



CAMBRIDGE SOUTH

Spatial Masterplan Report



Allies and Morrison

April 2021

CONTENTS

1	INTRODUCTION	3	5	A LANDSCAPE-LED MASTERPLAN	26
2.1	CBC 2050 and the need for growth	6	5.1	Landscape Principles	27
2	A NEW NEIGHBOURHOOD FOR CBC	5	5.2	A natural extension to Cambridge	28
3.1	Understanding growth	8	5.3	The Illustrative Masterplan	29
3.2	The qualities of Cambridge South	9	5.4	Uses and character areas	30
3.3	Placemaking strategy	12	5.5	The Landscape Strategy	31
3	A FRAMEWORK FOR GROWTH TO THE SOUTH	7	5.6	The four strategies for Green Belt enhancement	34
4.1	The study area today	15	5.7	A family of open spaces	35
4.2	Existing conditions	17	5.8	Long range views	36
4.3	Green Belt constraints	19	6	DEVELOPMENT PRINCIPLES	41
4.4	Opportunities for Green Belt enhancements	21	7	SUPPORTING INFORMATION	49
4.5	Other key opportunities	23	7.1	Indicative density and quantum of areas	50
4.6	Definition of development zones	25	7.2	Constraints and opportunities mapping	51

1

INTRODUCTION

This report establishes a series of masterplanning principles for the sustainable growth of Cambridge South, in order to seize the unique opportunity that proximity to Cambridge Biomedical Campus (CBC), as a cluster of innovation and high-quality healthcare of international importance, can offer to the city.

This report has been commissioned in response to the *Cambridge Biomedical Campus Vision 2050: Creating a Life Sciences quarter for Cambridge (CBC Vision 2050)*, which was developed by CBC campus partners. Vision 2050 sets out a clear vision for the growth and success of CBC over the next 30 years. In order to achieve this vision, it is important to understand CBC as a maturing neighbourhood with an aspiration of achieving its potential as a world class science hub and becoming an established district of South Cambridge. Fulfilling this aspiration will require a consideration of growth beyond the existing site boundaries, which poses interesting challenges that will include a reshaping of its immediate physical context, but it should also be seen as opportunity for a positive transformation of the southern edge of the city into a more accessible place, structured around public green spaces that

are nestled within an enhanced natural landscape. This opportunity coincides with the consultation process of the new local plan and the emergent themes which this work seeks to fully align with.

The owners of land in the vicinity of CBC, including Jesus College, St John's College, Cambridgeshire County Council, and a private family trust, have come together with the aim to establish a coherent, viable and sustainable approach to the development of areas located to the south and west of CBC. This concerted approach will pave the way for a governance structure to be set in place and ensure deliverability of the project as part of an open and collaborative process in consultation with all the relevant stakeholders, including the wider community. The work illustrated here represents the initial step in such a process and is intended as a

delineation of first principles to open an informed conversation about the implications of urban growth in this part of the city.

It is a collaborative effort by a group of consultants led by Quod, that also includes Creative Places, Vectos and Buro Happold. It represents the first level of detail of an iterative process underpinned by evidence to gain a solid understanding of the sensitivities of the place, in order to generate a careful, considerate and sensitive design response. The document is concise in nature with an emphasis on graphic communication to allow a fluid reading of the key ideas. The supporting information is collated in Section 7.





A NEW NEIGHBOURHOOD FOR CBC

Cambridge Biomedical Campus combines world-class biomedical research, patient care and education on a single site. Its new *Vision 2050* articulates the need to become a globally leading and locally rooted vibrant community, a preferred destination for Life Sciences.

2.1 CBC 2050 AND THE NEED FOR GROWTH

However, there is limited capacity within the existing site boundaries to absorb the full projected growth in demand for Life Sciences space and to provide an adequate mix of supporting uses including homes for people working at CBC. If further growth is not appropriately planned for, the campus will not achieve its potential, housing will continue to constrain its success and transport patterns will become increasingly unsustainable.

According to projections based on existing trends and taking into consideration the remaining capacity of the existing CBC, there will be a need for an additional 4.8 million sqft of uses related to research, Life Sciences and clinical, complemented by other uses including hotel, conferencing, leisure and retail during the currency of the new local plan (refer to Section 7 for a detailed breakdown of uses and projected areas).

As new employment opportunities arrive, so do demands on communities and services. If not considered in a holistic manner, these pressures can have detrimental effects on communities: pushing up house prices, creating congestion and generally impacting the quality of life of local people.

As the most sustainable location to meet the requirements of CBC, expansion to the south and west can not only help to address the demand of nationally important Life Sciences, it can do so in a manner that responds positively to existing constraints. This presents a unique set of conditions and an opportunity to create an extended development with a rich mix of uses and green spaces to serve not only the campus itself, but also the neighbouring communities.

CAMBRIDGE
BIOMEDICAL
CAMPUS

Babraham Road
Park & Ride

White Hill

GREAT
SHELFORD

BABRAHAM ROAD

3

A FRAMEWORK FOR GROWTH TO THE SOUTH

This section will outline the wider city context of the proposals. These will include a reference to the physical setting as well as current and emerging planning policy and infrastructure to highlight the importance of a coherent approach to growth on the southern area of the city.

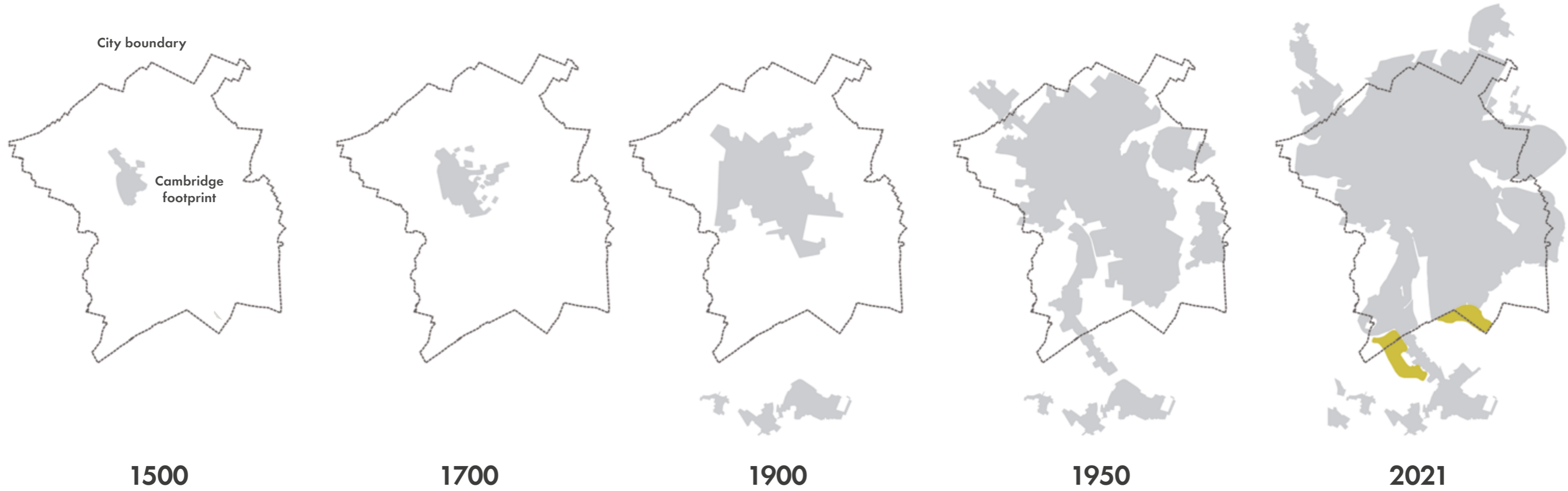


3.1 UNDERSTANDING GROWTH

The historical growth of Cambridge has coincided with its evolving nature as an urban settlement. From a small market town and then a university enclave, to its current shape as a maturing knowledge hub of worldwide importance, this growth has been shaped by a combination of the natural landscape and the need to connect to the rest of the region given its location relative to

London. The resulting urban footprint responds to the surrounding landscape, following established routes that emanate from the city centre towards the neighbouring towns. Most importantly, it has resulted in a beautifully balanced interplay between an important historical core and the natural setting, which gives Cambridge its unique and special character. As the city continues along its path of

evolution, it is critical to plan the physical growth carefully to ensure that these qualities are not only preserved, but also that there is a positive contribution and enhancement of the defining characteristics.



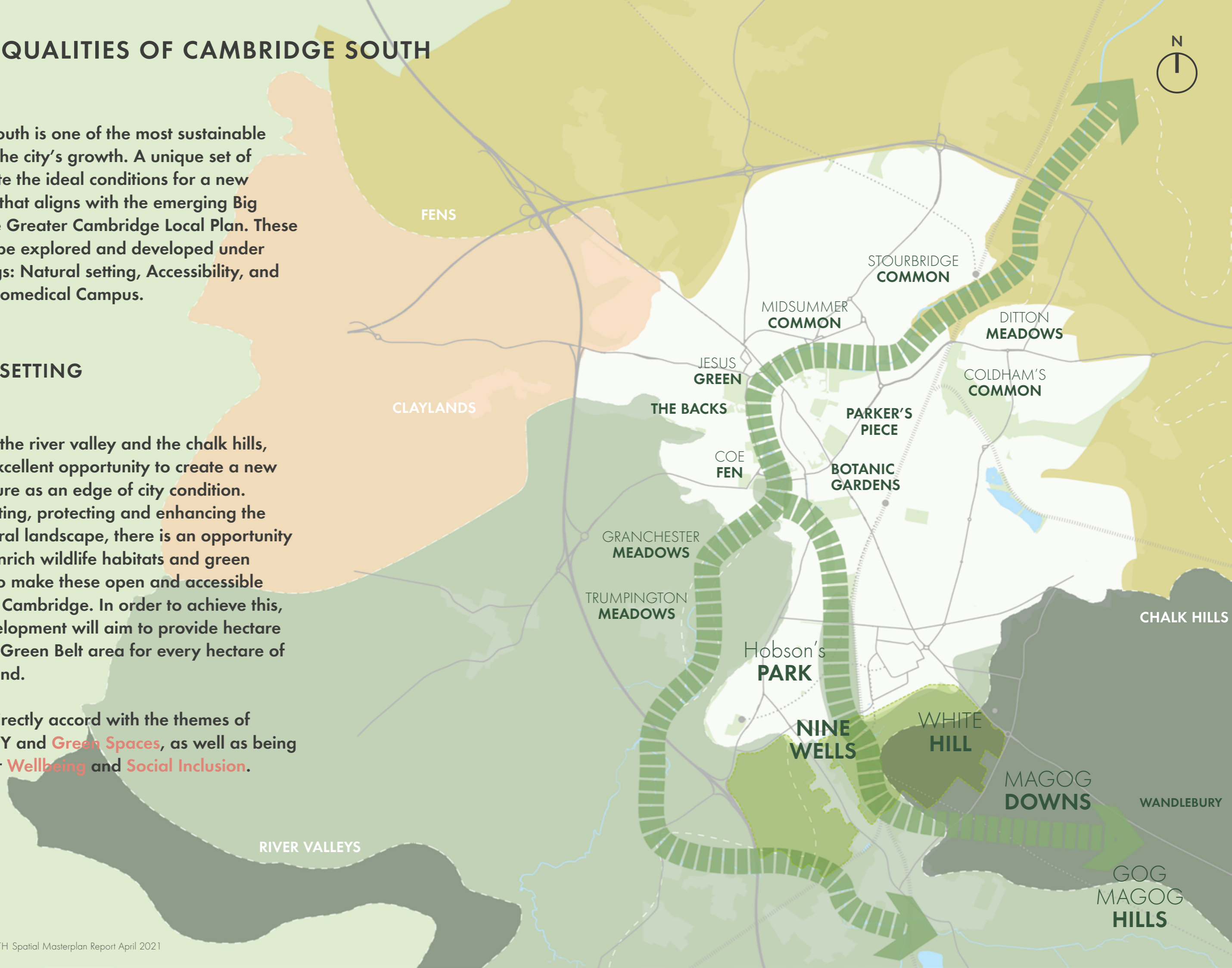
3.2 THE QUALITIES OF CAMBRIDGE SOUTH

Cambridge South is one of the most sustainable locations for the city's growth. A unique set of qualities create the ideal conditions for a new development that aligns with the emerging Big Themes of the Greater Cambridge Local Plan. These qualities can be explored and developed under three headings: Natural setting, Accessibility, and Cambridge Biomedical Campus.

NATURAL SETTING

Set amongst the river valley and the chalk hills, there is an excellent opportunity to create a new link with nature as an edge of city condition. By consolidating, protecting and enhancing the existing natural landscape, there is an opportunity not only to enrich wildlife habitats and green spaces, but to make these open and accessible to the rest of Cambridge. In order to achieve this, the new development will aim to provide hectare of enhanced Green Belt area for every hectare of developed land.

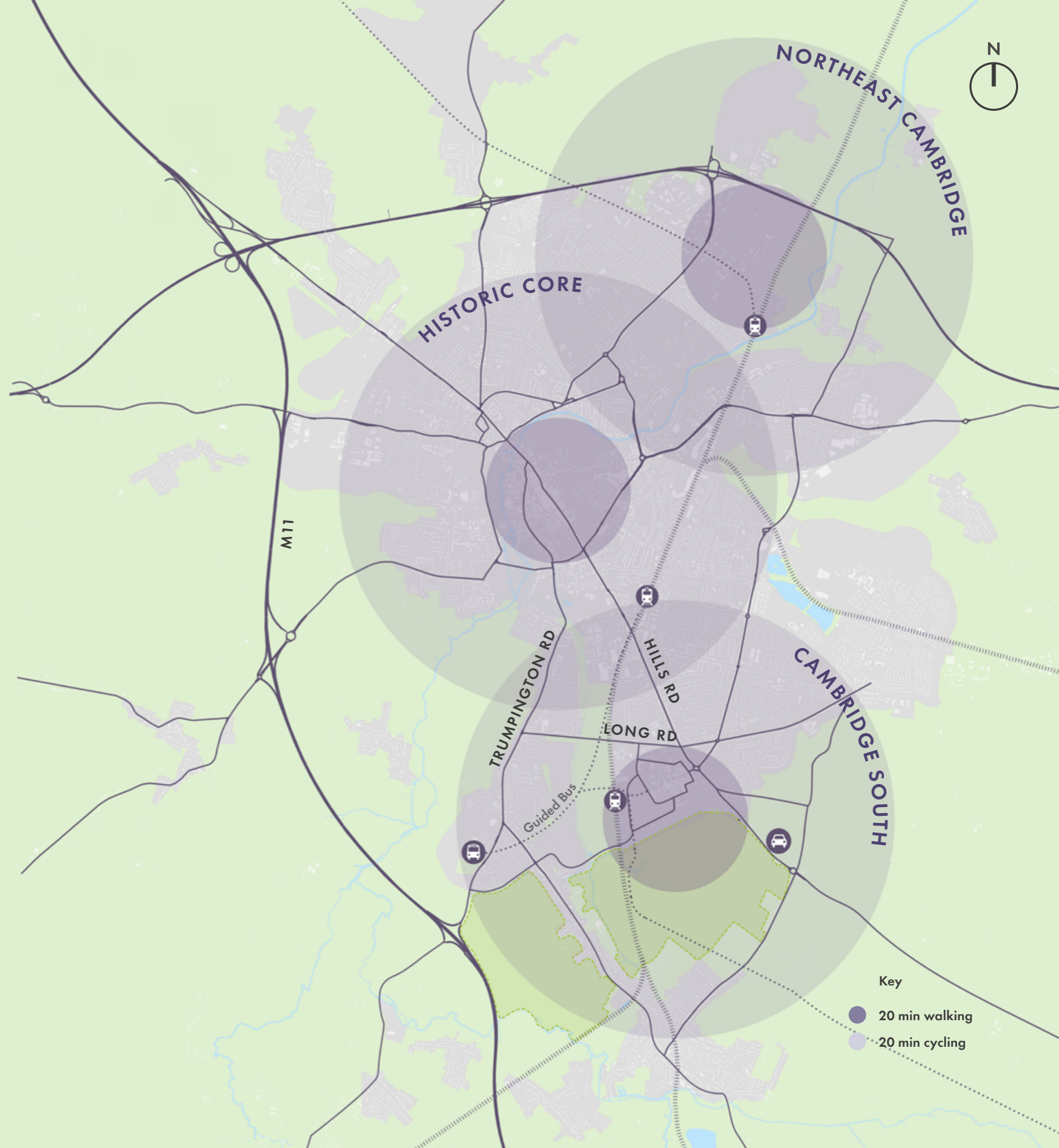
This would directly accord with the themes of BIODIVERSITY and Green Spaces, as well as being important for Wellbeing and Social Inclusion.



ACCESSIBILITY

The study areas are embedded in the urban fabric of the city, benefiting from excellent access to existing and planned infrastructure such as Cambridge South railway station and Cambridge South East Transport (CSET). There is therefore an opportunity to establish a new mobility strategy based on active and sustainable travel, on-site car reduction and addressing existing constraints to achieve a 20-minute neighbourhood.

Focussing development in a sustainable location adjacent to the city and creating close functional links with a range of development that meets the needs of the Campus would make a major contribution to the theme of **Climate Change** and the supporting theme of **Infrastructure**.

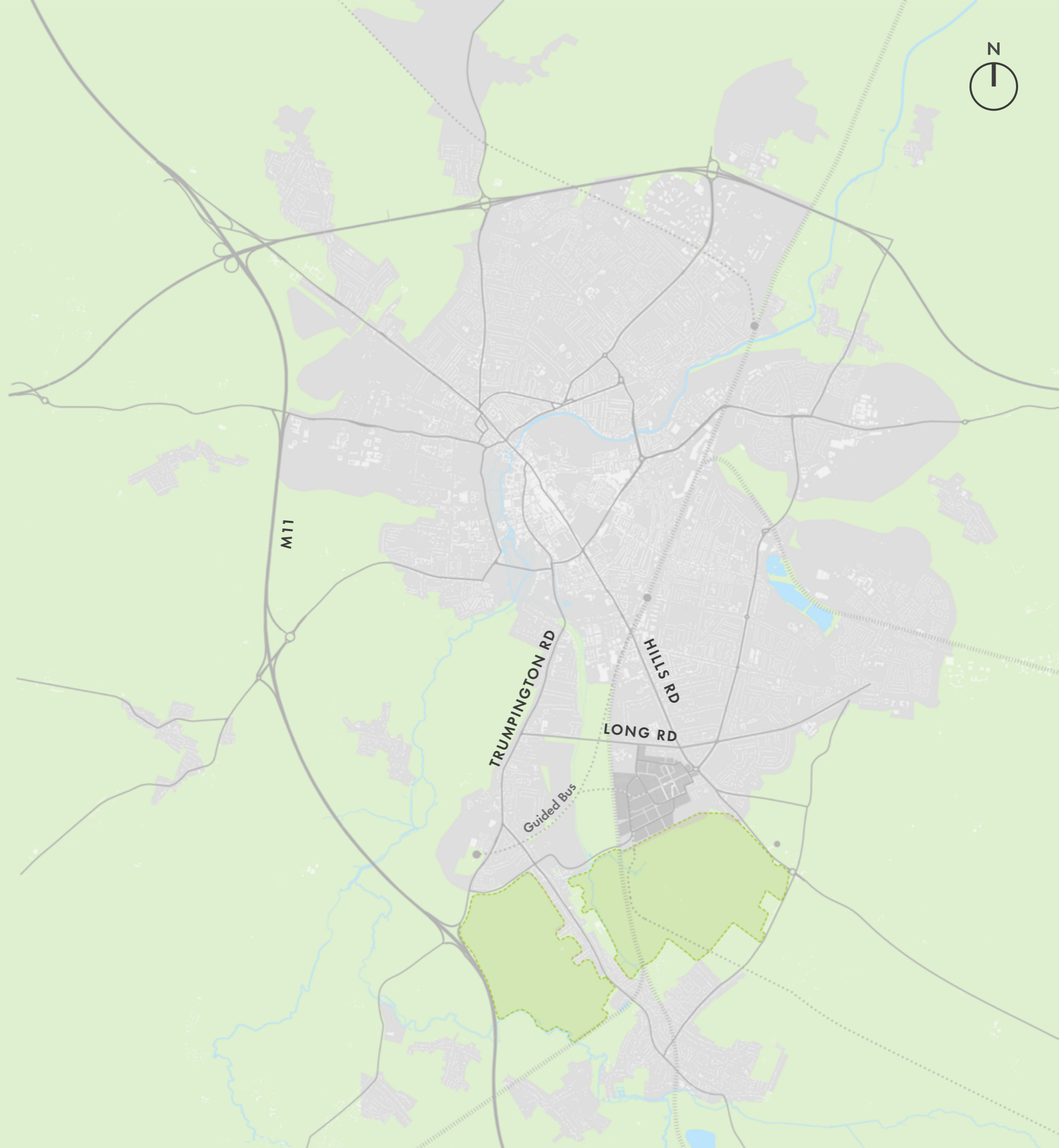


CAMBRIDGE BIOMEDICAL CAMPUS

The existing campus is an evolving hub of employment and activity with the potential of becoming embedded in its local community by offering access to a mix of uses including Cambridge University Hospitals. Through the growth that followed CBC's 2020 Vision and now looking towards 2050, it is on the path to becoming one of the most important Life Sciences innovation clusters in the world.

In order to achieve the level of growth targeted by the CBC Vision 2050, new floorspace will be required beyond the current campus. It is also an opportunity to create a new and inclusive neighbourhood with a rich mix of uses accessible and affordable to everyone.

This would contribute to the theme of **Great Spaces** and the supporting themes of **Jobs, Homes** and **Infrastructure**.

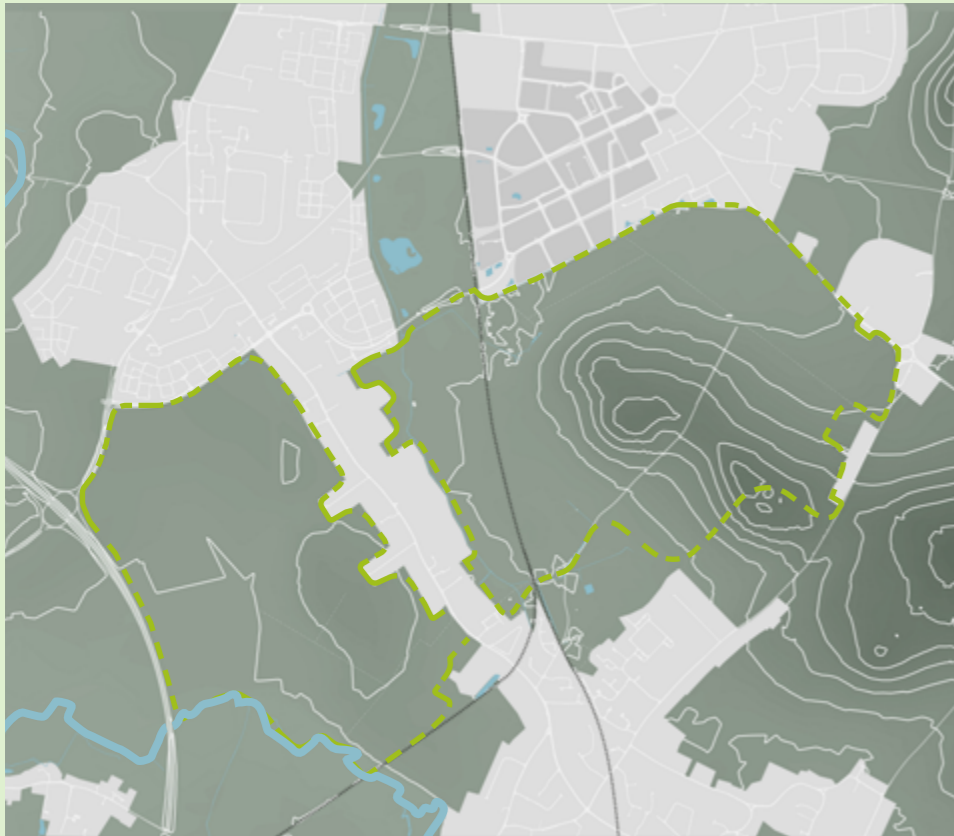


3.3 PLACEMAKING STRATEGY

Stemming from an understanding of the existing natural setting, the placemaking strategy is articulated first and foremost through an enhancement of the existing landscape to create an improved environment accessible to everyone. This approach will aim to create at least one hectare of enhanced Green Belt land for every hectare of development.

Shaped by the landscape and taking advantage of the location, a new mobility network based on promoting active travel will not only establish a permeable connective tissue for the development, but also improve existing local connections and target a reduction of car trips.

Set amongst existing and enhanced natural features and knitted through a sustainable mobility network, Cambridge South has all the qualities to become a recognisable place and a natural extension to the city.



ENHANCED LANDSCAPE



CONNECTIVITY NETWORK



A NEW PLACE



Gog Magog



White Hill



Agricultural land adjacent to Trumpington



Image credit: Orangeaurochs

Coe Fen is one of the many areas of common land in the city



Image credit: Alex Brown

Fenland is a key feature of the landscape around Cambridge



Image credit: PTWO

Granchester Meadows is a popular destination in the summer



Hobson's Park



Nine Wells



River valley south of the city

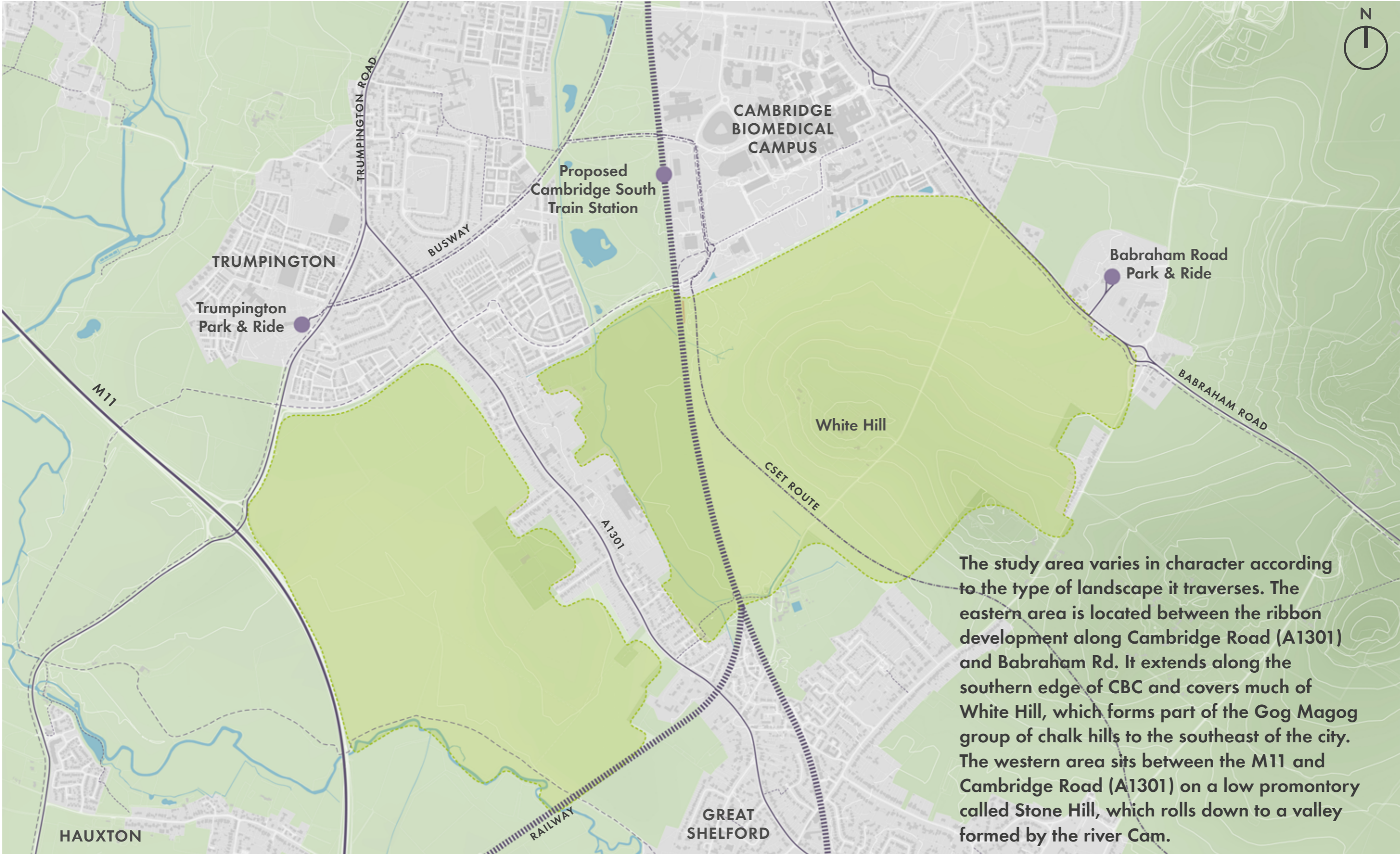
4

THE STUDY AREA

Cambridge South has a unique set of conditions and qualities that make it an integral part of the city's southern edge. The following section describes in more detail such existing conditions, as well identifying the most relevant constraints and opportunities that have been considered to inform the proposals.

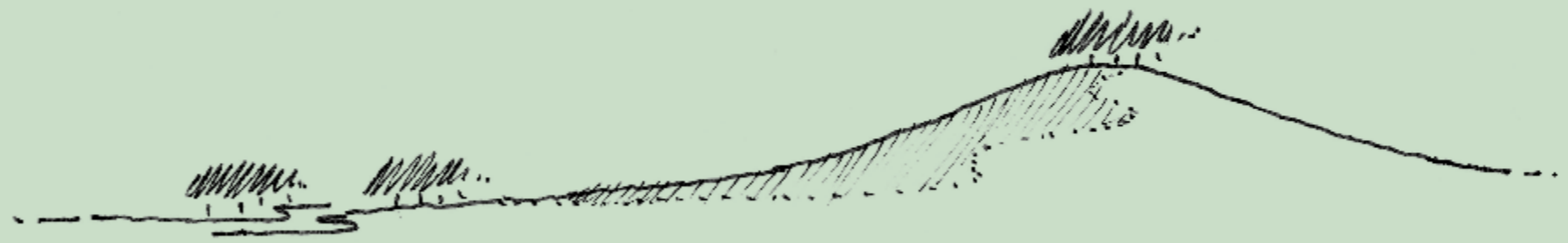


4.1 THE STUDY AREA TODAY



The study area varies in character according to the type of landscape it traverses. The eastern area is located between the ribbon development along Cambridge Road (A1301) and Babraham Rd. It extends along the southern edge of CBC and covers much of White Hill, which forms part of the Gog Magog group of chalk hills to the southeast of the city. The western area sits between the M11 and Cambridge Road (A1301) on a low promontory called Stone Hill, which rolls down to a valley formed by the river Cam.

Study area



Landscape character

The landscape character of South Cambridge is composed of chalk hills, river valleys and claylands. The undulating topography is noticeably different from the fenlands to the north. The River Cam and Hobson's brook runs northward creating distinctive green wedges which carry through the centre of Cambridge.

To the south east are the chalk hills including the Gog Magog Hills and White Hill. These hills are distinctive and predominantly undeveloped. They offer key views across greater Cambridge looking back towards some of Cambridge's most distinctive landmarks. The chalk hills feature areas of woodland interspersed amongst agricultural fields.

To the south-west is the clayland plateau which extend through Bedfordshire as far as Milton Keynes. The claylands are shaped by watercourses with settlements tending to be along the river valleys. The river valleys open up as they approach the fens to the east. The claylands offer a rural tranquillity with dispersed rural settlements framed by wooded areas and ancient woodland on upper ground.

Any development, change, or enhancement within the greenbelt in these landscape character areas should be conscious of their distinctive qualities. The management and enhancement of these areas could draw these unique characteristics close to Cambridge for residents to better access and enjoy.

The recent developments of Trumpington, Great Kneighton and Addenbrookes to the southern edge of Cambridge have established two green fingers which extend into the centre of Cambridge. Trumpington Meadows links to the River Cam which runs through to the Backs. Hobson's Park follows Hobson's Brook to Cambridge Botanical Garden. Each space provides important green and blue infrastructure for their respective developments. The proposed new communities will further frame and enhance these important open spaces to improve the connectivity for residents of Cambridge out of the city to the countryside.

Policy

At a regional and local level, there are ambitious policies to enhance the landscape and natural green spaces. These include targets to:

- double the area of rich wildlife habitats and natural greenspace,
- create better connections to nature and green spaces,
- create integrated water management networks to improve water quality and reduce flood risk,
- design for clean air and carbon sequestration.

4.2 EXISTING CONDITIONS

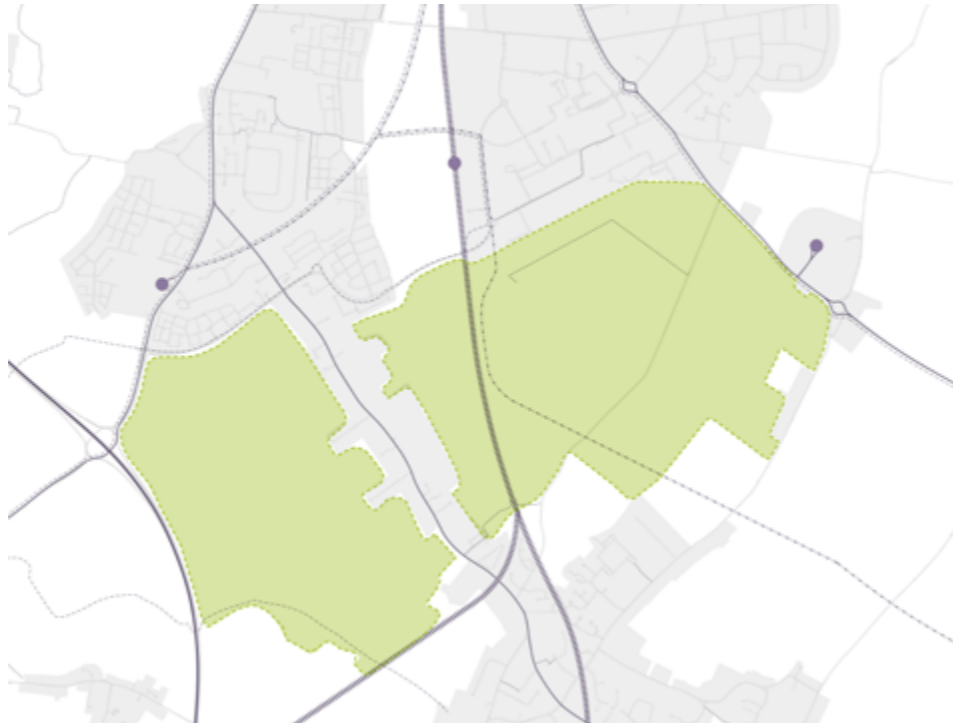


As is common in locations set within rich and complex urban settings, the study area is exposed to a variety of overlapping conditions that any development should consider and respond to. The diagram on this page is a summarised version of the key conditions including existing connections, noise, flooding and topography. The full set of information can be seen in Section 7.

- Study area
- Flooding - river
- Noise - very high
- Noise - moderate
- River and brooks
- Flooding - surface
- Noise - high
- Topographic contours

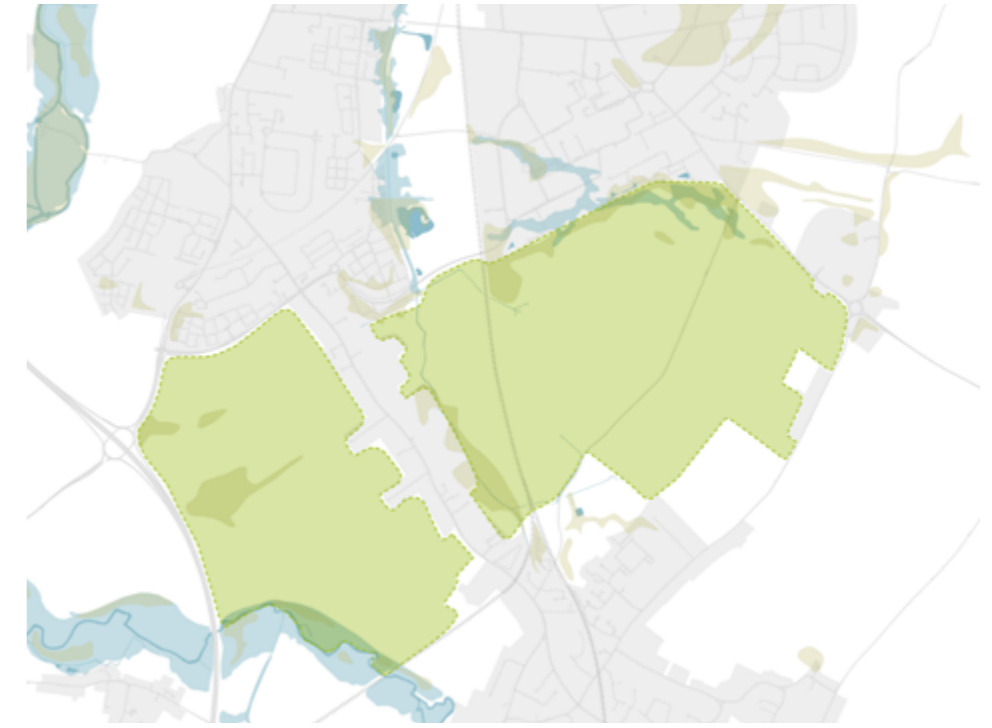
Existing connections

The study area is bound by two main arteries that connect the city to the south: Babraham Rd/Hills Road, and the M11. Other key connections include Addenbrookes Rd which runs east-west along the northern boundary of the western area and connecting to CBC via a bridge across the railway. Associated to these connections are the two existing Park & Ride facilities, one at Trumpington and one at Babraham Road.



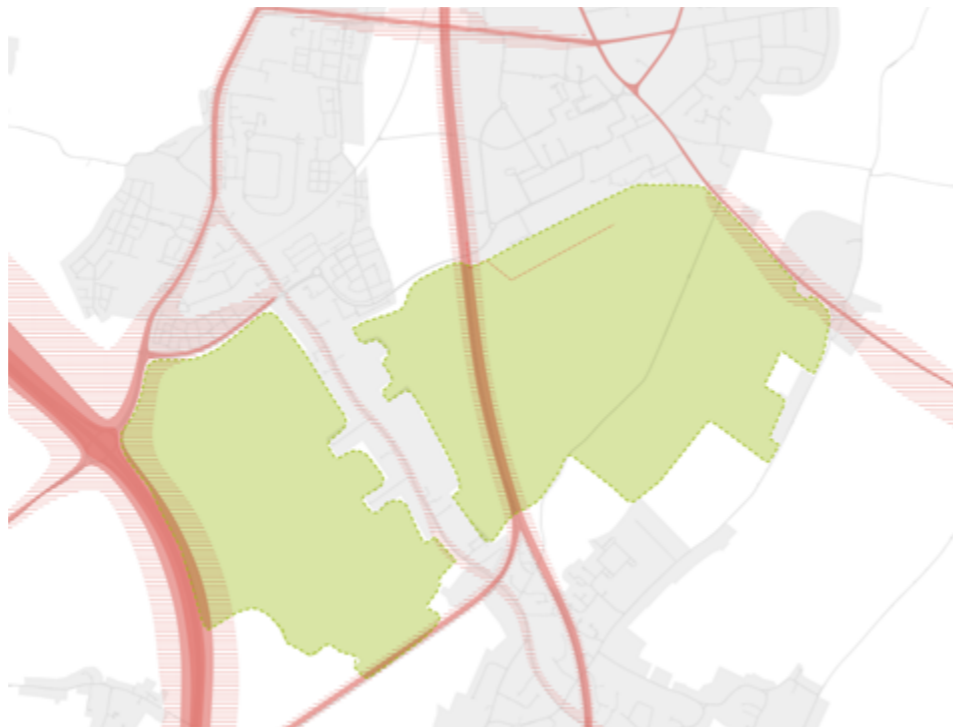
Flooding

The natural terrain and ground conditions create areas that are prone to flooding, either due to proximity to the river or through surface water run-off. These areas are mainly concentrated along the north east corner of the east area and the river valley to the south of the western area. At source mitigation will be a key strategy developed as part of the masterplan in order to manage the risk of flooding.



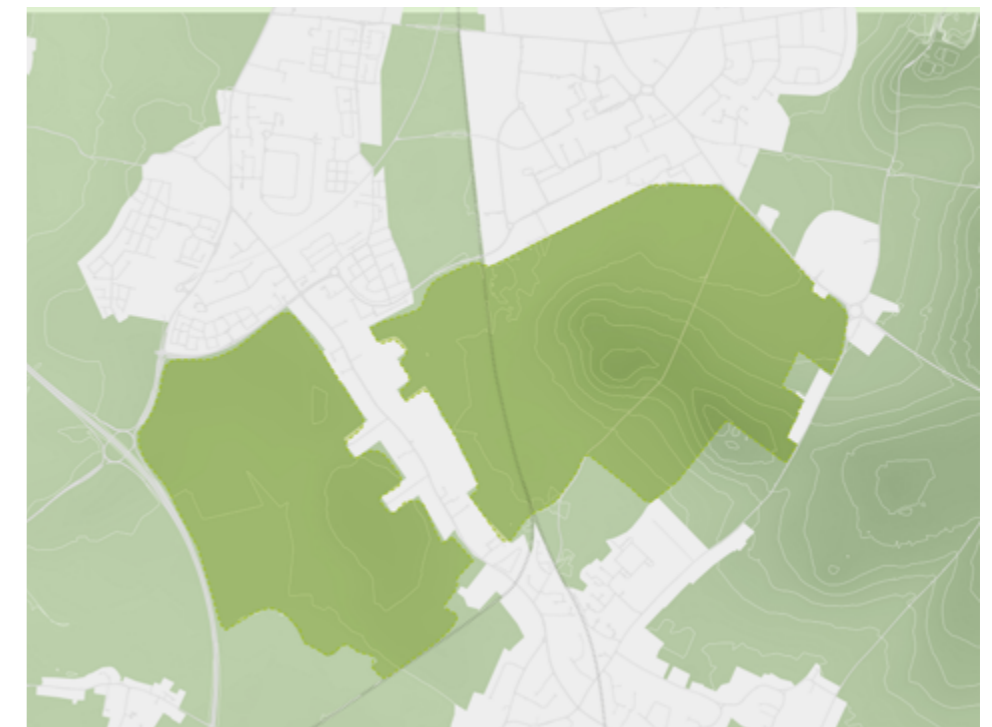
Noise

The noise generated by the main arteries is an important consideration, particularly for the western area due to its proximity with the M11. The latter is the most significant generator of noise in the locality and a careful approach to mitigation will have to be integrated within the design to ensure buildings and amenity spaces are not affected.

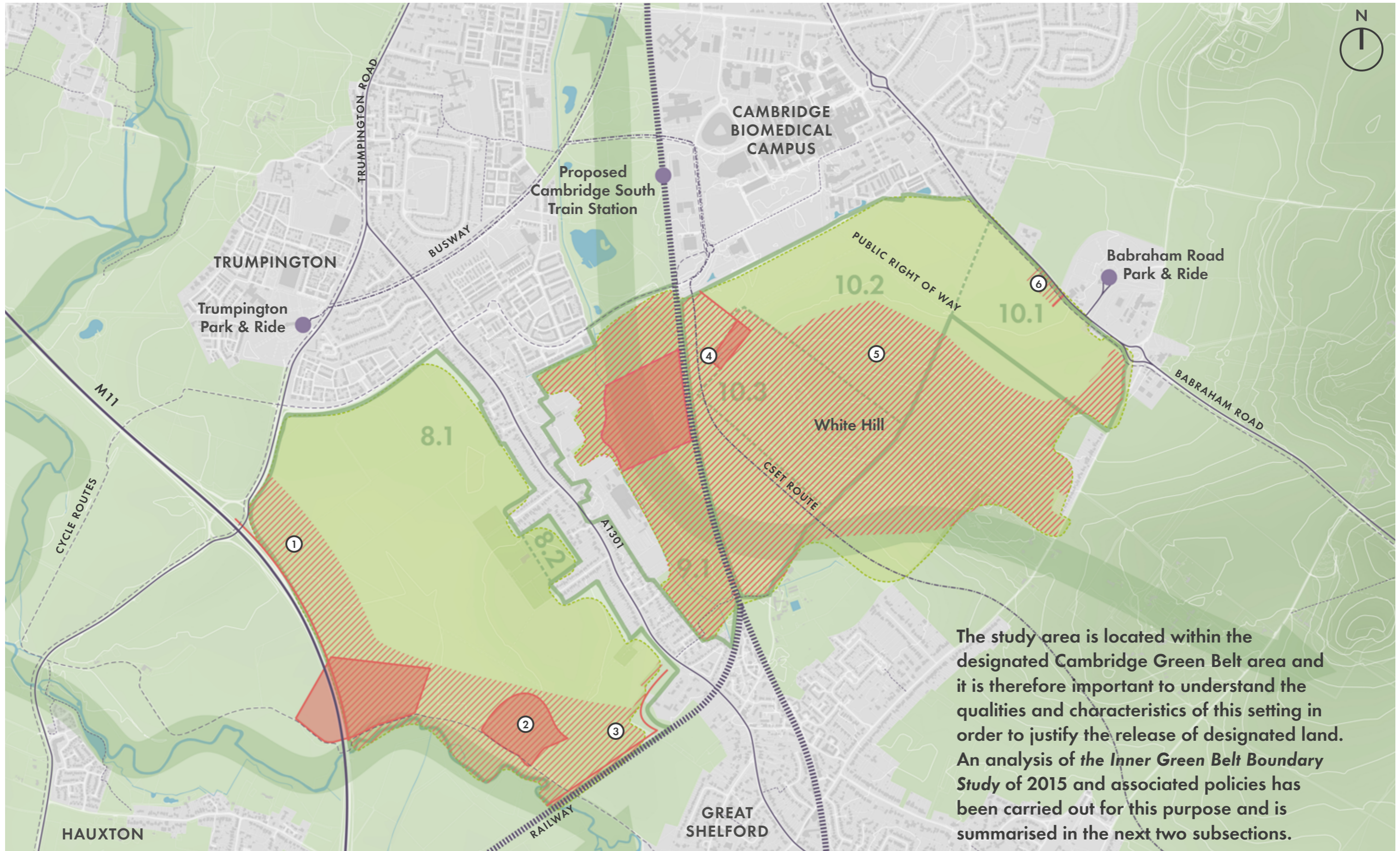


Topography

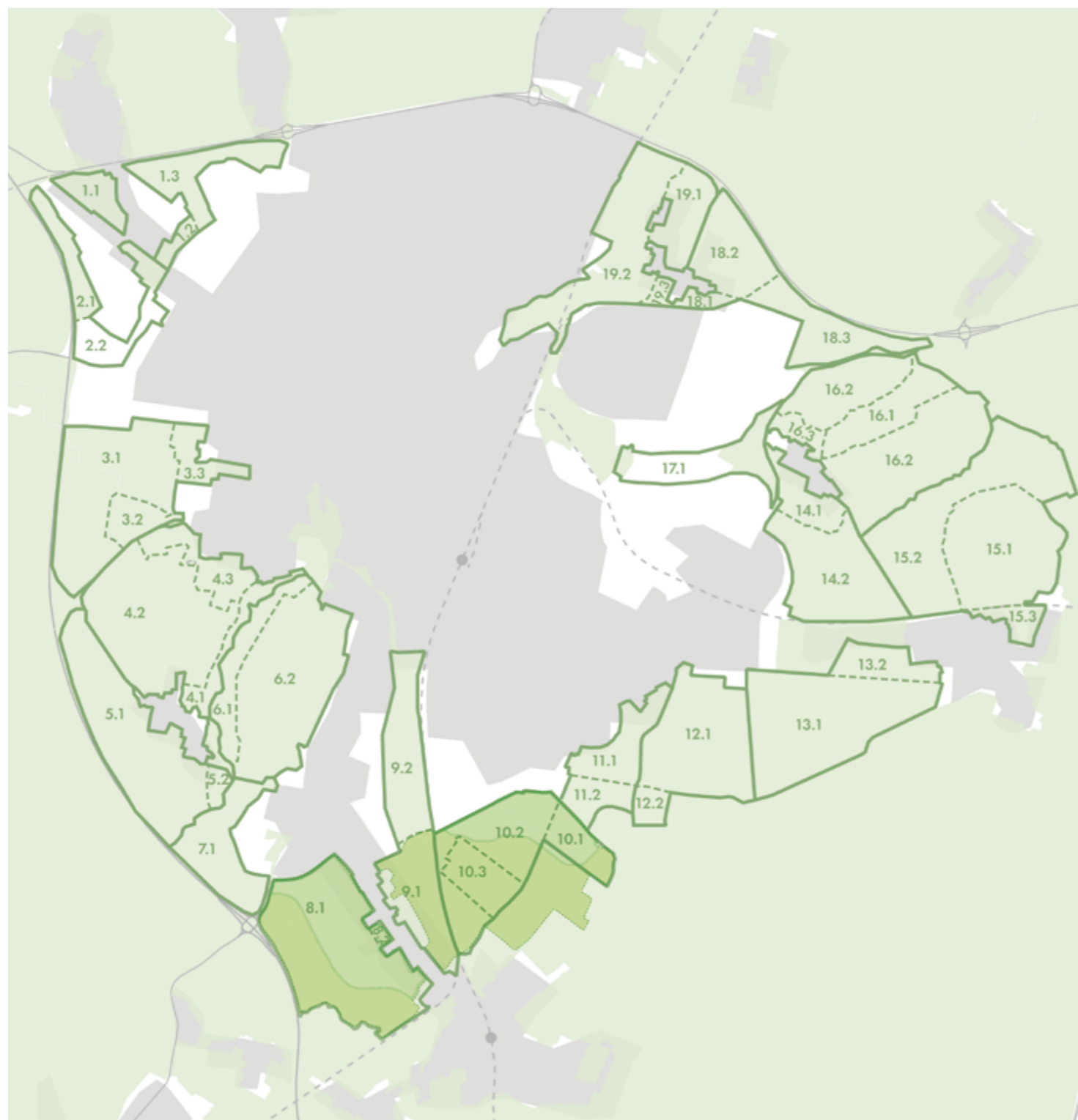
One of the main features of the study area is the proximity to the chalk hills as part of the Gog Magog Hills and in particular White Hill. The elevated terrain creates the opportunity for long range views of the southern prospect of the city that will have to be considered in town scape terms to preserve, repair and enhance the setting of the urban edge.



4.3 GREEN BELT CONSTRAINTS

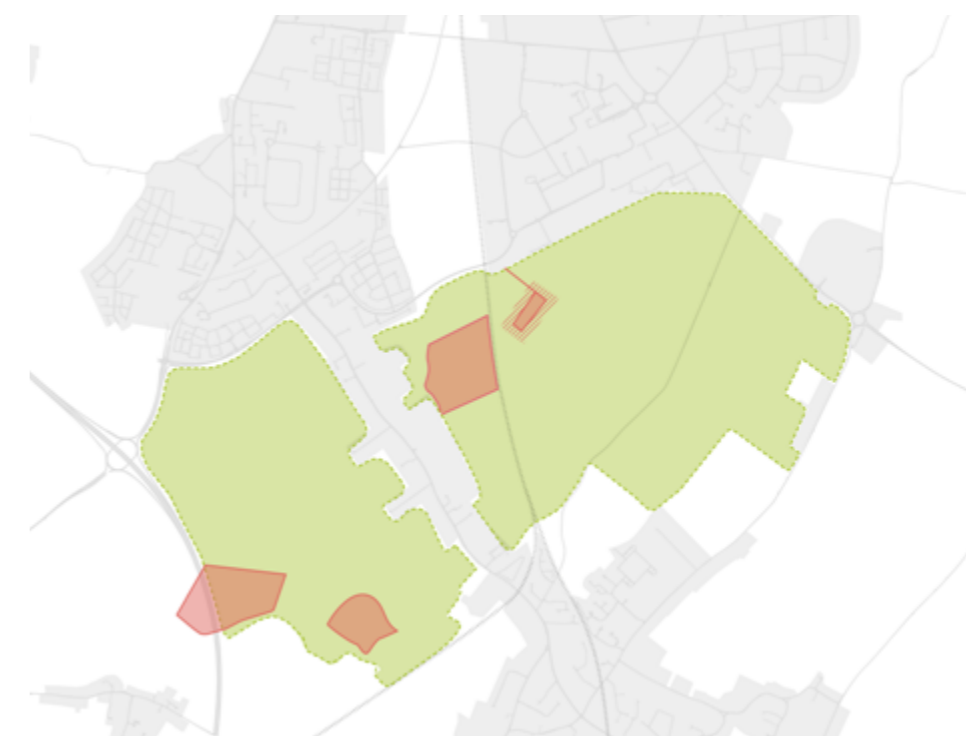


- | | | | | | | |
|--------------------|---------------------------|-------------------------|---|--|--|--|
| Study area | Green corridors | Boundary to development | Indicative development exclusion area (excluding recreational uses) | ① maintain separation between M11 and city edge | ③ maintain separation between Great Shelford & Cambridge | ⑤ development should not encroach on Gog Magog foothills |
| Green Belt sectors | Nature and heritage sites | | | ② keep scheduled monuments free from development | ④ provide buffer between Nine Wells LNR and development | ⑥ provide buffer between Babraham Rd P&R and development |

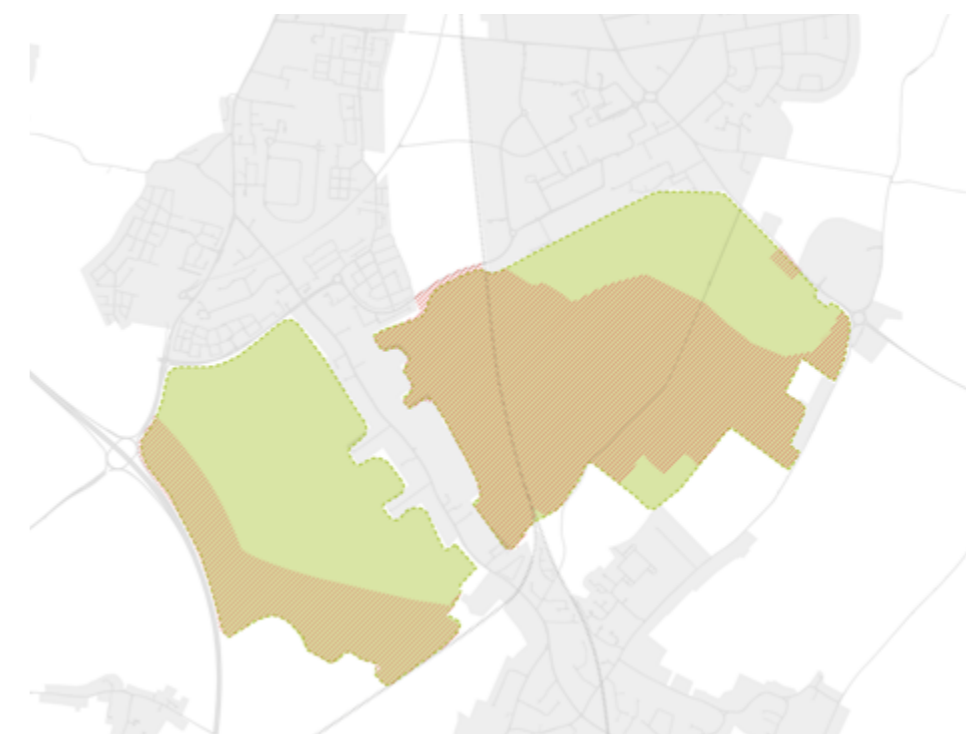


Inner Green Belt Boundary Study area extents with sectors and sub areas

The *Inner Green Belt Boundary Study (Green Belt Study)* has been divided into sectors and sub areas to assess the specific characteristics based on 16 qualities that make the setting of Cambridge special. A point by point analysis has been carried out by the design team and distilled here graphically to outline the potential parameters for land release. The relevant sectors for the site are no. 8 for the west area and no.10 for the east area. The areas hatched in red on the adjacent diagrams, represent interpretative buffer zones where development should be avoided in order to preserve the setting of the city in this location. These are not intended as absolute boundaries since the *Green Belt Study* is not consistently specific about setting parameters, but as principles to be considered when establishing the development boundaries.



Nature and heritage sites



Indicative development exclusion areas

4.4 OPPORTUNITIES FOR GREEN BELT ENHANCEMENTS



As well as establishing principles for keeping development in check in the shape of constraints, the *Green Belt Study* also outlines opportunities for improvement and enhancement of certain locations. Relevant to this study area, it identifies the opportunity to create softer green edges to the south of CBC and the edge of development along Cambridge Road (A 1301).

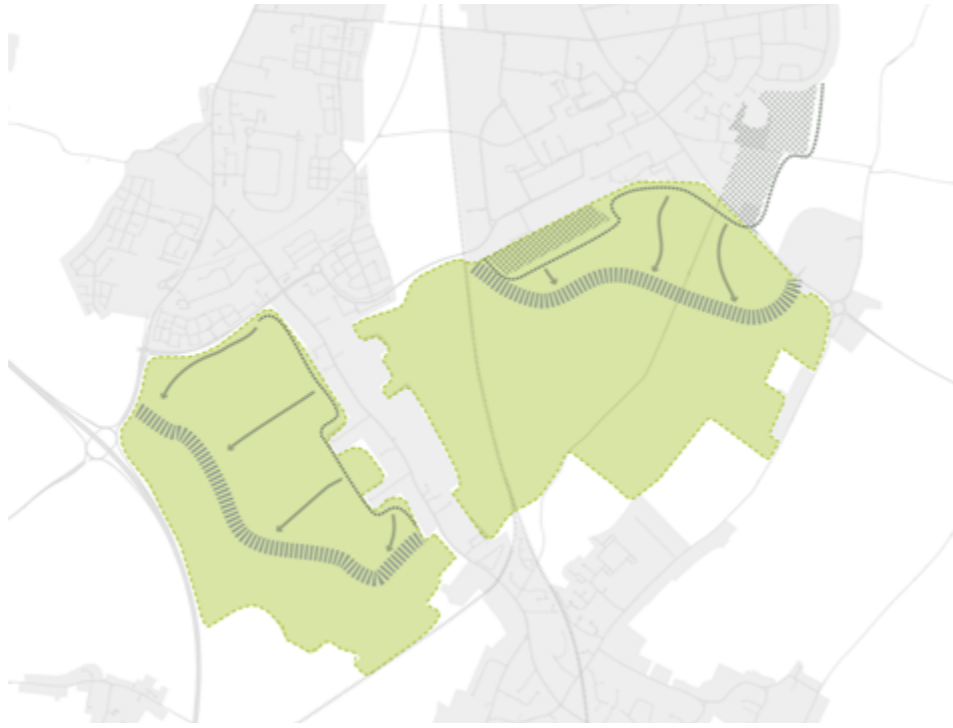
- Study area
- Green corridors
- Green Belt sectors
- Strategic views

- Improved urban gateway
- Improved public access to green corridors
- Hard urban edge
- Strong natural buffer

- ① existing hard edge: opportunity to create an improved soft green edge to city
- ② forthcoming hard edge: opportunity to create an improved soft green edge to city
- ③ improve strategic views whilst retaining CBC as local landmark

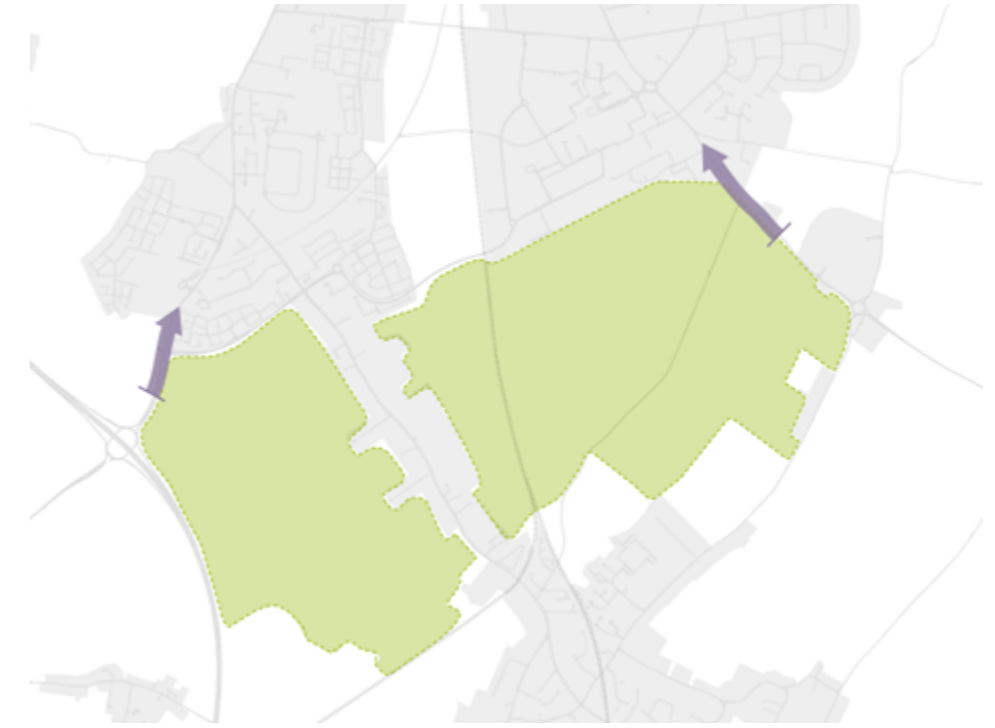
Create soft green edges

The existing urban edges to the south of CBC and the back of the linear development along Cambridge Road (A 1301) are hard and abrupt in contrast with the soft green edges that generally characterise the city. There is an opportunity to create better defined and softer green edges in these two locations by creating a new development tide line further forward.



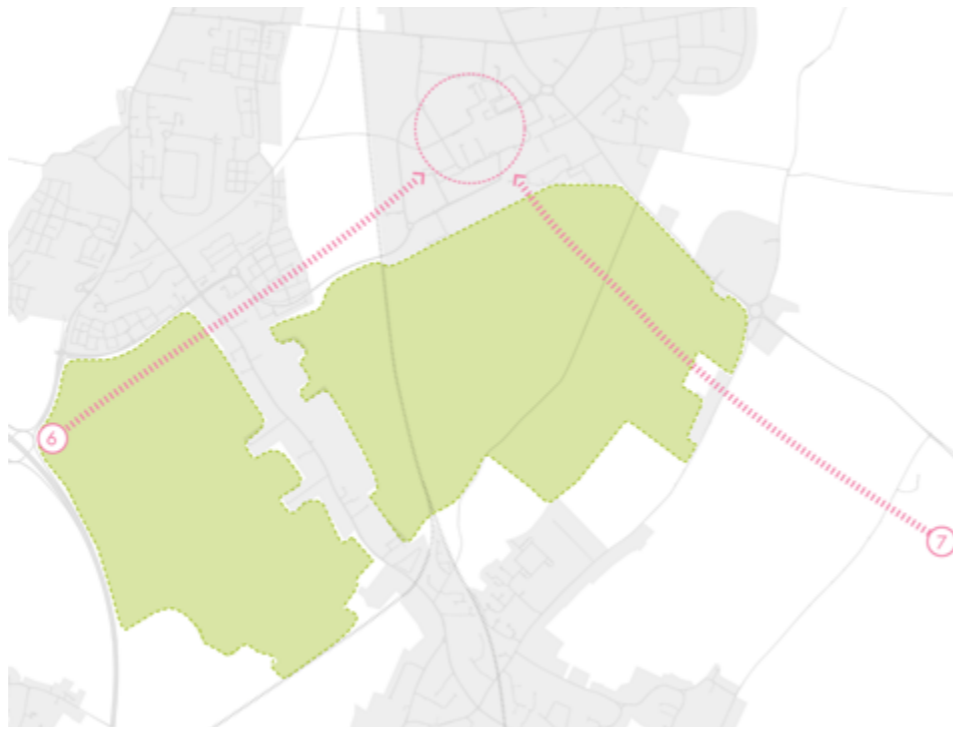
Improved urban gateways

There is an opportunity to establish identifiable access points to the city at both Babraham Road and Addenbrookes Road. The successful transition from treed approaches to urban streets that are characteristic to Cambridge and are identified in the Green Belt Study, could be achieved through the careful placement of green buffers and buildings.



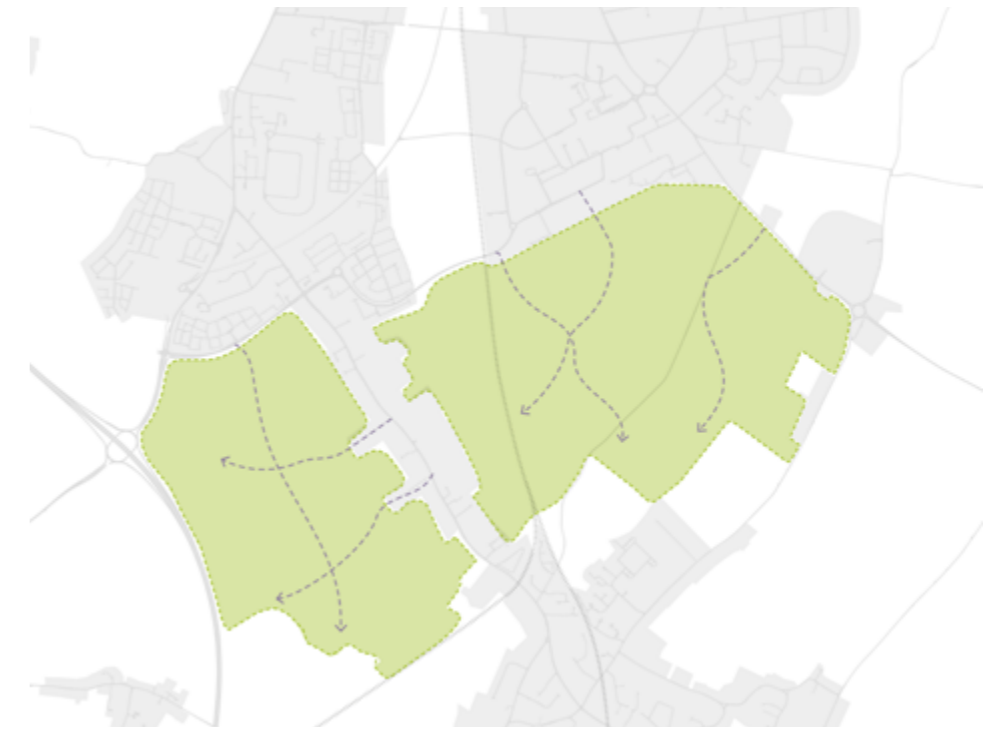
Long range views

Due to the local topography and position of the Site, there are long range views that are important to consider in this location. Two key views have been identified: one from Magog Downs and the other from the elevated intersection from the M11. In relation to the point above relating to soft green edges, there is an opportunity to repair and enhance the edge condition. A detailed analysis of these views is included in Section 5.



Improve Public access to green corridors

The study area as existing is mainly agricultural land and therefore has very limited public access. There is an opportunity to transform the character of the buffer areas into accessible and enhanced Green Belt zones where people and nature can cohabit.



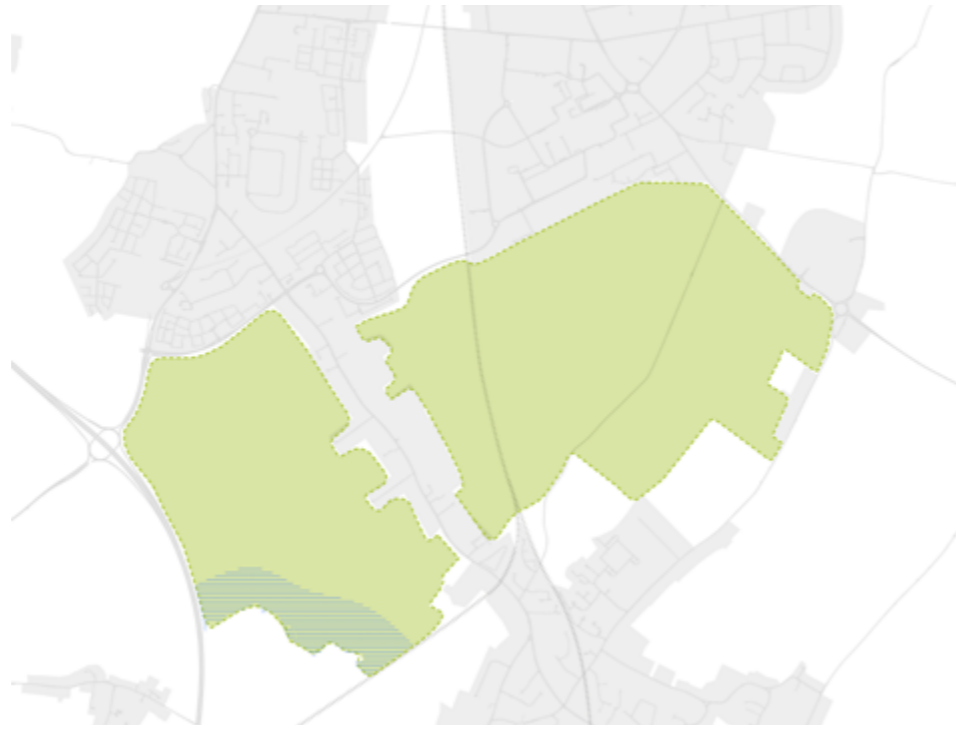
4.5 OTHER KEY OPPORTUNITIES



- Study area
- Wildlife sites
- Nature reserve
- Water
- Sport fields
- Woodland area
- SSSI
- Woodland
- County park
- Recreation sites
- Orchards and allotments
- Wetland area
- Woodland connection
- Strategic Nature link

Expansion of river plain

Subject to further studies and discussions with relevant authorities including the Environment Agency, opportunities exist to improve the quality of the water course of the River Cam and Hobson's Brook including restoring natural floodplain and provision of additional flood storage to reduce flood risk for downstream communities. This could improve biodiversity and water quality as well as improve the aesthetic quality of the river corridor.



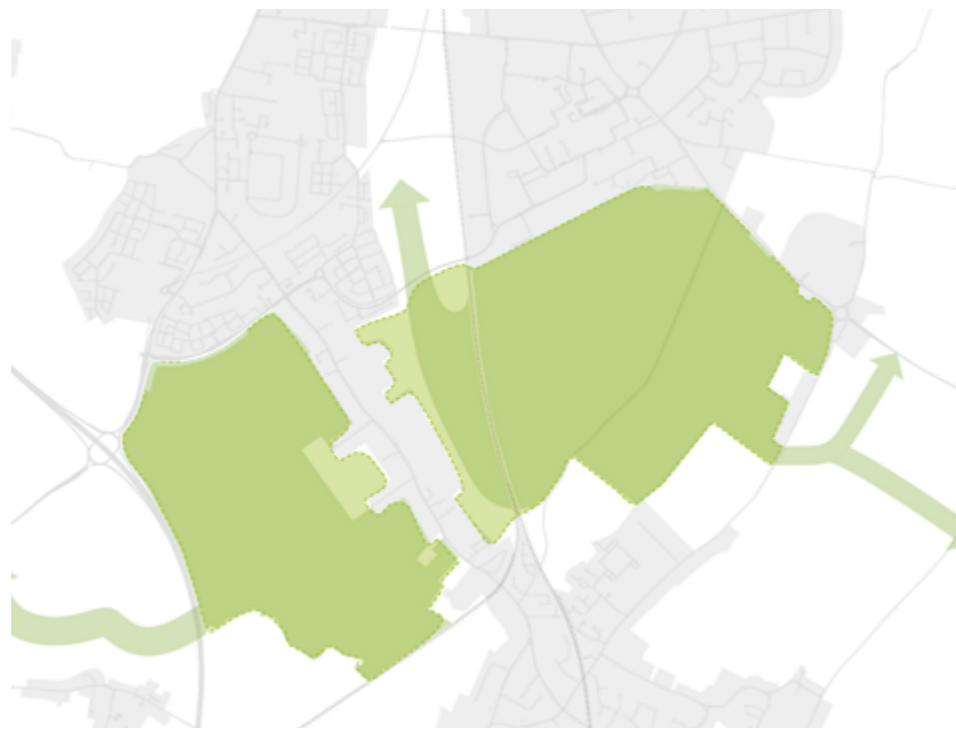
Woodland connections

The chalk hills which include White Hill and the Gog Magog Hills are characterised by pockets of woodland including Nine Wells Nature Reserve interspersed by agricultural fields. The opportunity exists to plant new woodlands which link the pockets together to create a more diverse wood encouraging species movement and sequestering carbon for years to come.



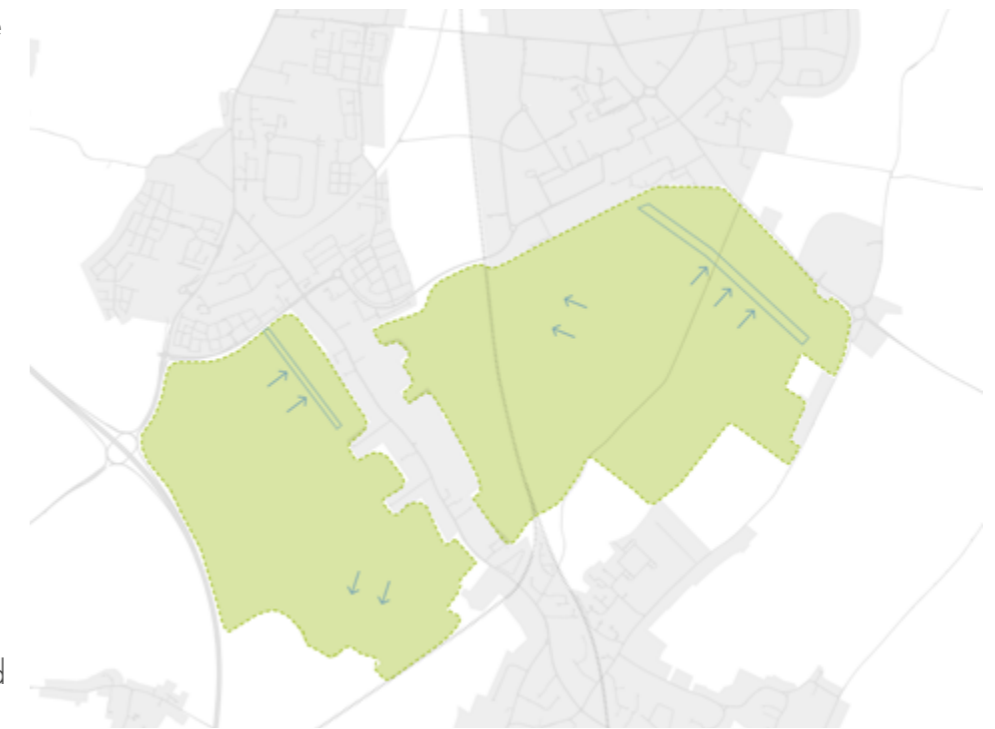
Chalk grasslands

Opportunities exist to restore areas of arable farmland into large, interconnected chalk grasslands - in particular the scheduled monument areas. Chalk grasslands are important ecological habitats in South Cambridgeshire. Increasing and interconnecting the gross area of chalk grasslands in South Cambridgeshire will be beneficial to biodiversity and species movement.

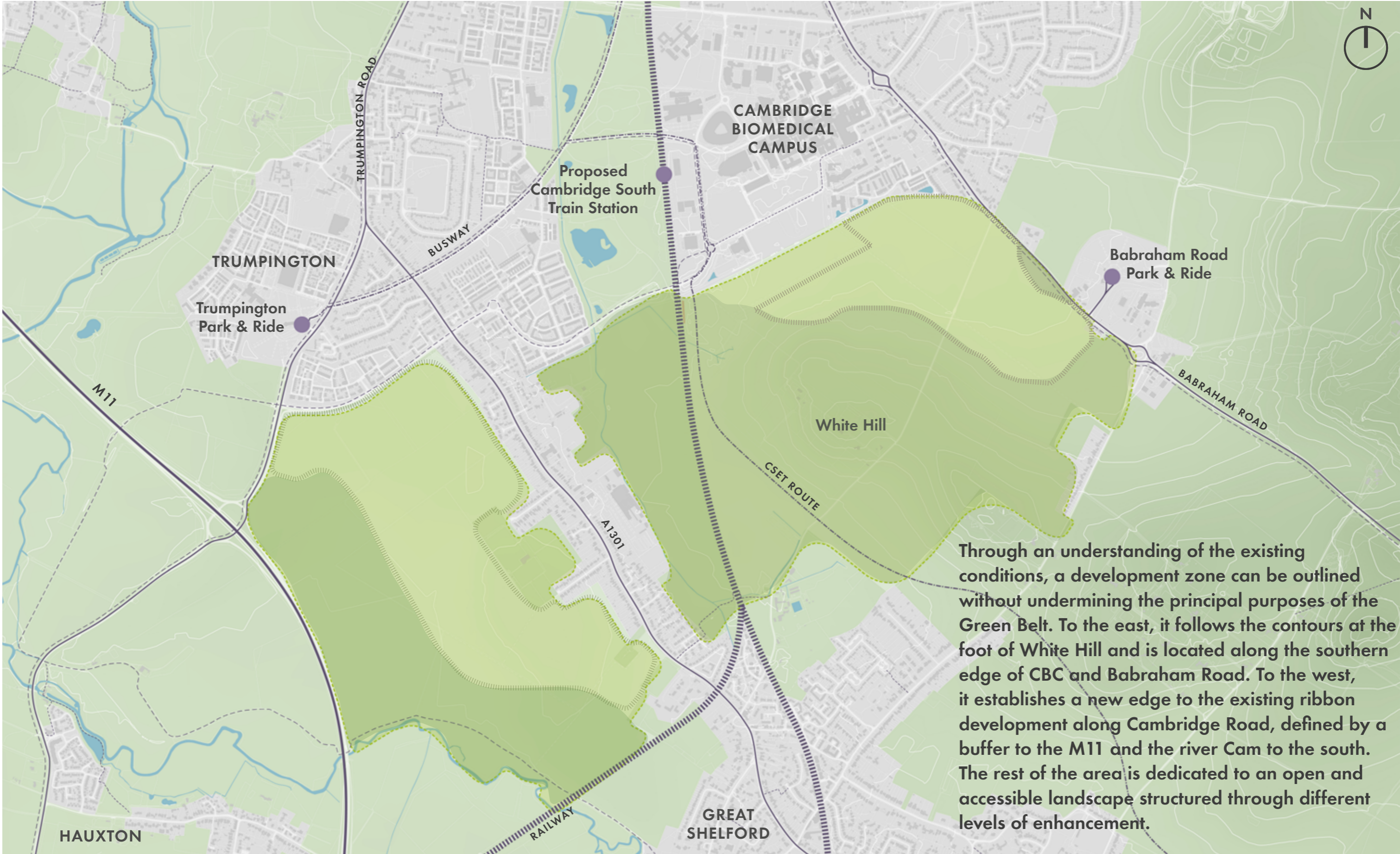


Future blue-green infrastructure

The future community will require new networks of open spaces offering opportunities for active and passive recreation, as well as ecological and stormwater management. The green and blue infrastructure network improves linkages between the City of Cambridge and the Green Belt where strategies can be directed to provide greater benefit through Green Belt enhancement which will regenerate the local ecology in and around the development sites.



4.6 DEFINITION OF DEVELOPMENT ZONES



Through an understanding of the existing conditions, a development zone can be outlined without undermining the principal purposes of the Green Belt. To the east, it follows the contours at the foot of White Hill and is located along the southern edge of CBC and Babraham Road. To the west, it establishes a new edge to the existing ribbon development along Cambridge Road, defined by a buffer to the M11 and the river Cam to the south. The rest of the area is dedicated to an open and accessible landscape structured through different levels of enhancement.

-  Study area
-  Enhanced Green Belt
-  Development zones



A LANDSCAPE-LED MASTERPLAN

Having outlined the main parameters, this section will establish the conceptual narrative of the masterplan and how it is shaped from the outside in, through an understanding and response to its setting within the context of the city.

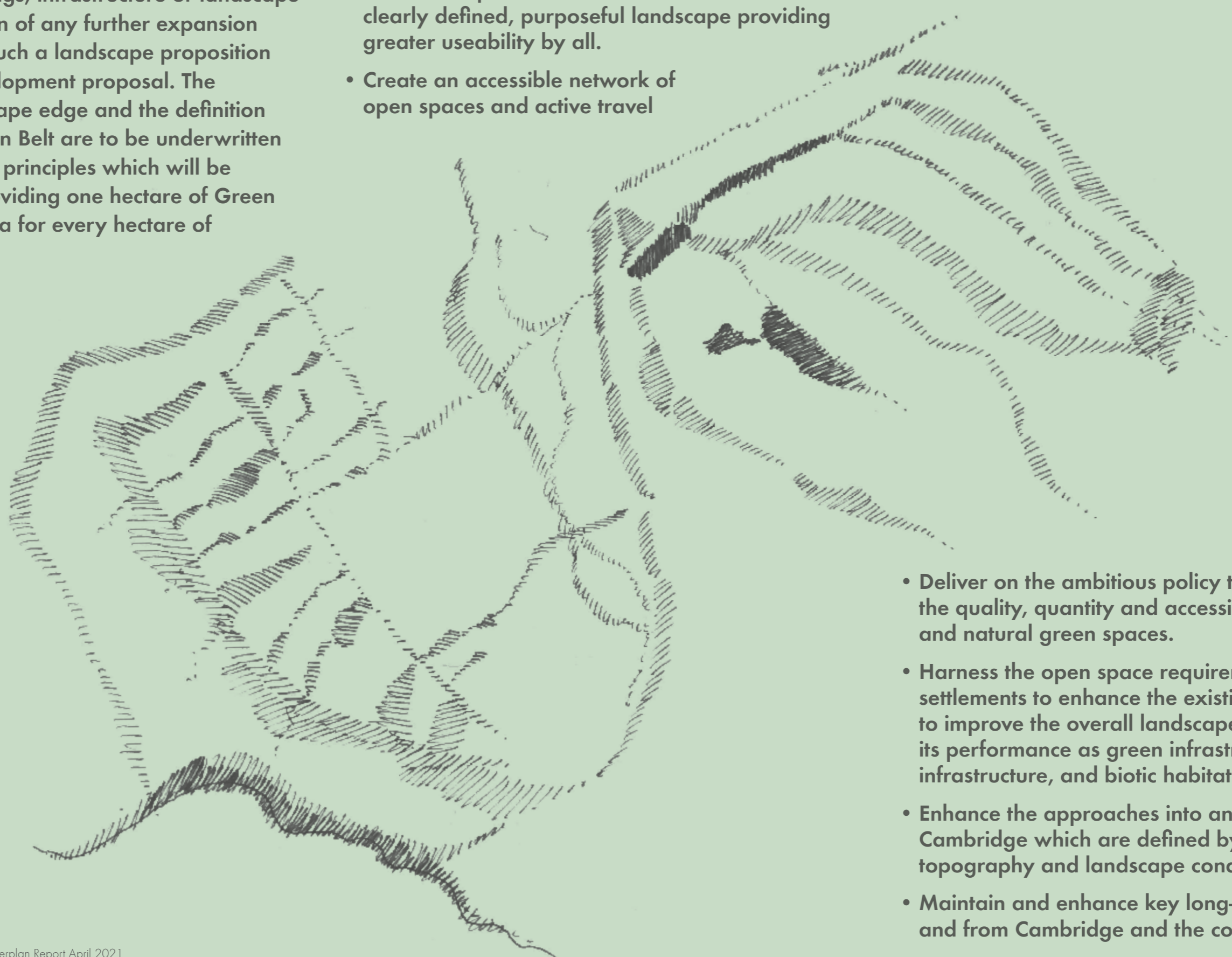


5.1 LANDSCAPE PRINCIPLES

One of Cambridge's most distinctive features is the definition of its edge and the relationship between city and countryside. Hundreds of years of expansion have left markings through the position of key buildings, infrastructure or landscape features. The definition of any further expansion of Cambridge is as much a landscape proposition as it is an urban development proposal. The shaping of the landscape edge and the definition of the enhanced Green Belt are to be underwritten by defined landscape principles which will be delivered through providing one hectare of Green Belt enhancement area for every hectare of development:

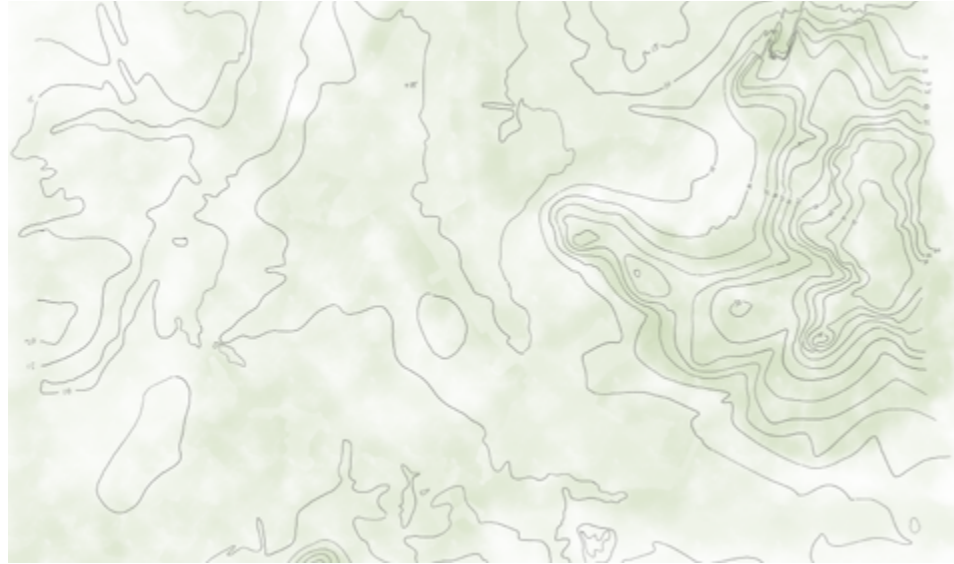
- Protect, manage, and connect isolated patches of landscape such as hedgerows, designated nature reserves, SSSI, areas of tree planting, and water courses.
- Maintain separation between settlements with clearly defined, purposeful landscape providing greater useability by all.
- Create an accessible network of open spaces and active travel

routes which encourage healthy living, provide better access to nature, and provides recreation infrastructure and play opportunities for all residents regardless of age, sex, or race.



- Deliver on the ambitious policy targets to improve the quality, quantity and accessibility of landscape and natural green spaces.
- Harness the open space requirements of new settlements to enhance the existing arable fields to improve the overall landscape quality and its performance as green infrastructure, blue infrastructure, and biotic habitat.
- Enhance the approaches into and out of Cambridge which are defined by their topography and landscape condition.
- Maintain and enhance key long-range views to and from Cambridge and the countryside.

5.2 A NATURAL EXTENSION TO CAMBRIDGE



Topography

Although the topography in South Cambridge is subtle, the gently undulating surface has largely determined the pattern and character of human settlement. Watershed, ridge lines, and promontories are articulated as commons grazing land, stable ground for settlements and causeway transportation routes. The topography shapes key views and ultimately the pattern of future southerly expansion of Cambridge.



Landscape character

The unique landscape characteristics of the chalk hill, claylands, and river valleys should define not only the proposed landscape response but also the relationship between development edge and countryside.



Landscaped approaches

Each route in and out of Cambridge is defined by unique landscape characteristics which relate to the differing landscape conditions around the city. What is common to all is that the natural landscape slowly becomes organised with areas of woodland transitioning to legible individual trees, and tree lined streets. The approaches from the south differ as Hauxton Road rises towards the city and Babraham Road descends. These subtleties should be embraced and enhanced.



Watershed

The River Cam and Hobson's Brook flow northward, fed by the runoff of the low chalk hills south of Cambridge. A gentle ridge, marked by the route of Cambridge Road, separates the two watercourses pushing the River Cam to the west and Hobson's Brook northward to the centre of Cambridge. This area attracted historic Bronze Age and Roman settlements.



Cultural heritage

The hidden stories of South Cambridgeshire's past should be protected, enhanced, and interpreted for all to experience.



A landscaped prospect of the city

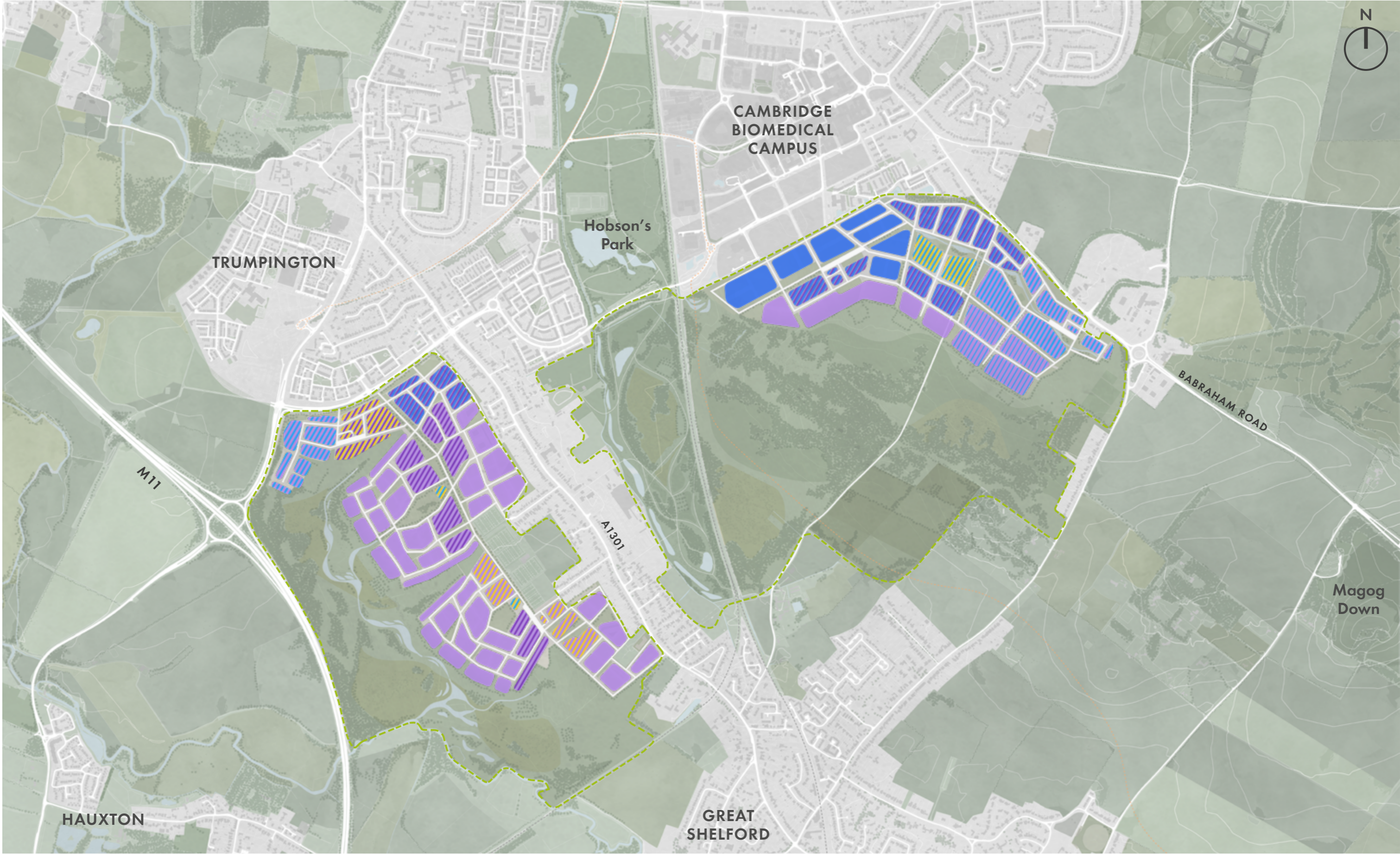
Create a clearly defined landscape structure as an edge to the prospect of Cambridge which screens or softens the transition from development to countryside. This is a distinctive characteristic of Cambridge which is evident as far back as the illustrations of the *Prospect of Cambridge* from 1688 which show layers of settlement overlaid with formal and informal planting.

5.3 THE ILLUSTRATIVE MASTERPLAN



This new neighbourhood of Cambridge will provide over 4.8 million sqft of employment space to support the projected needs of CBC over the next 30 years, through a range of uses including clinical, R&D, conferencing, hotel, leisure and retail. 5000 new homes with associated social infrastructure including open spaces and new schools, will complement the commercial uses to create the conditions to house a new thriving and sustainable community.

5.4 USES AND CHARACTER AREAS



- Predominant Life Sciences commercial
- General commercial and low density homes
- Predominant low density homes
- Community and low density homes
- Life Sciences other commercial and high density homes
- General commercial and community
- High and low density homes
- Community and high density homes