

West Berkshire **Density Pattern Book**

Pattern Book Guidance and Methodology Report
September 2019 (Revision A)



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Introduction

- 1.1 West Berkshire District Council (WBDC) has commissioned David Lock Associates (DLA) to review and update its HELAA assessment density pattern book, which was last reviewed for the 2013 SHLAA. WBDC is currently updating its Local Plan, and this capacity assessment tool forms an important element of the HELAA process, as well as informing discussions with landowners and site allocations.
- 1.2 The pattern book is a guidance tool used for assessing the capacity of sites. As such it should reflect policy aspirations but also be grounded in deliverable market realities within the district.
- 1.3 This report presents the pattern book as a series of guidance diagrams, followed by tables and definitions.
- 1.4 The second half of the report presents the methodology followed to update the pattern book, and the evidence base that supports the final results.

1.0 Guidance

How to use this Guidance

The West Berkshire Density Pattern Book gives guidance for high-level site capacity assessment within the HELAA process.

Site assessment follows a simple 1-2-3 procedure, illustrated below.

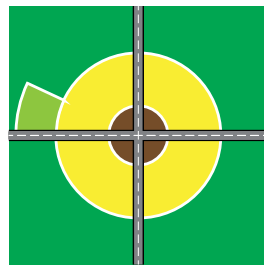
1 Developable Area



Based on site location and site size determine potential area that can be developed



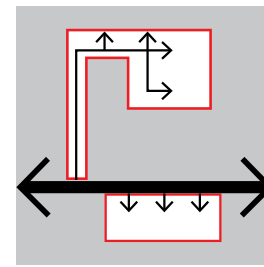
2 Density by Location



Based on site location determine appropriate density for housing within developable area



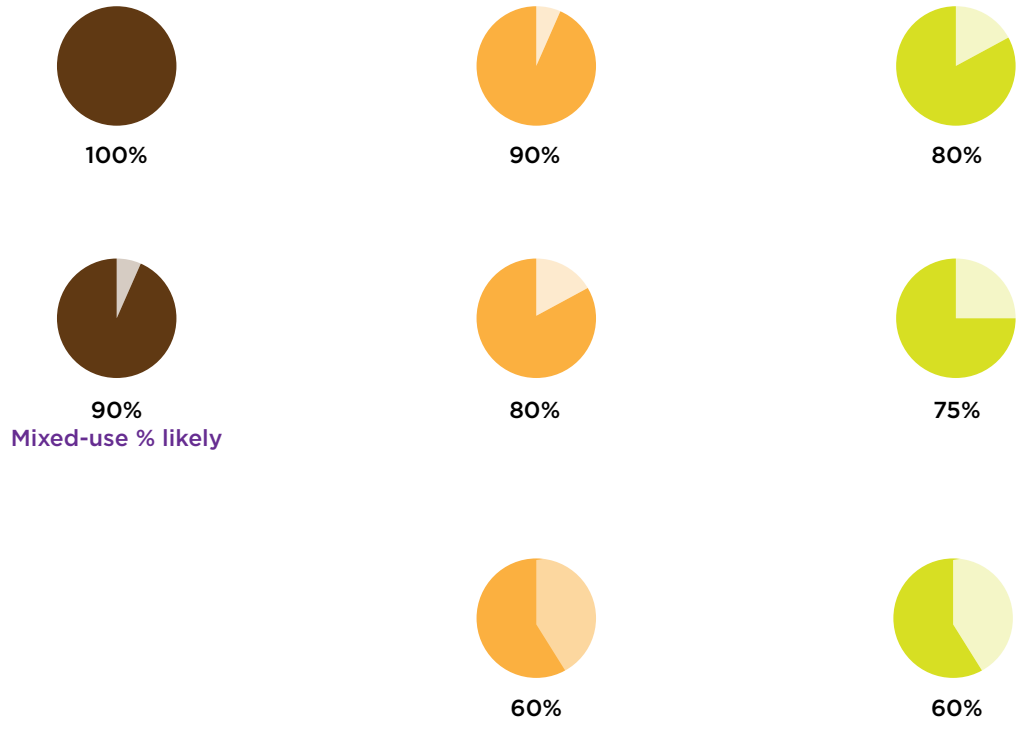
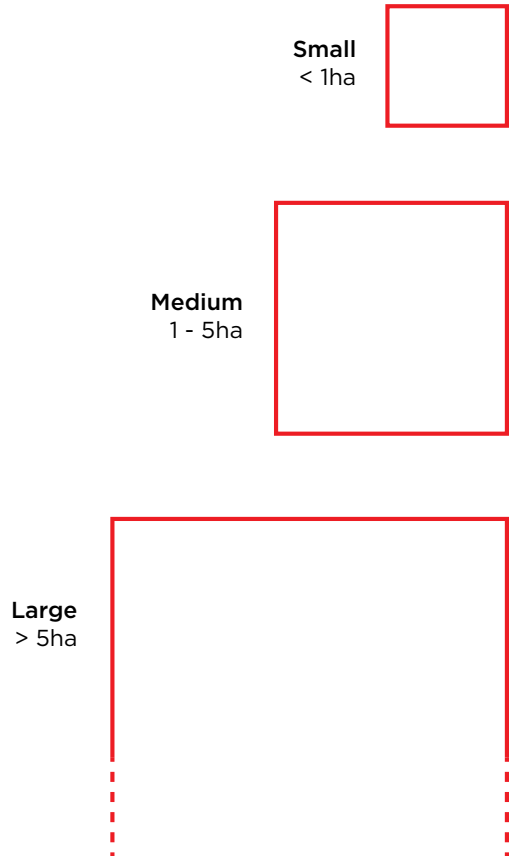
3 Site-Specific Issues



Refine capacity upwards or downwards based on access and shape

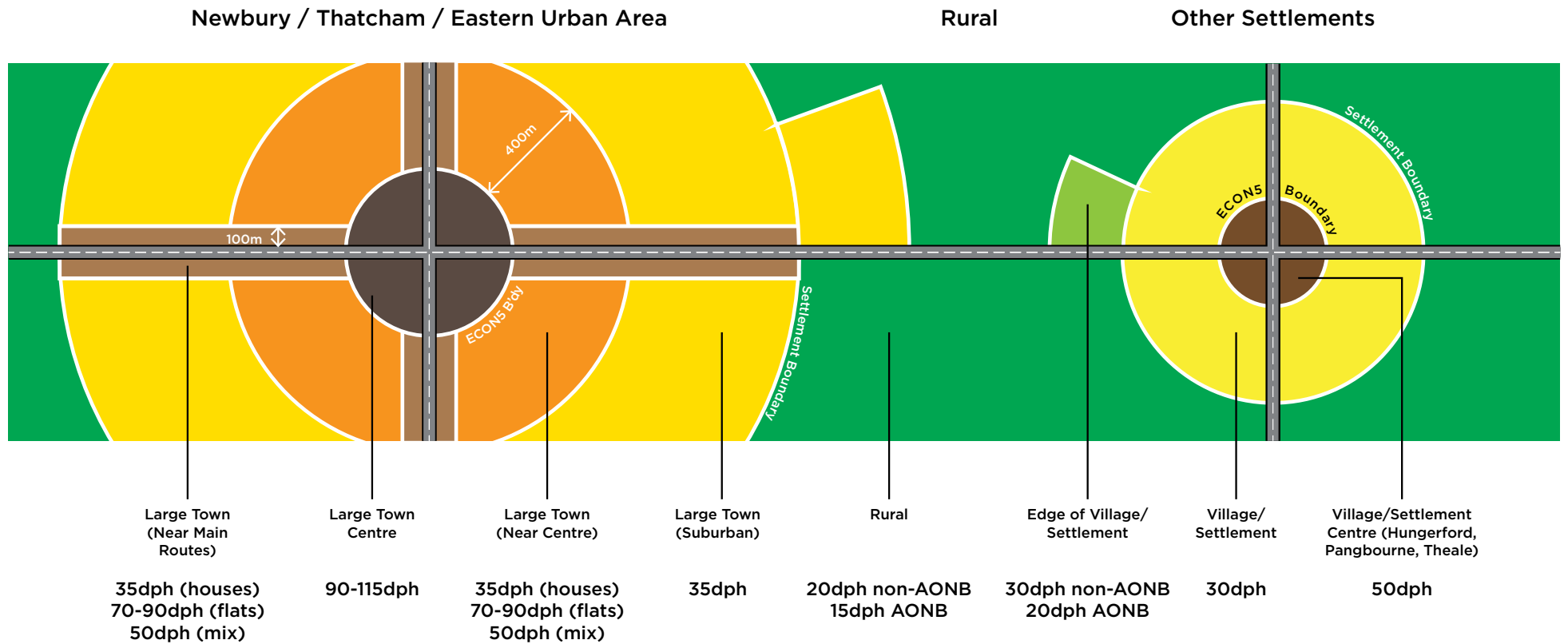
1 Developable Area

Please refer to table on page 10 for additional notes. For considerations please refer to figure 18 on page 31.



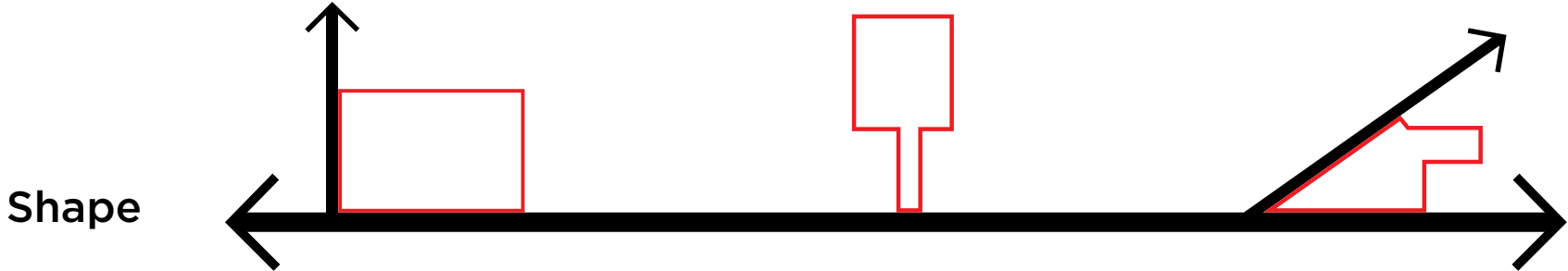
2

Density by Location



Please refer to table on page 10 for additional notes

3 Site-Specific Issues



Corner or Compact
 Long frontage on main access road
 Aspect ratio approaches 1:1

Potential for capacity at higher end of ranges

Infill or Deep Plot
 Short frontage on main access road
 Aspect ratio high (long and thin)

Capacity could be restricted depending on site and context

Irregular Shape
 Some areas too small for buildings
 Complex access and circulation

Capacity likely to be restricted



Shallow Plot
 Potential for direct access to dwellings
 No internal circulation

Potential for capacity at higher end of ranges

Deep Plot
 Single access from main road
 Internal circulation or parking court

Capacity could be restricted depending on site and context

Irregular Shape
 Access arrangements take significant land
 Internal circulation or parking court

Capacity likely to be restricted

Tables

Developable Areas

	Town Centre (ECON5)	Within Settlement (outside ECON5)	Edge of Settlement and Rural
Small < 1ha	100%	90%	80%
Medium 1 - 5ha	90% Mixed use % likely	80%	75%
Large > 5ha	-	60%	60%

Notes:

- Developable area percentages could be reduced depending on site size, local context, access and other factors.
- Considerations for developable areas are given in the Methodology section of this study.
- Town Centre - is the area defined by saved policy ECON5 (includes Large Town Centre and Village/Settlement Centre)
- Within settlement - refers to sites within a defined settlement boundary, but outside the areas defined by ECON5 (Large Town Main Routes, Large Town Near Centre, Large Town Suburban, Village/Settlement)
- Edge of Village/Settlement and Rural - refers to the sites outside of, but adjacent to settlement boundaries or in rural locations

Densities by Location

	Small < 1ha	Medium 1 - 5ha	Large † > 5ha
Large Town Centre	115dph	90dph	-
Large Town Main Routes	35dph (houses) 70-90dph (flats)	50dph (mix of flats and houses)	-
Large Town Near Town Centre (<400m)	35dph (houses) 70-90dph (flats)	50dph (mix of flats and houses)	-
Large Town Other / Suburban	35dph	35dph	35dph
Village/Settlement Centre (Hungerford, Pangbourne, Theale)	50dph	50dph	-
Village/Settlement	30dph	30dph	-
Edge of Village/Settlement	30dph outside AONB 20dph within AONB	30dph outside AONB 20dph within AONB	30dph outside AONB 20dph within AONB
Rural	20dph outside AONB 15dph within AONB	20dph outside AONB 15dph within AONB	20dph outside AONB 15dph within AONB

Notes:

- Definitions for the categories are given on the following page.
- These densities are applied to the developable area only.

† Strategic Sites

In particular, strategic sites are likely to contain a mix of densities according to context and local need.

Capacity assessment should be made on a case-by-case basis, ideally through a masterplanning approach.

Category Definitions

Large Town (Newbury / Thatcham / Eastern Urban Area)

Town Centre

Sites in Newbury and Thatcham where any part is within the ECON5 commercial centre boundary. These sites offer the potential for higher density sustainable development.

Major Routes

Sites in Newbury, Thatcham or the Eastern Urban Area where any part is within 100m of a major route, such as an A-road, B-road or other principal circulation route. These sites offer the potential for higher density sustainable development.

Near Town Centre

Sites in Newbury and Thatcham where any part is within 400m of the ECON5 town centre boundary. These sites offer the potential for higher density sustainable development.

Other/Suburban

All other sites within or adjacent to the settlement boundary of Newbury, Thatcham or the Eastern Urban Area not included in the other Large Settlement categories. These are typically suburban sites.

Village/Settlement (all other settlements with settlement boundaries)

Centre

Sites in Hungerford, Pangbourne or Theale where any part is within the ECON5 commercial centre boundary.

Other

All other sites within defined settlement boundaries.

Edge of Village/Settlement (exc. Newbury/Thatcham/ Eastern Urban Area)

Non-AONB

Sites located outside of, but adjacent to, the settlement boundary of those settlements not in the AONB.

AONB

Sites located outside of, but adjacent to, the settlement boundary of those settlements in the AONB.

Rural

Non-AONB

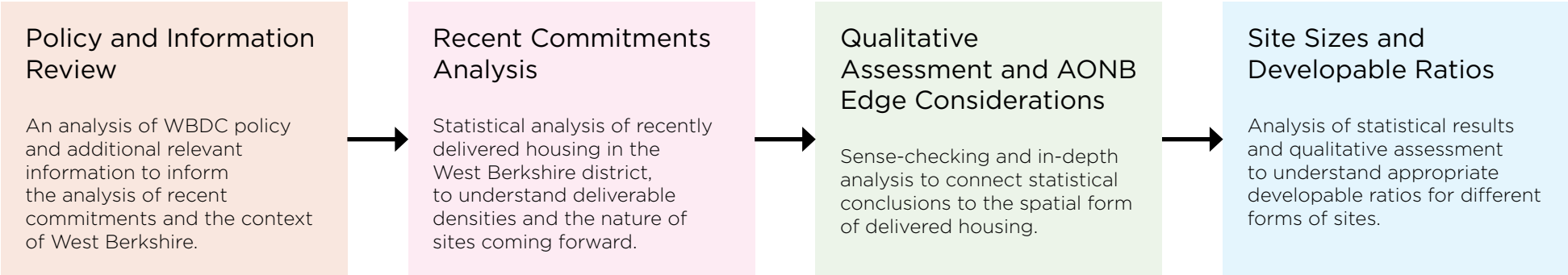
Sites detached from settlement boundaries and/or in more isolated locations, outside the AONB boundary.

AONB

Sites detached from settlement boundaries and/or in more isolated locations, where any part is inside the AONB boundary.

2.0 Methodology

Methodology Overview



- 2.1 This chapter of the study explains the process behind the creation of the new density pattern book.
- 2.2 The methodology is a mixture of information review, statistical analysis and qualitative assessment of recently built housing and the context of West Berkshire.

Policy and Information Review

2.3 This section outlines the effect of relevant local and national policy on the density pattern book, as well as comparisons with nearby authorities, appeal decisions and the character context of the district.

2.4 The section concludes with a set of analysis categories of densities that are appropriate to policy and informed by the information review.

National Policy - NPPF

2.5 The National Planning Policy Framework (NPPF) indicates that efficient use of land is a priority (paragraphs 122 and 123). Although West Berkshire is not in a position where there is a shortage of land supply, it is prudent to review the guidance, which agrees with Core Strategy Policy CS4 by stating:

2.6 “It may be appropriate to set out a range of densities that reflect the accessibility and potential of different areas, rather than one broad density range” (p.123)

National Policy - PPG14

2.7 The July 2019 update to Planning Practice Guidance (PPG) added an additional chapter (no. 14) on Effective Use of Land, indicating to local authorities how they should treat this issue in practice when making plans, expanding on the NPPF. There are two key paragraphs that have direct relevance to this density pattern book.

2.8 Paragraph 004 (66-004-20190722): “What tools are available to local planning authorities to help identify appropriate densities?” directs local planning authorities to consider a range of common factors when determining appropriate densities:

“A range of considerations should be taken into account in establishing appropriate densities on a site or in a particular area. Tools that can assist with this include:

- accessibility measures such as distances and travel times to key facilities, including public transport stops or hubs (and taking into consideration service capacity and frequencies and destinations served). A range of tools are available to support such assessments.
- characterisation studies and design strategies, dealing with issues such as urban form, historic character, building typologies, prevailing sunlight and daylight levels, green infrastructure and amenity space;
- environmental and infrastructure assessments, such as the capacity of services and presence of environmental risks (e.g. flood risks or overheating), and the opportunities to address these; and
- assessments of market or site viability.”

2.9 Paragraph 005 (66-005-20190722): “How can density be measured for planning purposes?”

directs local planning authorities to consider the appropriate measure of density to be used in plan-making, as different density metrics will result in different outcomes in the built environment, which may or may not be appropriate to addressing issues faced in that area:

“Different measures of density can be used to help make effective use of land, including optimising the housing potential of particular areas or sites by identifying appropriate building forms:

- Plot ratio measures can help to indicate how a development will relate to its surroundings and the provision of open space within the site. For example the site coverage ratio (gross external ground floor area ÷ site area) indicates the ratio of building cover to other uses.
- Bedspaces per hectare: indicates the density of potential residential occupation.
- Dwellings per hectare: measures the number of homes within a given area.

Dwellings per hectare, used in isolation, can encourage particular building forms over others, in ways that may not fully address the range of local housing needs. For example, an apartment building containing one person studios could deliver significantly more dwellings per hectare, but significantly fewer bedspaces per hectare, than a terrace of family-

sized townhouses on a similarly sized site. It is therefore important to consider how housing needs, local character and appropriate building forms relate to the density measures being used.”

- 2.10 This pattern book responds to this advice closely by considering:
- A wide range of factors that should inform appropriate densities on a site (from paragraph 2.13)
 - An evidenced discussion on appropriate density measures for West Berkshire (from paragraph 2.20)

Core Strategy

- 2.11 WBDC’s current Core Strategy policy CS4 embeds density aspirations, related to:
- Spatial location, with higher densities (50+dph) appropriate in centres
 - Walkable access to centres and sustainable public transport corridors, with higher densities appropriate in these parts of urban areas (30 up to 50dph)
 - Character of settlements in the district, with lower densities appropriate in some suburban or rural areas of the district (below 30dph)
- 2.12 A 2018 appeal decision concerning Land to rear of Charlotte Close, in Hermitage (part of the AONB) should also be considered. The inspector agreed with WBDC that policy HSA24 referred to the prevailing density character and this was considered to be the settlement as a whole: “(3) ... the density of the appeal proposal would not reflect the adjoining settlement character”. This affects the approach that should be taken in creating a new pattern book, as appropriate densities for sites may be based on wider factors than recent building in the area. In particular the character of the rural settlements should be considered.

Factors Affecting Density

- 2.13 PPG Chapter 14 indicates a range of factors that LPAs should consider when setting appropriate densities on sites. Several of these are appropriate to consider within the scope of a density pattern book for early site assessment.
- 2.14 **Accessibility measures**, to increase densities in walkable or (potentially) public transport-served areas, can be assessed at an early stage through the physical location of sites. West Berkshire Core Strategy also recognises this essential driver of appropriate density through ambitions to increase densities close to town centres or major routes. This pattern book addresses this measure through setting different densities based on a site’s proximity to these accessibility factors.
- 2.15 **Character studies** and design strategies, to ensure development is appropriate for the physical context, have previously been addressed through the division of sites into Urban/Suburban/Village/Rural categories, which are broad assessments of character within the district. This pattern book will continue this approach with some refinement. More detailed studies are warranted in categories of sites identified as particularly sensitive. Within West Berkshire, housing development within the North Wessex Downs AONB has particular visual and character sensitivity; and this pattern book undertakes a design analysis to illustrate appropriate densities in this area.

2.16 **Market or site viability** cannot be addressed in detail within this pattern book, but can be addressed in a high-level way by analysing delivered densities over the past five years within the district. This approach can determine what the market is currently delivering and considers viable on a range of different sites. This analysis forms a core part of this pattern book update.

2.17 Some factors discussed in the PPG are beyond the scope of this early stage assessment of a site's capacity.

2.18 **Environmental and infrastructure capacity assessments**, beyond very broad assumptions based on a site's location and proximity to known environmental constraints, require in-depth examination to determine a site's capacity. Beyond typical developable area constraints, this pattern book will not address these issues as they are beyond the scope of this study.

2.19 Taken together, the range of factors that the updated pattern book addresses comprehensively addresses the requirements of the newly-introduced PPG.

Appropriate Density Measures

2.20 The recent addition of Planning Practice Guidance on Effective Use of Land directs local planning authorities to understand and select appropriate density measures during the plan-making process. The reason for this is summarised succinctly in the PPG:

“Dwellings per hectare, used in isolation, can encourage particular building forms over others, in ways that may not fully address the range of local housing needs. For example, an apartment building containing one person studios could deliver significantly more dwellings per hectare, but significantly fewer bedspaces per hectare, than a terrace of family-sized townhouses on a similarly sized site.”

2.21 Typically density is measured in one of three ways:

- Numbers-based: for example dwellings per hectare (dph or du/ha), bedrooms or habitable rooms per hectare (hr/ha).
- Form-based: for example plot ratios, building height or similar
- People-based: for example population per hectare or more detailed sub-populations

2.22 Each of these density measures has an underlying objective. Numbers-based measures are useful for determining potential delivery capacity of sites, especially in the context of a target number of dwellings to be delivered in a certain timescale, such as that assessed by the Berkshire SHMA. Form-based measures are useful for determining the character of developments delivered, to ensure they fit with the prevailing urban form in the context. They are commonly employed in zone-based planning systems where buildings are not subject to detailed planning

permission, as is the case in the UK. They may also be employed in more detailed design codes. Finally, people-based measures are typically employed to forward plan for service and amenity provision, as occupancy of buildings can vary significantly post-delivery from typical household figures.

2.23 The objectives of this pattern book update strongly suggest a numbers-based measure is the most appropriate. The pattern book is used as a guide for capacity assessment, and is used as part of the HELAA process, in order to meet the assessed housing requirement for the district. Form-based densities do not deliver this level of capacity assessment, and people-based measures are similarly disconnected from the nature of what is delivered on the ground.

2.24 Within numbers-based measures, the PPG offers two potential measures:

- Dwellings per hectare
- Bedrooms per hectare

2.25 The example given to support this differentiation (an apartment building versus a terrace of family-sized houses), is applicable in markets where the demand for all forms of housing is significantly in excess of the available land supply and delivery rates, so additional supply of any category of housing in any reasonable location will not exceed the demand present in the market, and all units of a single type will be sold regardless of the

mix of housing needs. In this situation more detailed delivery constraints may need to be employed by the planning authority to ensure a more representative mix of housing types is delivered, serving all groups and addressing the mix of needs equally.

2.26 This imbalance of supply and demand is seen clearly in London and other highly overheated urban housing markets in the south-east of the UK. In this situation singular density measures such as dwellings per hectare do not help local authorities in planning for their housing mix needs or anticipating the mixed capacity of a site.

2.27 Prevailing urban form will also contribute to whether this situation can occur. For example, developments in London can include large numbers of one-bedroom flats without being out of character in many areas. Conversely, very rural areas can struggle to deliver smaller homes.

2.28 West Berkshire does not collect information on dwelling types delivered, only on total number of dwellings as part of the Annual Monitoring Report (AMR). As part of the assessment of recent housing delivery, the pattern book's methodology will perform an assessment of the forms of housing delivered and will attempt to offer more detailed advice where it is clear that a particular form of development dominates (for example flats in or around town centres).

2.29 There is no clear evidence that the use of dwellings per hectare as a capacity measurement is producing undesirable housing delivery results in West Berkshire. As a practical tool this density measure also helps to align the pattern book capacity assessment with the delivery of West Berkshire's housing requirement over the plan period to 2036. As such this pattern book will continue to use dwellings per hectare as a capacity assessment tool, at this stage of the site assessment process.

Western Berkshire HMA Approaches

2.30 Authorities within the Western Berkshire HMA use a variety of approaches to undertake capacity assessment, elements of which may be appropriate to inform this review.

2.31 Reading Borough Council bases its pattern book purely on recently built housing densities, taking an average within categories in different spatial areas (town centre/urban/suburban). It makes no allowance for reductions in developable area and does not differentiate by site size. This is likely informed by the predominantly urban nature of the sites coming forward. It also has a lower size limit for HELAA assessment, based on sites that could contain 10 dwellings.

2.32 Wokingham Borough Council have not published a recent assessment approach. The most recent was published in their 2011 SHLAA, and is identical to that used by WBDC's methodology from the 2013 SHLAA, both in categories and numbers.

2.33 Bracknell Forest Council has a comprehensive capacity assessment tool that rigorously sets out the space requirements that may need to be removed from developable areas, drawing on open space, education and other policies. Three sets of developable area ratios are published, depending on distances to the Thames Basins Heath Special Protection Area (SPA) and whether sites are within town centres.

2.34 After developable areas have been calculated,

the following densities are used:

- Sustainable town centre locations: 70dph+
- Small edge of settlement: 30dph
- Rural isolated sites: 25dph
- All others: 35dph

2.35 West Berkshire is mostly not affected by the Thames Basins Heath SPA and 5km buffer, so it is not necessary to have special categories for these sites, as they can be addressed on a case-by-case basis.

2.36 Although it is not part of the Western Berkshire HMA (instead a part of the Eastern Berkshire HMA), the Royal Borough of Windsor and Maidenhead uses a pattern book of density ranges split by development typology (high-mid-low-rise flats/terrace houses/detached houses), rather than location. As such it is an interesting comparison for the purposes of this study. An allowance is made for developable area, but the published figures are ranges based on size of site. The densities are based on a 2013 study by Studio REAL which derived potential densities from designs, using the district's planning policies. These densities were then tested on 10 different typical sites, and then adapted by RBWM. The developable area ranges are based on 1999 work by URBED and Llewellyn-Davies.

2.37 Two approaches to generating density figures are apparent in this comparison:

3.5 For a number of other sites, a 'pattern book' approach was used. This took examples of recent development and used the average densities. These resulted in the following densities:

- Town centre residential new-build - 325 dwellings per hectare (dph)
- Town centre fringe residential new-build - 200 dph
- Urban residential new-build - 74 dph
- Suburban residential new-build - 42 dph
- Conversion to residential - 1 dwelling per 57 sq m of floorspace
- Town centre office new-build - plot ratio of 326%
- Out of town office new-build - plot ratio of 68%
- Industrial/warehouse new-build - plot ratio of 33%
- Community new-build - plot ratio of 71%

Figure 1: Reading BC density pattern book

	Density dwelling/ha	Studio REAL dph advice	Observations
Smaller style houses (higher density terrace typical)	35-60	43-50	Higher end of the range may be difficult to achieve a comfortable environment and accommodate necessary car parking.
Larger style houses (detached/detached and detached typologies)	30-35	20-40	We would see 30-35dph as very much a medium range. Larger style houses of the kind we have seen in the Royal Borough would be well below this.
Low rise flats (town)	45-120	90-109	Falls mid-range
Medium rise flats	70-130	116-122	Falls mid-range
High rise flats	120-140	127-131	Falls mid-range

Figure 2: Royal Borough of Windsor and Maidenhead density pattern book

- Density guidance based on what has been delivered recently by the market
- Density guidance based on designed typologies - i.e. what could be delivered given the context, policies and aspirations

2.38 Two approaches to categorising sites are also apparent:

- Categories based on location
- Categories based on types of development

2.39 For West Berkshire, the most appropriate approach to categorisation should be based on location, given the highly diverse nature of settlement and rural area characters within the district. Density guidance within these categories could be undertaken as a hybrid approach, using what has been built in some categories but supplementing this with design work that fit with the wider context, as discussed in paragraph 2.3 above.

Aligning Categories to Policy and Character

2.40 In line with the brief, the assessment categories for the density pattern book should be aligned with policy aspirations and the character of the settlements in the area. Doing this will allow a more robust statistical analysis of recent commitments, as well as providing a more useful and robust approach to assessment of sites.

2.41 The categories in Table 1 are proposed, with their relationship to the previous pattern book and the initial guidance given at the start of the commission:

2.42 The major changes are a subdivision of the 'Urban' (Newbury/Thatcham/Eastern Urban Area) category to take account of walkability and access to public transport driving different density profiles, and a subdivision of the village category to differentiate between centres and AONB villages.

2.43 These categories fulfil the following criteria:

- Aligns with the previous pattern book and guidance from WBDC
- Aligns with policy CS4 and the NPPF
- Aligns with and reflects the varied character of settlements within the districts

2013 Pattern Book			>> WBDC Guidance			>> DLA Proposal			
Location	<1ha	>1ha	Location	Small	Large	Location	Small	Mid-Size	Strategic
Town Centre	115	90	Town Centre	?	?	Newb/That/EUA Town Centre	?	?	?
Newb/That/EUA (<800m to centre)	60	65	Newb/That/EUA	?	?	Newb/That/EUA Major Routes	?	?	?
Newb/That/EUA (>800m to centre)	30	30				Newb/That/EUA <400m From Centre	?	?	?
Suburban/Village (<800m to centre)	30	40	Suburban/Village inc. ad.j Newb/That/EUA	?	?	Village/Settlement Centre (Hung/Pang/Thea)	?	?	?
Suburban/Village (>800m to centre)	30	30				Village/Settlement Non-AONB	?	?	?
AONB/Edge of Settlement	20	20	Rural Non-AONB	?	?	Rural Non-AONB	?	?	?
			Rural AONB	?	?	Rural AONB	?	?	?

Table 1: Alignment of analysis categories to previous guidance, WBDC brief and current policy

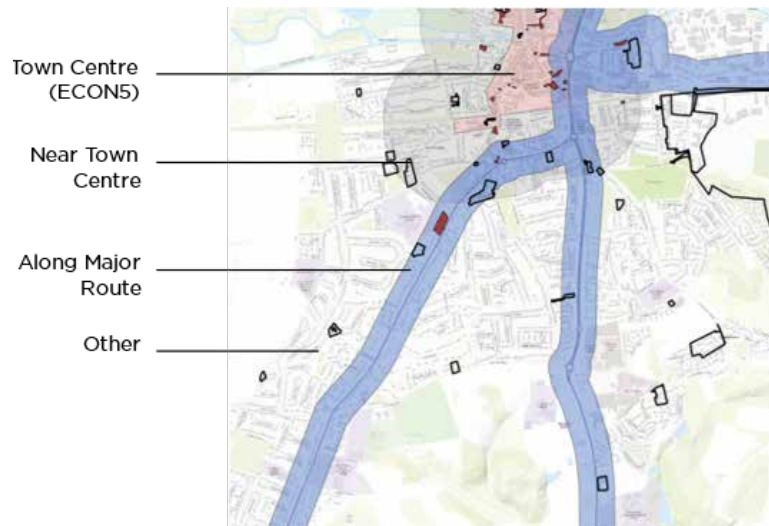


Figure 3: Example plan of analysis category locations in southern Newbury

Recent Commitments Analysis

2.44 This section analyses recently delivered housing commitments in West Berkshire, delivered since the adoption of the Core Strategy in 2012 (monitoring year commencing 1 April 2013).

2.45 Using statistical methods the robustness of the data is tested and conclusions on deliverable densities in some analysis categories are drawn.

2.46 Some analysis categories are determined to require more detailed qualitative analysis and are discussed in the following section.

Methodology

2.47 From a list of housing completions provided by WBDC, these were filtered down to the following:

- Sites that have had completions between 2013-2018 – this is to determine what is deliverable under recent market conditions
- Sites with more than 3 completions during this period – this is to remove very small sites that could skew the data. Of 3100 completions in the period, approximately 2750 are in this category, so this contains the vast majority of completions
- Changes of use under permitted development rights (PD) were removed. This predominantly affects town centre sites. PD conversions typically have higher densities due to their exemption from policy

requirements such as open space, amenity space, parking or any internal space standards.

2.48 This list of sites was then plotted in GIS, and gross areas for sites computed. This method works well for smaller sites where gross area is very likely to equal net area, given that any roads will be access roads and counted in the net density calculation as defined in the former PPG3.

2.49 For each site the gross density was computed: gross units permitted divided by gross area.

2.50 Sites were then categorised using GIS.

- Town centre sites within the area defined by policy ECON5
- Near town centres defined as within 400m of the area defined in ECON5
- Major routes sites defined as within 100m of a major route (A- and B-road)
- Large settlement sites defined using the settlement boundaries of Newbury, Thatcham and the constituent settlements of the Eastern Urban Area
- Village/Settlement sites defined as sites within a settlement boundary but outside of Newbury, Thatcham or the Eastern Urban Area.
- Rural sites defined as being outside a

settlement boundary.

2.51 AONB sites determined by the boundaries of the AONB within the district.

2.52 For each category of site, the following was computed:

- Count of sites
- Gross Site Areas: Min, Max, Mean, Standard deviation (a measure of variance within a data set)
- Gross Site Densities: Min, Max, Mean, Standard deviation

2.53 Additionally, a weighted mean was calculated by totalling all dwellings approved within a category and dividing it by the total land approved.

2.54 The statistical approach was supplemented by a qualitative observation of sites within each category to determine spatial patterns and underlying reasons for the delivered densities.

Findings

- 2.55 The statistical approach used here has most applicability in categories with a large number of recent commitments, and where the sites built on are similar or display patterns.
- 2.56 Initial density findings and comments are shown in Table 2 below.

Location	Small Sites (<1ha)		Large Sites (>1ha)
	Density (dph)	Notes	Notes
Newb/That/EUA Town Centre	195	A small number of sites once office to residential PD conversions are removed. Major Newbury Town Centre development has low net density due to inclusion of other land uses.	Too few sites, and too much variation between committed sites to draw statistical conclusions on what has been delivered.
Newb/That/EUA Major Routes	60	Two main site typologies seen: infill suburban style housing (~35dph) and flats (70-100dph)	
Newb/That/EUA <400m From Centre	36	Small number of sites to draw conclusions from	
Newb/That/EUA Other (suburban)	33	Broadly well-defined by built data, but attention should be paid to aspect ratio and access on individual sites	
Village/Settlement Centre (Hung/Pang/Thea)	48	Small number of sites to draw conclusions from	
Village/Settlement Non-AONB	28	Broadly well-defined by built data, but attention should be paid to aspect ratio and access on individual sites	
Village/Settlement AONB	28	Broadly well-defined by built data, but attention should be paid to aspect ratio and access on individual sites	
Rural Non-AONB	15	Considerable variation based on site type but small contribution to overall housing figures	
Rural AONB	11	Considerable variation based on site type but small contribution to overall housing figures	

Table 2: Results of statistical analysis

Qualitative Assessment

- 2.57 This section follows the statistical analysis to test the conclusions from the data by qualitatively assessing the sites that have been built during the period 2013-2018.
- 2.58 The qualitative assessment seeks to sense check the statistical results and understand the reasons behind the numerical conclusions. In certain categories the data is not strong enough to come to conclusions and the assessment of sites seeks to form a more detailed understanding of what has been built and if it is more widely applicable.
- 2.59 An analysis of the sites that have been built out indicates the types of development that have come forward within the analysis categories.

Newbury/Thatcham/EUA Town Centre

- 2.60 The vast majority of sites are residential conversions from offices under permitted development (PD) rights. These typically have very high densities due to small plots, low amenity space and little on-site parking. For HELAA purposes these would not be considered.
- 2.61 The only other major sites that have come forward in this category are highly varied. The larger redevelopment site in Newbury Town Centre incorporates mixed-use elements which reduces the site area available for housing. Specific guidance or design work to indicate appropriate densities may be required for these cases.



Figure 4: Smaller sites have high (150-250dph) densities but have little amenity or open space provision.



Figure 5: Mixed use development in Newbury town centre (65dph gross density)

2.62 The average density delivered on the 11 sites within this category, excluding PD conversions, is 195dph. This is not a robust number to base a future pattern book on. Many of the sites have little amenity space, or are retail conversions with low space standards. Parking provision is low and open space borrows strongly from existing public open space.

2.63 At the other end of the spectrum the large mixed-use development has comparatively low densities due to the proportion allocated to retail and other uses.

2.64 Finally only a small number of sites are present in this category, making conclusions on previously built data difficult.

2.65 For future capacity assessment, WBDC's previous guidance of 90-115dph remains an appropriate starting point.

Newbury/Thatcham/EUA Major Routes

2.66 The sites within this category fall into two development types: flats and infill housing. Compact sites with good main road frontage are typically developed as flats, and deep sites are typically developed with infill housing. Large sites have a mix of these typologies.



Figure 6: Flats with density of 90dph on A4 in Thatcham.



Figure 7: Suburban infill of 25dph on plot next to A4 in Thatcham.

Newbury/Thatcham/EUA Near Town Centre

2.67 Most sites within this category are infill suburban housing or flats. Development densities particularly depend on access, aspect ratio and the surrounding context (for example the Thatcham conservation area). Flats are most common in Newbury.



Figure 8: Housing near Newbury town centre (St. Bartholemews School), 30dph



Figure 9: Flats on Rockingham Road, 90dph



Figure 10: Mix of typologies, Mill Lane, 40dph

Newbury/Thatcham/EUA Other Sites (suburban)

2.68 Most sites within this category are infill suburban housing. Development densities particularly depend on access, aspect ratio, and simplicity of site shape.



Figure 11: Typical infill suburban housing on compact site, Thatcham, 34dph



Figure 12: Infill housing on site with poorer access, Thatcham, 29dph

Village/Settlement Centre

2.69 The sites that have come forward in this category (in Pangbourne, Theale and Hungerford, which have defined centres in ECON5) tend to be small infill developments at higher density than the surrounding village. These typically reflect the denser historical urban form within these village centres, and the proximity of railway stations that may allow a reduction in parking provision.

Village/Settlements (AONB and non-AONB)

2.70 Most sites within this category are infill suburban housing. Development densities particularly depend on access, aspect ratio, and simplicity of site shape. There does not appear to be a difference between villages within the AONB and those outside it.

Rural (AONB and non-AONB)

2.71 Sites within this category are varied, however some common features can be seen. There are some sites which appear to be similar to village infill sites, with internal access roads towards housing clusters. Other sites tend to be large areas with a small number of large houses on them, with correspondingly low densities. The AONB tends to have lower densities overall.



Figure 13: Hermitage (AONB), 25dph

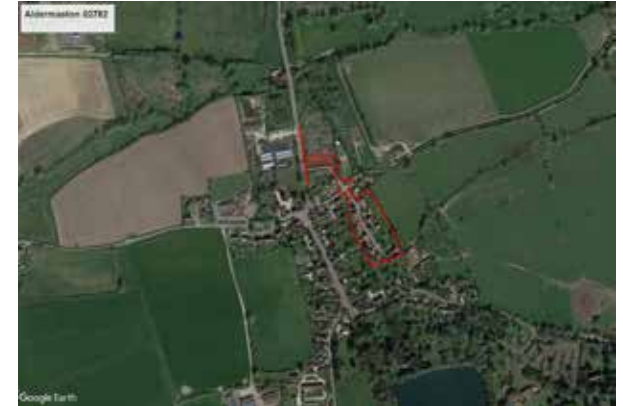


Figure 15: Aldermaston edge of settlement (non-AONB), 20dph



Figure 14: Pangbourne (AONB) infill, 36dph

Edge of Settlement Considerations

2.72 This section looks at an additional consideration flagged by the qualitative assessment and WBDC policy that has an effect on the final density pattern book categories.

2.73 74% of West Berkshire is covered by the North Wessex Downs AONB. Development within this area is particularly sensitive.

2.74 Although recent commitment data analysis indicates that there is little difference in delivered densities within settlement boundaries inside or outside of the AONB, edge of settlement developments on villages within the AONB are considered more sensitive from a character point of view.

2.75 Recent appeal decisions such as that seen in Hermitage underline this. Some proposals being brought forward are at inappropriately high densities for the prevailing character of the settlement.

2.76 Sites brought forward on the edge of settlements need to retain a rural character as outlined in the West Berkshire Quality Design SPD (2006), but in particular those sites in the AONB, need to conserve and enhance the landscape character.

2.77 In order to satisfy this policy and design approach, a new category of sites can be added to the Density Pattern Book, between Rural (isolated sites) and Village/Settlement (inside the settlement boundary).

2.78 This 'Edge of Village/Settlement' category

should be split for AONB and non-AONB sites, which has been included in the final guidance on densities in the table on page 10, and the diagrams at the start of chapter 1.

AONB Edge of Settlement

2.79 To align with the advice given in the Quality Design SPD, a lower density of 20dph is judged to be appropriate in Edge of Settlement sites in the AONB.

2.80 This 20dph density has been tested using an example layout shown in Figure 16 that seeks to satisfy the considerations of the Quality Design SPD.

2.81 This density also fits with the prevailing character of many of the settlements in the AONB, but still seeks to maintain efficient use of land.

Non-AONB Edge of Settlement

2.82 Outside of the AONB edge of settlement sites also need consideration of appropriate densities. In these locations the landscape impact is less sensitive, and the built densities of these settlements tends to be higher.

2.83 As many sites will incorporate landscaping buffers, removed from their developable area, target densities can be similar to the prevailing densities recently delivered within the settlements, at 30dph.

Existing settlement backing on to new development



20dph Rural Edge Layout Study

Figure 16 (across both pages): Example rural edge development at 20dph conforming to Quality Design SPD guidance

20dph Rural Edge Layout

1. Substantial structural planting on edges and within development adjacent to countryside to soften views
2. Gaps in urban form break development into smaller groups providing opportunity for tree planting.
3. Vegetation used to define the edge of development and create a transition from enclosed to open space.
4. Courtyard form allows landscape setting to dominate by providing space for trees and landscape within the housing layout.
5. Carparking and garages set back from building form at countryside edge
6. Visitor parking integrated within courtyard layout



Site Sizes and Developable Areas

2.84 This section analyses the sizes of sites brought forward and the different responses in terms of densities and developable area ratios.

Current Approach

2.85 At present WBDC have a set of size-based criteria for judging site development capacity and densities. These are:

- Different density targets for small sites (<1ha) to large sites (>1ha)
- A reduction in developable area (net site area) as sites get larger. These are divided into three categories, small (0.25-0.4ha), medium (0.4-2.0ha) and large (>2ha).

2.86 Analysis of the recent commitments data, and qualitative analysis of the sites brought forward in the recent period, suggests that these categorisations are more complex.

Small Sites

2.87 A sensitivity analysis shows the categories where the threshold for classification as a small site is most important.

2.88 The most significant change across categories occurs as the threshold moves from 1.0 to 2.0ha. In many cases this is because the analysis starts to include a single larger site that has unusual circumstances.

2.89 The PPG3 definition of net density calculations states that the following areas should be

Category	<0.5ha	<0.75ha	<1ha	<2ha	Trend as area threshold rises
Newb/That/EUA Town Centre	195	195	195s	195	No change
Newb/That/EUA Major Routes	73	63	60	49	Fall - inclusion of more houses than flats sites
Newb/That/EUA <400m From Centre	60	36	36	33	Fall - inclusion of more houses than flats sites
Newb/That/EUA Other (suburban)	39	33	33	41	Increase - includes Holywell shopping centre development
Village/Settlement Centre (Hung/Pang/Thea)	46	48	48	48	No change
Village/Settlement Non-AONB	31	31	28	26	Slight fall but offset by rise in AONB village sites
Village/Settlement AONB	28	28	28	33	Slight increase but offset by fall in non-AONB village sites
Rural Non-AONB	26	26	15	15	Starts to include big sites with few houses
Rural AONB	74	74	11	8	Starts to include big sites with few houses

Table 3: Sensitivity analysis showing effect of different area thresholds on delivered densities

included or excluded:

“Net site density includes only those areas that will be developed for housing and directly associated uses, this includes:

- 1/access roads within the site
- 2/private garden space
- 3/car parking areas
- 4/incidental open space and landscaping
- 5/children’s play areas

It excludes:

- 1/major distributor roads
- 2/primary schools
- 3/open spaces serving a wider area
- 4/significant landscape buffer strips”

2.90 For sites below 1.0ha within this study, few of the PPG3 excluded features are observed. The typical sites being brought forward within this category do not have major distributor roads serving them, only access roads into the site.

Primary schools are not allocated on these small sites. Some sites have open spaces within them, depending on context, but these are not to serve wider areas and are mostly incidental space. Finally, significant landscape buffer strips are not seen on small sites, and most of the sites are contained within existing urban areas where these would not be appropriate.

Medium-Sized Sites

- 2.91 Although current guidance splits into small and large sites, analysis of the sites that have come forward suggests three categories would be more appropriate. Mid-sized sites of below 5ha deliver a significant proportion of allocated housing requirements, but are less complex than very large strategic allocations such as Sandeford Park and Newbury Racecourse.
- 2.92 There is a significant gap in data for medium-sized sites above 1ha and below 5ha. Only 12 sites that delivered housing between 2013-2018 fell into this category, and all but 1 were between 1 and 2ha. These sites are likely to include elements that would be excluded in a net density calculation, so a developable area ratio for assessing these sites would be appropriate.
- 2.93 A number of sites in this category have been allocated as part of the Housing Site Allocations DPD, adopted in 2017. Analysis of these sites suggests the features that are typically present.

2.94 For edge of settlement sites, these typically feature:

- Landscape buffers
- Open space allocations beyond incidental open space
- Larger road infrastructure

2.95 As sites become more urban, the following features become smaller or not present:

- Landscape buffers
- Road infrastructure

2.96 Once sites become fully urban or in town centres, they have little open space allocation and typically 'borrow' open space provision from existing urban parks and spaces.

Large or Strategic Sites

2.97 Strategic sites such as Newbury Racecourse present significant difficulties in including in this analysis as their development forms tend to be specific and varied across the site. Phases 1 and 2 of the 3-phase development have gross densities of 64 and 53dph respectively, and the third phase is approximately 50dph. However, given the very varied and specific nature of the development on the site it is difficult to extrapolate gross densities that can be taken forward.

2.98 Strategic sites typically have specific requirements and contextual issues, and due to their limited number a blanket developable area ratio approach is not appropriate.

2.99 Experience of a large number of significant strategic developments across the UK suggests these sites typically have major landscape, drainage, service and infrastructure requirements that reduce the developable area for housing drastically. Figure 17 gives a visual representation of possible space relationships for a 1,000 dwelling development. Note that with effective design and where contextually appropriate, open space provision can incorporate SUDS.

2.100 Landscape buffers may or may not be able to be included in open space provision.

2.101 Typical allocation for large infrastructure is around 15%, with an additional 10% for SUDS. Space requirements for schools depend on

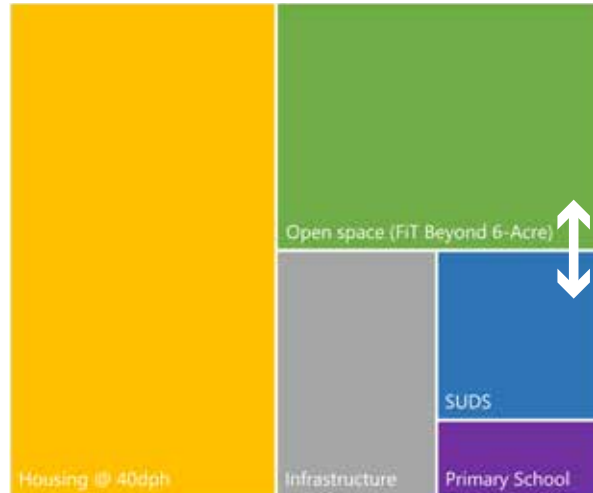


Figure 17: Possible space requirements for 1,000 dwelling development

the size of site - very large sites will require a secondary school at up to 10ha of space.

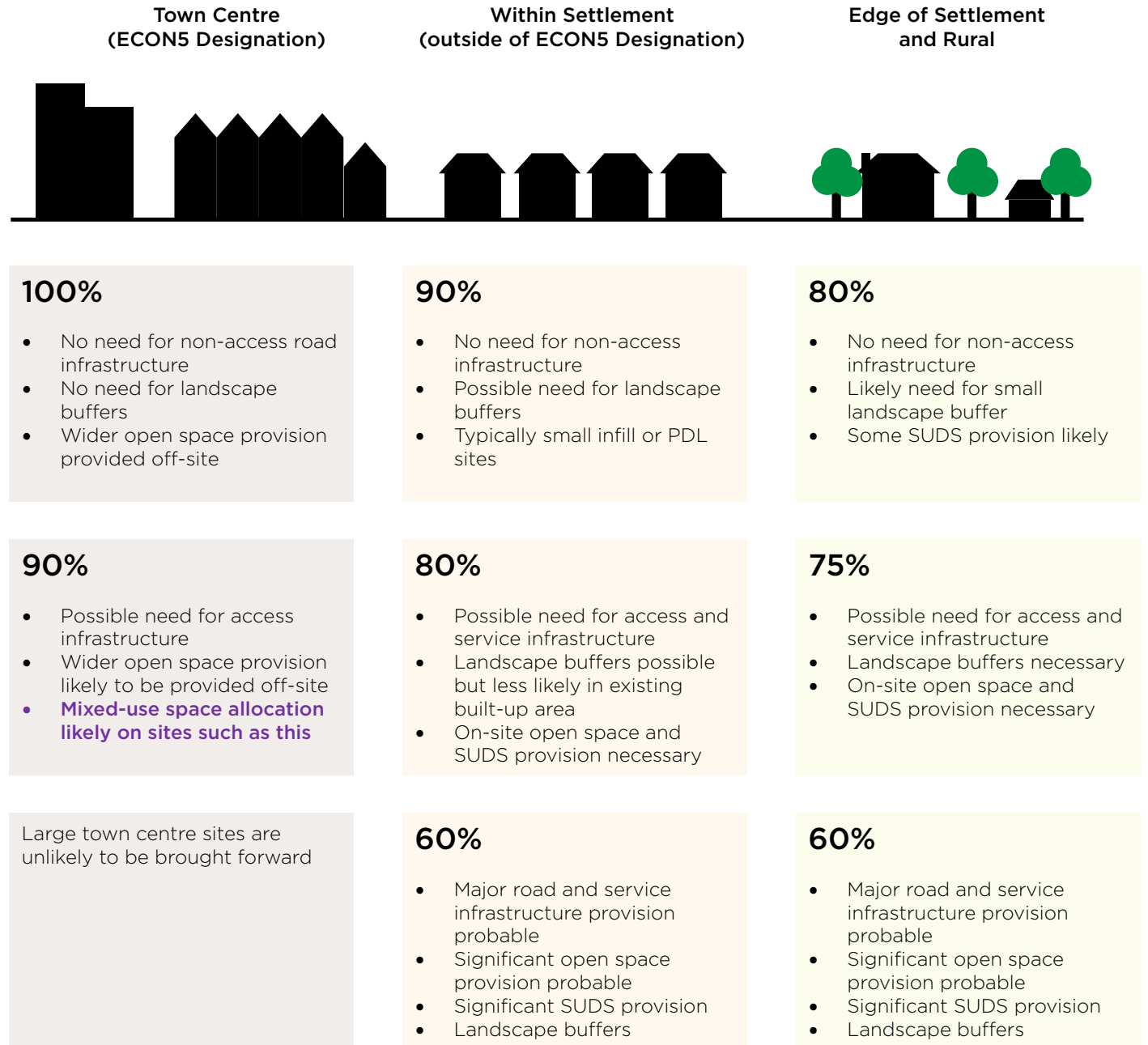
Ratio Guidance

2.102 Figure 18 brings together the findings of this section to give guidance for developable areas based on site location and size.

- Town Centre is the area defined by policy ECON5.
- Within settlement - refers to sites within the settlement boundary, but outside the areas defined by ECON5 (Large Town Main Routes, Large Town Near Centre, Large Town Suburban, Village/Settlement)
- Edge of Village/Settlement and Rural - refers to the sites outside of, but adjacent to settlement boundaries, or in rural locations.

2.103 These ratios are open to interpretation and modification by assessing officers where site conditions and context require.

Figure 18: Developable area ratios and contributing factors



Conclusions

Review of Pattern Book

- 2.104 Our analysis suggests that the current density pattern book used by WBDC can be updated to better align with policy aspirations and guidance.
- 2.105 Data from recent commitments suggests that delivery in the last 5 years varies from the pattern book assumptions.
- 2.106 The size-based categories and the allowance for developable area does not align with the type and location of sites recently coming forward for housing delivery.
- 2.107 This study therefore proposes a revised approach, updating the densities, categories and expanding upon some of the issues noted from sites that have recently come forward.

Outputs

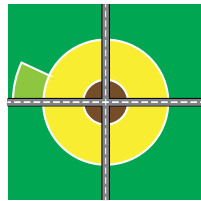
- 2.108 Three key aspects have been developed to support the density pattern book assessment process:
 1. A chart of appropriate developable area ratios, based on site location and size, supported by recent completions and allocations in West Berkshire and wider experience.
 2. An updated table and diagram of densities, organised by site location, supported by recent commitments data and policy.
 3. Guidance on site-specific issues that could reduce ultimate residential capacity on a site, based on typical sites that have recently come forward in the district.
- 2.109 These diagrams are shown in Figure 19-20 and are presented in full in Chapter 1 - Guidance.

1 Developable Area



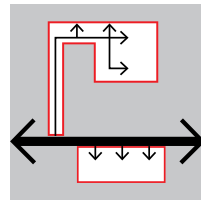
Based on site location and site size determine potential area that can be developed

2 Density by Location



Based on site location determine appropriate density for housing within developable area

3 Site-Specific Issues



Refine capacity upwards or downwards based on access and shape

Figure 19: Outline of the process of site capacity assessment

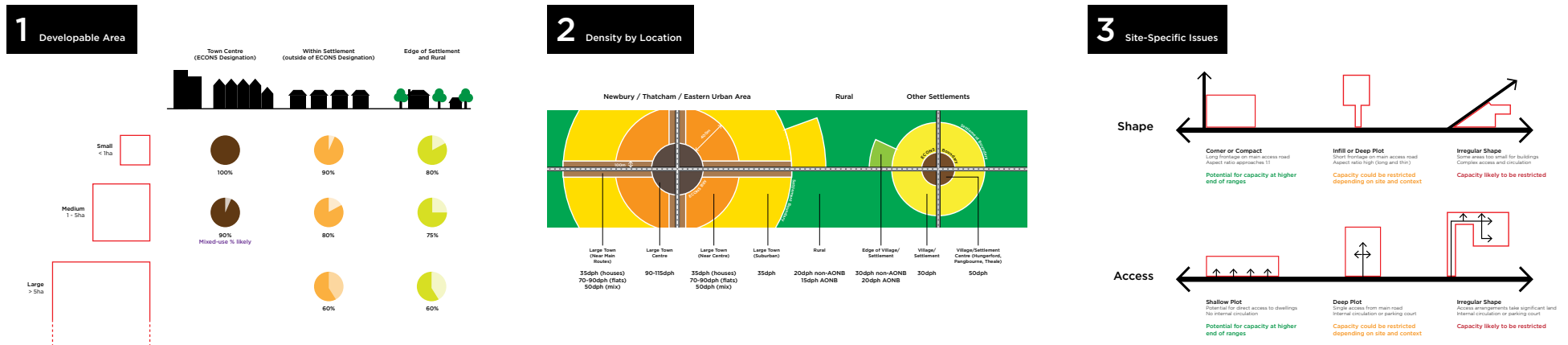


Figure 20: The three stages of assessment in diagram form, presented in full in Chapter 1.

