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AECOM

Hatfield Broad Oak

Design Guidance and Codes

Final Report

March 2025

Delivering a better world

Quality information

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Revision History

Issue no.	Issue date	Details	Issued by	Position
4	06.03.25	Final report issue	Chatnam Lee	Consultant Urban Designer
3	25.02.25	Locality review	Anabel Osbourne	Locality
2	14.02.25	Addressing comments for final report	Chatnam Lee	Consultant Urban Designer
1	17.01.25	1st draft review	Ben Castell	Director
		1st draft - Research and drawings	Chatnam Lee Nicholas Pascalli	Consultant Urban Designer Graduate Urban Designer
0	11.10.2024	Site visit with AECOM	Chatnam Lee Nicholas Pascalli	Consultant Urban Designer Graduate Urban Designer
	27.09.2024	Initial call with the steering group		

Contents

Introduction

01

View down the treelined Cage End.

1. Introduction

Through the Ministry of Housing, Communities and Local Government (MHCLG) Neighbourhood Planning Support Programme led by Locality, AECOM was commissioned to provide design support to Hatfield Broad Oak Parish Council.

As the National Planning Policy Framework (NPPF) (paragraph 131) notes, 'good design is a key aspect of sustainable development, creates better places in which to live and work and helps make development acceptable to communities' (see **page 8**).

Following an analysis of the Neighbourhood Area (NA), a set of architectural and design qualities will be identified. This set of qualities, combined with good design practice, will form the design guidelines that development within Hatfield Broad Oak should follow in order to comply with this parish-wide design guidance and codes document.

1.1 Purpose of this document

This document sets out design guidance and codes based on the existing features of Hatfield Broad Oak. The document is intended to sit alongside the Neighbourhood Plan to provide guidance for applicants preparing proposals in the NA and as a guide for the Neighbourhood Plan Steering Group and Uttlesford District Council when considering planning applications.

1.1.1 What is Guidance versus Codes?

Design guidance identifies how development can be carried out in accordance with good design practice. Design codes are requirements that provide specific, detailed parameters for development. Proposals for development within the NA should demonstrate how the guidance has informed the design and how the design codes have been complied with. Where a proposal cannot comply with a code (or several) a justification should be provided.

Figure 01: Grade I listed St Mary the Virgin Church with surviving features dating back to the 12th Century and a notable medieval tower.

Figure 02: Isolated farmsteads scattered throughout the surrounding landscape with land plots defined by trees and hedgerows.

1.2 Area of study

Hatfield Broad Oak Parish, located in the Essex county within the Uttlesford District, is a vibrant community of 1260 residents (2021 Census). Known for its medieval roots, the parish's settlement structure reflects centuries of growth and change, while the village retains much of its historical charm and structure.

A defining feature of the area is Hatfield Forest, a significant 403-hectare Site of Special Scientific Interest (SSSI) and National Nature Reserve. Managed by the National Trust, this ancient forest is home to diverse ecological habitats, including expansive lowland meadows and ancient woodlands, which are home to various plant and animal species.

The area borders the Metropolitan Green Belt to the southwest, which preserves open countryside, promotes biodiversity, and offers important landscape features that contribute to the area's distinctiveness and broader green infrastructure network.

Hatfield Broad Oak is also serviced by a good network of roads, with easy access to the M11 leading north towards Cambridge and south towards Harlow. The B183 and A1060 connects the village to the nearby settlements of Takeley, Sawbridgeworth and Bishops Stortford. The latter two are the closest train stations to the parish, providing regular and direct railway connections towards London and wider areas of Essex. The parish is also located within easy reach to Stansted Airport.

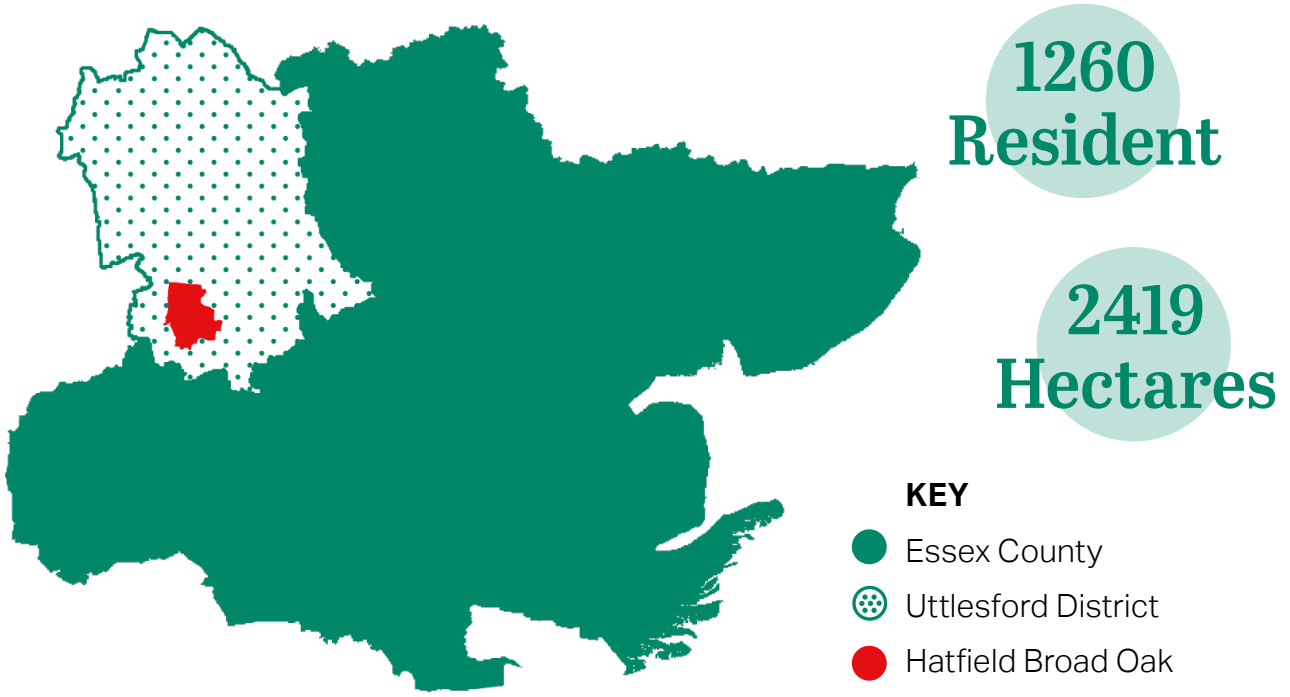

Figure 03: The Neighbourhood Area in regional context. Data source: Esri OS data

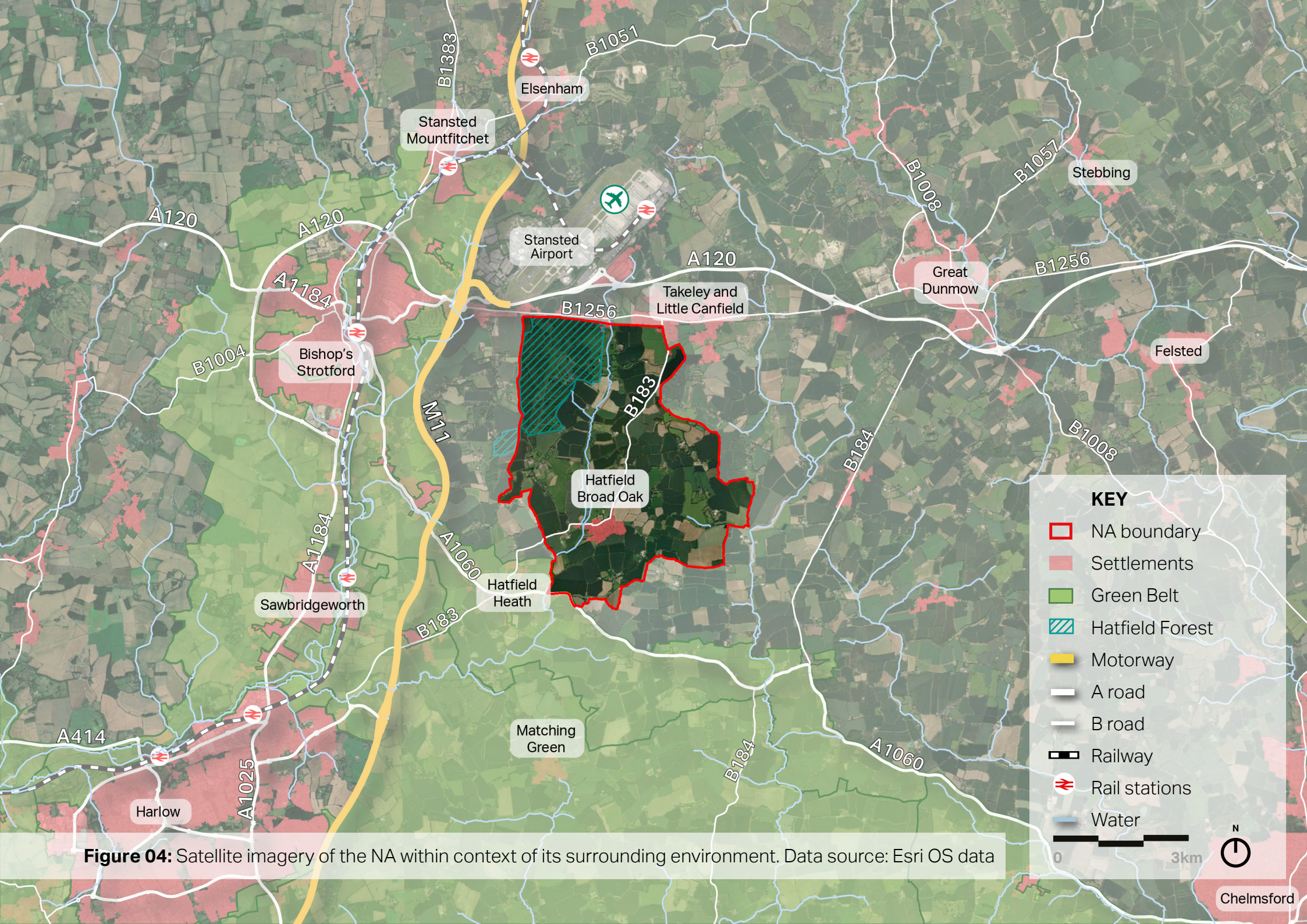

Figure 04: Satellite imagery of the NA within context of its surrounding environment. Data source: Esri OS data

Current advice to Local Planning Authorities (LPAs) suggests a nested approach, with clear links between different codes. This symbol will indicate that guidance exists for a specific theme and which of these documents should be referred to.

1.3 Planning policy context

The NPPF 2024, paragraph 132 states that:

'Plans should… set out a clear design vision and expectations, so that applicants have as much certainty as possible about what is likely to be acceptable. Design policies should be developed with local communities so they reflect local aspirations, and are grounded in an understanding and evaluation of each area's defining characteristics. Neighbourhood plans can play an important role in identifying the special qualities of each area and explaining how this should be reflected in development…'

The Government is placing significant importance on the development of design guidance in order to set standards for design upfront and provide key principles regarding how sites should be developed.

Therefore this report's main objective is to develop design codes to sit alongside the Neighbourhood Plan to inform design proposals within the parish and ensure that they remain sympathetic to the character.

Other research, such as for the Government's Commission for Architecture and the Built Environment (now part of the Design Council; see, for example, *The Value of Good Design*[1]) has shown that good design of buildings and places can improve health and well-being, increase civic pride and cultural activity, reduce crime and anti-social behaviour and reduce pollution.

Therefore this document seeks to harness an understanding of how quality design can sensitively incorporate the best aspects of Hatfield Broad Oak's overall character into any future development.

Additionally, these following documents have informed the design guidance and codes within this report to ensure they are best aligned with the needs and opportunities identified for the NA:

1. Available at: https://www.designcouncil.org.uk/our-resources/archive/reports-resources/value-good-design/

National planning documents

2007 - Manual for Streets
Department for Transport

The Manual for Streets is the Government's guidance on how to design, construct, adopt and maintain new and existing residential streets. It promotes developments that avoid car dominated layouts and place the needs of pedestrians and cyclists first.

2019 - National Design Guide
MHCLG

The National Design Guide (Ministry of Housing, Communities and Local Government 2019) illustrates how well-designed places that are beautiful, enduring and successful can be achieved in practice.

2020 - Building for a Healthy Life
Homes England

Building for a Healthy Life (BHL) is the government-endorsed industry standard for well-designed homes and neighbourhoods. The BHL toolkit sets out principles to help guide discussions on planning applications and to help local planning authorities to assess the quality of developments.

County planning documents

2018 - Essex Design Guide
Essex County Council

The Essex Design Guide (county design guidance) is the principal planning guidance for the design of new places in Essex and is used to control and drive development in growing areas. The document is aimed at helping those who are responsible for producing the built environment to understand the need for creating a 'sense of place' and the importance of legibility as well as sustainability in building 'successful living environments'.

2021 - Climate Action Plan 2021-2025
Essex County Council

This updated Climate Action Plan focuses on adapting to changing circumstances while maintaining Essex's commitment to addressing climate change and enhancing resilience. Key points include:

1. Progress and Future Initiatives: The plan evaluates projects delivered since the first plan, ongoing efforts, and new initiatives starting in April 2023 or later;

2. Response to the Essex Climate Action Commission: This plan continues to respond to recommendations made by the independent Essex Climate Action Commission and the Net Zero: Making Essex Carbon Neutral report;

3. Collaborative Efforts: Essex County Council (ECC) acknowledges that tackling climate and environmental challenges requires collaboration with partners to drive progress;

4. Annual Reporting: The Essex Climate Action Report 2021-22 provides updates on climate action progress across Essex.

2020 - Essex Green Infrastructure Strategy
Essex County Council

The Essex GI Strategy provide an integrated approach to enhance, protect and inclusive network of green infrastructure across the county of Essex. The strategy is structured by a series of 7 objectives - protect, improve, create, connectivity, inclusivity, health and sustainability.

Other Relevant Essex Council Strategies:

- Everyone's Essex (2021-2025);
- Essex Green Infrastructure Strategy (2020);
- The Local Nature Recovery Strategy (emerging);
- Local Flood Risk Management Strategy (2017);
- The Essex Water Strategy (2024);
- Sustainable Modes of Travel Strategy (2020);
- Walking Strategy (2021);
- Cycling Strategy (2016);
- Speed Management Essex Strategy (2010);
- Traffic Management Strategy (2005); and
- Electric Vehicle Charge Point Strategy (2024).

District planning documents

2024 - Uttlesford District Council Emerging Local Plan
Uttlesford District Council

The Uttlesford District Council's emerging Local Plan aims to guide sustainable development in the district through to 2041, with a strong emphasis on accommodating growth while preserving the district's unique environmental and historical assets. The plan designates Hatfield Broad Oak as one of the Larger Villages, earmarked to provide 115 new dwellings through non-strategic allocations, ensuring development is in line with the village's character. These plans include provisions for green infrastructure, sustainable transport links, and community facilities to support the growing population while maintaining the village's character and ecological balance.

2024 - Uttlesford District-wide Design Code
Uttlesford District Council

This design code aims to set a new benchmark for high-quality design and placemaking across the district, focusing on creating socially and commercially appealing spaces with distinctive character that enhance their surroundings. Projects should prioritise people's needs in how they live and work, followed by designing spaces that support this within the urban structure, and finally organising buildings to reinforce a sense of place. A key principle throughout is the creation of healthy, climate-resilient places that are sustainable.

The appendix document to the Uttlesford Places Design Code provides a detailed analysis of local properties, examining elements such as the age, architectural styles, and construction technologies for areas including Hatfield Broad Oak. The parish is described as having monastic foundations, and examples of red-brick terraces with front facing timber framed gables, and pargetted dwellings to create a diverse yet cohesive character.

2005 - Home Extension SPD
Uttlesford District Council

This SPD provide guidance for applicants on best practices for extensions that are sensitive to the context and streetscene that they are set in without causing harm

District and local planning documents

to neighbourhing existing developments. Guidance covers form, scale, size, roofing and use of material of the extension, as well as ways to avoid overshadowing and diminishing neighbouring properties' access to daylight.

2019 - Interim Climate Change Planning Policy
Uttlesford District Council

In 2019, Uttlesford District Council declared a climate and ecological emergency, committing to achieving net-zero carbon emissions by 2030. This guide provides comprehensive strategy that integrates sustainability into all aspects of planning and development within the district. This guide provide comprehensive guidance on eco-design principles at the neighbourhood and household level, including the use of sustainable material, renewable energy retrofitting, thermal mass and solar gain.

2018 - Uttlesford Local Heritage List

Uttlesford District Council

Uttlesford District Council compiled a list to formally identify and keep records of assets of local importance within the district. The list is intended to inform future development proposals to ensure their appropriate conservation and incorporation into any new development. These assets are non-designated heritage assets and the list provide justifications for their historical significance and positive contribution to the historic distinctiveness of settlements within Uttlesford in terms of architectural character.

Across Hatfield Broad Oak, there is a total of 6 locally listed structures as outlined in the Local Heritage List.

2013 - Hatfield Broad Oak Conservation Area Appraisal

Uttlesford District Council

The Hatfield Broad Oak Conservation Area was designated in 1977 and its boundary has been recently revised and expanded. The conservation area appraisal provide a detailed analysis into the historic evolution of Hatfield Broad Oak, including an in depth character analysis through dividing the village into 4 key areas:

1. High Street
2. Church of St Mary the Virgin
3. Feathers Hill
4. Cage End

The appraisal also includes comprehensive management proposals applicable across all parts of the Conservation Area. Guidance covers good practices in dealing with listed buildings, preserving architectural and historically important features, historically significant open spaces, tree groups and key views.

1.4 Process and engagement

A one-day site visit took place on 11th October 2024 commencing with an in-person meeting between AECOM and representatives of the Hatfield Broad Oak Neighbourhood Plan Steering Group to explore the group's key aims and objectives and to address any initial concerns.

This was followed by a tour of the parish, via car and on foot. This activity allowed consultants to appraise local character and the features informing its sense of place, such as heritage and landscape features. The exercise also provided valuable local insight into the area's pertinent design issues and opportunities, good and bad practice, as well the overall context for which the evidence-base of the Neighbourhood Plan will reflect.

This document has resulted from a collaborative effort between the Hatfield Broad Oak Neighbourhood Plan Steering Group and AECOM, reflecting the priorities of local residents. The design coding process includes the following steps:

Figure 05: A brief chronological breakdown of the key elements and milestones used throughout the duration of the production of this document.

1.4.1 Community Engagement

On March 2024, a community survey on the neighboruhood plan was conducted to gather the views and opinions of the local residents on a range of topics related to elements in and around the village. These topics focused on key issues such as the accessibility of the village, environmental concerns and some design-related themes. The questionnaire was distributed to the residents and made available online and had a 42% response rate.

The survey results from the questionnaire, paired with the site visit with AECOM and a desktop study of the NA, have helped to determine the design guidance themes included within this document. These themes were chosen to highlight and preserve the positive assets of the NA and address some of the current challenges and potential opportunities for improvement.

These themes, and an overview of the survey results, challenges, opportunities and assets, have been outlined in the sections to follow:

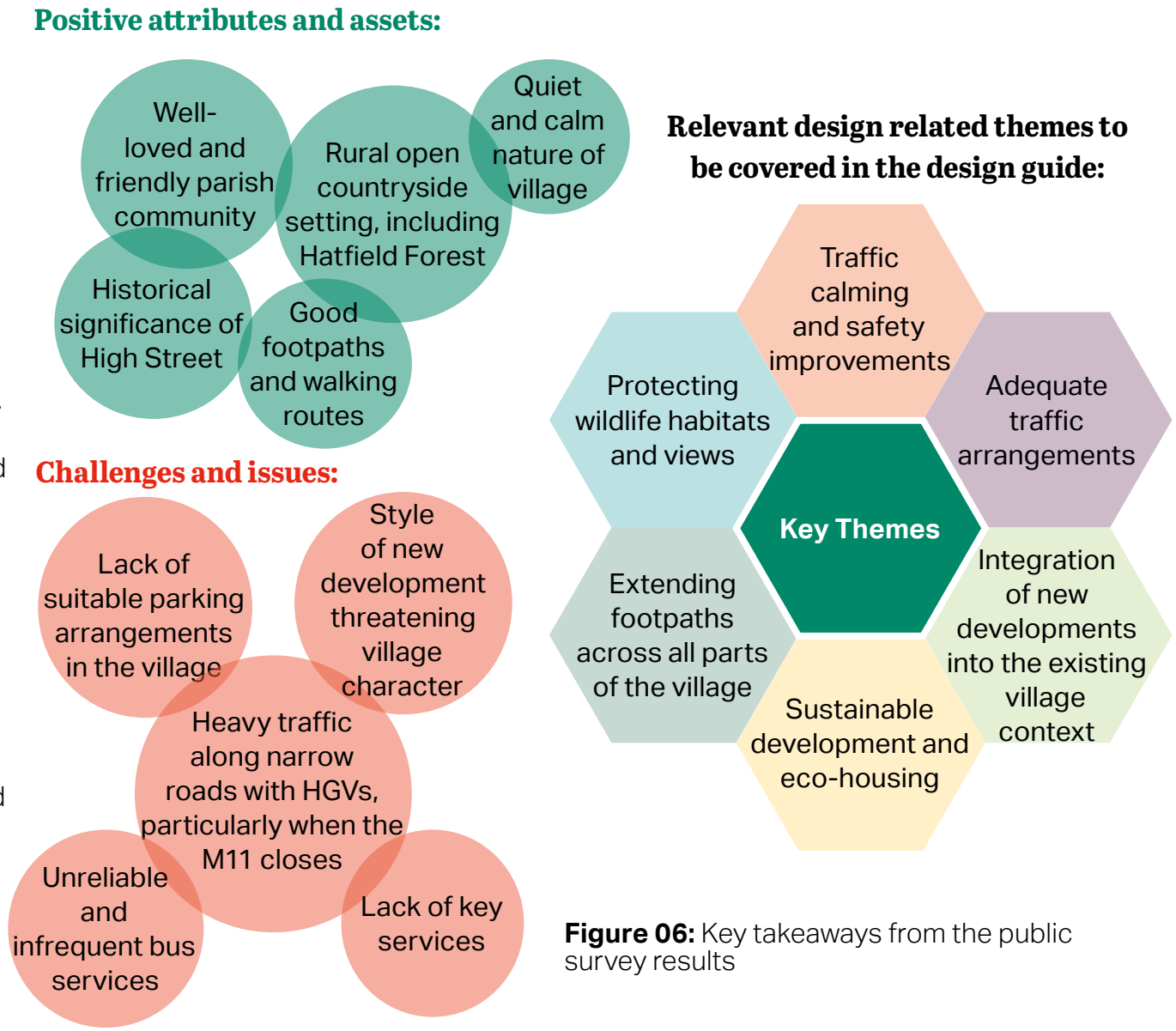

Figure 06: Key takeaways from the public survey results

1.5 How to use this document

This document will be used differently by different people in the planning and development process.

A valuable way codes and guidance can be used is as part of a process of co-design and involvement that seeks to understand and takes account of local preferences for design quality. As such the codes and guidance can help to facilitate conversations to help align expectations, aid understanding, and identify key local issues.

The resulting design guidance and codes can then set out how to adequately respond to these issues in future development.

Design codes and guidance alone will not automatically secure quality design outcomes, but they will help to prevent poor outcomes by creating a rigorous process that establishes expectations for design quality.

What follows is a list of actors and how they will use the design guide:

Potential users	How they will use the design guidance and codes
Applicants, developers, & landowners	As a guide to the community's and the Local Planning Authority's expectations on design, allowing a degree of certainty – they will be expected to follow the Guidelines as planning consent is sought.
Local planning authority	As a reference point, embedded in policy, against which to assess planning applications. The guidance and codes should be discussed with applicants during any pre application discussions.
Hatfield Broad Oak Parish Council	As a guide when commenting on planning applications, ensuring that the guidance and codes are complied with.
Local community organisations	As a tool to promote community-backed development and to inform comments on planning applications.

Table 01: A list of potential users of this documents and how they will apply the design guidance and codes.

1.6 Reading the guidance and codes

The goal of these guidelines and codes is to promote the best possible delivery of residential and public realm development, which will support sustainable and contextually appropriate designs.

If there is variation from the compliance requirements outlined in this document, it must be supported by factual evidence. Under such circumstances, developers and their design teams must show that the plan will produce a final proposal of the greatest quality that is consistent with the main goals of this document and, therefore, the goals of the Hatfield Broad Oak Neighbourhood Plan.

Submissions that do not adhere to this guidance, and that do not furnish strong rationales, supporting documentation and comprehensive examination of available solutions, may be refused.

The guidance and codes provided in the next section are arranged into themes and are supported by relevant analysis. These include detailed mapping, descriptions, diagrams and images taken from the NA and appropriate precedents.

Accompanying the guidances and codes are references to existing local policies and guidance that are relevant to the local context. These support a nesting approach to link to relevant policies to ensure that there are no gaps in information and that all guidance and codes are bespoke to the context of Hatfield Broad Oak.

These nested policies will appear throughout the next section as shown below:

Reference to existing policy:

Where there is already reference to a topic in existing local policy or guidance, this has been highlighted alongside the below icon.

Example of a nested policy:

Guidance for residential on-street parking provision can be found in *Essex Parking Standards* Section 3.4.4 On-Street Parking provision.

Please note:

Both design codes and guidelines are contained within this document, highlighted within boxes as shown here. The difference between codes and guidelines is summarised below:

- Codes: Design codes are mandatory requirements for design issues and are expressed with the word **MUST**.
- Guidelines: Design guidelines set out aspirations for design that is expected to be delivered and are expressed with one of two words:
    - **SHOULD** reflects design principles that are strongly encouraged.
    - **COULD** reflects design principles that are suggestions.

Area wide guidance and codes

02

View of the village centre down High Street

2. Area wide guidance and codes

This section supports decision-makers and designers when producing or reviewing planning applications in the NA. This applies to development in allocated sites, infill development and windfall development that may come forward, with a focus on proposed residential development.

It is acknowledged that there is not always agreement on aesthetic issues and opinions may vary. The following guidance and codes therefore allows for flexibility and design innovation, whilst ensuring that any new development is appropriate and complementary to the surrounding context.

To enable a clear design process, new development proposals must use the this section to ensure that development proposals enhance the setting and sustainability of Hatfield Broad Oak, while not detracting from its context, local character and sense of place.

2.1 Guidance and code themes

The guidelines outlined in this chapter aim to apply to the whole of the NA. These have been derived from current urban design best practice and are considered essential for a successful development.

These guidelines advocate the use of context for design cues. In this sense it is expected that a design proposal will make reference to different design elements such as layout of buildings, building envelope, materials, building forms, colours, roofs and fenestrations.

These guidance and codes were decided based on meeting with the Neighbourhood Plan Steering Group as well as the results complied through the engagement events. Each of these themes will be accompanied by relevant supported analysis completed through a desktop study.

Codes and guidance are arranged under the following overarching themes:

SP Settlement Pattern (SP)

SP.1 Village layout

SP.2 Development at the settlement edge

SP.3 Infill, extensions and conversions

BF Built Form and Public Realm (BF)

BF.1 Architectural vernacular and materiality

BF.2 Boundary treatments

BF.3 Heritage setting, views and vistas

SD Sustainable Development (SD)

SD.1 Open spaces and biodiversity

SD.2 Active travel

SD.3 Eco-housing

SD.4 Sustainable Drainage Systems (SuDS)

SD.5 Dark skies and lighting

2.2.1 SP.1 Village layout

Hatfield Broad Oak village has a predominantly linear development settlement pattern along a central main road of Feathers Hill, High Street and Broad Street, serving east-west access into and out of the village. Developments extend off the central main road along Cage End, Cannons Lane and Hammonds Road which connect the village to surrounding settlements. The triangulation of Broad Street and Hammonds Road at Broad Street Green demonstrates a typical rural street pattern, reinforcing Hatfield Broad Oak's character as a rural village.

Newer development often takes the form of higher density cul-de-sac development and have more formal settlement patterns, such as Cage End Close and Medlars Mead. These all lead off of smaller local roads rather than the central main road.

Beyond the village are small lanes that lead to hamlets and farmsteads, such as Green Hill and Taverners Green, with less formal layouts and are reflective of Hatfield Broad Oak's rural setting.

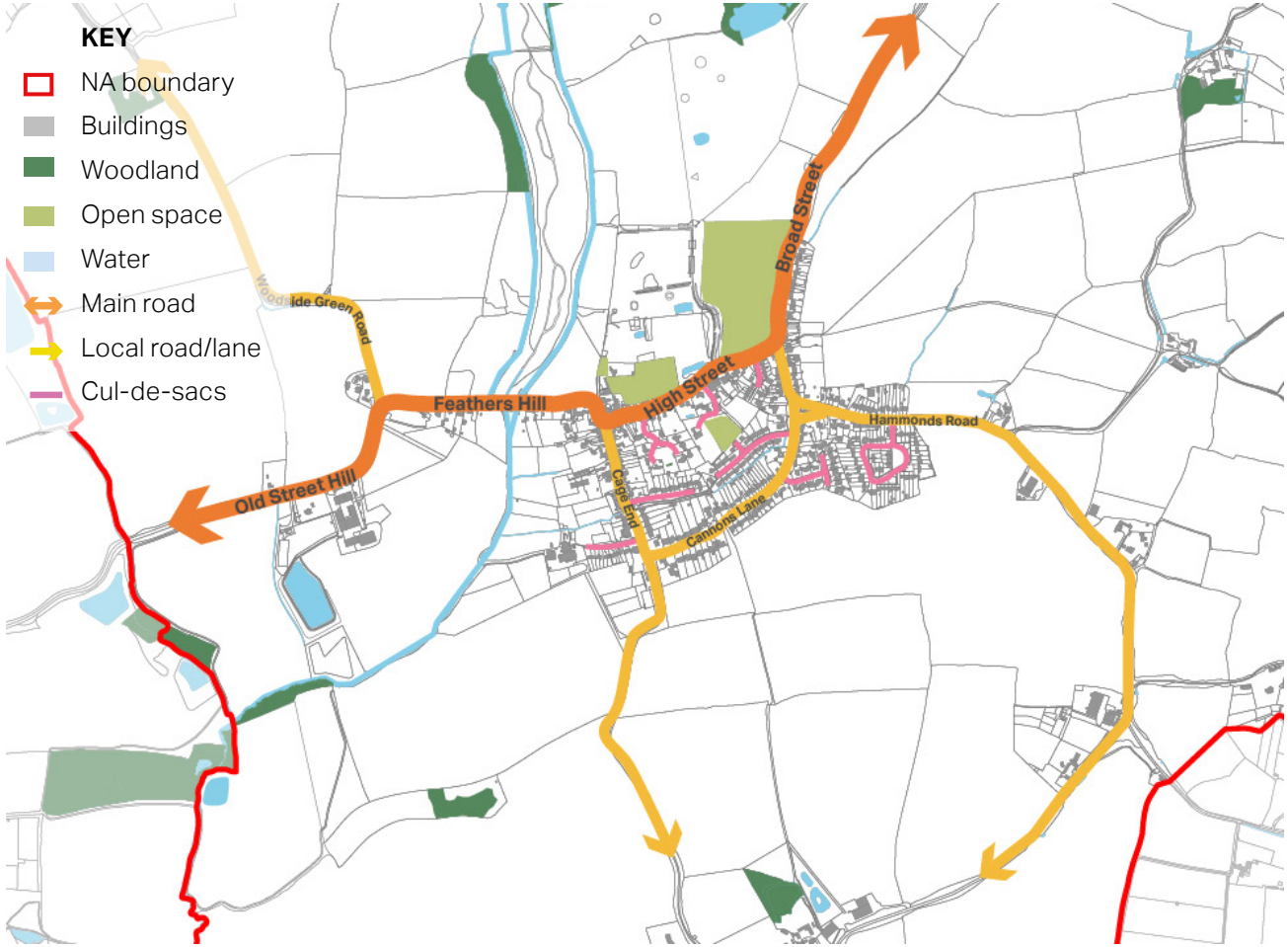

Figure 07: Map of settlement patterns across Hatfield Broad Oak village shown through the highlighted road network. Data source: Esri OS data

Guidance on Designing within context can be found in *Essex Design Guide (2018)* - Layout Details and Built Context.

Guidance on Designing within context can be found in the *Uttlesford District-Wide Design Code (2024)* - 2.2 Context and 2.4 Built Form

- The village has linear development along the outlined main roads of Feathers Hill, High Street and Broad Street through the NA. This settlement pattern is a defining characteristic of the village and, where it is established, **must** be reflected by neighbouring development along these streets;
- A defining feature of linear development distinct to Hatfield Broad Oak is that many dwellings tend to back onto the countryside. This settlement pattern helps to maintain the rural setting of the village whilst allowing for long views between dwellings out of the settlement, particularly along Hammonds Road and Cannons Lane. Where this pattern is established, development **must** not disrupt it by introducing tandem development from these streets;
- Any development along linear roads **should** be in the form of individual infill to best preserve the linear settlement pattern. This **should** only occur where there is an appropriate sized gap between buildings, and ensure that views to the countryside are preserved;
- Cul-de-sac development is found in the village, mostly along the secondary streets of Cage End, Cannons Lane and Hammonds Road, and may be an acceptable settlement pattern for future development. These **must** maintain a simple, rural character and avoid being of a complex layout;
- A limited depth of cul-de-sac development **should** not exceed 100m in length, as this would help to maintain an organic feel and visual link to the surrounding countryside;
- Future cul-de-sac development **must** ensure they do not significantly restrict the access and movement network across the village. These **should** not disrupt active frontages overlooking the main road which may have an adverse effect on traffic speeding; and
- The road leading to the cul-de-sac development **should** be narrower than the street it leads off from to signify a hierarchy of road typologies. These streets **must** be wide enough to incorporate pavement that is appropriately accessible for all mobilities.

Figure 08: Linear settlement pattern and development (highlighted in green) along Cage End through the village center that feeds into linear local roads and cul-de-sacs - such as Cage End Close and Cannons Lane.

Figure 09: Example of a cul-de-sac settlement pattern (highlighted in green) along Tawny Grove, a curvilinear cul-de-sac within Hatfield Broad Oak that feeds off the High Street.

- All future development **should** follow the pre-existing building line of the surrounding context, but **could** have slight variations to emphasise the rural context and add visual interest;
- Setback of development **must** allow for adequate space to accommodate on-plot parking, and preferably, **should** allow room for a landscaped front garden;
- The massing and placement of development **should** allow for space on all sides of the plot. It does not necessarily be centred on the plot but **should** allow adequate gaps between development to prevent overlooking;
- The positioning of garages and detached outbuildings **must** reflect and respect its surrounding context. Generally, these **should** be positioned to the side or rear of development. These **should** also be positioned and oriented so as to not fill gaps between buildings. For attached garages, best design practice is to have the garage set slightly back from the original building to ensure it is not the dominant built feature; and
- Building orientation slightly varies throughout the parish, but generally building frontages **should** be street-facing. This **could** be slightly varied to reflect the more informal building arrangement of the village, especially where this best benefits from solar gain. Refer to *section SD.3 Eco-housing* for more guidance on passive heating and solar gain.

Figure 11: Positive example of how new development can preserve a rural character by providing built gaps between dwellings and ample of natural landscaping.

Figure 10: Illustrative map showing subtle variations in building line and setback within the village, comprising of more linear organic development with narrow plots along older parts of the settlement (High Street and Cage End), linear ribbon development on larger plots (Feathers Hill), and cul-de-sac development with regular (Cage End Close) and more informal layouts (Tawny Grove).

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2.2.2 SP.2 Development at the settlement edge

The settlement edge refers to the boundaries of built up areas within the village and hamlet. It excludes isolated developments such as farmsteads and individual dwellings in the surrounding countryside. As it only focuses on the built up sections, surrounding fields and gardens will also be excluded from this boundary.

Development at the settlement edge can influence factors such as density, coalescence and suburban sprawl. These are all factors that contribute to the rural atmosphere of the settlement and should be carefully considered by all potential forthcoming development, whether that be single infills, extensions or entire new cul-de-sac developments.

The guidance and codes in this section will be focused on how potential forthcoming development in these areas should be designed. It is not suggesting allocations for development in these areas and should not be used as such.

Figure 12: Boundaries of the settlement edges for Hatfield Broad Oak village within the NA. Data source: Esri OS data

Guidance on settlement edges and coalescence can be found in the *Uttlesford District-Wide Design Code (2024)* - 2.4 Built Form

- Future development **must not** result in the village coalescing with surrounding settlement clusters. This would result in a significantly extended village boundary without any break which is unfitting with the rural setting;
- Edge of settlement development that backs onto the countryside **must** gradually transition into the landscape by utilising comprehensive buffering, or 'green curtains', implemented along the back plots. Abrupt edges to development with little vegetation or landscaping **must** be avoided. Long rear gardens **could** be preferable here;
- Materials are key for boundary treatments for back gardens as this will have a major impact on views. The rear boundaries of properties **should** either follow existing hedgerow boundaries or be planted to form new hedgerows. Low walls and fences **could** be appropriate if they do not obscure views;
- Gateway sites are situated at the settlement edge near a main local route and marks the point of arrival into (and departure from) a settlement. Hatfield Broad Oak has gateways to the north-west from Feathers Hill, north-east from Broad Street, south-west from cage End and south-east from Hammonds Road. Development **could** enhance the sense of arrival and departure of the village through bespoke landscaped and built structures. This would be a natural, unobtrusive way to make the village and hamlet distinct and identifiable by visitors and passer-bys;
- The sense of departure and arrival **could** be achieved by a noticeable change in building scale, street enclosure, or road configuration. Gateway buildings and features **should**, however, reflect the local character and respond to existing development and landscaping; and
- If a gateway plot is developed with a group of buildings, the corner of the site **should** act as the key landmark. The corner building **could** be slightly taller or display a notable built element, signalling its importance within the grouping.

Figure 13: Positive example of a development on the edge of the landscape that has appropriate landscape screening and back of plot boundary treatments.

Figure 14: Taller building situated at the western gateway onto the High Street, with a positive use of larger building scale which heightens street enclosure to create a sense of arrival into the village core.

Guidance on Home Extensions can be found in the *Home Extensions SPD (2005)*

Guidance on infill and Extension can be found in the *Uttlesford District-Wide Design Code (2024)* - 2.1 Approach to development.

Guidance on extensions and conversions can be found in the *Uttlesford District-Wide Design Code (2024)* - 2.9 Homes and Buildings.

2.2.3 SP.3 Infill, extensions and conversions

Extensions and conversions are typically the most commonly occurring type of development within the NA. Conversions will typically affect farmstead buildings and will have a greater impact on the countryside, while extensions occur in and affect the village. The guidance and codes in this section will focus on how this development can best fit within the context of the NA.

Conversions and extensions also provide an opportunity for contemporary design that is appropriate within the historic setting, working from features of the existing structure as a reference for materiality, form and bespoke detailing which will be covered in this section through case studies.

It is important to note that many household extensions are covered by permitted development and so do not require planning permission. However, due consideration to the following should be prioritised to ensure that good design is implemented throughout the parish.

- Extensions **must** be appropriate to the scale, massing and layout of the main building. The general dimensions (width, depth and height) of the extension **should** be less than the original building. The original building **should** remain the dominant element of the property, in terms of form, style and fenestration, regardless of the number of extensions;
- Overly complicated extensions and associated roof forms that may overshadow the character of the original building **should** be avoided;
- Extensions **must not** result in a significant loss to the privacy and loss of amenity to neighbouring properties or the streetscape, in particular overshadowing is not acceptable;
- All modifications to listed and locally designated buildings **should** preserve and, if possible, enhance the existing building's architectural style. In occasional cases, it **could** be appropriate for modifications to be stylistically different to create distinction from the original building and make it stand out;

- Development **should** retain original features such as openings, which should not be filled in, as well as ventilation slots, timber frames and brickwork, inscriptions and any use-specific historic additions. If there is a dominant feature of strong historical character on the original building, the addition **should** be more modest to accentuate this feature;
- The general layout of the building setting that are characteristic of historic working buildings **must** be retained and not filled in with infill development. For example, farmsteads that utilise a courtyard style layout would be expected to retain this;
- Working building conversions for farming use in high grade agricultural land **should not** change the land use unless this will significantly support community benefits; and
- Contemporary designs for barn conversions **could** be utilised and are a welcome addition if they are designed sensitively to the context. Case studies for this are presented overleaf.

Case studies of contemporary barn conversions:

Cat Hill Barn

Yorkshire, UK

A late 1700s agricultural warehouse redesigned by Snook Architects in 2011 to create contemporary living conditions while preserving the architecture and atmosphere of the original building. Most of the contemporary changes were limited to the interior, but wide glazing (in addition to the preserved openings of the original barn) allows for glimpses of the interior to be seen as well as providing scenic views of the surrounding landscape.

Source: https://www.blog.awx2.pl/powrot-do-przeszlosci-przebudowa-kamiennej-stodoly-snook-architects/

Ditchling Museum of Art + Craft

East Sussex, UK

The original Victorian buildings have been linked and sensitively redesigned by Adam Richards Architects, whose design combines contemporary architecture whilst retaining the original building's vernacular. There are glimpses of the village from various points in the museum, enabling the works to be seen in the context in which they were created. The space also acts as new community centre, with a shop, cafe and village green offerings.

Source: https://www.ditchlingmuseumartcraft.org.uk/our-collection/history/

Essex Timber Barn Conversion

Essex - Great Dunmow, UK

This conversion of a Grade II listed barn located on the outskirts of Great Dunmow retains a traditional rectangle shape plan, which comprises of the main farmhouse and outbuildings to the northeast that have been incorporated into the conversion. The design retains the barn's existing elevational timber treatment and incoporates its existing timber frame after it has been repaired. Fenestration are installed on existing openings with new openings kept to a minimum to preserve the character of the barn.

Source: https://www.ian-abrams-architects.co.uk/portfolio/barn-conversions/barn-conversion-2/

Extension and conversion best practices:

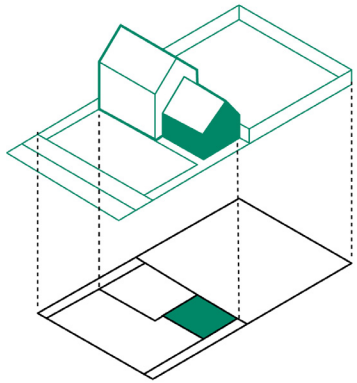

Figure 15: Drawing showing side extension

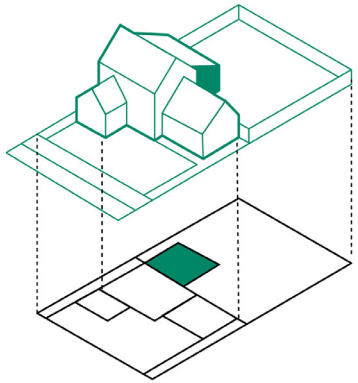

Figure 16: Drawing showing rear extension

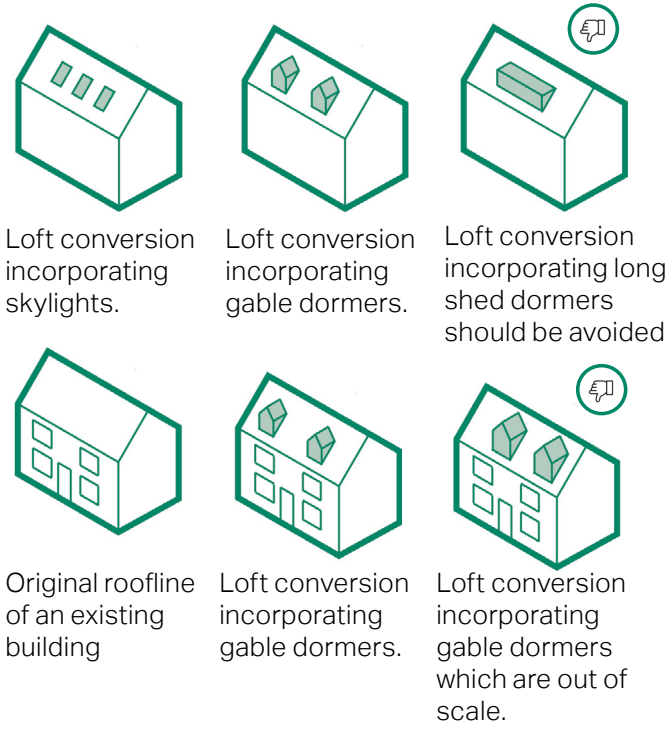

Figure 17: Examples of loft conversions and key principles

Figure 18: Positive local example of a well-proportioned side extension that is in keeping with the original building's roofline, fenestration style and use of material.

Figure 19: Positive local example of a barn conversion with black weatherboard facades, a steep pitched gable roof and well-proportioned fenestration.

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2.3.1 BF.1 Architectural vernacular and materiality

This section includes a palette that demonstrates an overview of the highly characteristic material and vernacular use within Hatfield Broad Oak, analysing features such as roofs, façades and fenestration. Development proposals should demonstrate that the materials used have been selected based on an understanding of the surrounding built environment and refers to the outlined Hatfield Broad Oak palette.

This includes how listed heritage assets can be a reference point for future development in the village, including for extensions and conversions. However, the provided palette should not be used as a justification to replicate historic buildings nor to discourage contemporary design. Rather, the palette should be used to ensure that development is integrated into the historic built form of Hatfield Broad Oak in well-designed and innovative ways which faithfully complements the heritage assets and rural context.

- The proportion, size, symmetry, profile and rhythm of fenestration are all important elements of good building design. New development **should** reference and complement the existing fenestration in the village (especially that of listed buildings) based on what is appropriate to the style of the building;
- Most older buildings exhibit flush side-hung casement and slightly depressed sash windows, with casement windows being more common in newer builds. Any new development **should** reference the traditional design of the windows that are found in the surrounding context. Bay and bow windows are not common throughout the village but **could** be used by new development to break up the bulk of building façades and add visual interest to the streetscape;
- Fenestration, particularly where development involves multiple dwellings, **should** all have consistent colour schemes, materiality and thickness of frame and pane detailing across neighbouring façades, with timber windows being the preferred material;
- Newer homes often use white PVC window frames, while many of the traditional windows have timber framing which **should** be used wherever possible in new development. Powder coated aluminium or plastic frames may be appropriate, but **should** be done with consideration for the historic character of the area, such as by having a thinner frame and detailing such as lintels (brick, stone or timber), cills, stone mullions and decorative glazing bars;
- Porches **could** be used for dwellings to add visual variety to the streetscape. These **should** be proportional to the fenestration and fitting with the building materials. These **should** also have a roof form and materiality that matches that of the attached building;
- Development proposals **must** demonstrate that the materials used have been selected based on an understanding of the surrounding built environment and refers to the outlined Hatfield Broad Oak material and vernacular palette presented overleaf;

Façades

Red brick

Coloured render

Textured white render

Off-white render

Red brick with hungtiles

Fenestration

Bow casement window

Sash window

Dormer windows

Sash window dressed with red brick mullions

Timber framed casement window

Roofing

Thatched roof

Brown clay tile pitched roof with chimney stack

Brown clay tile hipped roof with chimmney stack

Clay tile clipped gabled roof with dormers

Grey slate gabled roof with skylights

Guidance on Vernacular and materiality can be found in *Uttlesford District-Wide Design Guide (2024)* - 2.9 Homes and Buildings

- Proposals **must** reflect the density, height, building type and variety, scale and layout currently present within the parish. Currently, the common building types are detached and semi-detached houses and bungalows. New development **should** encourage a mix of building types, with bungalows being preferred, to create accessible homes for a range of affordability, family sizes and ages;
- Properties within the parish generally have a maximum height of 2.5 storeys and development **must not** go above this height so as to preserve views of the roofline as well as the historic significance of the Grade I listed Church of St Mary the Virgin;
- Development **must** ensure that roof design integrates with the surrounding context, with the scale and pitch referencing neighbouring dwellings. The most common roof typologies in the village are gable variations and occasional hipped and traditional thatch. A combination of these may be appropriate, however development **should** avoid overly complex roof forms and additions;

Guidance on extensions and conversions can be found in the *Uttlesford District-Wide Design Code (2024)* - 2.9 Homes and Buildings.

- Roof pitch is also related to material, i.e., thatched roofs are likely to have a steeper pitch than slate roofs. Therefore the chosen pitch **should** be suitable to the used roofing material;
- The roofline should have a rhythmic pattern of chimneys as is currently present throughout the village and which **should** be preserved;
- Dormers are not a typical occurrence throughout the parish but **could** enhance the character of new and retrofitted developments. These **should** be of the forms of the main building roof, such as gable dormers. These dormers **must** be of an appropriate and proportional size to the original building and not increase the overall height of the dwelling. Additionally these **should** be placed so they are symmetrical to the roof and façade fenestration; and
- Concerning rooflights, these **should** be aligned to fenestration on the front façade and be flush to the roof tiles. These **should** be of an appropriate scale and proportionate to other fenestration;

Guidance on use of material within the conservation area can be found in the *Hatfield Broad Oak Conservation Area Appraisal (2013)* - Part 2: Management Proposals

Figure 20: Gable dormers that are appropriate to the form and scale of the existing roof and have consistent alignment and proportion throughout the facade.

Figure 21: A positive example in Hatfield Broad Oak of well-proportioned fenestration that are consistent in size, symmetry and alignment.

2.3.2 BF.2 Boundary treatments

Boundary treatments can greatly affect the streetscape for aesthetic atmosphere, pedestrian safety and residential privacy. For instance, a street lined with visually impermeable boundary treatments that are placed directly to front a street or pavement may make for a sterile environment. However, a street lined with natural green boundary treatments could result in a leafy setting that complements the countryside and supports local biodiversity efforts.

Hatfield Broad Oak has a wide range of boundary treatments found along its road network. Positive examples from the NA have been outlined in the examples adjacent, while negative ones have been provided from other parishes with a similar built context.

This section should be used for the placement and design of boundary treatments, but will not include pavement design including dimensions and materiality.

Recommended boundary treatments:

Hedgerows paired with red brick wall

Hedgrows and grass verge

Low brick wall paired with flowerbeds

Hedgerow and wooden fencing

Flowerbeds and shrubs paired with grass verges

Planters and gravel

Discouraged boundary treatments:

High, non-permeable slatted timber fencing fronting the pavement.

Solid concrete, render or cement walls with little detailing.

Wired mesh fencing which could create a sterile atmosphere.

Guidance on Boundary Treatments can be found in *Uttlesford District-Wide Design Guide (2024)* - 2.9 Homes and Buildings

- Proposed boundary treatments **should** reflect locally distinctive forms and materials, such as low brick walls and agricultural style gates or well-defined green boundaries such as hedges. Tall, impermeable boundaries that create a sterile and monotonous street scene **must** be avoided, such as high walls and close boarded fencing. Development **should** refer to the provided boundary treatment positive and negative examples;
- Landscaping and vegetation **should** be prioritised for boundaries to preserve and enhance the overall sense of rural character. Proposals **could** incorporate landscaping and natural features such as trees, both those that are retained and those introduced, shrubbery, grass verges and hedgerow. These also provide the opportunity to complement the ecological network for biodiversity;
- Original boundary treatments of traditional building plots **should** be left intact, and not chopped through or significantly reduced for access;
- Landscaped boundaries **must** be well-defined and **should** avoid being too high so as to not infringe onto pavements and disrupt safe and active travel or be visually obtrusive to vehicles from the street. These **should** be maintained by selecting appropriate flora species for the NA;
- Boundary walls **should** remain under 1.5m in height to retain visual connections to the surrounding countryside;
- Where hard boundary treatments are used, these **should** reflect and complement the local vernacular and building materials. For instance, an open boarded timber gate **could** be more appropriate for a farmstead building, or a tile capped low brick wall for dwellings within the village;
- Boundary treatments **could** be used to screen on-plot parking and **could** combine low walls or fences with soft landscaping to achieve this; and
- Parking areas and driveways **should** be designed to minimise impervious surfaces through the use of permeable, porous paving and soft landscaping.

Figure 22: Example of a well-maintained hedgerows at an appropriate height to maintain privacy and natural surveillance.

Figure 23: Positive example of a driveway using permeable, porous materials.

2.3.3 BF.3 Heritage setting, views and vistas

The Hatfield Broad Oak Conservation Area is drawn tightly around the central area of the village. The Conservation Area has since been extended to include areas further south along Cage End and areas to the immediate west of Church of St Mary the Virgin. Built form within the Conservation Area is characterised by a tight-knit plot pattern within its core, with some larger plots extending along Cage End and the eastern end of High Street.

A variety of traditional materials, from the earlier use of timber frames and thatch through to the later use of brickwork rendering feature across the Conservation Area. The survival of thatch, in particular, reinforces the special rural character of the village. There are a number of listed buildings within the Conservation Area, some notable ones are highlighted overleaf. A series of key views out towards the surrounding countryside and vistas framed by buildings and street trees alike contribute positively to Hatfield Broad Oak's rural setting.

Figure 24: Listed buildings, scheduled monuments and locally designated heritage assets found within the NA. Data source: Esri OS data

Figure 25: Grade I listed Church of St Mary the Virgin, built with stone and located on High Street.

Figure 27: Grade II* listed Town Farmhouse, with a cross-gabled roof, pale yellow render and sash windows, Cage End.

Figure 29: Grade II* listed Oak Cottage, with a thatched roof, off-white render facade, casement windows and an eyebrow dormer, Cannons Lane.

Figure 26: Grade II* listed Rundle House, comprising of red brick facade, a bow and sash windows paired with a cast stone entrance, High Street.

Figure 28: Terraced cottages with offwhite and coloured render, clay tile pitched roof and small dormer windows on Cage End - locally listed buildings.

Figure 30: Grade II listed Rose Cottage (right) and 12 Broad Street (left), traditional thatched roof cottages with white and off-white render, and black timber casement windows.

Guidance on development in close proximity to heritage assets can be found in the *Hatfield Broad Oak Conservation Area Appraisal (2013)* - Part 2: Management Proposals

- Any new development proposed in close proximity to a heritage asset **must** respect its settings and significance and demonstrate how local distinctiveness is reinforced. For example, the new development **could** allow for a generous setback from the asset and be of a massing and scale that is sensitive to the neighbouring structure;
- New development **should** retain any existing open spaces, vegetation and trees that are a part of the setting of any heritage asset to preserve its historic character;
- New development **should** respect the setting of the heritage asset as well as the built form and use design and material which is complimentary to the existing character. This includes gardens, boundary treatment, surrounding street scene and vegetation; and
- New development **should** propose architectural details and materials that match ones used in surrounding

Guidance on development in close proximity to heritage assets can be found in the *Uttlesford District-Wide Design Code (2024)* - 2.2 Context

heritage assets and their setting, to remain in-keeping with traditional architectural qualities, especially if they are located within the conservation area.

Figure 31: Positive example of an earlier infill development within the conservation area that is in-keeping with the use of material, roofline and building line of its surrounding context, High Street.

Figure 32: There is a lack of sensitivity in the use of material of properties surrounding the Grade II listed The Thatched Cottage on Hammonds Road, which detracts from its setting and architectural value.

Guidance on Views Protection can be found in the *Uttlesford District-Wide Design Code (2024)* - 2.2 Context and 2.3 Identity.

- Open views out towards the countryside, such as long views towards Barrington Hall as part of a Historic Designated Landscape of Essex, contribute significantly towards the rural character of Hatfield Broad Oak. Development **should** maintain visual connections to the surrounding landscape and long views out of the settlement by retaining existing separation distances between buildings. These views **should** not be obstructed by any new development;
- Development located in close proximity to Church of St Mary the Virgin **should** be oriented to complement views of the church tower. Additions to the roofline **must** not obstruct important views and vistas of the church or the tower;
- Development **should** have an active façade that fronts onto the street. This adds visual interest to the streetscape and frames vistas. Active frontages with distinctive building features such as towers or particularly notable chimneys **could** also be used to aid legibility;
- The enclosure of the street **should** be used to frame important street vistas. This can be accomplished through landscaping, such as hedgerows or street trees planting. This is especially important for developments along Cage End, which is positively defined by vistas towards the village centre and tree-lined views towards the south;
- Locally significant views and vistas (*refer to figure 24 and the Hatfield Broad Oak Conservation Area Appraisal*) **should** all be protected from all future development, including extensions and conversions.

Figure 33: Long view towards Barrington Hall from the Village Green (top) and view towards the village church from edge of the village (bottom).

Figure 34: Tree-lined vista looking north down Cage End towards the village centre.

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2.4.1 SD.1 Open spaces and biodiversity

Hatfield Broad Oak's rural hinterland comprises of a number of landscape designations. Some of the notable green assets include Hatfield Forest to the north-west of the village - designated as a Site of Special Scientific Interest (SSSI) and National Nature Reserve, including large swathes of ancient and deciduous woodlands. To the immediate north of the village is Barrington Hall and its surrounding parklands and woodlands, together forming one of the Historic Designated Landscapes of Essex. A large number of Tree Protection Orders (TPOs) can also be found across the village.

The design guidance and codes in this section will be supporting local aspirations to create a more coherent and connected green infrastructure network to enhance and protect these natural assets that are intrinsic to the character of the village. This also includes access to the countryside, physical and visual connectivity to the landscape and sensitive development to promote biodiversity.

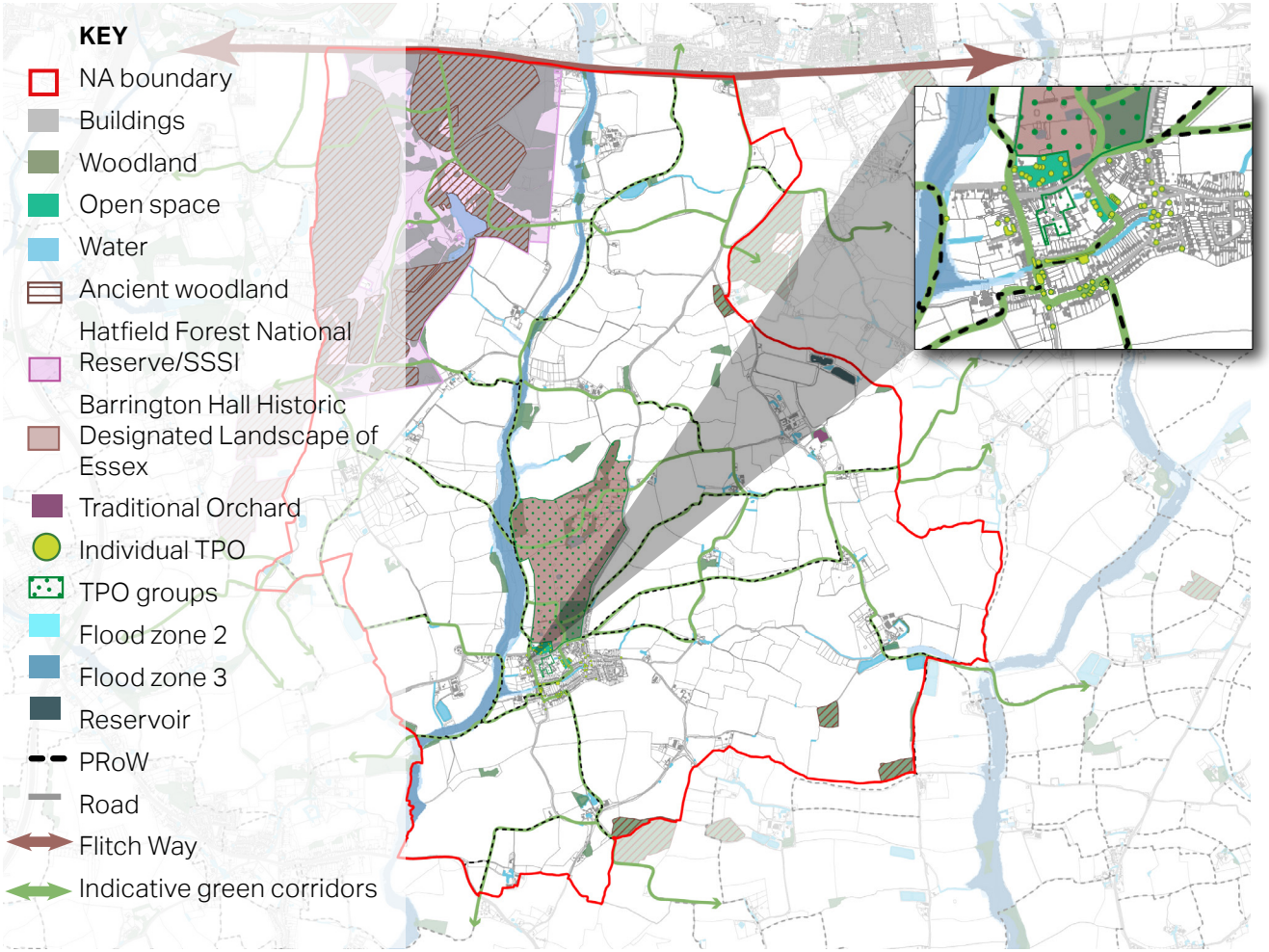


Figure 35: Landscape designations, TPOs, PRoW network and indicative green corridors within NA (with zoomed in inset map for clarity). Data source: Esri OS data

Guidance for Green Infrastructure Provision can be found in the *Essex Green Infrastructure Strategy*

Guidance on green infrastructure, tree planting and PRoWs can be found in the *Uttlesford District-Wide Design Code (2024)* - 2.5 Movement and 2.6 Nature

- Development **should** preserve all trees, shrubbery and hedgerow wherever possible as these contribute to the rural, natural character of the village and aid in temperature control and CO_2 absorption. Where preservation is unavoidable, developers **must** replace trees lost. These **could** be incorporated through tree-lined streets;
- New tree placement **must** be designed with sufficient space around them, laid out in a way that leaves room for appropriate buffer zones to have the opportunity to mature to their full size. Generally, larger trees with more canopy coverage **could** serve as landmarks and can also provide shading;
- Hedgerows and landscaping along pavements **must** be well-positioned so as to not obstruct pedestrian movement. These **should** avoid being too high to avoid obstructing views of the road for road users and pedestrians;

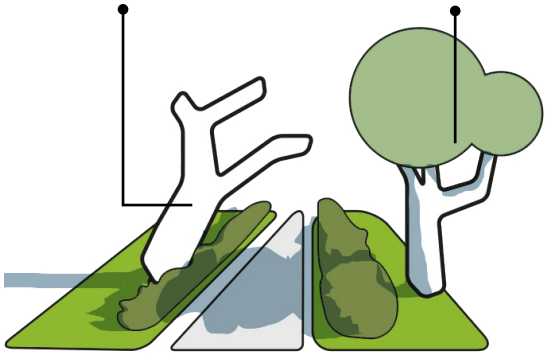
Trees, hedges, flower beds, bushes and shrubs are typical green elements of the street in the area and any new development should also include them in the design

Loss of trees is only justifiable if they constitute a hazard

Protect veteran trees, important trees and hedgerows

Justify the loss of trees, and replace each affected tree on a 2:1 ratio

Retain trees on development sites, especially trees with a Tree Protection Order and trees of high importance



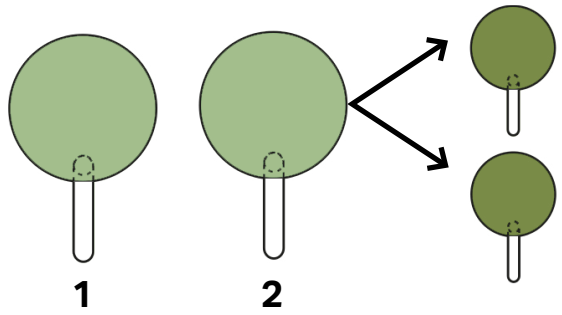


Figure 36: Diagram to highlight some guidelines related to tree preservation.

- Development **could** expand upon existing wildlife corridors by linking them together. This **could** be achieved by linking to and creating new rights of ways along these corridors. These **could** be placed where existing green and blue infrastructure already exists as a guide. Some indicative green corridors are illustrated in Figure 35.
- Development **should** consider how layouts can create new wildlife corridors by linking green spaces to create a blue and green infrastructure network. For example, this **could** be achieved by aligning rear gardens, connecting gardens to open spaces and providing access to the countryside through undisrupted building gaps;
- Landscaping design **should** be layered with a variety of native species suitable for the local wildlife, soil conditions and climate. Development **should** avoid low maintenance, hard landscaped gardens, which are harmful to wildlife and reduce biodiversity opportunities; and
- Open spaces and gardens **should** be designed with wildlife in mind by incorporating a range of small-scale biodiversity improvements which **could** include: nest boxes, bird feeders, bug hotels, hedgehog holes, bat boxes, log piles, pollinator nest sites and wildflower planting.

Figure 37: Street trees and natural boundary treatments - such as hedges, grass verges, and gardens contribute significantly to the green network and biodiversity of Hatfield Broad Oak.

Figure 38: Hatfield Broad Oak Village Green, with access via High Street.

2.4.2 SD.2 Active travel

A high level of car ownership and infrequent public transport services resulted in high car dependency in Hatfield Broad Oak. The parish is home to a good network of Public Rights of Way, linking towards nearby settlements of Hatfield Heath and Great Hallingbury, as well as the surrounding countryside and Hatfield Forest. A link route to the National Cycle Network (NCN) Route no.50 runs along the eastern part of the Neighbourhood Area, nevertheless, there are currently no other designated cycle routes within Hatfield Broad Oak. Due to its close proximity to the M11, the village suffers from fast moving traffic and ratrun when the motorway is congested or closed.

The recent community engagement survey undertaken in 2024 reflected public support for more footpaths and traffic calming measures to improve local connectivity and pedestrian safety. Design guidance and codes in this section will therefore focus on principles to promote and integrate active travel by design.

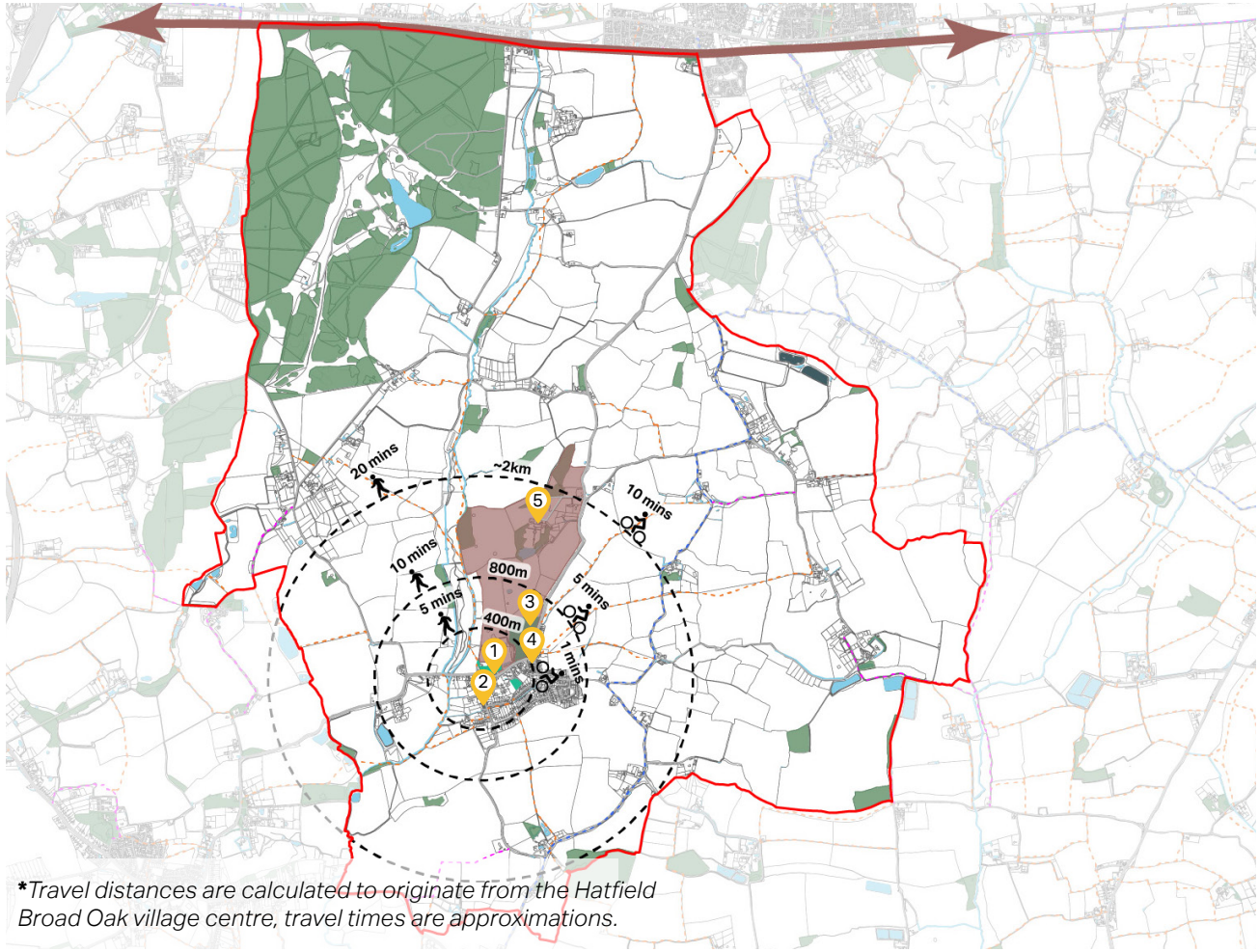


Figure 39: Map showing active travel corridors (including PRoWs, NCN route and the Flitch Way) with walking radius. Data source: Esri OS data

Guidance on active travel provision can be found in *Essex Design Guide (2018)* - Pedestrian and Cycle Movement.

Guidance on active travel provision can be found in *Uttlesford District-Wide Design Code (2024)* - 2.5 Movement

- Developments **should** facilitate outward connections by linking to the existing PRoW network. These connections **must** be surfaced, have gates where needed, be appropriately lit where this poses a safety risk and be appropriate for all-weather use and accessible for people with buggies and mobility impairments;
- Development in the village **should** aim to provide improved access to the existing open spaces and countryside. Developments **could** provide connections via other green and urban networks such as pavements, tree lined streets and PRoWs to ensure the open spaces are within walking distance;
- Signage **should** be provided around the area to show destinations and travel distances for walking and cycling. Signage **should** be made of high-quality material and designed to be fitting within the setting of the village. Best practice examples have signage made of a hand painted, weather-resilient coated wood;
- Cycling routes **would** be a positive addition to the parish to promote sustainable active travel for medium-distance trips into and out of the village. As Hatfield Broad Oak is limited in shops and amenities, most trips are travelled by car to nearby centres which has a notable impact on sustainability; and
- Active frontages with distinctive building features such as particularly notable chimneys or rooflines aid legibility. Additionally, landscape features, distinctive trees and open spaces **could** be used as wayfinding aids as well as providing an attractive streetscape and promoting active travel.

Figure 40: The streetscape of the village car is currently dominated by on-street parking due to high car dependency across the village.

Figure 41: Fast moving traffic along country roads without pavements, such as Hammonds Road, pose danger to pedestrians and discourage walking.

Traffic calming

Traffic calming measures can be introduced to existing streets to shift the hierarchy of movement from motor vehicles to prioritise pedestrians and cyclists. The following measures can be used independently or in a combination, however the effect on the surrounding streets should be considered as well as the effect on the street itself.

- **Junction design** - junction designs **should** use the minimum possible radii to contribute to traffic calming. This **could** be applied to existing junctions especially within the town centre, as well as in new developments.
- **Raised junctions and entry** - flat sections of carriageway that are raised to be closer in height to the neighbouring footways, usually placed at pedestrian crossings, a street entrance or at a junction. A 20mph speed limit is often required, which becomes self-enforcing as vehicles have to approach at a lower speed.
- **Continuous footpaths** - these visually emphasise pedestrian priority by continuing the pavement material across a junction or street entrance to encourage drives to slow down.
- **Kerb extensions and build outs** - sections of footway with additional width, usually at pedestrian crossing points, wide street corners and busy pavements. They reduce the speed of oncoming traffic by requiring motorists to drive through a narrower carriageway and negotiate turns more slowly. They can also improve visibility at junctions and discourage parking on street corners. Kerb extensions and build outs can be integrated with SuDs, planting or street furniture, however they **should** not impede pedestrian movement or access.

Figure 42: Example of a raised junction at the entrance to a residential street, combined with kerb build outs and a continuous footpath at the crossing.

Figure 43: Kerb build out with street greening and SuDS installation, double kerb to prevent vehicle overrun.

2.4.3 SD.3 Eco-housing

In 2019, Uttlesford District Council declared a climate and ecological emergency. There is now a district-wide commitment and aspiration to achieve net-zero carbon status by 2030, and to protect and enhance local biodiversity. It is important that any future development within the Neighbourhood Area are aligned with these aspirations and are designed sustainably.

The guidance and codes in this section will be focused on how potential forthcoming development could be designed with Eco-design principles, as well as how existing development could be retrofitted.

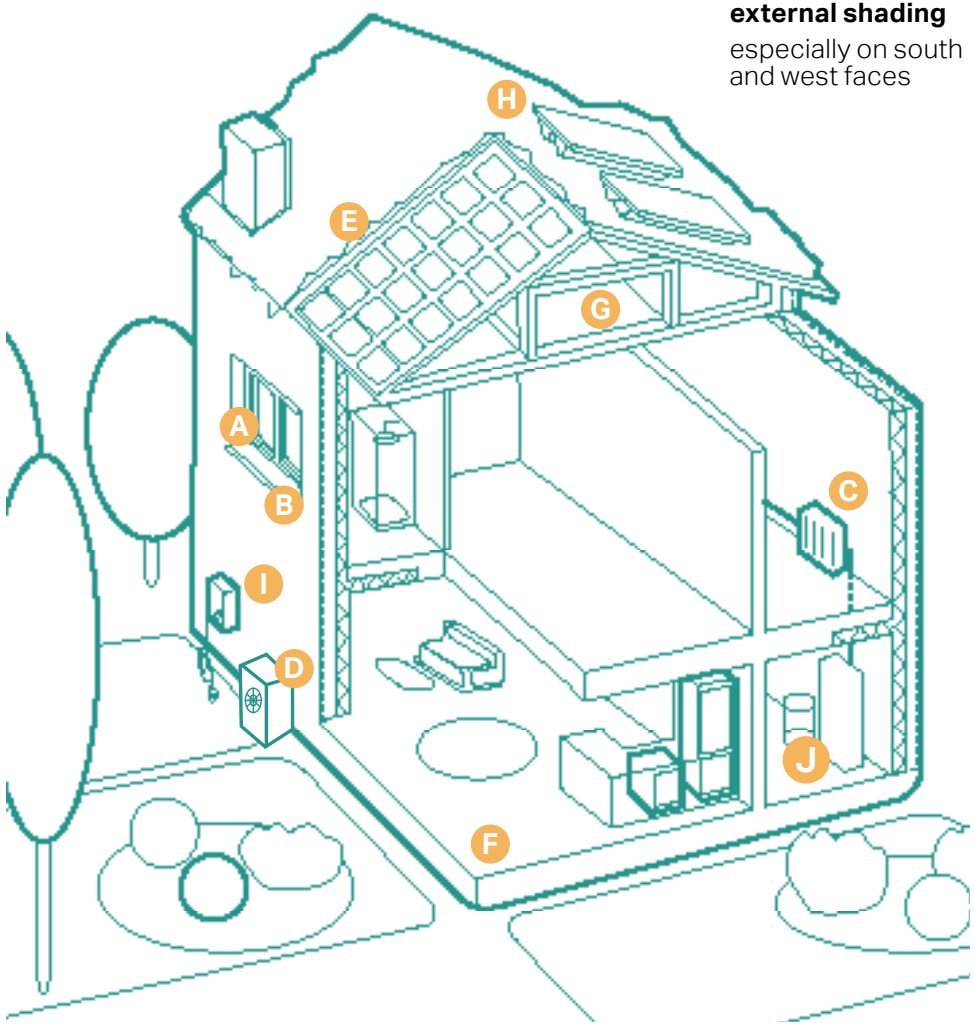


Figure 44: Diagram showing low-carbon homes in both existing and new build conditions.

Guidance for Sustainable Development, Eco-design and Use of Renewable Energy can be found in *Uttlesford Interim Climate Change Policy (2019)* - Chapters 4-5

- All new development **must** demonstrate that it is responding to climate change and reducing its carbon dependency. The Government's forthcoming Future Homes Standard, including changes to Part L and Part F of the Building Regulations, will aim to cut carbon emissions;
- By default, any new development **should** adopt a 'fabric first' approach[1] to attain higher standards of energy conservation. Retrofitting existing buildings with eco-design solutions is also encouraged, such as triple glazed window and smart meter installation, which can be incorporated into traditional dwellings without altering or disrupting the exterior of the buildings. Suggested guidelines are illustrated in Figure 44 which focus on improving the energy efficiently of properties through the implementation of eco-design principles;

[1] An easy guide to the fabric first approach, 2024. Source: https://build.saint-gobain.co.uk/blog/2019/08/easy-guide-fabric-first-approach

- Dwellings **should** have a 15 and 40 percent window to wall ratio, balancing Hatfield Broad Oak's local historical context with local climatic conditions. This is to ensure that windows don't contribute to increased energy demand through excessive heat loss in winter and overheating in summer;
- If houses are not aligned east–west, rear elevations **could** be glazed so that some of the property benefits from solar passive gain;

- North-facing single aspect units **should** be avoided or mitigated with the use of reflective light or roof windows;
- Eco-design can be adapted to a wide variety of architectural styles. Historic buildings can also be retrofitted in a way that respects both the environment and their historic features. Any eco-design features **must** be incorporated without visually damaging the historic environment;

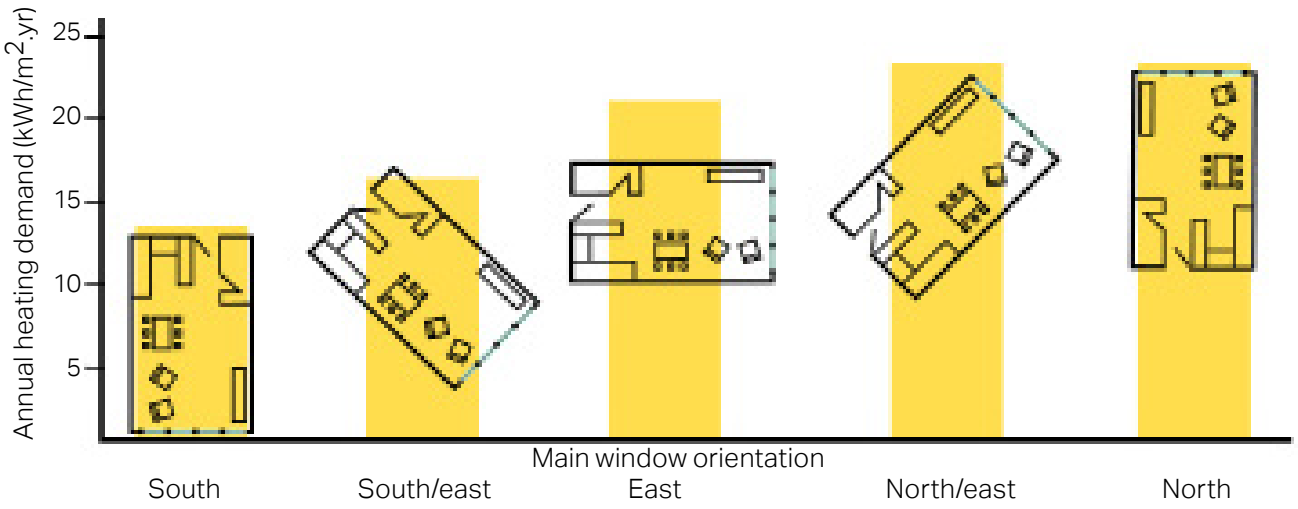


Figure 45: An illustrative graph showing solar orientation of a room against the annual heating demand.

- Heat pumps **should** be placed to the rear of properties, ideally in a concealed location, to avoid visually damaging the street scene and the main, front elevation of a building;
- If the only viable location of heat pumps are to the side of the building, covers and landscaping **could** be used to visually screen heat pumps. For example, wooden enclosures can be used and stained to match the colour of the building wall;
- Covers or any planting nearby heat pumps **must** not obstruct ventilation and be easily accessible for maintenance. Additionally, heat pumps **must** also be placed so that they are protected from heavy flooding;
- Further guidance can be found for heat pump installation, specifically for retrofitted historic buildings, on the Historic England website[1];

[1] heat pump installation of historic buildings: https://historicengland.org.uk/advice/technical-advice/building-services-engineering/installing-heat-pumps-in-historic-buildings/

- Mounted charging points and associated services **should** be integrated into the design of any new developments, if possible. These **should** be unobtrusive to the character of the parish and placed discretely to the rear and side of the plot and within garages or car ports where possible;
- Reusing building materials such as bricks, tiles, slates or large timbers all help achieve a more sustainable approach to design and construction. Recycling and reuse of materials **could** be used to minimise the extraction of raw materials and the use of energy in production and transportation. Where appropriate, the re-use or re-purposing of existing buildings and outbuildings **should** be considered as a more sustainable approach to redevelopment; and
- Early stage carbon assessments are recommended to establish a baseline carbon estimate for development, to integrate whole life carbon into the design process and to identify carbon reduction potential where possible.

Figure 46: Example of a visually screened heating pump appropriate to the context of the building vernacular.

Figure 47: Recycled and reclaimed bricks used for an extension to a traditional dwelling in Gretton, UK.

Guidance for SuDS can be found in *Essex SuDS Design Guide (2020)* - Chapter 2: SuDS design standards.

Guidance for rain collection and infiltration can be found on https://www.reclaimtherain.org/ under the page Reclaiming the Rain.

Guidance for property level flood resilience can be found on https://www.reclaimtherain.org/ under the page Flooding: Tackling or Mitigate Flooding.

2.4.4 SD.4 Sustainable Drainage Systems (SuDS)

As highlighted in the engagement survey and Figure 35, there are areas of medium to high flood risk within the Neighbourhood Area associated to Princey Brook and Mus Brook. Areas around Cage End are particularly susceptible to flooding during storm surges or heavy rain.

The guidance and codes in this section will focus on SuDS integration to mitigate against localised flood risk. This will in particular be used for the management of surface water overflow from flooding due to heavy rainfall, which is becoming an increasing issue resulting from climate change.

The SuDS provided in this section will focus on best practice schemes which can be incorporated into all new developments or to retrofit existing streets and properties. It will also be used to further strengthen Hatfield Broad Oak's biodiversity efforts and to take advantage of the natural asset of the vast surrounding countryside.

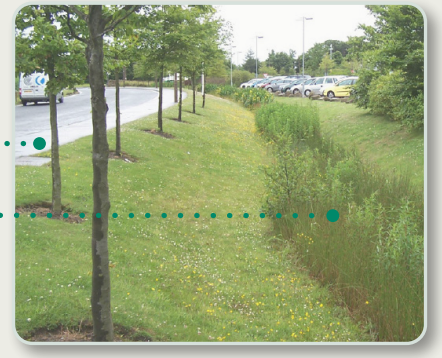
- New developments **should** be sited away from any high-risk flood areas and mitigate increased risk of storms or flooding with SuDS;
- Best practice SuDS schemes link the water cycle to make the most efficient use of water resources. Typically, the most sustainable option is the collection of surface water to reuse, for example, in a water butt or rainwater harvesting system, as these have the added benefit of reducing pressure on important water sources;
- New housing **should** demonstrate how rainwater will be stored and reused as grey water to reduce demand on main supplies, such as through water heating through underground pumps;
- Swales, basins, and ponds **could** also be integrated on site for more substantial landscaped areas to assist with greater instances of water run-off. These also **should** be set within high quality soft landscaping, abundant in native species and provide biodiversity benefits;
- Sustainable drainage interventions **should** therefore be integrated alongside appropriate soft landscaping. Rain gardens **could** be a primary consideration for these types of interventions;
- Reduce runoff rates by facilitating infiltration into the ground or by providing attenuation that stores water to help slow its flow so that it does not overwhelm water courses or the sewer network;
- Improve water quality by filtering pollutants to help avoid environmental contamination. Effective SuDS are vegetated, using natural processes to slow and clean water; and
- Standards, and guidelines relevant to permeable paving and sustainable drainage are listed below:

  - Sustainable Drainage Systems - non-statutory technical standards for sustainable drainage systems;
  - The SuDS Manual (C753); and
  - Guidance on the Permeable Surfacing for Front Gardens.

SuDS implementation strategies:

Green roofs and walls: Provide capacity to hold and attenuate water run-off as well as ecological and leisure benefits.

Street tree planting: SuDS designed into highway provision can provide dual-use benefits when integrated with street tree provision.



Swales: Shallow channels that provide attenuation while also chanelling water to other features such as ponds.

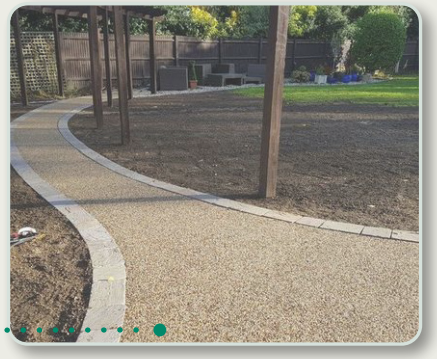
Rain capture: Water butts and other rainwater harvesting systems collect rainwater for use in gardens or for non-potable uses reducing water consumption.

Reedbeds and wetlands: Topography can be used to create wetlands that provide attenuation capacity as well as filtering out pollutants and providing habitat for wildlife.

Basins and ponds: Attenuation ponds that are normally dry but fill during a rain event and then either store or gradually discharge water to the system.

Rain gardens: Containers and ditches with native drought tolerant plants release water gradually and filter pollutants.

Permeable surfacing: Surfaces that allow water to percolate into the ground including natural surfaces, gravel and low traffic volume engineered road surfaces and hard-standings in gardens.



2.4.5 SD.5 Dark skies and lighting

Street and development lighting can greatly impact the setting of rural parishes especially for development within the countryside. Hatfield Broad Oak is valued by its residents for its tranquil atmosphere which can be attributed to its dark skies at night from a lack of light pollution and streetlights. Additionally, light pollution can be detrimental to wildlife populations and wellbeing.

According to Council for the Preservation of Rural England (CPRE) light pollution level scale for dark skies, Hatfield Broad Oak village falls into 1–2 NanoWatts/cm2/sr, which falls below the 'Brighter' (2–4) levels, with the surrounding countryside mostly comprising levels 0.25–0.5. Dark skies protection also proves to be important for Hatfield Forest and its wildlife a, which currently largely falls within the 0.5-1 and 1-2 level. However, light pollution levels increase to 1-2 for area of the park closer to the more urban Bishops Stortford and Stanstead Airport.

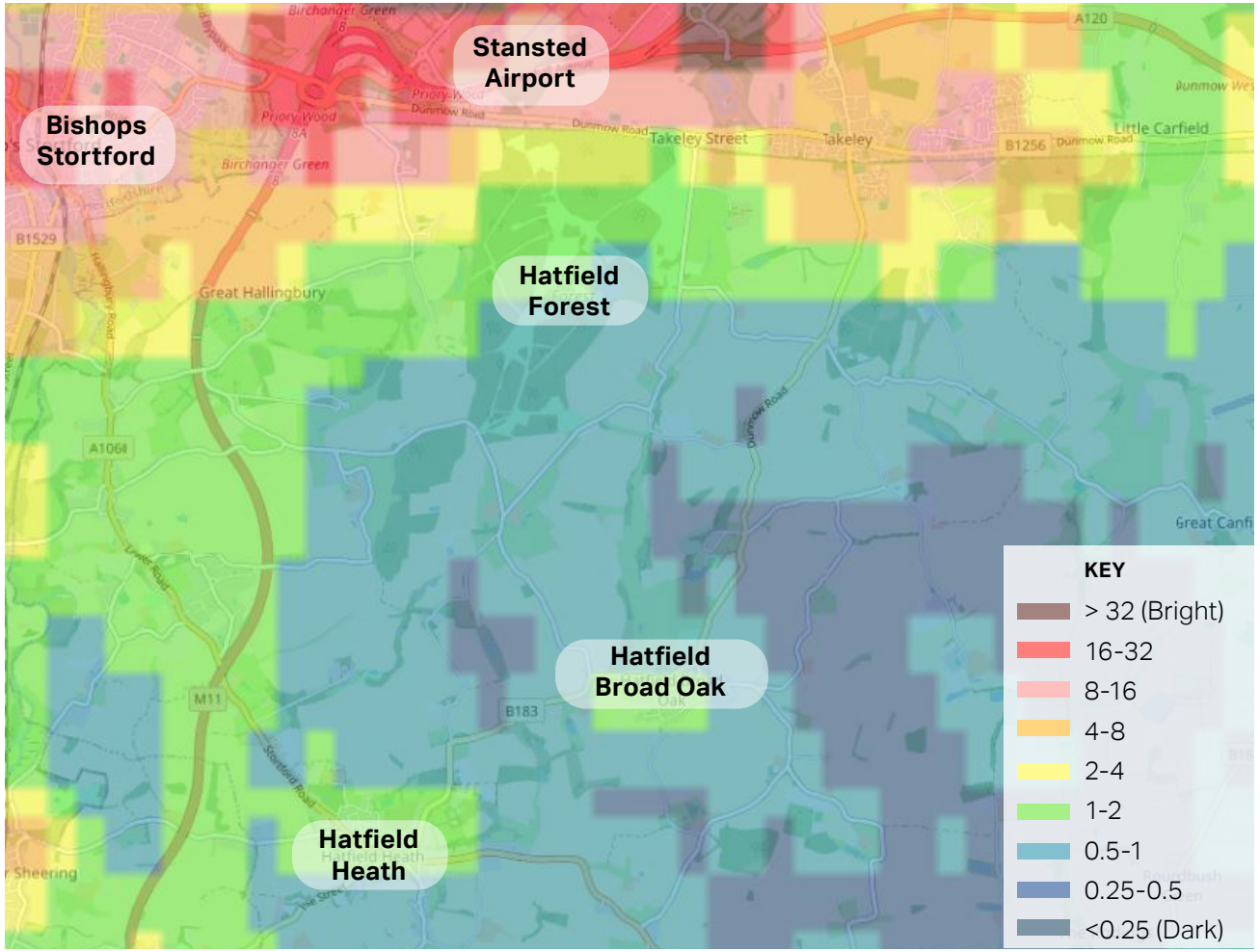


Figure 48: Light pollution and dark skies, Units: NanoWatts/cm2/sr. Each pixel shows the level of radiance (night lights) shining up into the night sky. Source: https://www.cpre.org.uk/light-pollution-dark-skies-map/

- Dwellings **should** complete a home lighting assessment, in line with the International Dark Sky Association flow chart[1], to determine whether or not existing light fixtures are dark sky friendly and for guidance on how to address disruptive lighting;
- Consider lighting schemes that **could** be turned off when not needed ('part-night lighting') to reduce any potential adverse effects; i.e. when a business is closed. Impact on sensitive wildlife receptors throughout the year, or at particular times (e.g. on migration routes), **could** be mitigated by the design of the lighting or by turning it off or down at sensitive times;
- External lighting with an output of more than 500 lumens **must** be pointed downwards and fully shielded, warm light sources of between 2700K and 3000K on the Kelvin scale **must** only be used;

[1] Source: https://darksky.org/app/uploads/2020/01/Home-Lighting-Assessment-Print.pdf

- External lighting and street lighting streets **should** be low lying and only be considered for new development where it is necessary for security and safety and to illuminate commercial and community spaces;
- External lighting **must** be kept minimal, at low level and at low intensity, with hoods and baffles used to direct the light to where it is required to ensure that no light is emitted upward;

- Glare **should** be avoided for safety reasons. This is the uncomfortable brightness of a light source due to the excessive contrast between bright and dark areas in the field of view; and
- Foot/cycle path lighting **should** be introduced sensitively within the landscape. Fittings such as solar cat's-eye lighting, reflective paint and ground-based lighting **could** be introduced. Full-height lighting **should** be avoided.

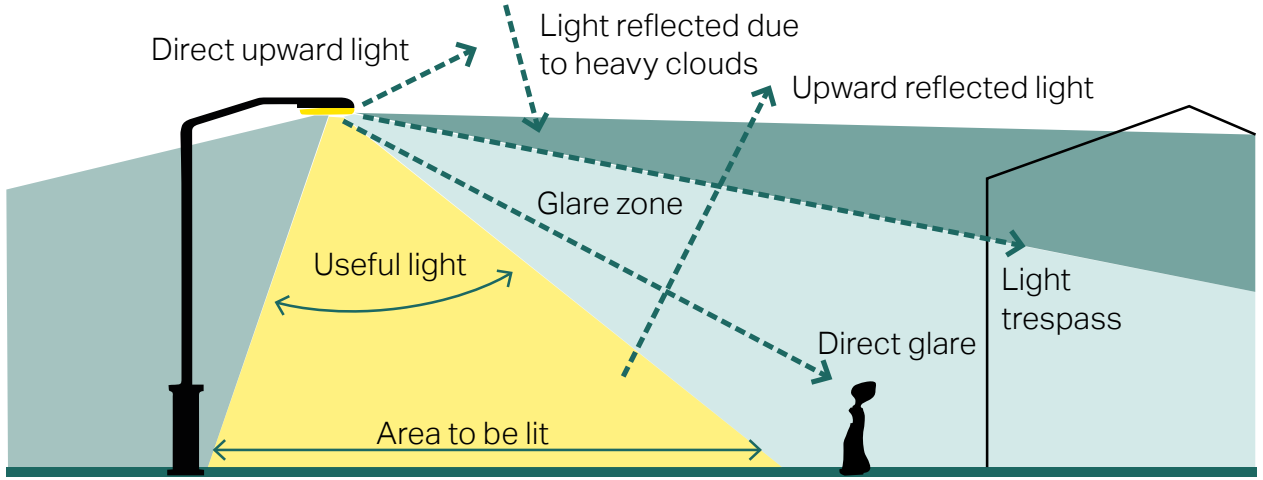


Figure 49: Diagram to illustrate the different components of light pollution and what 'good' lighting means for dark skies.

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