CBC EMERGING SPATIAL FRAMEWORK

PART 1:

CONTEXT REVIEW, DESIGN PRINCIPLES AND EMERGING FRAMEWORK PLAN

Allies and Morrison
October 2023

Allies and Morrison











Introduction

DOCUMENT PURPOSE, PART 1

Note on Further Development of the Emerging Spatial Framework

This document sets out the further development of the emerging spatial framework for the Cambridge Biomedical Campus. It takes into account the spatial framework prepared by Hawkins Brown Architects in response to a brief prepared by CBC Ltd, which was submitted to Greater Cambridge Shared Planning (GCSP) in December 2022 and documents the work carried out thereafter through a series of workshops with GCSP. This further work has been prepared by Allies and Morrison responding to collaborative working between CBC Ltd and the Landowner Collaboration Board (LCB). The purpose of this further work is to undertake a through review of the existing site constraints and opportunities across a number of thematic layers, set out by GCSP, to inform the preparation of a Framework Plan for CBC.

The following five thematic layers were explored, during this first stage of work, to appraise the proposals leading up to the Framework Plan:

- Green and Blue Infrastructure
- Communities
- Land Uses
- Connectivity
- Scale, Capacity and Edge Treatment

Additionally, further work has outlined on plot development phasing, in conjunction with infrastructure delivery related to connectivity, open space, SuDS and community facilities, which has further informed the development of the emerging Framework Plan.

Purpose of the Emerging Spatial Framework

The emerging spatial framework will ensure that the individual proposals which have been developed or that are in development within the campus, ranging from outline planning consents to early feasibility work, consider the campus as whole.

As part of this, and following the objectives set in the Vision 2050, the spatial framework will seek to consolidate the role of the Cambridge Biomedical Campus as a world-leading centre of life sciences research and medical innovation. The spatial framework places healthcare at the core of the campus and adheres to principles of placemaking that promote health and well-being. It aims to deliver a campus well integrated with its surrounding landscape and to create a legible and attractive environment for health and recovery, work and leisure, whilst also enhancing biodiversity to promote a sustainable, attractive and measured development for the near future.

Based on a strategy of sensitive and contextual growth, it illustrates a commitment to development that aims to improve this part of the city, creating a better environment not just for CBC, but for its surrounding communities.

Emerging Spatial Framework Design Principles:

The Emerging Spatial Framework is underpinned by a series of design principles that have been outlined under the headlines below. Each of the design principles adheres to a thematic layer (as set out so far by GSCP) and translates into clear spatial strategies that structure the emerging Framework Plan:

- 1. Support Health and Well-being Through Environment (Green and Blue Infrastructure)
- 2. Engage the public (Communities)
- 3. Promote Collaboration between Life Sciences
 Research and Medical Innovation (Land-Uses)
- 4. Prioritise Sustainable Movement (Connectivity)
- **5. Ensure Attractive and Measured Development** (Scale, Capacity and Edge Treatment)
- **6. Promote Whole Life Carbon** (Energy and Carbon)*

*Whilst sustainability is at the core of each of the principles, the thematic layer pertaining to Energy and Carbon is yet to be explored in more detail and will follow in the next stages of work.

Introduction

DOCUMENT PURPOSE, PART 1

Document Structure:

The work forms a dossier of 3 separate documents to be read together:

- 1. Context Review, Design Principles and Emerging Framework Plan
- 2. Evidence Base by Thematic Layer (includes information to review all 5 thematic layers discussed with GCSP to date.)
- 3. Development Quantum, Phasing and Infrastructure Delivery

These documents entail a compendium of all information that has been generated to accompany workshops with GCSP, including information ,following relevant feedback that was discussed.

The following workshops have been carried out to date, guiding the work that has been generated post December 2022:

Meeting 2 on 16th March: Feedback on constraints work, vision and principles

Meeting 3 on 12th April: Design Workshop with GCSP: (Themes explored: Green and Blue Infrastructure, Communities, Land Uses)

Meeting 1 on 2nd March: Programme of engagement and objectives; Memorandum Of Understanding (MOU); Headline feedback on 2022 submission.

Meeting 4 on 20th April: Design Workshop with GCSP: (Themes explored: Connectivity, Scale Capacity and Edge Treatment.)

Meeting 5 on 9th May: Follow up meeting on Key Issues.

Meeting 6 on 24th May: Policy Preparation: Evidence and other inputs required.

Meeting 7 on 20th June: Mini Workshop on Key Moves.

Introduction

STRUCTURE

The further development of the Emerging Spatial Framework has been structured as three separate documents, as listed below. The following pages, which form part 1, outline a short context review to demonstrate what the Design Principles of the Emerging Framework Plan are responding to.

The context plans are shown in more detail in document 2.

1. CONTEXT REVIEW, PRINCIPLES AND EMERGING FRAMEWORK PLAN

- 1.1 CONTEXT REVIEW
- 1.2 DESIGN PRINCIPLES AND EMERGING FRAMEWORK PLAN

2. EVIDENCE BASE BY THEMATIC LAYER

- 2 1 GREEN INFRASTRUCTURE
- 2.2 COMMUNITY
- 2.3 LAND USES
- 2.4 CONNECTIVITY
- 2.5 SCALE, CAPACITY AND EDGE TREATMENT

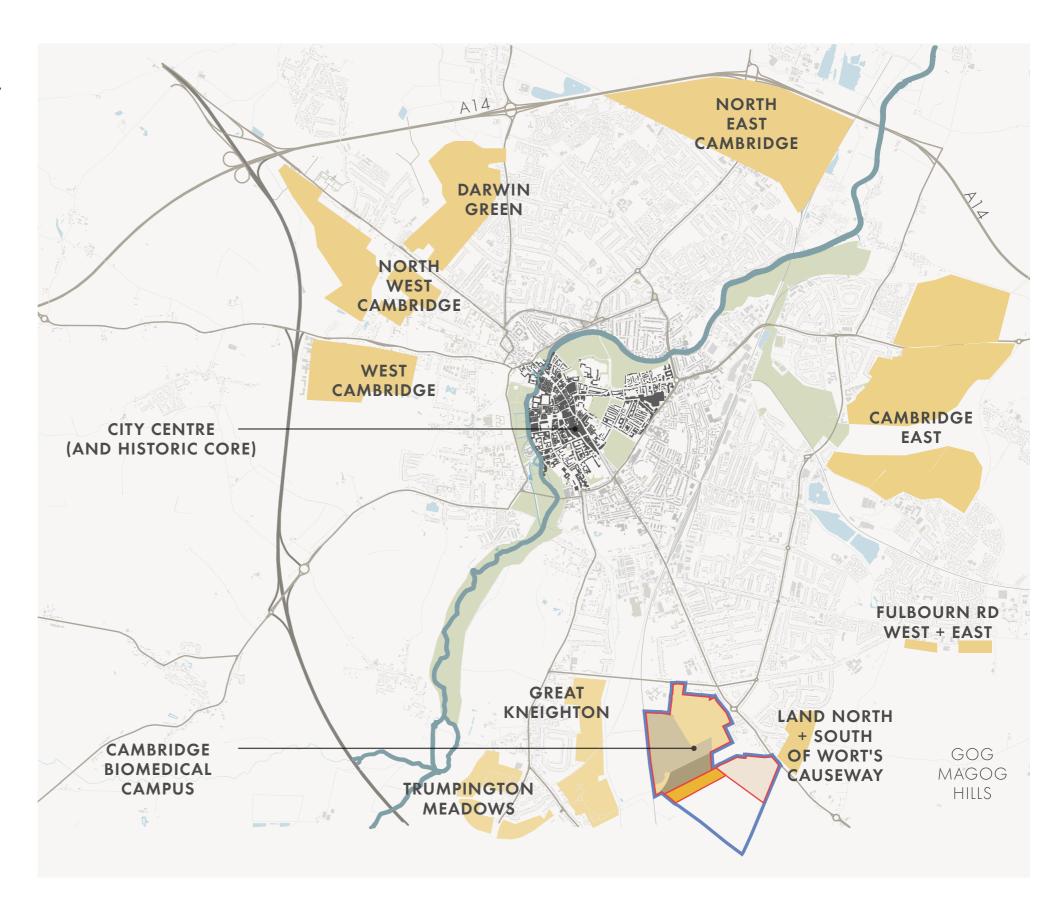
3. DEVELOPMENT QUANTUM, PHASING AND INFRASTRUCTURE DELIVERY

- 3.1 existing and consented campus land uses
- 3.2 PROPOSED AREAS OF ENHANCEMENT
- 3.3 key interventions relating to connectivity
- 3.4 illustrative phasing
- 3.5 DEVELOPMENT QUANTUM

1.1 CONTEXT REVIEW

Cambridge Strategic Growth

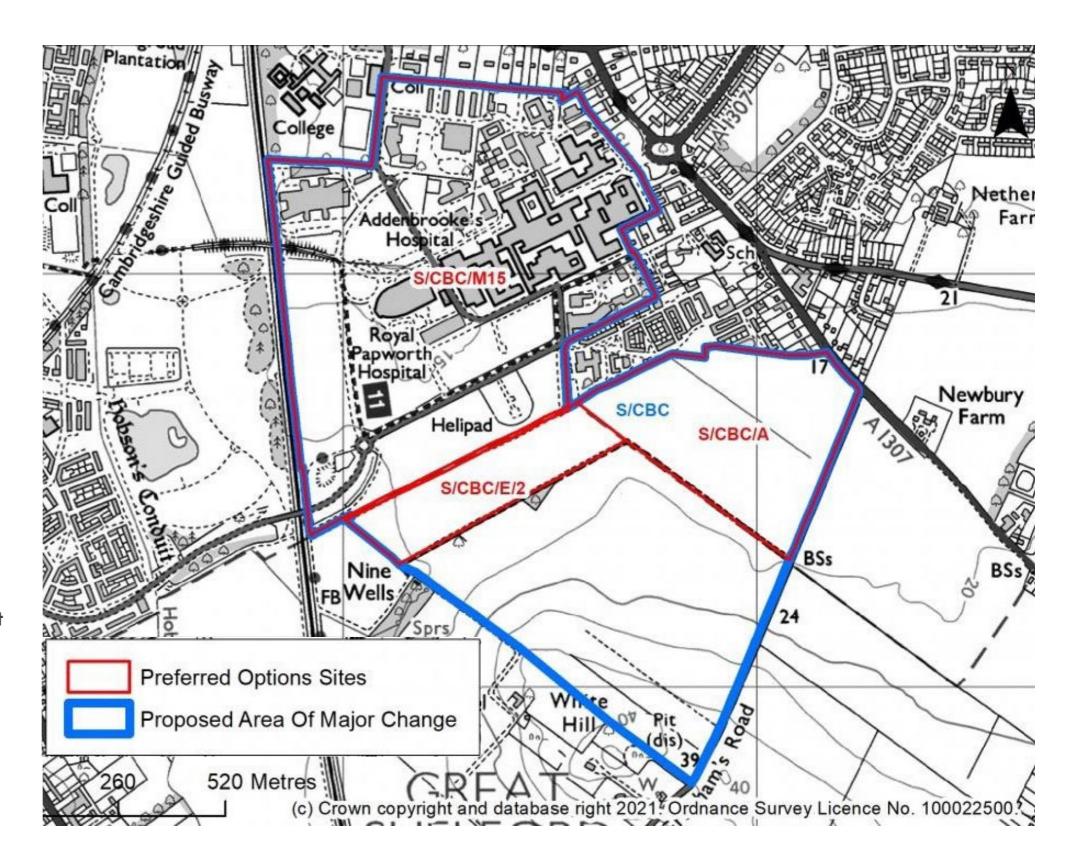
- The Cambridge Biomedical Campus (CBC)
 forms part of the southern edge of Cambridge.
 It is c. 2miles south of the City Centre.
- The site has been identified as a potential strategic development site in the Greater Cambridge Local Plan (GCSP) First Proposals, published in November 2021.
- GCSP's strategic allocations identified a series of existing and new sites, suitable for additional development, to meet the growth needs of the city up to 2041, for consultation with residents and stakeholders.
- These included the land at CBC that is already allocated for development in the adopted South Cambridge District Council (SCDC) and Cambridge City Council (CCC) Local Plans (phases 1, 2 and 3) and an additional area of land to the south that is being considered for partial development and partial Green Belt enhancement. Together they form the CBC Area of Major Change.
- CBC Proposed area of major change
 CBC Preferred option sites
- Cambridge strategic growth areas
- CBC Phase 1 Land
- CBC Phase 2 Land
- CBC Phase 3 Land
- CBC Phase 4 Land



Proposed Area of Major Change and Allocated Sites

In proposing the potential allocation of land for the expansion of CBC, GCSPs draft Local Plan (First Proposals) establishes that any release would be subject to demonstrating:

- Significant Green Belt enhancement on adjoining areas of White Hill and Nine Wells to provide green infrastructure and biodiversity improvements.
- A comprehensive landscaping plan, including the delivery of new publicly accessible green space.
- The creation of a soft green edge of the city, to minimise the urbanising effects of the development.
- Design parameters (scale and height of the buildings) that respond to the landscape and townscape of Cambridge.
- The successful implementation of a Trip Budget approach.
- Opportunities on the existing campus have been fully explored and utilised.
- Opportunities to improve the wellbeing of campus users and surrounding communities have been incorporated.

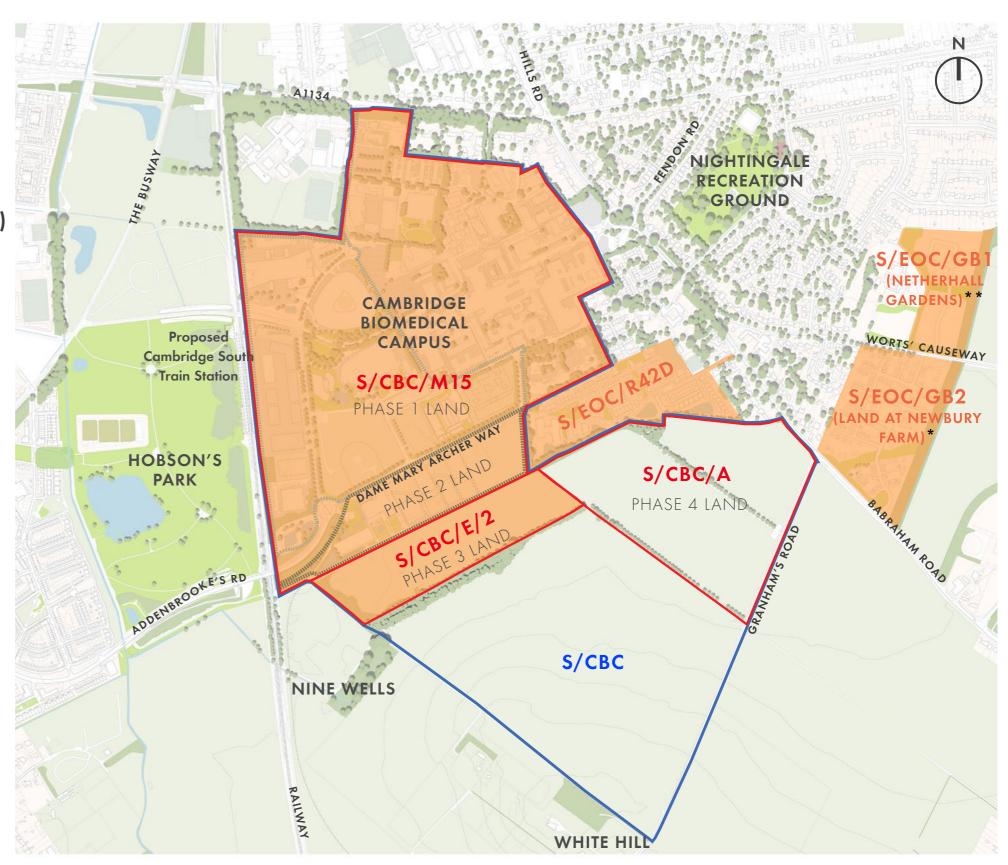


Proposed Area of Major Change and Neighbouring Allocated Sites

- The Proposed CBC Area of Major Change is defined by the following parcels
 - S/CBC/M15 (69.5 Ha)
 - S/CBC/E/2 (9.3 Ha)
 - S/CBC/E/A (20 Ha: Further Green Belt Release)
 - S/CBC (incl. 39.4 Ha: Green Belt Enhancement Land)
- The combined site area (blue outline) is 138 Ha.
- Neighbouring existing allocations include:
 - S/EOC/R42D (Ninewells),
 incl. 270 homes and 100 beds student
 - S/EOC/GB1 (Netherhall Gardens) to include 200 homes.
 - S/EOC/GB2 (Land at Newbury Farm) to include 230 homes.
- CBC Proposed area of major change

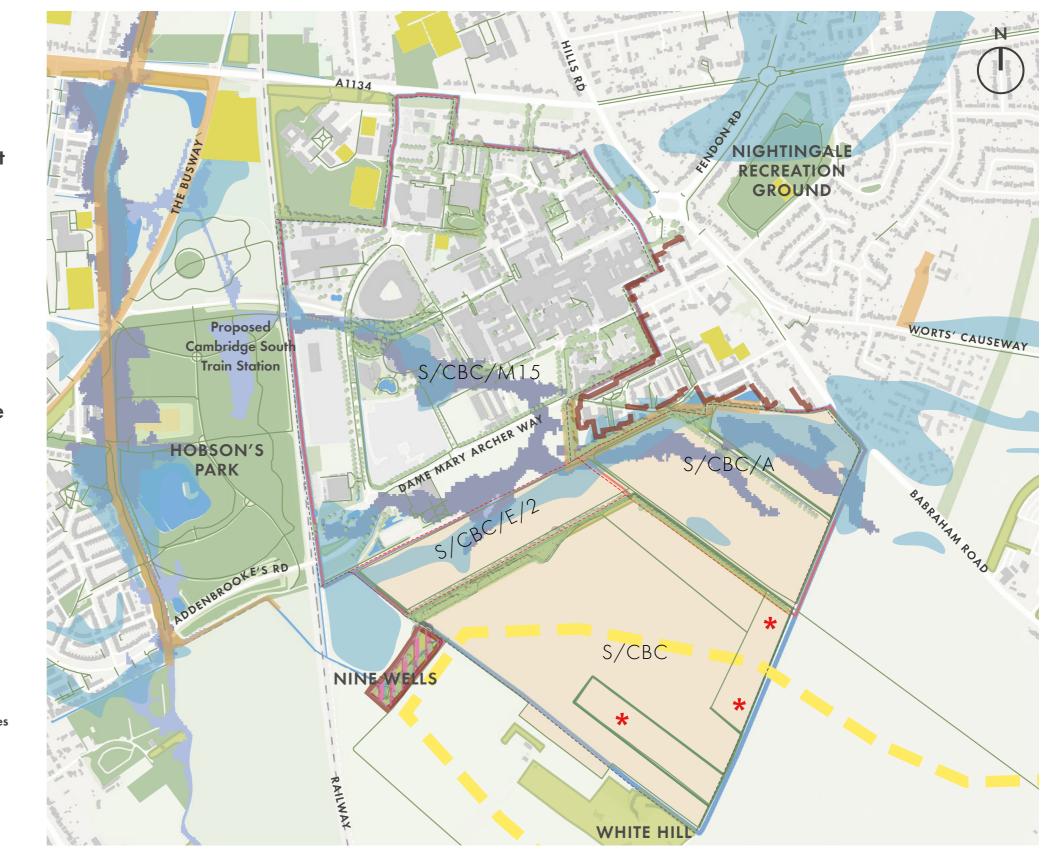
accommodation.

- CBC Preferred option sites
- Existing allocation
- Phase 1 Land
- Phase 2 Land
- O CBC Phase 3 Land
- CBC Phase 4 Land
- * The outline permission secured a requirement for the eastern green edge
- * * Green Infrastructure Parameter Plan requires the eastern Green Corridor to be minimum 30m



Site Constraints - Overview

- Flood Risk: The CBC Expansion Land (parcels S/CBC/E/2 and S/CBC/A) is prone to fluvial and surface water flooding, due to the topography of the site, and a low rate of infiltration to groundwater.
- <u>Biodiversity:</u> The CBC Green Belt Enhancement land, south of the CBC Expansion Land, is of value locally for biodiversity, particularly for red-listed farmland bird species.
- Sensitive Adjacencies: To the south of the campus is the Nine Wells Local Nature Reserve and the Gog Magog Priority Area, partially Site of Special Scientific Interest (SSSI). To the south-east of the campus is lower scale residential development. The scale and height of development on the campus must be sensitive to its wider setting.



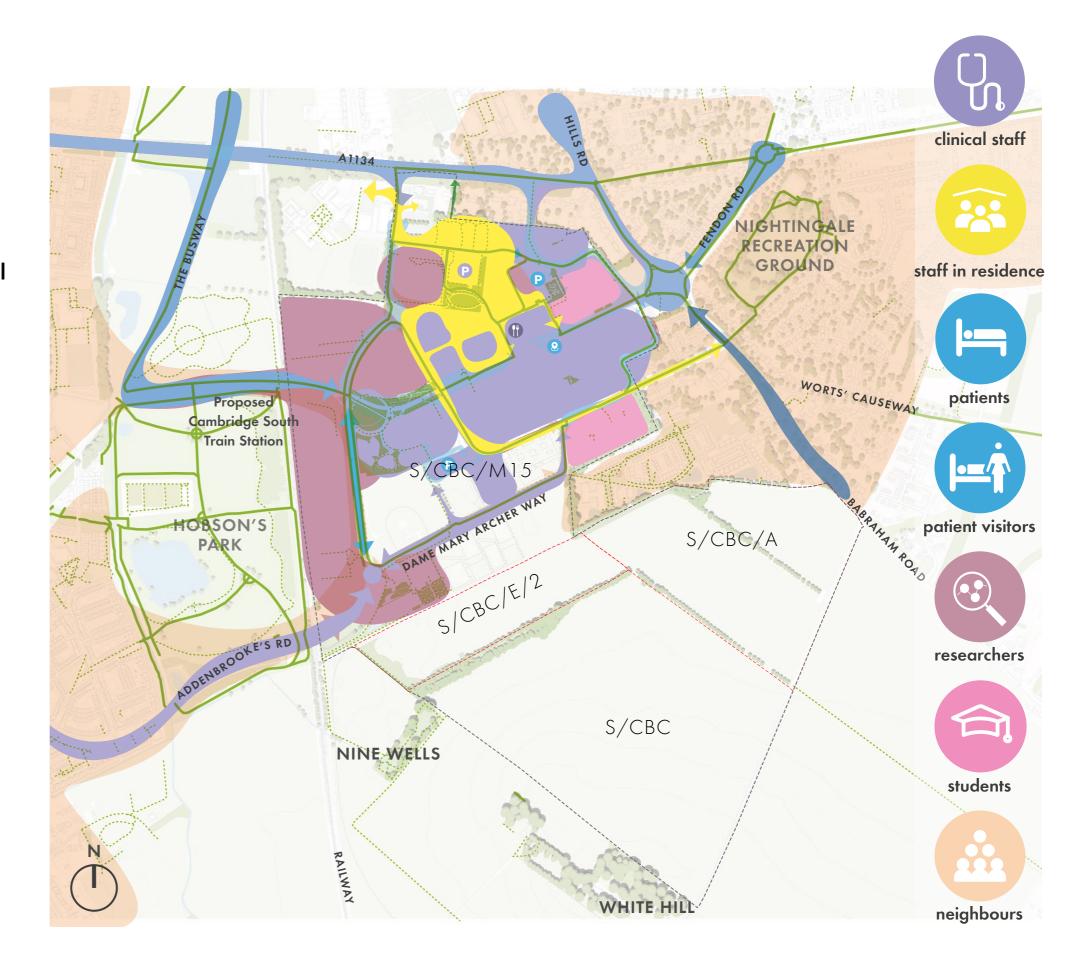
Low surface water flood risk Flood zone 2 Woodland Flood zone 3 Existing blue infrastructure Nature reserve Waterways Country park and recreation sites Wildlife sites Sport fields Hedgerow Orchards and allotments Arable land SSSI — Footpaths * Third party land parcel Sensitive Adjacencies Gog Magog Hills Priority Area --- 20 metre contour lines Tree Cover

Existing Campus Communities

- The CBC community comprises a diverse mix of clinical staff, patients, patient visitors, researchers (academic, non-academic research institutes, and commercial research) administrative staff, students, and campus neighbours.
- The 24/7 nature of the hospitals and the small residential population on the campus ensure that there is activation at all times.
- Existing Campus population is as follows:
 existing staff at 2022: 27,620
 existing visitors at 2022: 17,640
- Forecast Campus population for 2041 is:

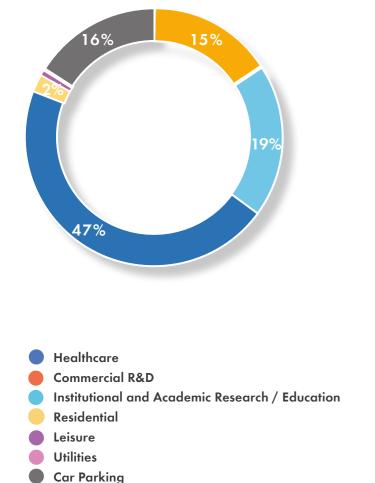
staff at 2041: 44,635

visitors at 2041: 27,725



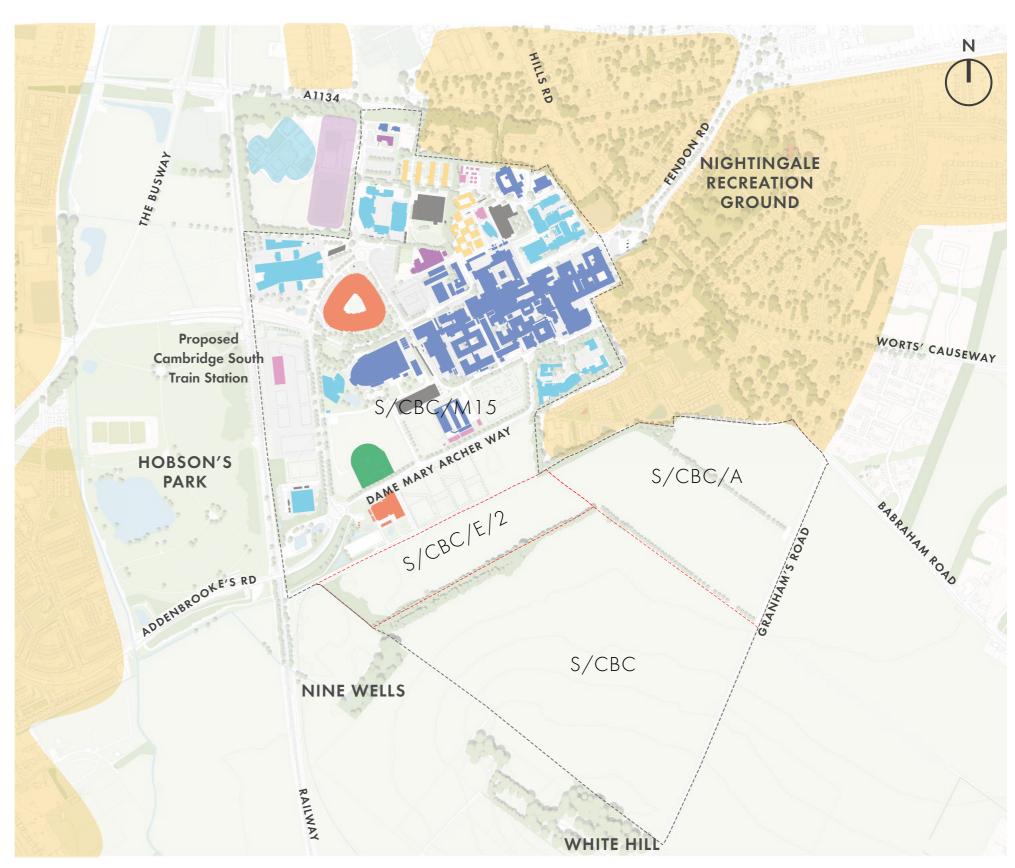
Existing Land Uses

- The current predominant land-use is Healthcare, followed by institutional and academic research/education and subsequently commercial R&D.
- The campus is directly surrounded by residential neighbourhoods.
- Current existing CBC buildings account to a total of 579,987sqm (GEA).



Temporary Helipad Location

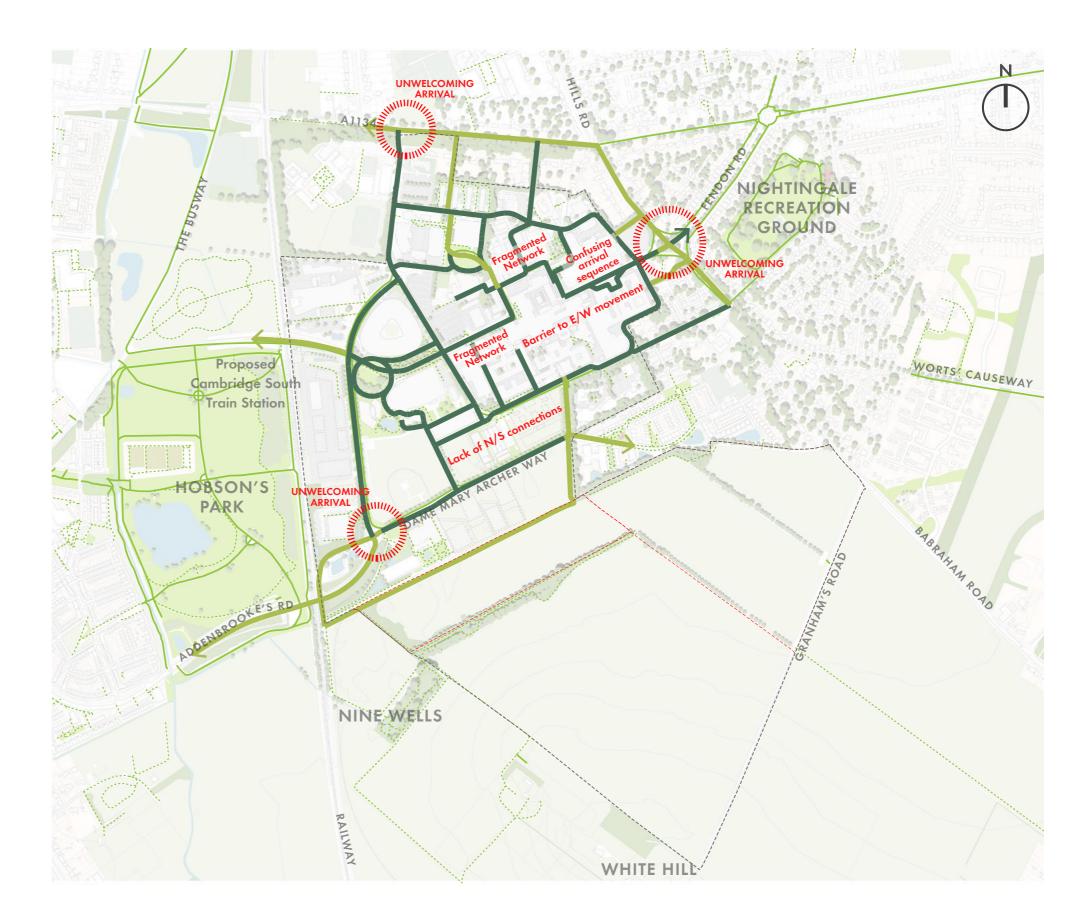
For more information see Evidence Base by Thematic Layer Document, Page 85



Note: University and Healthcare building GEA areas include engineering allowances for plant. Phase 2 Land commercial R&D building GEA areas exclude plant.

Existing Campus Pedestrian Movement

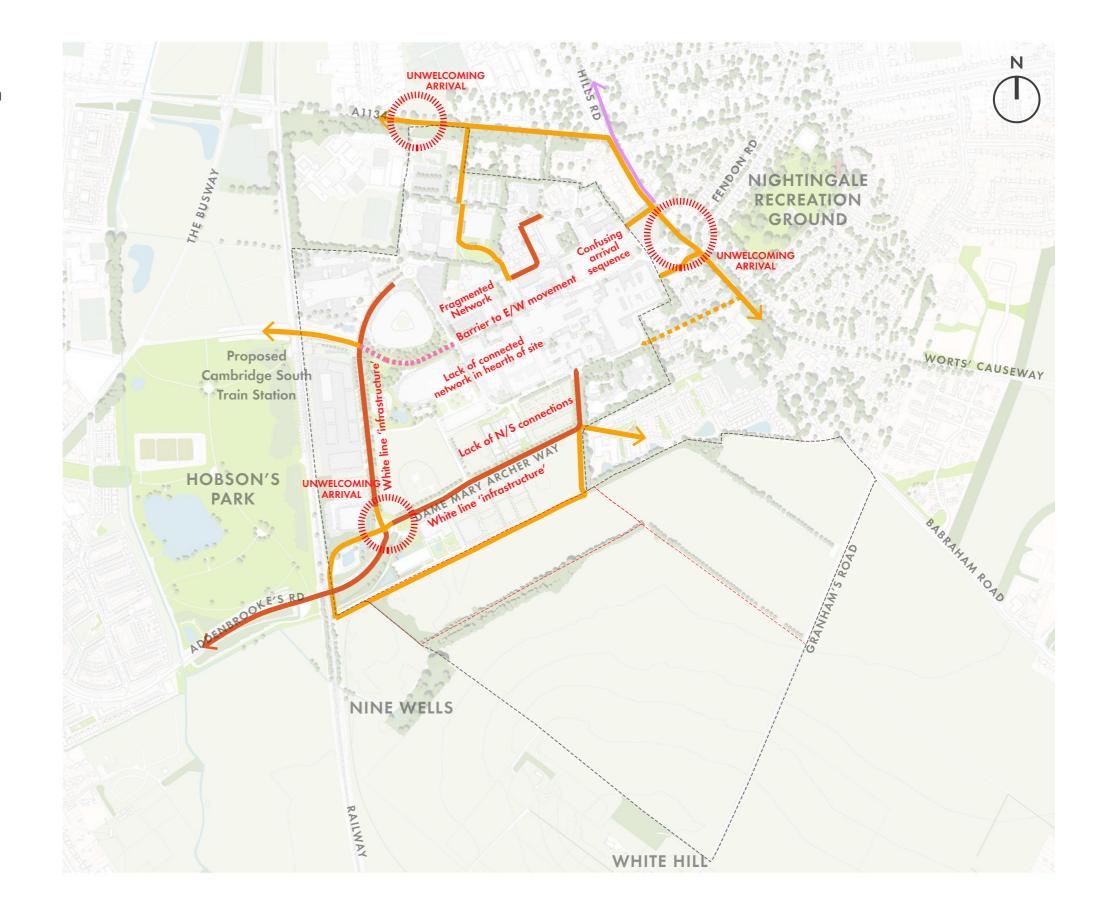
- Gateways to site lack notable features.
- Over-capacity junctions create a uninviting environment for pedestrians.
- Fragmented and indirect pedestrian network.
- Key north south and east west connections lack directness, legibility and completeness.
- At crossings priority is often not afforded to pedestrians.
- Lack of direct connectivity from central campus to the south.



Existing Shared PathExisting Footway

Existing Campus Cycle Movement

- Fragmented and indirect cyclist network.
- As with pedestrian network, key north-south and east-west connections lack directness.
- No coherent story as to how campus links with off-site GCP proposals.
- Over-capacity junctions create a uninviting environment for cyclists.



- Existing Shared Path
- Existing Stepped Cycle Lane
- Existing Cycle Lane Marked on Road
- -- Existing Quiet Street
- -- Existing Bus Lane

Existing Campus Vehicular Movement

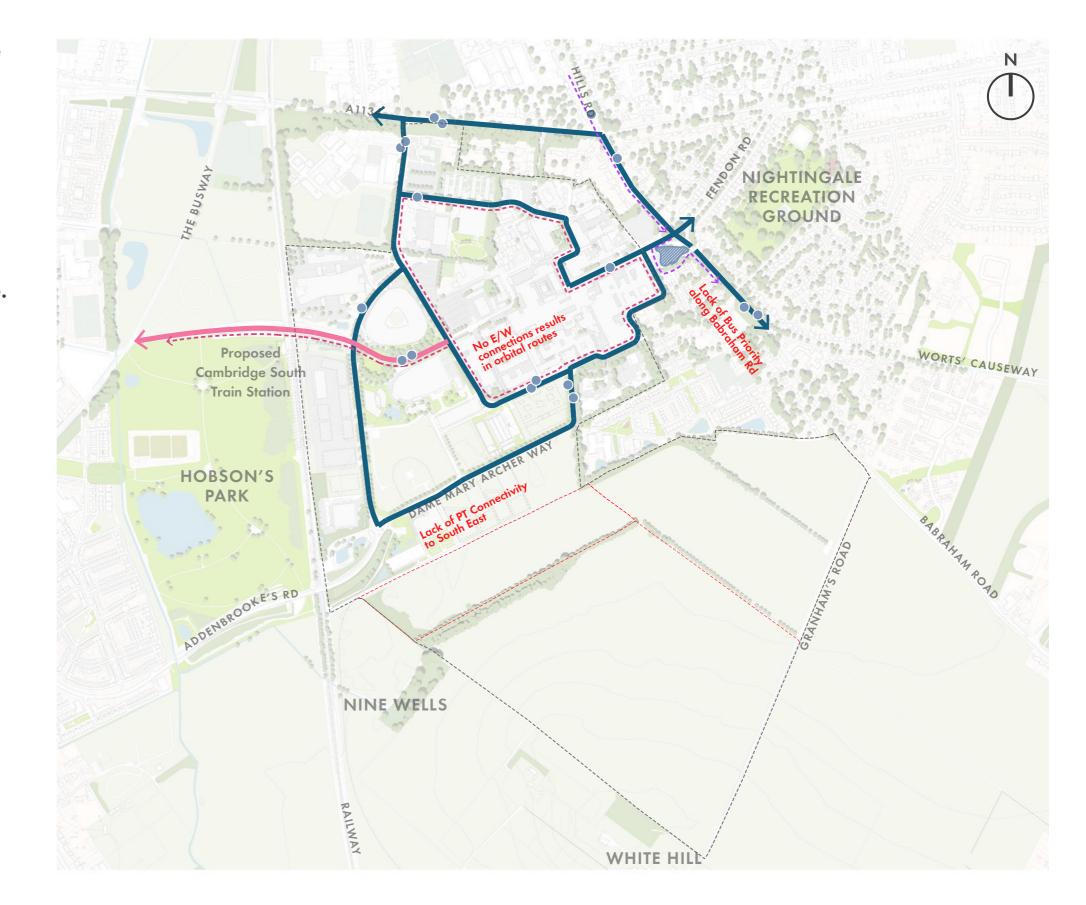
- The private car dominates the campus and can make the environment for pedestrians and cyclists unpleasant.
- A primary orbital network runs around the perimeter of the site with one secondary route (Robinson Way) which runs north to south.
- Congestion at key gateways and at peak hours puts significant pressure on Babraham Road, Hills Road and Fendon Road to the east of the campus and Addenbrooke's Road to the west of the campus.



- **Existing Primary Private Vehicle Route**
- Existing Secondary Private Vehicle Route
- MSCP

Existing Campus Public Transport Movement

- A significant number of buses currently serve the Campus, however there is a lack of eastwest connectivity, which affects city services at a strategic level and makes bus routing complex and inefficient.
- Current bus station at Hills Road entrance to the site is not well integrated.
- There is lack of connectivity into the site from the south-east to link bus way to Park & Ride.



Existing Bus Route

Existing Guided Bus Route

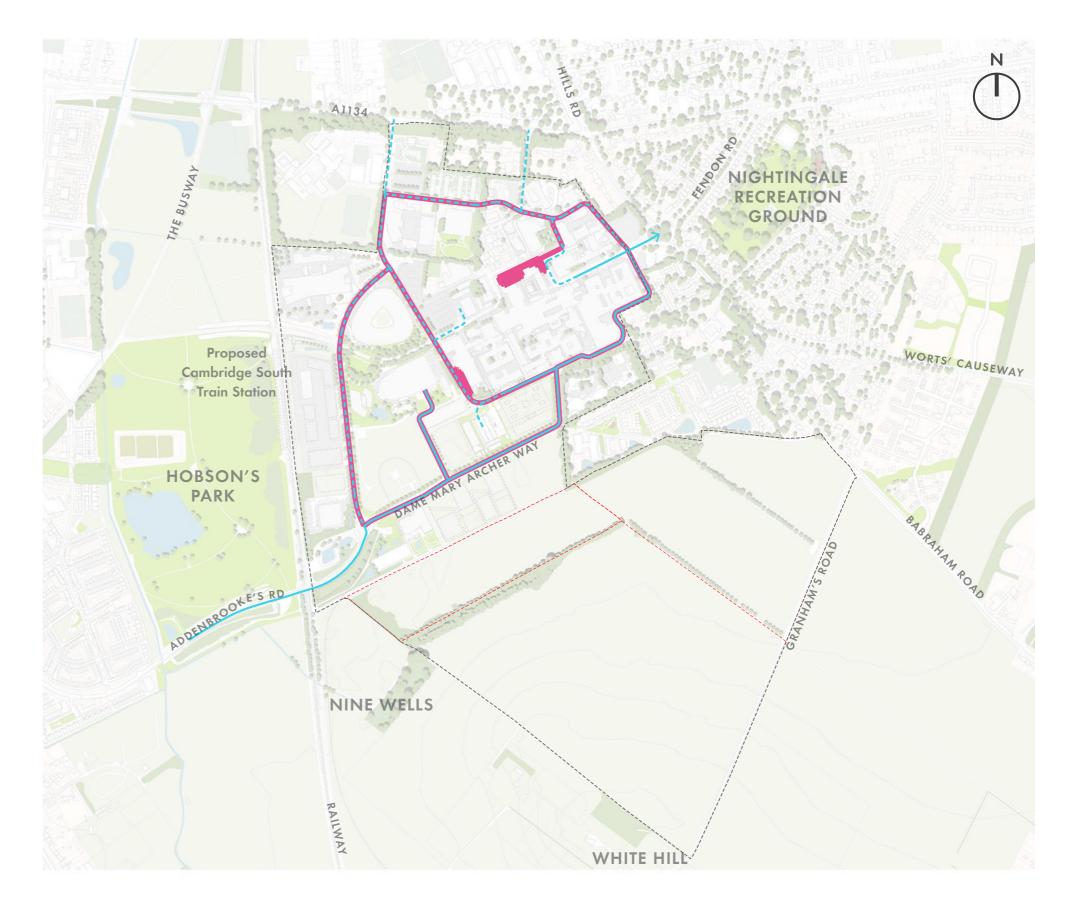
Existing Bus Stop

- Trumpington Park & Ride Route

== Babraham Park & Ride Route

Existing Campus Blue Light and Servicing Movement

- Primary Blue Light Routes are along Addenbrooke's Road and Dame Mary Archer Way to the west of the campus and Hills Road and Robinson Way to the east.
- Secondary network of ambulance routes for transfer of patients between buildings and connections into Long Road for resilience from the north.
- Blue Light Network has lack of resilience from the east, due to competing with general traffic.
- There are currently two CUH related service yards for the existing hospital, one accessed from Main Drive and one accessed from Robinson Way to the rear of the Addenbrooke's Treatment Centre.



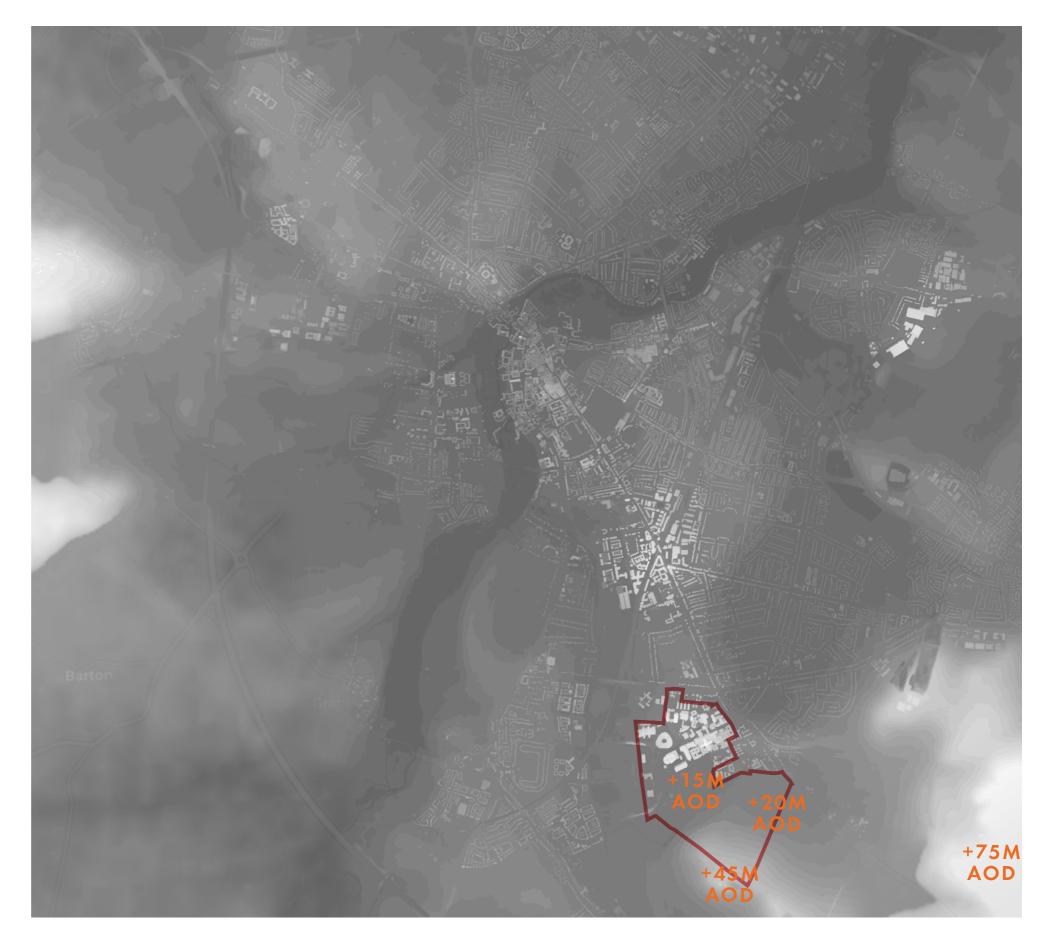
Primary Blue Light Route

Secondary Blue Light Route

Servicing Route

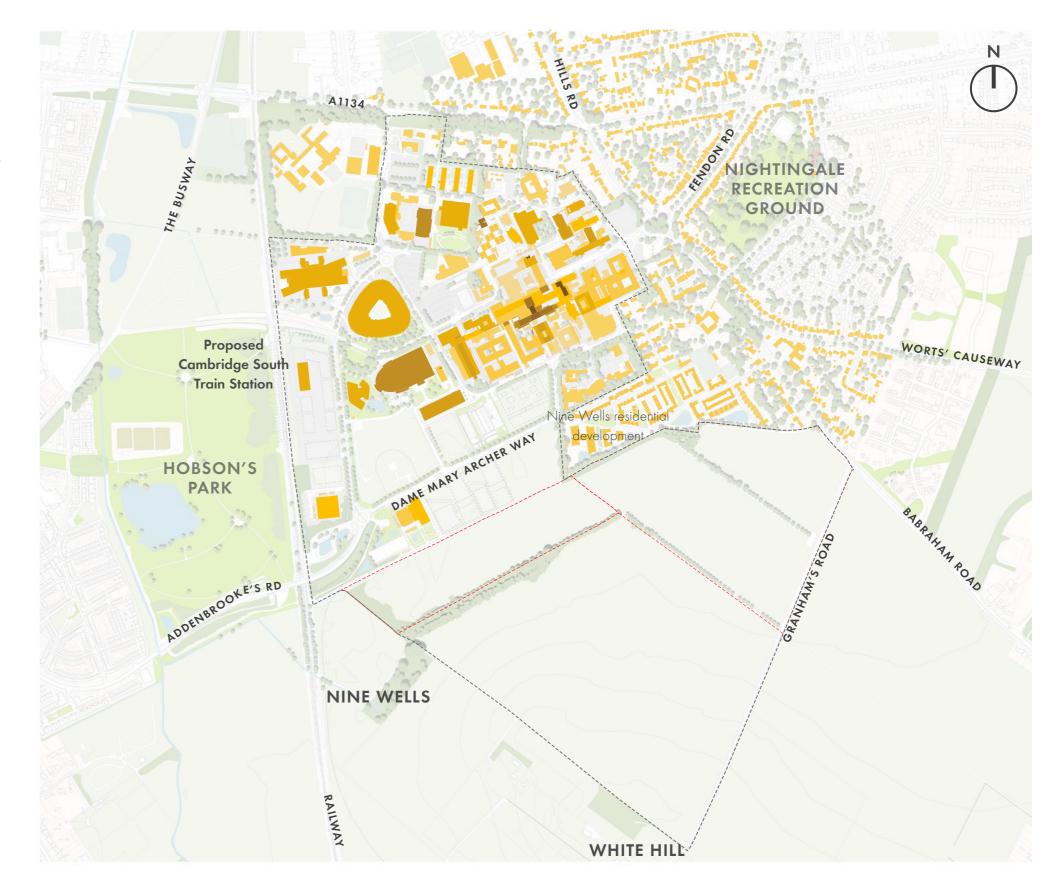
Heights Context

- Due to its location on the southern edge of the city, the study area plays a prominent role in the perception of the approach, mainly from the south-east along Babraham Road, but also from the railway line along the south-west.
- This condition is enhanced by the existing topography established by the presence of the Gog Magog Hills to the south.
- The highest point, near Little Trees Hill, is c. +75M Above Ordnance Datum (AOD). Views from this location towards the city centre include CBC in the foreground (c. 15m AOD).



Building Heights Context

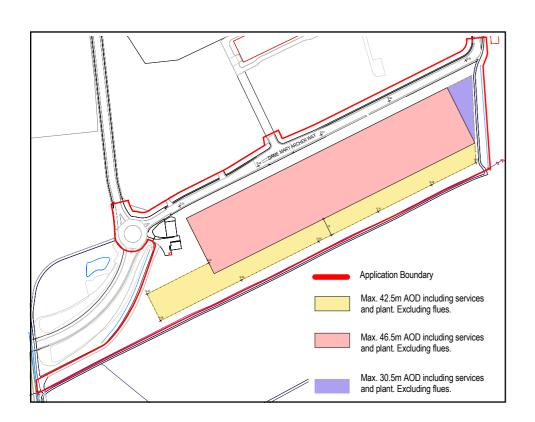
- The highest point on campus is the Addenbrooke's Hospital Incinerator Chimney at +78.8M AOD, 64M Above Ground Level (AGL).
- The Addenbrooke's Hospital reaches a highest point of c. +50M AGL (9 storeys plus roof plant).
- More recent buildings also utilise height. The Royal Papworth Hospital is 44.5M AOD (33M AGL at 6 storeys plus roof plant) and MSCP 3, south of the Royal Papworth Hospital, is c. +43.6M AOD, 30M AGL).
- The campus is surrounded by residential development to the east, which ranges from 2 to 3 storeys height.
- The Nine Wells Residential Development to the south east of the campus reaches up to 13m maximum AGL height at its westernmost corner, adjacent to the CBC.

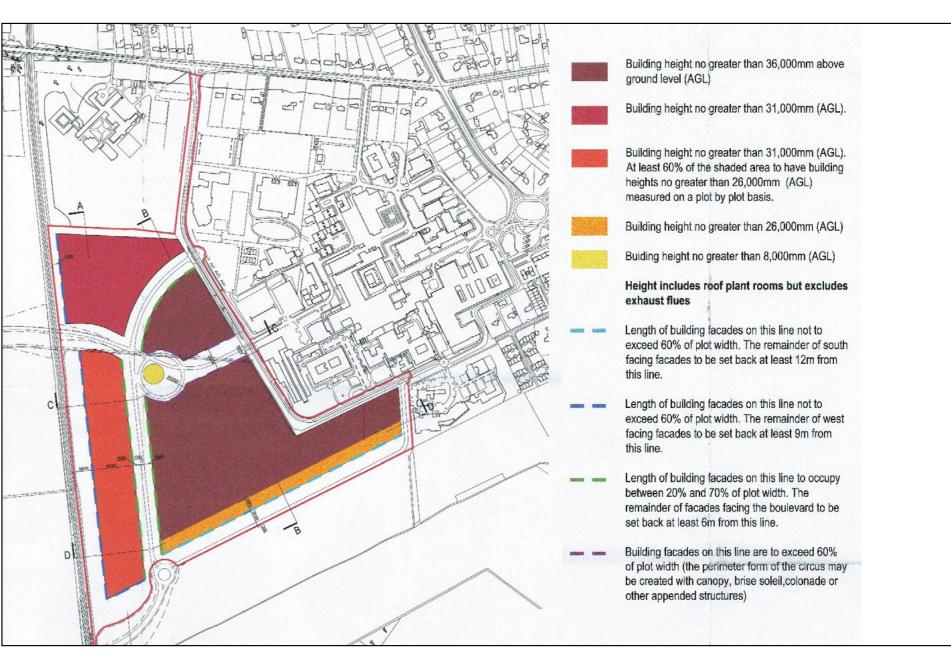


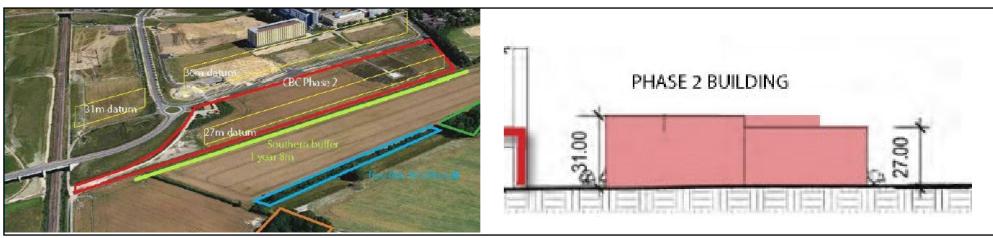
+20 m +25 m +30 m +35 m +40 m +45 m +50 m

Previous Outline Consents: Height Parameters

- The CBC Phase 1 outline consent proposed heights ranging from 8-36M Above Ground Level (AGL), zoned with the largest heights around the centre of the campus, reducing towards the south.
- Frontages are also required to become more open toward the south of the Phase 1 Land.
- The CBC Phase 2 consent proposed heights of up to 31M AGL, stepping down to 27M AGL on the southern boundary.

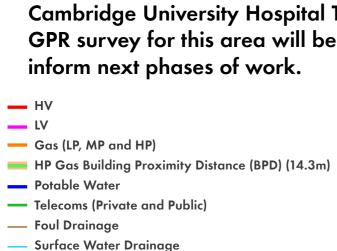


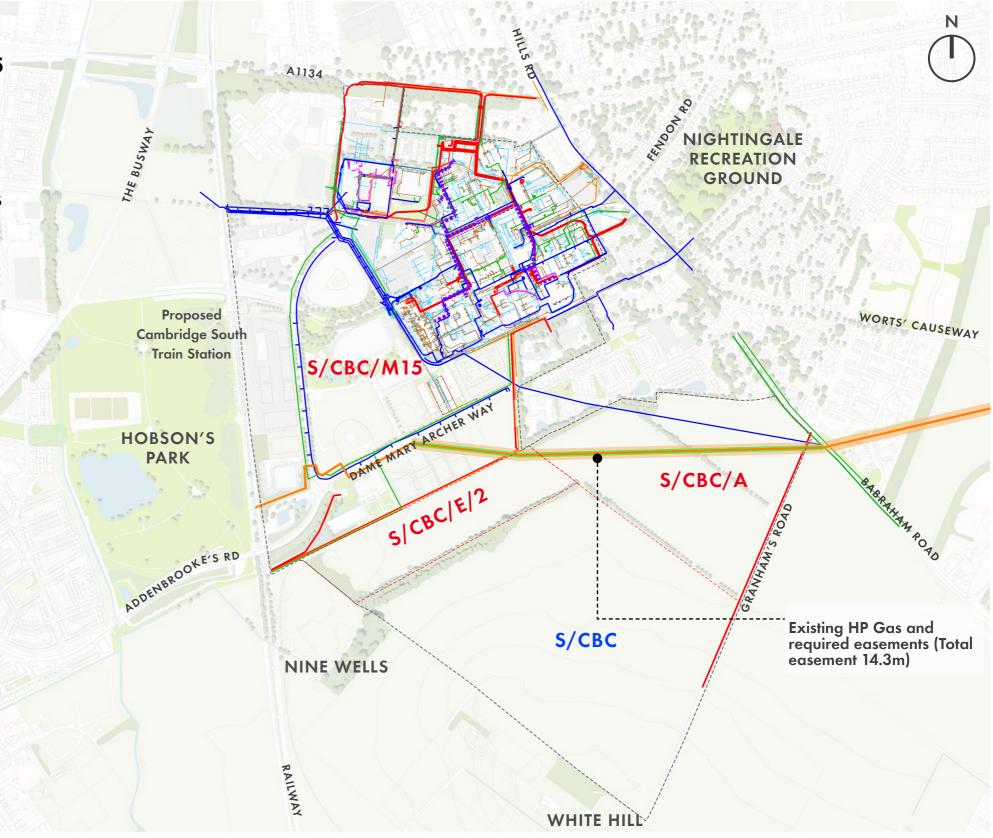




Existing Utilities

- A High Pressure Gas Main runs through the south of CBC, crossing the middle of parcel S/CBC/A (Phase 4 Land) and the south of parcel S/CBC/M15 (Phase 2 Land). An easement of 14.3m is assumed if the route remains in its current location. There are multiple options being considered to divert the HP gas main to create more rational plots, further detail is set out in Document 2 (page 13). Were this to be diverted and renewed, the existing Building Proximity Distance (BPD) accounted for would reduce to 3M.
- The High Pressure Gas Main runs along Dame Mary Archer Way to the south, limiting planting opportunities to its southern edge.
- There is a significant amount of existing utilities west of Phase 1 Land and where the current Addenbrooke's hospital sits. The services shown in the adjacent map are taken from a combination of historic Ground Penetrating Radar (GPR) surveys and record information provided by the Cambridge University Hospital Trust (CUH). A new GPR survey for this area will be undertaken to inform next phases of work.



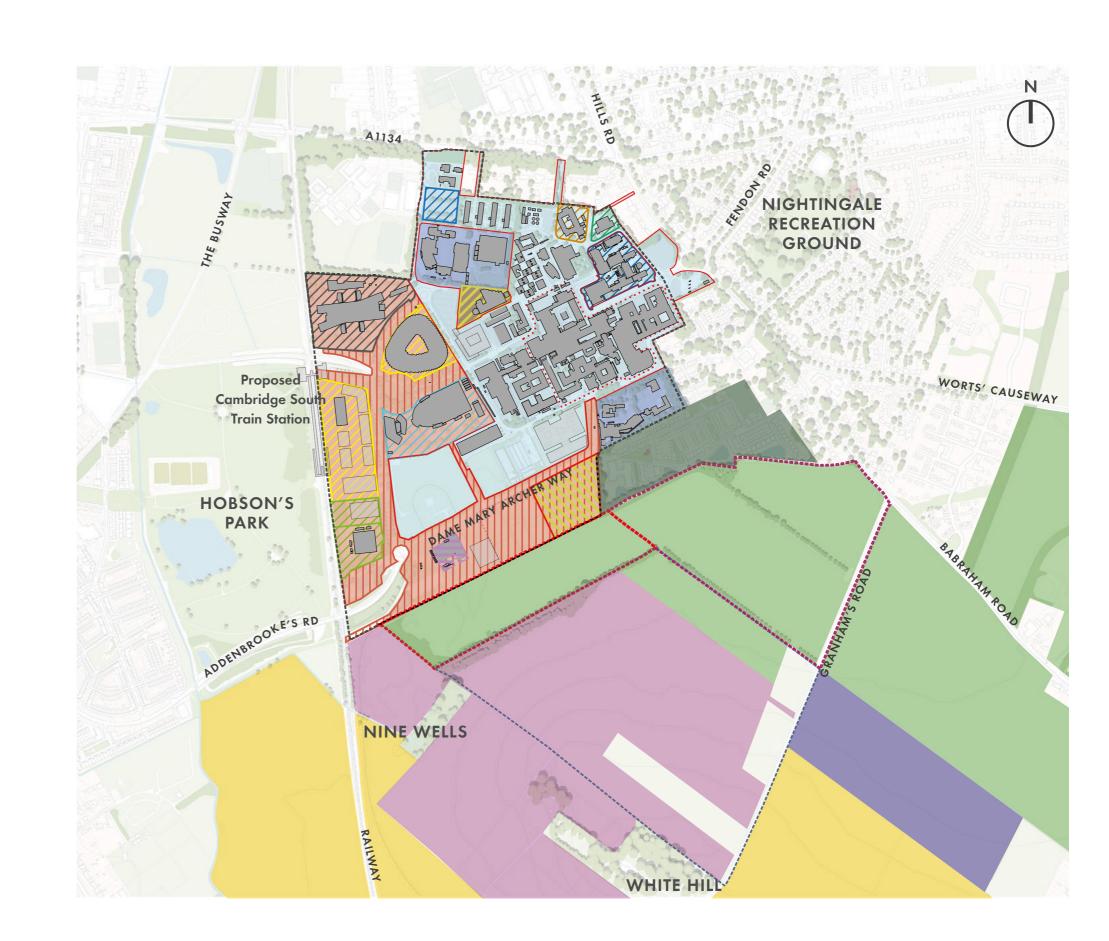


For more information see Utilities Strategy, by Hoare Lea

Oil Pipeline

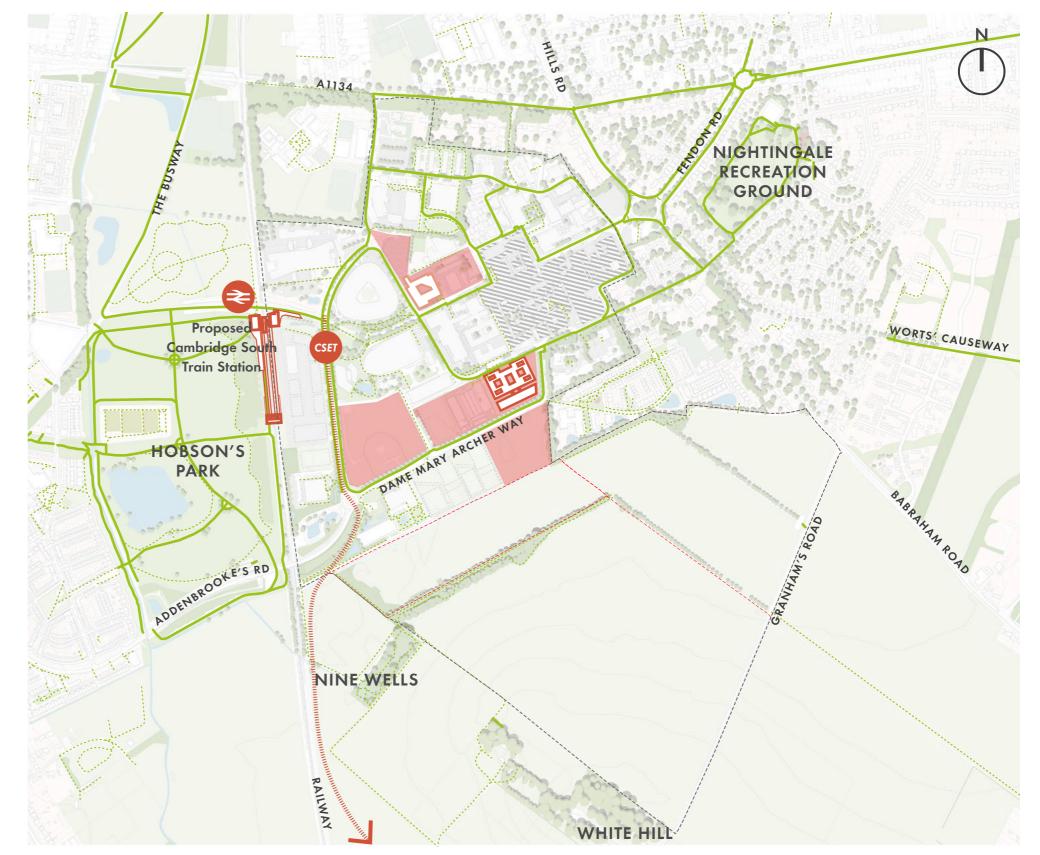
Land Ownership Constraints

- - CBC (S/CBC/M15) boundary
- Phase 4 Land (S/CBC/A) boundary
- Phase 3 Land (S/CBC/E/2) boundary
- --- Green Belt Enhancement Land (S/CBC) boundary
- **CUH Landholding**
- Current Hospital Estate / Future Eastern Gateway Opportunity Area
- **CUH Land option from Pembertons**
- University of Cambridge (170-year) Lease from Pembertons
- University of Cambridge Ownership
- Cambridge Medipark Limited (170-year Leases for Infrastructure from Pembertons)
- Cambridge Medipark Limited Land option from Pembertons not yet exercised
- Abcam Building (170-year) Lease from Pembertons to Tesco Pension Fund
- Cambridgeshire County Council Ownership
- Nine Wells Development (individual building owners), developed by Hill Residential
- Addenbrooke's Charitable Trust (ACT) Ownership
- University of Cambridge lease from CUH
- East England Ambulance Service Trust Lease from
- NHS Blood and Transplant Lease from CUH
- **CUH Lease from ACT**
- AstraZeneca (170-year) Lease from Pembertons
- MRC (170-year) Lease from Pembertons
- 170 year lease to Royal Papworth Hospital (part subleased to Cambridge University).
- **Pemberton Family**
- Jesus College
- St John College



Emerging Context / Key Change Triggers

- Key Change Triggers at the CBC:
- 1. Cambridge South Station
- 2. CSET
- 3. Addenbrooke's Hospital Relocation
- Both the main public transport 'doorstep' of the campus and its main 'destination' (the Hospital), are moving from the east to the west.



Note: CSET is currently on pause and CBC is supportive of the delivery of CSET. All parties are continuing to plan / safeguard for its delivery.

— CCRH: Live Application

IIIIII CSET

CUH Brief to Rebuild The Hospital

Primary Footpaths

--- Secondary Footpaths

— Consented Buildings

1.2 DESIGN PRINCIPLES AND EMERGING FRAMEWORK PLAN

Emerging Design Principles - Overview

The emerging design principles correspond to the thematic layers explored thus far. Each principle responds to a thematic layer as described in the adjacent graphic.*

*Whilst sustainability is at the core of each of the principles, the thematic layer pertaining to Energy and Carbon is yet to be explored in more detail and will follow in the next stages of work.



Support Health and Well-being Through Environment



2
Engage the Public



Promote Collaboration
between Life Sciences
Research and Medical
innovation

(Land-Uses

(Green and Blue Intrastructure)



4
Prioritise Sustainable
Movement



5
Ensure Attractive
and Measure
Development



6
Promote Whole Life
Carbon

(Connectivity

(Scale, Capacity and Edge Treatment)

(Energy and Carbon)

Support Health and Wellbeing through the Environment

Thematic Layer



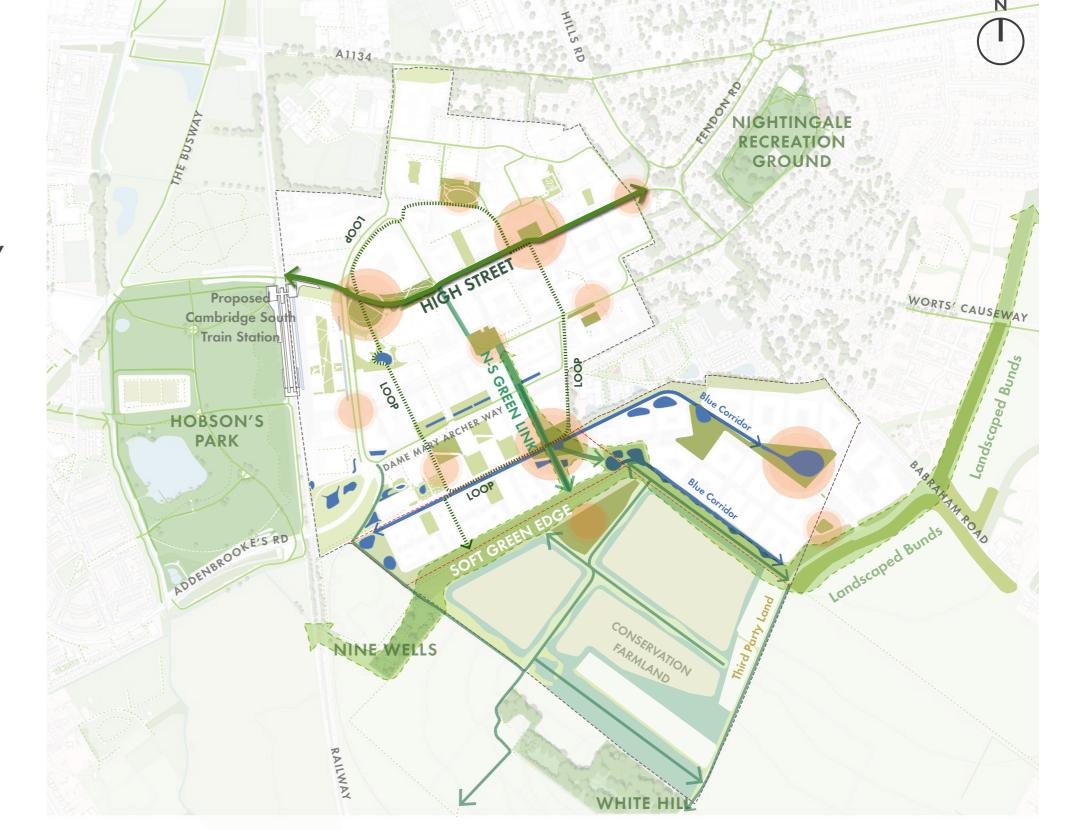








- Integrate the campus with the surrounding landscape by repairing footpath connectivity.
- Repair campus legibility through consolidated green & blue infrastructure corridors.
- Enhance and distribute campus outdoor amenity for health and recovery, work and leisure and to enhance biodiversity by equally distributing campus hubs at key nodes.
- Repair campus landscape setting by establishing a soft green edge in the south.
- Support biodiversity through the built environment.
- Utilise Green Belt land to further support biodiversity through enhancing habitat for existing species via conservation farming.
- Work with natural systems and landscape to mitigate pluvial flooding.



Blue Corridor

Potential Node for Campus Amenity

Green Corridor

Engage The Public

Focal points of Campus Amenty/Activity as they relate to walking distances from one another

Thematic Layer









- Create series of walkable neighbourhoods across the campus, providing a range of services and facilities.
- Provide a broad hospitality and recreational offer in key locations identified as campus hubs.
- Share amenities between buildings and user groups.
- Enable the interaction of people through mixed use nodes and multi-purpose public spaces concentrated around campus hubs.
- Create ground floor active frontages frontages that enhance the public realm along campus east-west streets.



Potential Location for Hotel

Potential Location for Leisure

— Ground Floor Frontages

Open Green Amenity

Potential Node for Campus Amenity

Promote Collaboration between Life Sciences Research and Medical Innovation

Thematic Layer

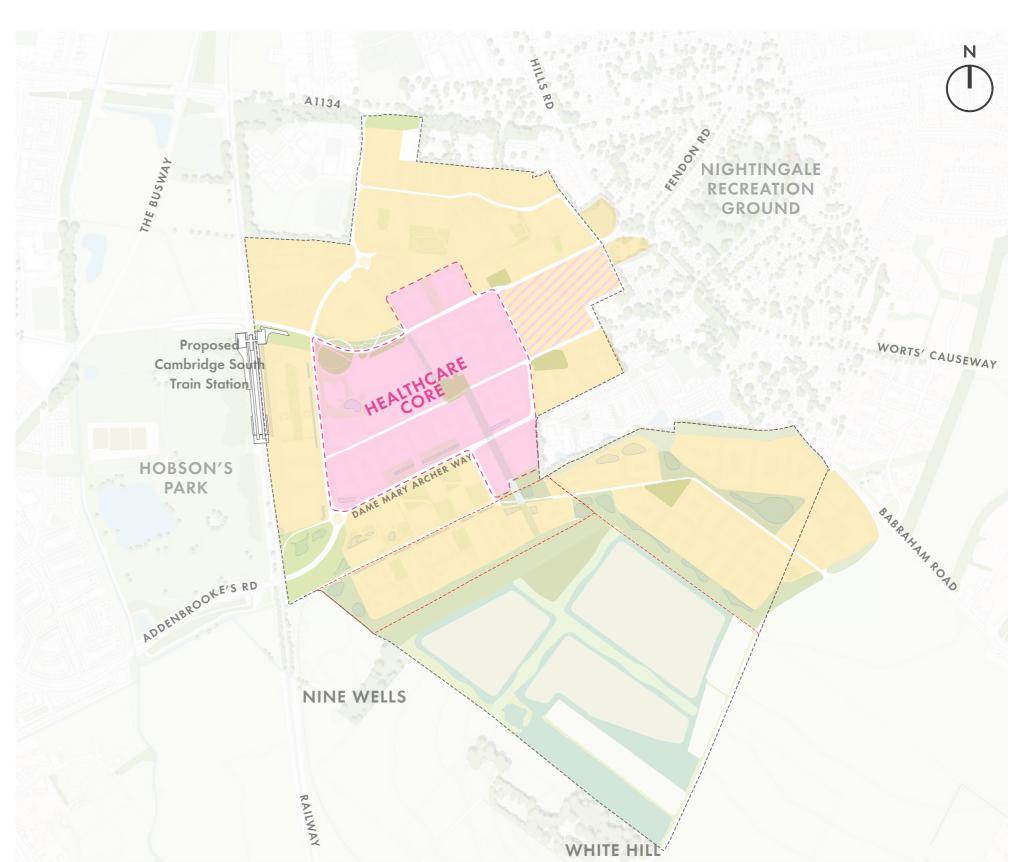








- Place Healthcare Uses at the core of the campus.
- Allowance for Healthcare related R&D, Education, Laboratories and Offices, and Residential around the Healthcare Core.



Healthcare Core

Flexibility retained for future Hospital related uses eastwards
Healthcare related R&D, Education, Laboratories and Offices, and Residential

Prioritise Sustainable Movement

Thematic Layer









- Appreciate adjacencies and importance of landuse mix / connect campus nodes.
- Design inclusivity, legibility, and wayfinding.
- Increase permeability and priority for selected user-groups.
- Manage and consolidate car-parking.
- Prioritise sustainable movement design to reduce the dominance of the car.
- Support and complement infrastructure investment.
- Support city-wide and regional policies.





Note: Closer study on affected Hospital buildings is required to more accurately assess the time-frame for the delivery of the High Street (currently estimated at 2035 in illustrative phasing strategy). CUH intends to undertake this study to inform the next stages of work.

Ensure Attractive and Measured Development

Thematic Layer









- Make most efficient use of land through appropriately scaled buildings.
- Create rhythmic breaks of open green spaces between development blocks.
- Respect sensitive adjacencies such as Nine-Wells nature reserve and adjacent residential developments.
- Establish a layered approach to long range vistas, through a gradual reduction in height towards the south, bordered by a green edge to soften the transition between built areas and the countryside.



Note: Indicative mapping of proposed Above Ground Level (AGL) Heights.

CBC Emerging Framework Plan, October 2023

Boundary ---- Proposed Area of Major Change ---- Expansion Land Phase 3 ---- Expansion Land Phase 4 (further Green Belt Release) **Land Use Healthcare Core** Flexibility for future Hospital Related Uses Healthcare related R&D, Education, Laboratories and Offices, and **Residential** Third Party Land (in G B Enhancement Land) Proposed Temporary Helipad Cambridge South Temporary At Grade Car Parking Train Station Potential Location for Energy Centre and **Hospital Facilities Management Hub Movement** WORTS CAUSEWAY Main Vehicular Road High Street Mid Street Low Street Guided Busway Indicative Shared Surface Areas MSCP O Bus Stop (Flexible Location) **Primary Mobility HUB** Secondary Mobility HUB Landscape Indicative Location of SuDS Feature Potential Node for Campus Amenity **Open Green Amenity Conservation Farmland Public Footpaths within Hedgerows** Green Edge to the Settlement Landscaped Bunds Arable Field Grassy Margins Strategic North South Green Link Greenwalks / Lanes **Built Form** — Sensitive Adjacencies: Nine Wells Nature Reserve Nine Wells Residential * Existing Building Constraints (BU9: Intermittent Dialysis Unit, Food Court, BU38: Modular Theatres)

Community

Potential Location for Hotel
Potential Location for Leisure

Allies and Morrison











Issue register

DATE	ISSUE	NOTES
18.08.2023	1st DRAFT ISSUE	ISSUE FOR COMMENT
14.09.2023	2nd DRAFT ISSUE	ISSUE FOR COMMENT
19.09.2023	3rd DRAFT ISSUE	ISSUE FOR COMMENT
17.10.2023	4th DRAFT ISSUE	ISSUE FOR COMMENT
18.10.2023	5th DRAFT ISSUE	ISSUE FOR COMMENT
25.10.2023	FINAL ISSUE	