rather than having to retrofit vehicle-dominated streets to calm traffic after they have been built, Design Codes offer the opportunity to build traffic calming into street design prior to the construction stage.

The level of detail provided on traffic calming depends on the character area and type of street. Drawings illustrating traffic calming measures or photos of existing streets with integrated traffic calming measures should be provided as illustrations.

The speed of vehicles within urban area will vary according to the typology of the streets but also to the street design. The average speed in urban areas is 30 mph whilst in a home zone it is 20 mph.

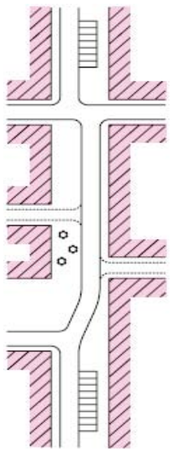

Figure 36: Traffic calming measures illustrated in Manual for Streets

Raised tables and changing textures for pedestrian crossings

Narrowing carriage way at a junction

The following list provides examples of ways by which traffic calming measures can be implemented:

- Vertical deflection
- Horizontal deflection such as chicanes
- Raised tables
- Changing surface materials and textures
- Width restrictions on main roads
- Feeling of enclosure due to proximity of buildings to carriage way or through additional elements such as trees
- Strong corners giving pedestrians better visibility and force drivers to slow down when turning
- Shared surfaces, which add an element of uncertainty and encourage all users to be more attentive
- Kerb lines following the building line instead of the carriage way
- On street parking.

Designing residential streets as home zones or creating shared surfaces are good methods for reducing traffic speeds. These are supported by the Northamptonshire Place and Movement Guide along with 20 mph speed restrictions for residential streets. While each home zone would vary according to its location and context, they should contain most of the following features:

- Clear entry point featuring a ramp, tight turning radius and carriage way narrowing
- A change in surface material
- Trees and landscaping
- Cycle parking
- Play equipment as required
- Street furniture
- Integrated lighting
- Facilities for refuse collection.

### Minimum Requirements

Traffic Calming

- Purpose of traffic calming
- Methods/measures applied
- Material used
- Tracking type
- Access
- Visibility angles

### Further Guidance

- Manual for Streets – DfT and DCLG, 2007
- Daventry Design Codes – Daventry District Council, 2005
- Northamptonshire Place and Movement Guide – Northamptonshire County Council, 2008 (Draft)
- The Urban Design Compendium 1 and 2 (English Partnerships & Housing Corporation 2007 (Homes and Communities Agency)

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# 3.2.8 Urban Blocks

## Block Layout & Orientation

The Design Code should build on information on the Masterplan block typology and block principles presented in the Design and Access Statement.

Establishing clear block principles is vital to shaping the overall townscape quality of the development as these will have a major impact on the visual quality of a development and place. This is particularly important in West Northamptonshire where the quality of townscape plays a major role in defining the distinctive character of each town.

It is important to consider that to maximise solar orientation; buildings should be orientated broadly to the south to maximise the solar potential and this tends to result in an East-West street pattern. It is possible to orientate buildings up to 30 degrees away from due south and yet have 90-95% of the maximum daylighting benefit.

## Changes in Level

The block layout should be innovative and inspired by surrounding context as an integral part of the street. On sloping sites, a balance needs to be struck between the development and the constraints imposed by the local setting, particularly in relation to the slope of the street pattern, height of existing vegetation, views, and roofscape of existing buildings.

Where a change in level dictates the need for slope/ ramping then this should be 1:20 (5%) and no steeper that 1:12 (8%) to comply with DDA Accessibility Regulations. Integration and attention to detailing of slopes, ramps and steps is required in order to provide a practical alternative route for all users.

Wherever possible proposals should align building footprints, streets, sewers and other watercourses to follow slope contours. This allows building profiles to grow out of the ground, minimizing the cut and fill, while enabling natural gravity-flow drainage to be utilised.

## Uses & Typology

The broad distribution of uses in the Masterplan should respond to the wider context of surrounding uses within the location and proximity of existing amenities. The Design Code should include a block plan indicating the location and type and quantity of uses.

## Density

The quantity and distribution of density within a Masterplan is an important element dictating the character of a development. The Design and Access Statement should be referred to regarding the density ranges for the development site and/or distribution within character areas. The Design Code should provide further details on the quantity and distribution of density and the resulting massing and height of building forms.

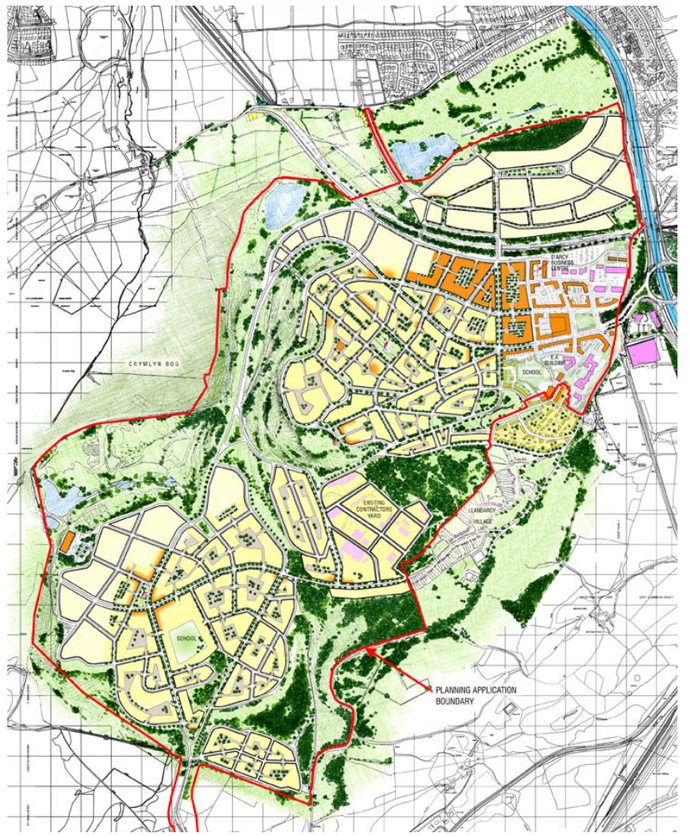


Figure 37: This plan indicates the block layout and typology. It also takes into account the natural features and topography of the site

## Urban Blocks

Urban Blocks are the plots of land to be developed. They are defined by the layout of streets.

## Minimum Requirements

- Plan showing the spatial arrangement of blocks, taking into consideration the street layout
- Orientation of development
- Continuity and spacing of blocks
- Block typology
- Block plan showing the distribution of uses
- Block plan indicating the quantity and distribution of density in terms of dwellings per hectare
- Table of specifications such as dimensions, block area, etc.
- Cross sections indicating proposal rationale to contours and gradient

## Further Guidance

- Policy Planning Statement 3, 2006
- The Urban Design Compendium 1 and 2 (English Partnerships & Housing Corporation 2007 (Homes and Communities Agency)
- Daventry Design Codes – Daventry District Council, 2005
- By Design – Urban Design in the Planning System: Towards Better Practice – CABE and DETR, 2000

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## Massing & Height

The overall massing and individual building heights should relate to the scale of the development and its surrounding context giving consideration to its location within the parent settlement. The location of the site, whether it is an urban or town centre site, a suburban or local centre site, or a rural site will have substantial bearing on the permissible height and massing allowance. The Town and Village Design Statements may provide further guidance.

The Design Code is expected to build on existing information on massing and heights as provided within the Design and Access Statement. The Code should provide further detail on individual building heights and collective massing for areas identified in the Masterplan. Sufficient information should be provided to demonstrate how this relates to the immediate surroundings in terms of the adjacent streets and open spaces. This helps to justify the requirements for massing. For instance, higher massing should be located along major streets and fronting key open spaces.

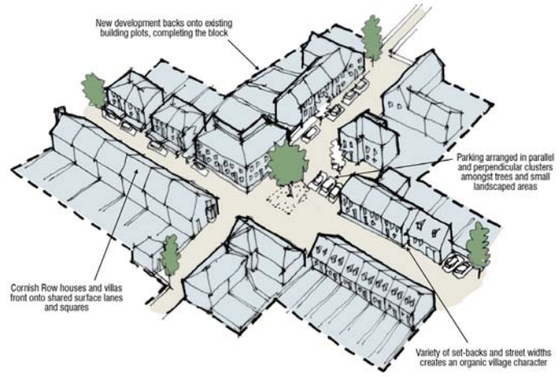


Figure 38: 3D illustration massing and height of a street junction

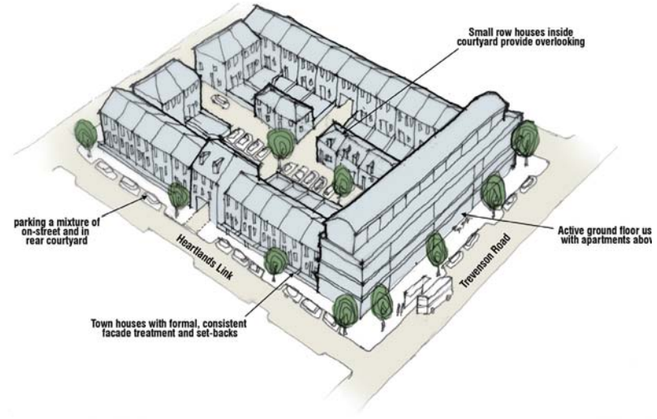


Figure 39: 3D illustration of the massing and height of an urban block

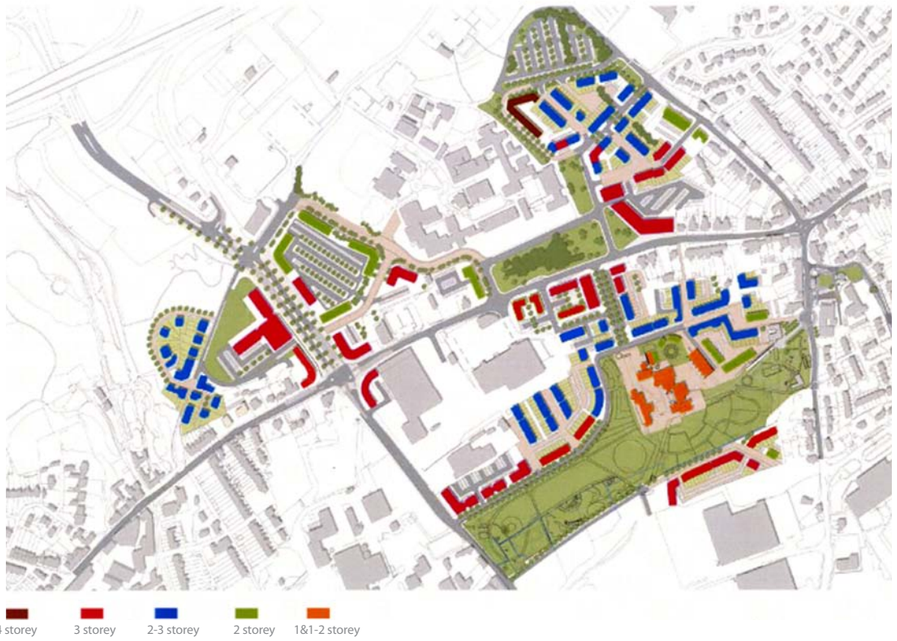


Figure 40: Pool Masterplan showing the location of building heights

### Minimum Requirements

Plan indicating the distribution of massing and proposed height, detailing:

- acceptable building heights for different types and uses of developments
- the spatial locations for various building heights
- preferred building shapes and/or volumes in sensitive locations
- the relationship to the context

These should be presented in 2D and/or 3D sketches illustrating the massing principles.

### Further Guidance

- Urban Design Compendium 1 and 2 Homes and Communities Agency, 2007
- By Design – Urban Design in the Planning System: Towards Better Practice CABE and DETR, 2000
- Daventry Design Codes – Daventry District Council, 2005
- Village and/or Town Design Statement(s) SPD (various)

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## Townscape

The townscape of a given place is defined by its overall character and is appreciated through views and vistas across a site or area. The townscape is formulated by the collective arrangement of blocks, their typology, sense of enclosure of streets, building height and massing, landscape and architectural elements and styles.

## Site-Wide Landmarks, Key Building Groups & Landmark Buildings

Landmarks are important urban elements that help people navigate through space. They create memorable spaces and contribute to shaping the identity of places.

Whilst some urban features, places and buildings become landmarks unintentionally, others are purposefully designed to make places legible. Landmarks can equally be important building structures or small markers. In either case, they are significant in contributing to the identity of a place.

The Design Code should identify clearly the location of site-wide landmarks, key groups of buildings and landmark buildings. Their positioning should take into consideration the locations of any existing landmarks, open spaces, vistas and views, street hierarchy, and the uses and scales of surrounding buildings.

Landmarks should be specified at the level of the overall site, whereas key buildings (both in groups and individually) are located at the level of character areas or follow the phased development of the Masterplan.

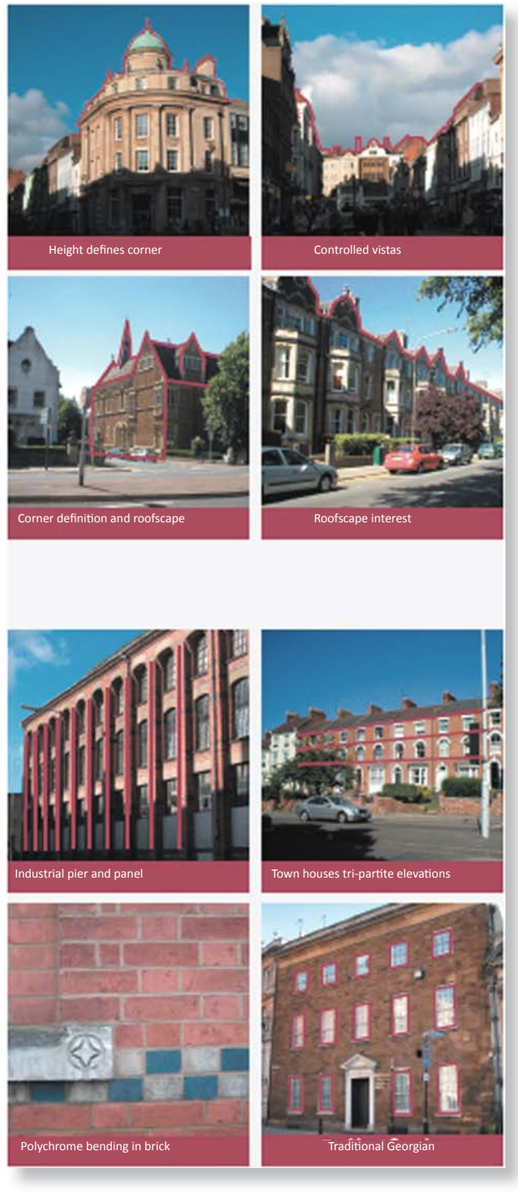


Figure 41: These images demonstrate the townscape elements of the built environment in Northampton, highlighting the details that recreate a sense and quality of place

## Minimum Requirements

Plan showing:

- Location of site-wide landmarks, key building groups and key individual buildings
- Focal points
- Key views and vistas

Sketches and/or sections of key buildings, illustrating their type, function and elevation

Further details on views and key spaces illustrating the townscape

## Further Guidance

- The Urban Design Compendium 1 and 2 (English Partnerships & Housing Corporation 2007 (Homes and Communities Agency)
- Daventry Design Codes – Daventry District Council, 2005
- By Design – Urban Design in the Planning System: Towards Better Practice – CABE and DETR, 2000
- Building for Life – CABE and Home Builders Federation, 2006

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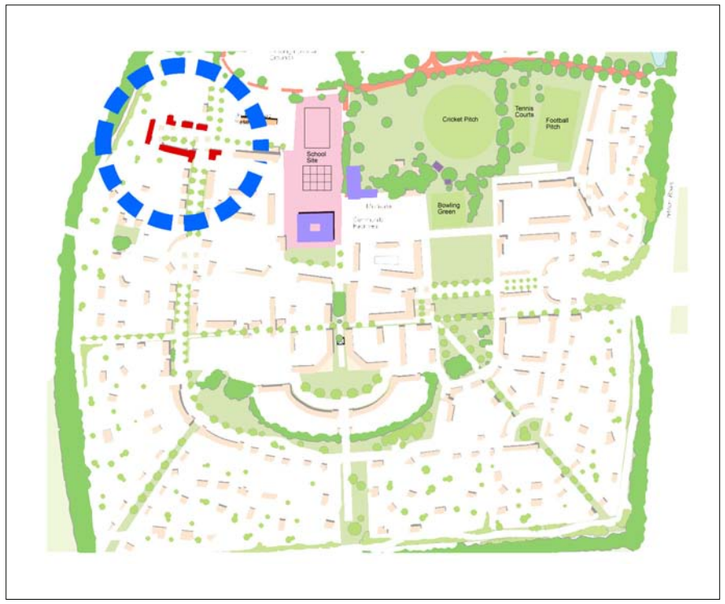


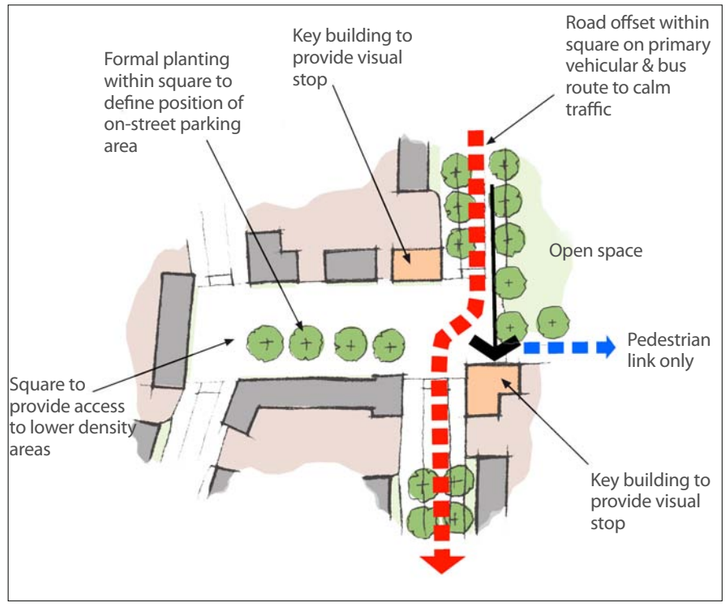


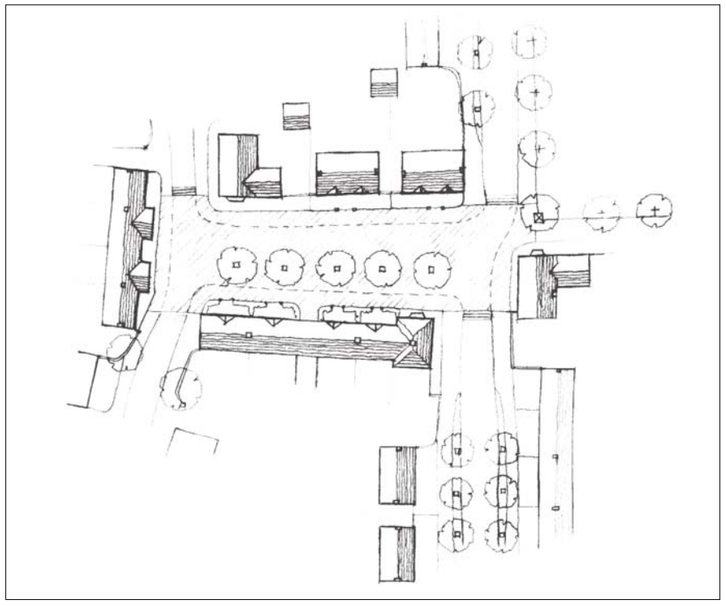

Figure 42: These four drawings, taken from the same Design Code, illustrate how a particular space within the development site is focused on and how the Design Code provides design details in order to create a sense of townscape through elements such as planting, landmarks, views, routes and open spaces

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## Building Form

This section of the Code is important in order to establish architectural principles of the development. This could be undertaken by street or by areas, depending on the scale of development, its context and complexity.

It is important that the Code strikes the right balance between prescription and flexibility for architectural details. It should set out plot size, frontages and the overall mass and volume of buildings but also provide a clear vision of an architectural style based on context.

At the stage of Reserved Matters application, flexible and creative design solutions are encouraged, allowing the freedom to move away from the established interpretation of architectural style set out within the approved Code. However these solutions must comply with the quality established within the Design Code and should not compromise the overall vision for the development.

Depending on the existing townscape character of an area, codifying the built form necessitates variations to the mandatory and/or discretionary requirements covering elements such as roof type and colour, doors; window types and sizes; use of façade material; setback from the street; etc.

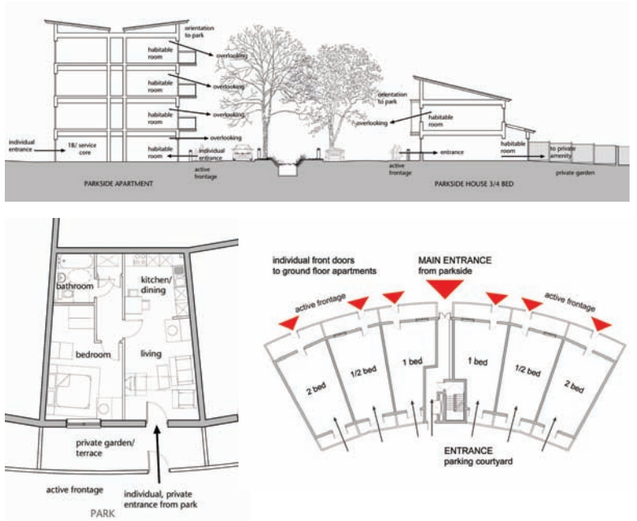


Figure 43: The drawings above illustrate the buildings' orientations and the desired outcome



These images of Hammarby, Sweden show the variety of building forms within a single development

### Minimum Requirements

Information required on :
- Building pattern and form
- No of storey and heights
- Building envelopes
- Architectural styles

Building lines:
- frontage continuity and setbacks

Plot form:
- plot size
- width
- adaptability
- set back from the public realm

Building location:
- orientation
- position on plot
- overlooking and overshadowing
- active frontage and natural surveillance

Building form:
- Windows
- Doors
- Roof

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## Energy Efficiency and Building Form

### 1. Passive Solar Design

Block principles are affected by the Code for Sustainable Homes as a south facing building orientation is likely to become increasingly important in the coming years.

Passive solar design (PSD) seeks to optimise the use of solar gain, daylight and natural ventilation in a development, so reducing the need to provide these requirements by artificial means. A key priority in PSD is to enhance occupant comfort in buildings.

PSD influences the following aspects of the planning and design of buildings:

1 orientation
2 site layout
3 landscape and planting
4 built form
5 window size and design
6 internal layout of occupied/habitable spaces
7 roofs, walls and floors
8 insulation
9 air-tightness
10 active energy efficiency measures such as heating controls

It is noteworthy that town and country planning decisions can exert a significant influence on the first six of these design elements.

The Design and Access Statement informs the way the development of the site responds to the broad principles of PSD, such as orientation of buildings, site layout, and built form. The role of the Design Code is then to provide further specifications in terms of detailed design elements such as fenestration, roofs, walls, floors, etc.

In residential development, PSD requires houses to have a principal (i.e. front or rear) glazed elevation oriented within 30 degrees of south, to collect the light and warmth of the sun for most of the day. PSD requires also that the south-facing elevation of a house is not overshadowed by adjacent buildings, trees or terrain, and that building fabric with high levels of thermal insulation are used. Further energy efficiency benefits can also be derived by ensuring that kitchens – a significant source of heat – are placed on the cool northern side of a dwelling, with the principal living spaces placed on the sunny southern side where heat and daylight are required for more of the day.

In terms of crime prevention and the passive surveillance of public spaces, PSD can be consistent with 'Secured by Design' objectives. Because houses designed to incorporate PSD might feature the principal living spaces on the southern side and kitchens on their northern side, a street of such houses might provide enhanced surveillance for a greater part of the day.

A further passive solar design objective for housing is to reduce exposure to cold northerly and northeasterly winds. This can be achieved by limiting glazing on northern elevations to an area commensurate with daylighting standards and passive surveillance requirements. The effects of northerly exposure can also be reduced by physical barriers such as other buildings or the planting of a tree belt around the northern and northeastern sides of the development.

Passive ventilation through windows that open (it may seem obvious but not all developments specify this), Whole Building/House Passive Stack Ventilation, etc, should also be given consideration.

PSD methods can also be applied in non-domestic buildings to similar effect, although in some building types such as offices the emphasis changes from useful heat gain and towards the achievement of appropriate day lighting and effective natural ventilation. Schools and work places are well-suited to PSD because their peak demand for heat and lighting occurs in daytime when, by definition, solar energy is available.

PSD methods should be adopted, with other design objectives, in all new developments in West Northamptonshire.

### Minimum Requirements

Plan showing numbers, types of uses with the principle elevation orientated within 30 degrees of south.

Specifications regarding:

- Fenestration size and design
- Roofs, walls and floors
- Landscape and planting
- Internal layout
- Insulation
- Air tightness
- Active energy efficiency measures

### Further Guidance

- Code for Sustainable Homes: A step-change in sustainable home building practice – DCLG, 2006
- Code for Sustainable Homes: Case-Studies - DCLG, 2009
- The Urban Design Compendium 1 and 2 (English Partnerships & Housing Corporation 2007 (Homes and Communities Agency)

Examples of Code Level 6 housing with passive solar design and natural ventilation systems in Upton

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## 2. Modern Methods of Construction

The attainment of the higher-level standards of the Code for Sustainable Homes (CSH) will inevitably encourage the use of modern methods of construction (MMC) in preference to conventional brick-and-tile construction. English Partnerships, now the Homes and Communities Agency (HCA), describe MMC as:

"the term used to embrace a range of technologies and processes involving various forms of supply chain specifications, prefabrication and off-site assembly. MMC:

- Makes use of more effective materials
- Speeds up housing delivery
- Enables high standards of design quality
- Can help to reduce resource consumption.

It is increasingly regarded as a means of improving quality, reducing time spent on site, improving on-site safety and overcoming skills shortages in the construction of housing."
(English Partnerships web site 2008)

According to the report of the National Audit Office, there are four broad approaches to MMC:

- Panellised units manufactured off-site and assembled on-site to produce a three-dimensional structure,
- volumetric construction involving the manufacturing of three-dimensional units off-site prior to their transport and assembly on-site,
- hybrid techniques combining both panellised and volumetric approaches,
- other method such as floor or roof cassettes, pre-cast concrete foundations, etc.

As an example, a Code 6-rated dwelling with conventional masonry walls is predicted to require walls half a metre thick. An insulated timber panel system, prefabricated in a factory to a high level of specification, will achieve a similar thermal insulation in a wall perhaps half as thick. MMC thus enable the production of highly-insulated and often pre-fabricated or modular building envelopes with little of the waste, inefficiency and delay associated with conventional construction.

This is achieved by efficient project management processes, with a view to providing more product, of better quality, in less time. MMC can also involve greater application of processes more akin to manufacturing, for example quality control, component pre-assembly and very high quality supervision.

At present, the UK MMC industry is in its infancy, and many available systems are imported from Scandinavia and Germany.

Energy efficiency is implicit in both the MMC fabrication process and the built end-product. Whilst it would be beyond the scope of this Manual to advocate a 100% commitment to MMC in Masterplans and Design Codes for West Northamptonshire, it is likely that some developers will, by the time construction commences for a number of the large scale development proposals under consideration, be wanting to use such methods Therefore Design Codes should not impose any design constraints on housing that might inadvertently prevent this from happening.

Buildings built with Modern Methods of Construction

### Minimum Requirements

- Specify the method(s) of construction to be used during the implementation and delivery processes

### Further Guidance

- Using Modern Methods of Construction to Build Homes More Quickly and Efficiently - NAO, 2005
- Code for Sustainable Homes: A step-change in sustainable home building practice - DCLG, 2006
- English Partnerships web site 2008, www.englishpartnerships.co.uk
- Code for Sustainable Homes: Case-Studies - DCLG, 2009

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## Requirements of the Codes for Sustainable Homes

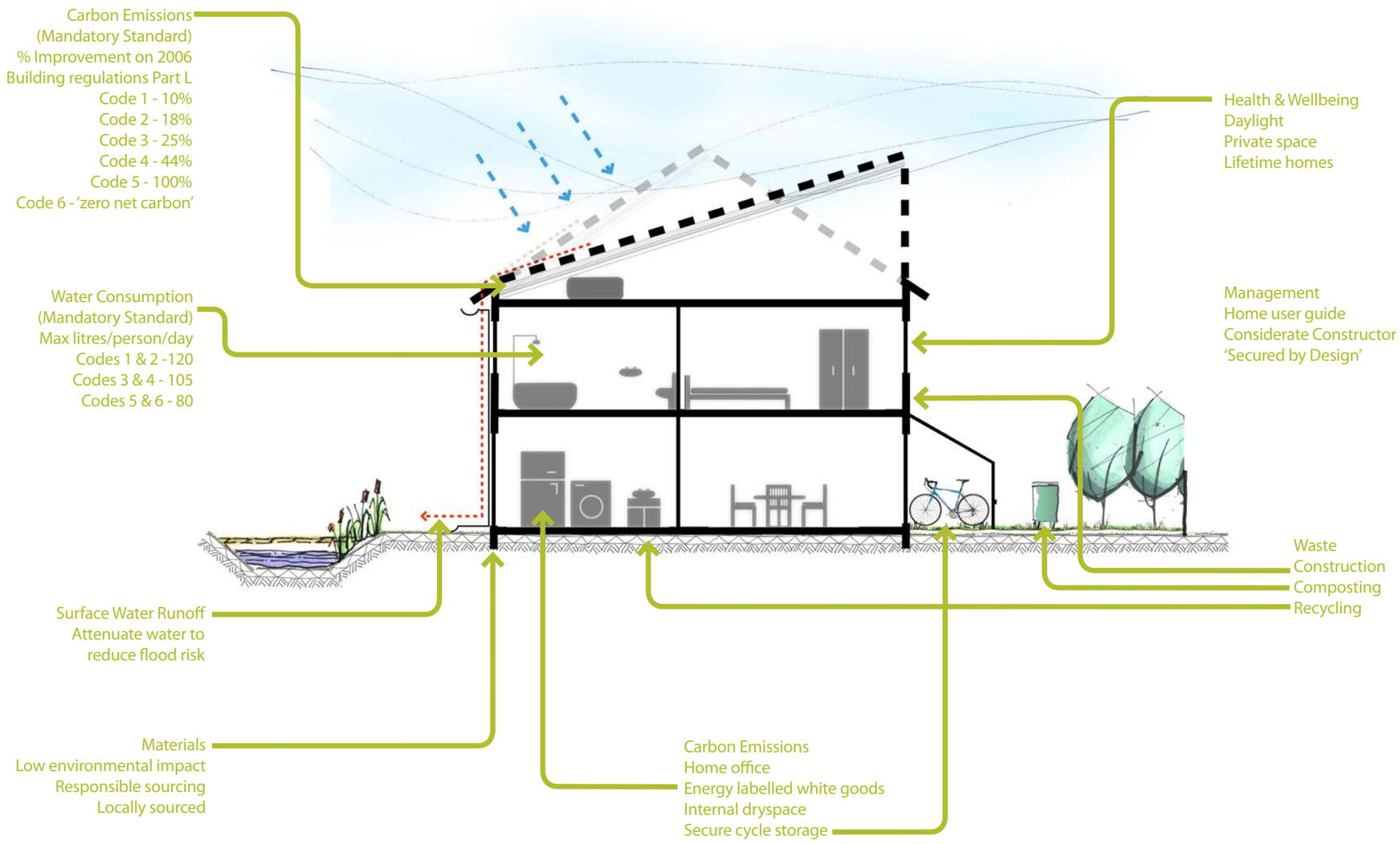


Figure 44: The Code for Sustainable Homes levels 1-6 requires meeting certain mandatory standards for low carbon and water, and a mix of 'tradeable' features. The requirements of the Code for Sustainable Homes can be incorporated into traditional or modern built form and can be applied to both apartment blocks and individual, terrace, detached or semi-detached houses

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# 3.2.9 Landscape Strategy

## Landscape Strategy

This section provides best practice guidance with regards to a Landscape Strategy and a Green Infrastructure Framework, further highlighting their role within the Design Coding process.

It is imperative that the natural landscape of a site should be integrated within a Masterplan and not be considered a constraint. Such an integration can increase land values, improve the physical health and mental well-being of residents, help to control flooding, help to moderate summer temperatures, and increase biodiversity.

In this regard, the Landscape Strategy functions as the umbrella for the many functions of landscape – amenity and recreational, ecological and biodiversity, flood prevention and cooling of the environment. An overarching Landscape Strategy therefore forms an important part of the Masterplan. The Design Coding process considers the principles established within the Landscape Strategy and provides further information in relation to their implementation.

The Green Infrastructure Framework, which is a component of the Landscape Strategy, forms a fundamental part of the structural principles of a Masterplan for a site at a strategic level. It is considered that the GI for a site should be borne out of an understanding of the the existing natural characteristics of the site – the topography, drainage, locations of existing trees, hedges, other features and the overall landscape character. While the GI for the site would be in place by the Design Coding stage, the development of the Design Codes can help to refine and test its details, such as the location and alignment of green corridors, details of water features (SUDS), landscape treatment of green spaces parks etc., all of which collectively formulate the GI. Design Codes can also help to determine that the GI integrates well with the development. Design Codes would require to provide further information on the integration of natural habitats along with landscape features with details of how they can be conserved, enhanced and extended.


Figure 45: Example of an overriding Landscape Strategy plan that provides information on the location of different landscape features and types. It is considered that the Design Codes would provide further detail on each of the types

## Minimum Requirements

Landscape Strategy
The Green Infrastructure Framework as determined by:

- Site topography and drainage
- Sustainable Urban Drainage Systems
- Integration of natural habitats and landscape features and how they can be conserved, enhanced and extended
- Summary of the tree survey and tree retention strategy
- Outline of open space typology and hierarchy

## For further guidance

- Countryside Characterisation, Volume 4, East Midlands - The Country Agency, 1996
- Northamptonshire Biodiversity Action Plan
- CABE - Hallmarks of a Sustainable City
- CABE - What makes and Eco-Town?
- CIRIA - The SUDS Manual
- www.rnrpenvironmentalcharacter.org.uk

The photograph to the right highlights the role of landscape in urban areas, in promoting the mental and physical well-being of users while increasing land values

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## Landscape Character and Hierarchy

It is considered that by the Design Code stage the Landscape Character Areas of the Masterplan would be defined and be in keeping with the landscape character of the surrounding area, depending on the context of the site. The development of the Design Codes would then help to test and refine the details.

The Design Code should identify all proposed open and landscaped spaces, defining their relationship to other elements of the built environment and their connection to each other. The relationship between the built form and the landscape is crucial to the type of character created – the type of enclosure to a space, definition of edges, access points, gateways and routes. Open spaces can also greatly contribute to the townscape character of the development.

The Design Code should test that the formulation and detail of the landscape character is in conjunction with the overall public realm strategy that deals with hard landscaped spaces such as squares, courtyards and streets as it is likely to be a good degree of cross-over. The Design Code should provide information on the individual spaces in terms of their landscape treatment, planting type and material used, as well as the use of Sustainable Drainage Systems (SUDS) and drainage provisions.

The Landscape and Countryside character of West Northamptonshire identifies the locally distinctive characteristics which should act as design cues for developments. This can help to inform the treatment of a landscape design proposal as part of a Design Code, for example using native hedgerows, avenues and ditches, and retaining traditional field patterns. This is particularly important with regard to biodiversity.

The future management and maintenance of open space is also important, details of which will be required to be submitted with a Reserved Matters application.

Tree Strategy

The Design Code should incorporate a Tree Strategy that defines the role of trees within the proposed development. Trees should form a key part of the streetscape design and their long-term management should be considered as part of the Code. Larger species should be used wherever possible as these have a far greater ecological value and provide shading.

The following factors should be looked at when choosing the right tree palette to be incorporated within the Design Code for a site:

- The historic and landscape context
- Native species to promote biodiversity
- Available space to accommodate growth of trees to mature size
- Fruit and nut trees to promote local food and wildlife
- Trees that demand less water where shrink-swell soils may be an issue
- Drought-tolerant species if irrigation cannot be sustainably supplied
- Shade-casting species (see 'Controlling the Micro-Climate').

Example of a formally designed space with good biodiversity

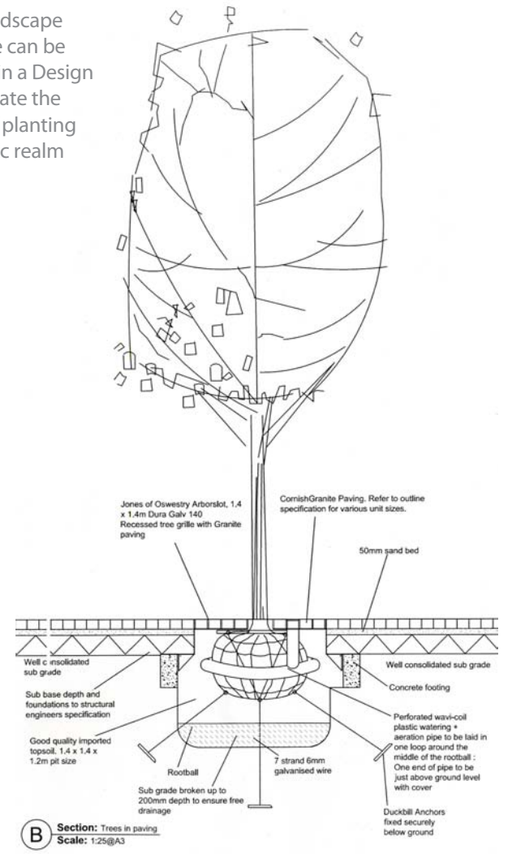


Figure 46: Landscape detail of a tree can be incorporated in a Design Code to illustrate the integration of planting with the public realm

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## Open Space Hierarchy

The basic sequence of the open space typology and hierarchy is:

Parks
Parks are green spaces that can be formal or informal. They usually constitute the largest types of public space in a development. They are used for a wide range of activities.

Leisure facilities
These are playing fields and grounds and sports facilities. They are often referred to as MUGA's (Multi-Use Gaming Areas). They should also include ancillary uses such as changing rooms and club houses.

Formal recreation facilities and play spaces
These facilities are dedicated to young children and can either be located in areas set apart within parks or as communal places within residential areas. In either case, they have to comply with specific measures in terms of their location and children's safety. Children's play equipment provided within play areas, also presents an opportunity to function as public art, similarly public art can also provide for the opportunity to play.

Informal greens
Informal greens tend to be left over spaces in-between developments. Usually of small size, they can be used for recreational, leisure or play by local residents or passers-by.

Communal/private gardens
They are private spaces usually characterised by a strong sense of enclosure. Whether individual or collective, gardens will impact on the layout and typology of residential blocks and streets. Attention should be drawn to the delimitation between public and private or semi-private spaces.

The Design Code should clearly demonstrate in a plan the typology and hierarchy of open space in the development.

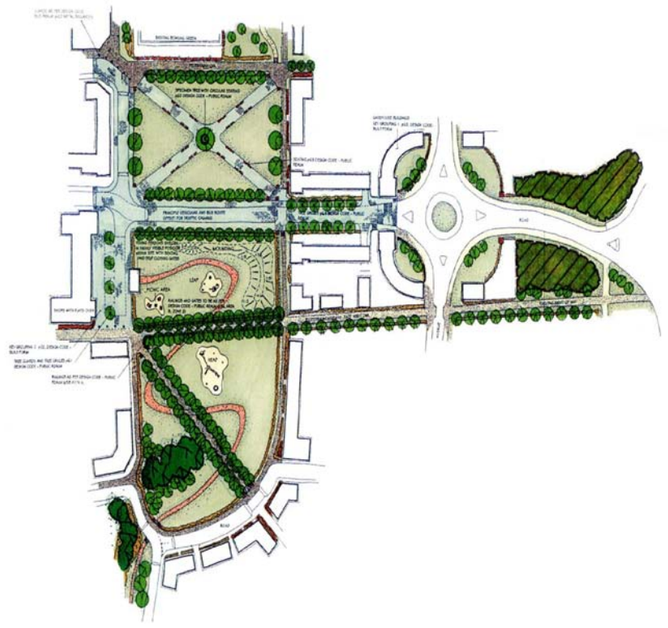

Figure 47: Drawing indicating the location of NEAP and LEAP play facilities

Example of play and seating area incorporated in the design of the place

## Minimum Requirements

Open Space Hierarchy:
- Outline of open space typology and hierarchy
- Plan locating the different open spaces
- Landscaping principles for character areas, types of streets and open spaces

Tree Strategy:
- street tree plan & specification
- feature tree/ornamental tree locations
- woodland mixtures
- Proportions of canopy cover and tree density

Treatment of Open Space
- Standard forms, layout and access for each typology
- Landscape and planting
- Material specification
- Management and maintenance details
- boundary treatments
- typical landscape details
- indicative planting plans & species lists

## Further guidance

- The National Joint Utilities Group – information on services in relation to tree planting
- The Tree Council - Tree Planting - Planning & Practice
- www.sustainablecities.org.uk
- CABE - Designing & Planning for Play
- CABE - Hallmarks of a Sustainable City
- Planning for Design for Outdoor Sport and Play, Fields in Trust, 2008

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## Water Strategy

Developments should consider sustainable water management in order to be equipped for times of shortage (droughts) or excess (floods). This must be achieved through a fully integrated Sustainable Urban Drainage System (SUDS) for the site. Design Codes should provide further detail on the implementation of a SUDS. Although this section principally deals with the flood alleviation function of SUDS, they have multiple uses as ecological corridors, for irrigating the site and providing water to plants, for summer cooling, and as places of recreation and visual amenity.

Surface Water Run-off during storms is one of the prime causes of flooding in the UK and a phenomenon that is predicted to increase with climate change. SUDS aim to mimic the natural drainage of a site in order to manage flood risk through control of surface water movements. By capturing the water in ponds, swales and the ground, they reduce the time it takes between the rainfall hitting the ground and it getting to the nearest watercourse to ensure that water does not all arrive at once and inundate the system. The adjacent figures illustrate this principle. Urban watercourses should replace stormwater sewers wherever possible to provide above ground conveyance of stormwater to prevent surcharge of sewers.

Design Codes must demonstrate a full understanding of the risks posed to sites at the sub-regional scale as provided within Strategic Surface Water Management Plans or Flood Risk Assessments prepared by the Local Authority and/or applicants. These details of a Design Code should be prepared in consultation with the Environment Agency. These documents will set the requirements for storage and conveyance of surface water drainage, which must be delivered at the site scale.

## Sustainable Urban Drainage Systems

Types of SUDS

Since there are various types of SUDS which perform different functions and are applicable for a variety of urban scenarios, the Design Code should specify and provide details on the kind(s) of SUDS to be used. Following are the types of SUDS:

- French drains - features to catch surface water and allow filtration into groundwater. It is a linear trench filled with a permeable material often with a perforated pipe in the trench's base to assist drainage.
- Swales - shallow vegetated channels designed to conduct and retain water. They can be considered for directing water over ground as an alternative to piped drainage and be effectively integrated into streets.
- Detention basins or ponds – vegetated depressions that are normally dry except following storm events, constructed to store water temporarily to attenuate flows. They may allow infiltration of water to the ground. A wet detention pond always contains water and attenuates flows by storing run-off during the peak flow and releasing at a controlled rate during and after the storm.
- Retention basins or ponds – basins or ponds where run-off is detained for a sufficient time to allow settlement and possibly biological treatment of some pollutants.
- Permeable pavements and surfaces allow a larger proportion of surface water to be infiltrated into the ground.
- Below ground storage enables retention of water for irrigation of green infrastructure.
- Green Roofs intercept water at source and significantly reduce run-off rates and peak flows.
- Stormwater Wetlands are larger areas which can be deliberately allowed to flood to prevent flooding downstream.

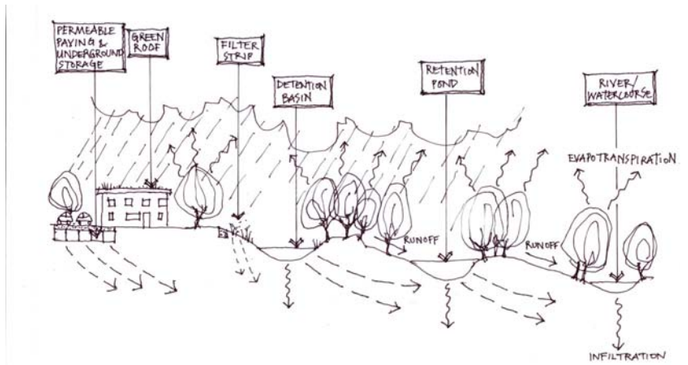


Figure 48: The Design Code should provide information to explain the principles behind the kind(s) of SUDS used

Figure 49: Variety of SUDS

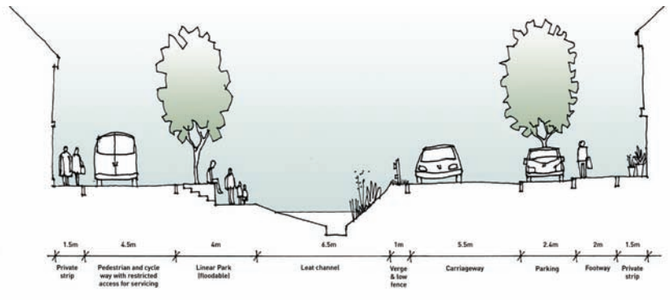


Figure 50: As applicable, a Design Code should provide indicative details to illustrate the integration of the SUDS with the overall public realm

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## Green Roofs

Design Codes should consider the provision of Green Roofs where feasible and viable.

A Green Roof is the roof of a building that is covered with vegetation growing in a layer of soil (or growing medium) over a waterproof membrane. They should be promoted wherever viable. There are many benefits associated with green roofs including:

- Enhanced biodiversity including feeding for birds
- Improved insulation in winter and cooling through thermal mass and evapotranspiration in summer
- Insulation against sound (high frequencies through plant layer and low frequencies through soil layer)
- Decreasing runoff rates (part of an overall SUDS strategy for the site)
- Grow fruit, vegetables and flowers
- Filter pollutants and carbon from the air
- Can be combined with rainwater harvesting system to recycle water for flushing toilets or watering plants
- Longer life cycle for roof

A Design Code should provide details, indicating where green roofs can be implemented, and how they fit into the wider landscape, water and biodiversity strategy. It can also give details on the treatment of the roof, planting type used and on the overall strategy.

The Design Code should also specify the type of Green Roof to be used in the development proposal. Green Roofs can be of three different types:

- Intensive - a deep layer of soil which can be used to grow a wide manner of plants including small trees. Requires structural strengthening to take additional roof loads. Resembles traditional roof garden and is fully accessible. Higher maintenance requirement.
- Extensive - self-sustaining green roof with a shallow and lightweight growing medium and support sedums and mosses. Normally accessed for maintenance.
- Brown roofs - These involve scraping the ground of the site and keeping the material to spread across an extensive roof. The seed and plant remnants will naturally colonise the roof, with the particular benefit of creating a site-specific habitat.

Green roofs in Upton, Northampton

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## Controlling the Micro-Climate

The layout and arrangement of buildings forming a close relationship with the landscape should be in response to the micro climatic conditions of the site. In this regard, the Landscape Strategy needs to respond to climatic conditions in order to help cool in summer. Further, there is a need to minimise wind exposure across a development and optimise solar gain to buildings, especially throughout Autumn to Spring, where these effects can have the greatest impact upon the quality of public spaces and the level of internal comfort of a building.

## Moderate Summer Temperatures

The Urban Heat Island effect poses a challenge for now and the future which can make cities several degrees warmer than surrounding areas. This effect will be further exacerbated by climate change. The biggest difference will be felt in night time temperatures where the heat stored by hard surfaces, roads, roofs and walls is slowly released. This creates an island of warmer temperature which is very oppressive during hot summers thereby decreasing human comfort, increasing heat stress and in extreme cases resulting in increased mortality.

The design of GI is a key mechanism for managing the urban heat island effect. Options such as green roofs, planting trees and vegetation, and integrating water bodies/courses into the urban fabric can be considered in the development of Design Codes.

It has been proven that by increasing the amount of tree canopy in urban areas by 10 per cent, surface temperatures can be maintained at the current levels despite climate change. Design Codes should consider the planting of broadleaved tree species to the south of buildings as they have the benefit of large canopies that increase shade and reduce solar gain to buildings (and reduce the need for mechanical cooling), whilst dropping their leaves in winter allows the sun to heat buildings passively (therefore less energy is needed to heat the building) as illustrated in the opposite diagram.

Vegetation naturally cools the air through the process of evapotranspiration, but in order for this to function, a sustainable water management system must be linked to maintaining functional green infrastructure, such as capturing and storing rainwater until needed for irrigation. Design Codes can help to test that the SUDS strategy is fully integrated specifically in relation to cooling for a number of reasons:

- to provide water to trees and other vegetation and allow evaporative cooling to take effect
- to create a heat sink whereby areas of water absorb heat from hard surfaces around them
- to create corridors where air can circulate and allow the hotter air to escape during the night.

## Reduce Overshadowing

Overshadowing of public open spaces and landscape spaces can make them uninhabitable for large parts of the year. Buildings with long faces within 13 degrees of north will cast a shadow over the adjacent ground all winter, making the area very unpleasant to be in and difficult to establish any plant life. Whilst it is recognised that shadier areas will always be created, especially in higher density developments, measures can be taken to either minimise them or utlise these for parking and servicing functions. Design Codes should be tested to ensure the adequate sunlighting of key spaces such as gardens, allotments, parks, squares, playgrounds and other informal sitting-out areas and neighbourhood greens.

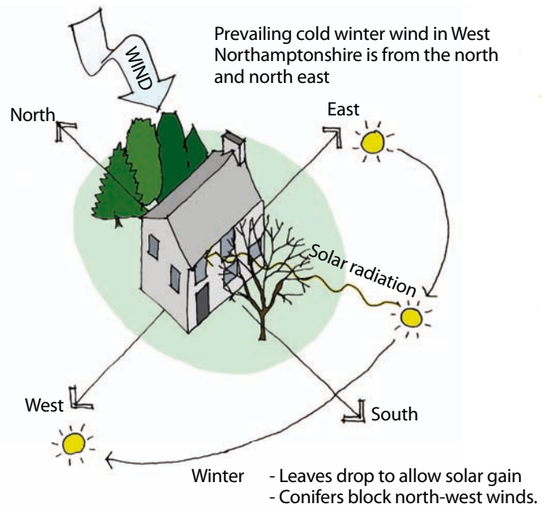


Figure 51: Design Codes should consider appropriate types of trees for planting for moderate wind and solar gain

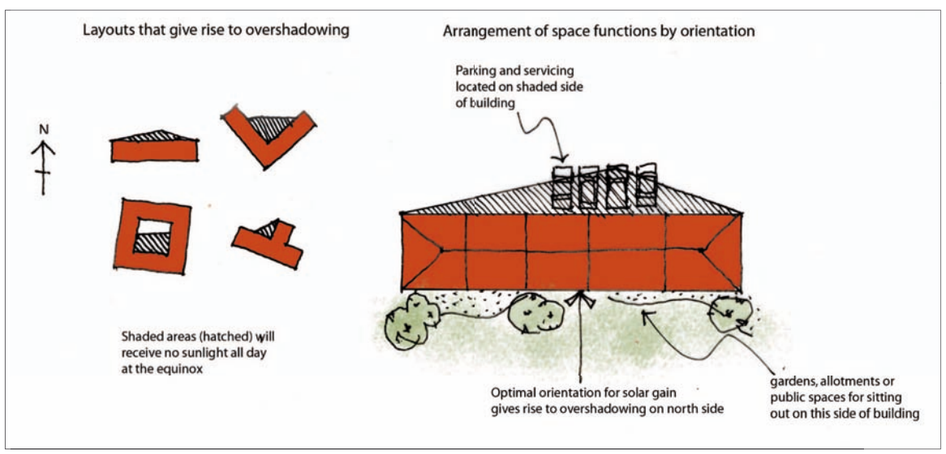


Figure 52: Principles of planning for overshadowing

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## Reduce Impact of Wind

Sites exposed to the wind need to be identified and protected by wind-breaks at both a strategic and localised scale.

On the wider strategic scale, the effective zone of protection for a windbreak can be 30 times the height of the trees, however, the maximum protection occurs within 5 - 7 times the tree height. For example, if the windbreak will be 10 metres tall, it should be placed from 50 to 70 metres from the house.

Evergreen trees with varied heights that extend to the ground are most effective if planted in three staggered rows. If deciduous species are used approximately 6 rows should be planted.

On a plot scale, evergreen trees and shrubs planted approximately 6m to the north and east of exposed buildings can offer protection from cold winter winds and decrease the amount of energy needed to heat the building in winter.

The Code should detail the rationale and approach to be adopted to mitigate the effect of wind impact on the development proposal. This will need to be consistent with those strategic proposals specified within the Masterplan and to clearly demonstrate how these will be applied at the Reserved Matters Stage.

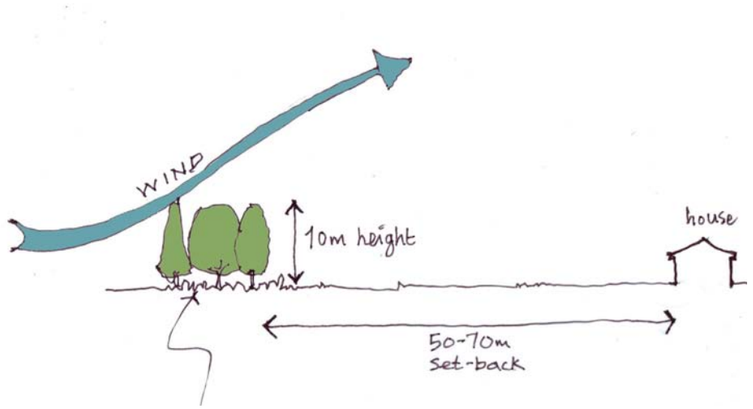


Figure 53: Fundamentals for wind break layout

## Noise Attenuation Strategy

The Design Code document should include clear information on noise attenuation strategy as required. It should highlight sensitive areas in the development and state the types of mitigation strategy and measures to be applied.

An accompanying plan should be provided to illustrate the strategy spatially.

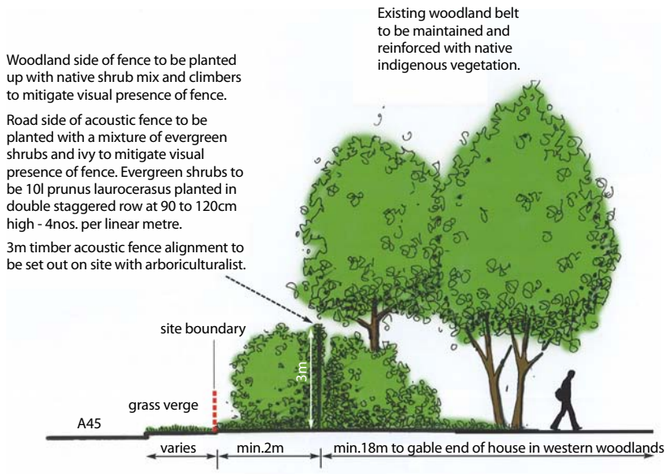


Figure 54: A Design Code drawing that shows a typical section of an acoustic fence. It also specifies the heights and distances to be respected for noise attenuation to be achieved

## Minimum Requirements

Provides information on:

- Cooling strategy for summer
- Proportions of tree canopy coverage and overall tree density
- Sustainable Urban Drainage Systems
- Identify wind break locations and design specification
- Identify noise locators and buffer design specification
- Demonstrate adequate sunlighting of public spaces and landscape spaces

## For further guidance

- Building Research Establishment - Site Layout Planning for Daylight and Sunlight, A Guide to Good Practice
- CABE - What makes and Eco-Town?
- CABE - Hallmarks of a Sustainable City
- www.sustainablecities.org.uk

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## Biodiversity Strategy

The purpose of a biodiversity strategy within a Design Code is to present the existing biodiversity and Green Infrastructure conditions and to understand the individual elements that are required to be preserved, enhanced or modified within the site and in its surroundings. This includes any existing wildlife and habitat networks/corridors that should be maintained and extended through the site. The strategy will normally be dictated by information submitted as a result of planning conditions attached to the original planning permission.

Biodiversity in Northamptonshire is under great pressure from development but if managed correctly a net gain should be possible. Because of the existing lack of diversity, largely due to the predominantly monocultural rural land practices, there is an even greater need to conserve, manage, enhance and create connected natural habitat networks through an integrated landscape strategy. Habitat and species biodiversity action plans should be used to identify where the priority habitats are located and how the principles from the Green Infrastructure Strategic Habitat Network Map can be accommodated at a site scale.

The Landscape Strategy needs to incorporate ecological networks composed of a tapestry of patches that come together to create corridors which enable the free movement of wildlife. Biodiversity needs to be incorporated into wider plans by identifying synergies and conflicts between the multiple functions that green infrastructure can provide. Green infrastructure strategies also need to identify barriers to species movement, for example, roads or railway lines surrounding and connecting conurbations.

Biodiversity is not just confined to nature reserves and designated sites, although these are obviously of primary importance. Street trees provide an opportunity to bring wildlife into the urban area and provide habitat and food for a range of birds and insects.

A Design Code should consider:

- how wide green swathes can connect up existing environmental assets and create effective wildlife corridors
- locations of existing Sites of Special Scientific Interest and how they can be linked and expanded
- land character taken into account
- a varied range of suitable natural habitats, including priority habitats wherever possible
- designs must take account of the minimum size requirements for habitats to funtion effectively
- management strategies to encourage biodiversity and enable better establishment of designed habitats.

It is required to provide tables that detail the type of area or space concerned, the adopted landscape approach to that area, and what species to use.

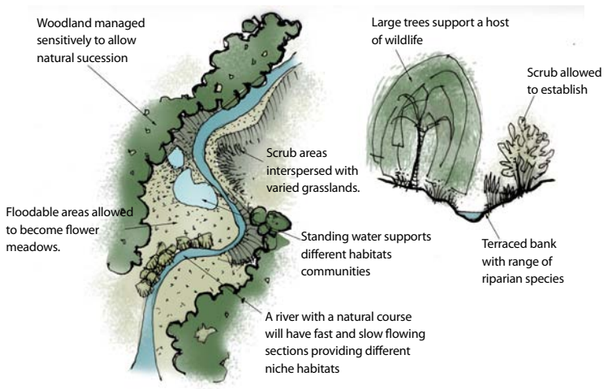


Figure 55 - Indicative Biodiversity Principles for a Riparian Area

### Minimum Requirements

Biodiversity Strategy
Provides information on:

- Summary of the tree survey and tree retention strategy
- Tree and plant specifications
- Sustainable Urban Drainage Systems
- Integration of natural features such as forests or rivers and non-natural ones such as canals and waterfronts
- Green infrastructures and green links

### For further guidance

- Northamptonshire Biodiversity Action Plan
- The Green Infrastructure Strategy Map
- www.rnrpenvironmentalcharacter.org.uk
- CABE - What makes and Eco-Town?
- CABE - Hallmarks of a Sustainable City
- www.sustainablecities.org.uk

Bringing ecological networks through urban areas

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# 3.2.10 Public Realm

The public realm comprises all areas accessible to the public. The Design Code should aspire to create a high quality public realm, incorporating specific elements that work together to create distinct public spaces within a holistic streetscape.

## Typology of Public Spaces

### Squares

Squares vary in scale and size within urban settlements. They can be main squares which tend to be formally designed hardscape spaces which contribute to the legibility of a place and can provide a setting for an existing structure or landmark. Squares can also be communal or private set within development catering to specific users. These are smaller in scale and can be hard or soft spaces.

### Communal courtyards

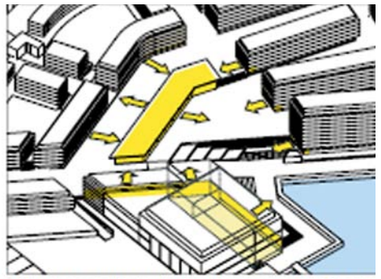
These are characterised by a strong sense of enclosure as they are defined by the surrounding buildings. They generally are not green spaces.

### Informal public spaces

Like informal greens, informal public spaces tend to be smaller spaces in between developments or at junctions of streets.

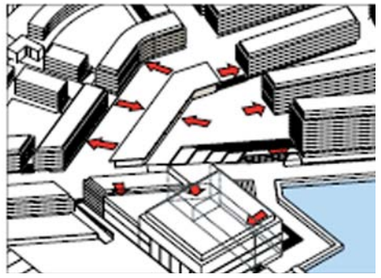
Design Codes should outline the core design principles for public spaces, exemplified in the illustrations to the right. Further requirements can be provided for specific public spaces within the development.

It is important to include provisions regarding a management strategy that will ensure the regular and long-term maintenance of the public realm.



Public uses at ground level provide active frontages around the public square

A range of commercial uses on the ground level of the properties surrounding the square is essential to maximise activity in and around the public square



Front doors to ground level public uses and/or entrances to accommodation will address the edges of the public square

Built edges around the public square provide a well defined enclosure

Figure 56: These drawings illustrate design principles for the main public square of the Masterplan of the Woolston Shipyard in Southampton

Public walkway in Sankts Eriks, at the outskirts of Sweden

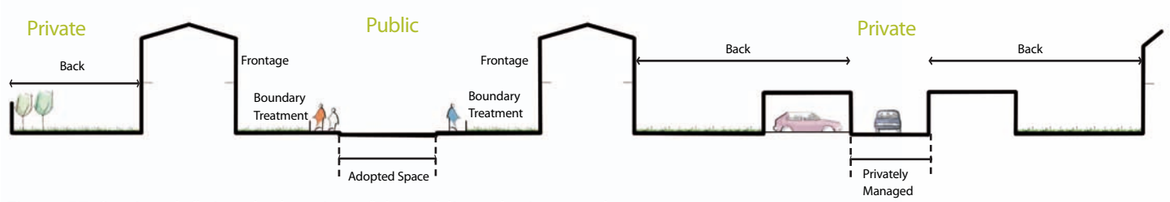



Figure 57: Section defining the location of the public and private realms

## The Public Realm

The Public Realm is the space between buildings that is accessible to the public.

## Minimum Requirements

Design Codes should provide information on the following:

- Open space: Standards, types, forms, layout, access, landscape, boundary treatments, planting, management
- Public space: Patterns, types, enclosure ratios, forms, connection, uses, management
- Public / private space: Principles for courtyards, mews, cul-de-sacs, covered streets, arcades, colonnades
- Street furniture including bus shelters
- Lighting
- Public / civic uses / functions
- Public art
- Children and play areas
- Refuse, utilities and services
- Management and maintenance

## Further guidance

- Streets for All, East Midlands - English Heritage, 2005
- Manual for Streets - DfT and DCLG, 2007
- The Urban Design Compendium 1 and 2 (English Partnerships & Housing Corporation 2007 (Homes and Communities Agency) )

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## Street Furniture

Street furniture comprises hard elements included in a public street or space. It includes benches, lighting, bollards, signage, etc. These elements can help to improve the space by creating a pleasant and user-friendly environment.

The Design Code should include information on the types of street furniture to be provided within the development. This information can be accompanied by images or a table of specification detailing the types of street furniture proposed.

## Public Art

Public art refers to any work of art that is to be displayed in public spaces. Whether permanent or temporary, good and well maintained public art can animate and enhance the public realm by adding to the identity of the space. It can also function as public furniture and play spaces and vice-versa.

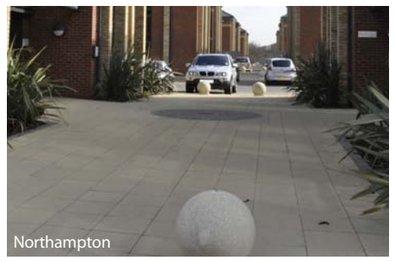
The Design Code should define the scope of public art within the phase of development as informed by the principles established in the Design and Access Statement / site-wide Masterplan and the detail submitted as a result of a planning condition requiring a site wide public art strategy to be produced. This scope should also identify stand alone pieces of public art, incidental public art and the approaches suitable to a particular phase of development to increase the overall provision of public art within the public realm. This should be accompanied by images to illustrate the type of art proposed.


Hammerby, Sweden


Silverdal, Sweden


Silverdal, Sweden

Figure 58: Examples of various elements that help to enhance the public realm such as walkways, bridges, play and exercise furniture


Northampton


Stockholm


Hammerby Sweden


Sankts Eriks, Sweden


Sankts Eriks, Sweden

Figure 59: Further examples of bollards, railings, ramps, stairs and public art

## Minimum Requirements

Public furniture

- Type and location of lighting provisions
- Type and location of bollards
- Type of signage and proposed location
- Type and location of seating facilities
- Types of gates
- Types of bins and their location
- Pavings and kerbs
- Cycle storage
- Parking areas and bays
- Planting

Public art

- Overall approach to public art during the phasing of development for permanent uses
- Location of stand alone pieces
- Location of incidental public art

While the location of the above can be marked on a plan, details of types should be provided through the means of images and photographic references.

## Further guidance

- The Urban Design Compendium 1 and 2 (English Partnerships & Housing Corporation 2007 (Homes and Communities Agency))

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## 3.2.11 Boundary Treatments

Boundaries help to demarcate areas particularly differentiating between public and private realms. The Design Code should specify clearly the preferences in boundary treatments. These should be in keeping with the surroundings.

In terms of built form, the Design Code should include the type of treatment (front/side/back), position of boundary (set back from the building), material used, height and means of enclosure. In addition, there should be clear hierarchy of treatment both within the public realm and private realm. This should complement the overall vision and composition of the built form.

Similarly, the location of boundaries and their setback distance are important in creating well designed spaces, whether for public spaces or for differentiating between the public and private realms.


Figure 60: The intermix of photographs and drawings helps to adequately illustrate the types of boundary treatments to be used in different areas of an urban block

### Boundary Treatments

Boundaries help to demarcate clear spaces usually between the public and private realm. The stronger the boundary treatment, the clearer is the definition.

### Minimum Requirements

Information provided on a plan marking out the position of boundaries.

This should be accompanied by details of the types of treatment proposed.

Table of specifications including:

- types of boundaries
- related spaces
- related position within plots
- related heights
- related palette of materials to be used

Sketches, sections or 3D drawings illustrating setbacks from buildings, heights and distances.

### Further Guidance

- Northamptonshire Place and Movement Guide - Northamptonshire County Council, 2008 (Draft)
- Manual for Streets - DfT and DCLG, 2007
- Daventry Design Codes - Daventry District Council, 2005
- Planning out Crime SPG - Northamptonshire County Council, 2003
- The Urban Design Compendium 1 and 2 (English Partnerships & Housing Corporation 2007 (Homes and Communities Agency))
- Secured by Design

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# 3.2.12 Materials

## Streetscape Materials

Streetscape materials are particularly important and contribute greatly to the overall identity of an area, as they are the most visible public elements. Code designers should coordinate the streetscape elements to ensure an attractive public realm and differentiation within the street hierarchy; however, consideration must also be given to both adoption and the long term maintenance of streetscape materials.

Northamptonshire County Council as Local Highway Authority has detailed streetscape guidance which can be found on their web site in their draft document, Northampton Place and Movement Guide. In the circumstance that the code designers wish to use streetscape elements not included within the County's guidance, they should then work closely with the Highways Authority to ensure that initial aspirations can be adopted when delivered.

Within private and semi-private areas, consideration should be given to the longevity and maintenance of materials.

## Surfaces & Verges

In rural areas, soft verges should generally be retained, while hard edges should only be used where necessary, as they begin to urbanise the countryside. Hot rolled asphalt is the most common material for the region's roads, however surfaces of setts, cobbles or bricks can be used in rural settings to help denote a change in use or location.

### Minimum Requirements

The Design Code should provide information on materials used for:

- Pavement and street materials
- Material used for street furniture
- Boundary treatment materials
- Lighting
- Rainwater treatment
- Cycle storage

### Further Guidance

- The Urban Design Compendium 1 and 2 (English Partnerships & Housing Corporation 2007 (Homes and Communities Agency) )
- Manual for Streets – DfT and DCLG, 2007
- Northampton Place and Movement Guide – Northampton County Council, 2008 (Draft)
- Daventry Design Codes – Daventry District Council, 2005

Precedant image providing an indication of materials for different street elements used along a pedestrian and cycle route

Example of public realm and material street elements used to improve safety at crossing points

Figure 61: Northampton Surface Materials Guide

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## Building Materials

This section of the Design Code allows for creativity set within broad guidelines. It will be necessary for Code designers to identify specific materials within the approved Code. However, rather than require these at the implementation stage, these will act as a benchmark of quality and type allowing developers the flexibility to submit alternative materials in response to design and changing circumstance.

It is recognised that adherence to a strict material palette can stifle creativity, but at times, it can help to achieve a more unified streetscape and quality standards. Detailed coding should respond to the local character and context of the site. Code designers should refer to the Characterisation section of this Manual for information relating to their respective sites.

Design Codes need not merely replicate historic building details and materials, but can reinterpret historic forms, or introduce new forms that compliment and add an additional layer to local vernacular as a considered response to the surrounding context.

The use of local materials is generally encouraged as this supports local identity, and can lower the carbon footprint for new developments through reducing the distances materials travel to site. As there are a number of active Ironstone quarries within West Northamptonshire, their patronage also supports local employment. More details relating to this are provided in Section Two of this Manual.

It is useful to include a palette of indicative colour and/or texture as well as images illustrating the desired or preferred options for building materials and details.


Figure 62: The Cotswold Design Code is quite prescriptive in terms of a design palette as it relates to a historic area. Outside of conservation areas, such a high level of prescription is often not appropriate or required. This approach looks at the character of the area as a whole, coordinating buildings together to form a coherent streetscape


Figure 63: Precedent images of roof materials provide indication of aesthetic quality desired

### Minimum Requirements

Information on the following should be provided in the Design Code:

- Modern Methods of Construction (MMC)
- Building wall materials
- Roof materials
- Windows types
- Door types
- Balcony types
- Cladding types
- Colour palette
- Texture palette

### Further Guidance

- Northamptonshire Place and Movement Guide - Northamptonshire County Council, 2008 (Draft)
- Daventry Design Codes – Daventry District Council, 2005
- By Design: Urban Design in the Planning System: Towards Better Practice – CABE and DETR, 2000

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# 3.13 Services and Utilities

## Refuse Storage, Collection & Recycling

Information with specific requirements on refuse storage, collection and recycling should be provided in the Design Code. It will be necessary to distinguish between commercial and residential refuse collection, recycling and waste management, depending on the types of uses involved in the various areas of the development.

Different solutions to the storage and collection of refuse will be required to respond to the different street types within the street hierarchy.

## Sub-Stations

The Design Code should provide guidelines for the design and location of any sub-stations to be provided within a development. It should state preferred materials and colours so that these are in line with the overall proposed character of the area.

Guidelines should also extend to ensuring that the sub-station is well enclosed and protected.

## Service Boxes/Metering Cupboards

The Design Code should provide information with specific requirements and guidelines in the design and location of service boxes and metering cupboards.

These guidelines should refer to the design and location of such utilities, in relation to the overall elevation design of the building(s). Guidelines should ensure that these are in keeping and do not detract from the design of the building frontage and are in line with materials and colours proposed.

The guidelines should also ensure that the services boxes and cupboards are easily accessible and can be seen for safety and purposes of services and maintenance, while not being too prominent.

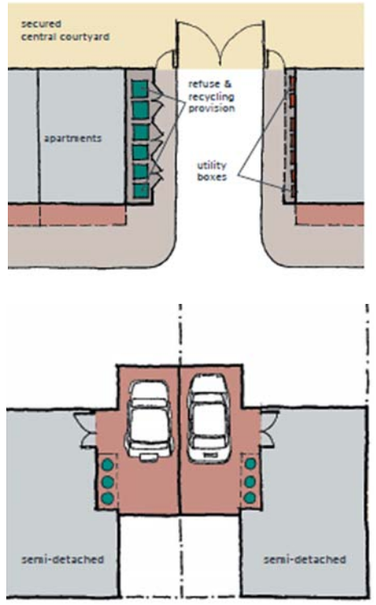


Figure 64: Drawings illustrating the different utilities and refuse facilities in apartment blocks and detached or semi-detached houses

The Envac refuse system in Hammarby and Malmo, Sweden, segregates commercial and domestic waste, which are transported underground by vacuum suction to central collection points

Example of service boxes/metering cupboards which are visible and easily accessible, yet in keeping with the colour palette used in this development

## Minimum Requirements

- Management strategy for services and utilities
- Guidelines for the enclosure and protection of sub-stations
- Guidelines on the location and design and service boxes and metering cupboards
- Refuse storage facilities and collection
- Recycling and waste management

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## 3.2.14 Implementation & Phasing

Developers and Code Designers should work closely with WNDC and statutory agencies to develop a phasing plan for each particular site. This will be informed by the site-wide phasing strategy required through planning condition as part of the original planning permission. However, a brief summary of the phasing strategy within a Design Code is necessary to provide information on how each phase of development fits within the overall programme of implementation.

The information included in this section will be made clearer through the inclusion of illustrations of the phasing process, the management structure and/or a map showing the phasing plan across the site.

It is also necessary to provide a table indicating the quantity of development and the time line proposed for each phase.

### Minimum Requirements

Plan illustrating:

- Phases of development
- Community and public transport provisions

Diagram(s) or table(s) illustrating:

- Implementation strategy and process
- Development timeline
- Management and maintenance structure

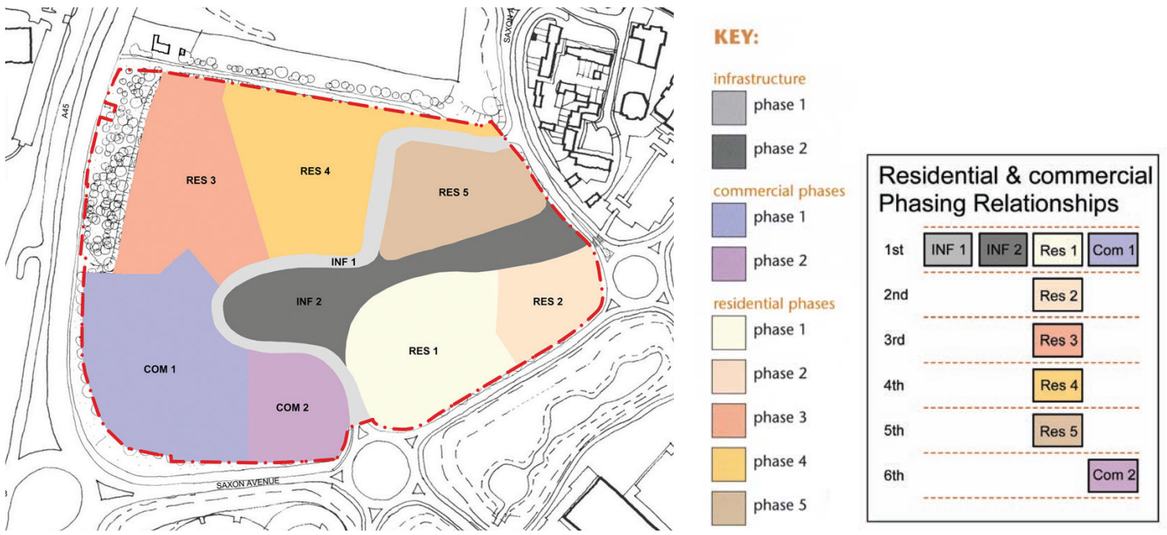


Figure 65: Phasing map and diagram for Grange Park in Northampton