

Chapter

4

Cambridge
Biomedical
Campus
development
principles

Development principles

- 4.1** This section of the SPD identifies a series of 'Biomedical Campus development principles' to help guide the approach of embedding health and wellbeing considerations to project design and integration across the Campus and so provide direction on how these issues can be resolved through high quality and well considered development. The complexity of the Campus and the range of projects coming forward means that there will need to be a degree of flexibility taken to ensure that guidelines are applied in a way that is proportionate to the scale, function, location and nature of the particular proposal being considered.
- 4.2** It is important to recognise principles of good design in the early stages of the planning process in order to deliver high quality development. The development principles set out in this SPD provide clear and tangible guidance to inform development proposals at the earliest stage of the pre-application process as a starting point for discussions, providing a response to the immediate campus and wider local context, whilst also providing a clear framework for decision making in the planning process.
- 4.3** It may not be appropriate to apply all of the development principles set out in this SPD for smaller scale planning applications, for example, the installation of roof top plant, utility projects, accessibility improvements and maintenance projects. However, in these individual cases there may be opportunities to apply some of the principles that should be considered as part of the design and feasibility process. These will need to be considered on a case-by-case basis through pre-application discussions. A reasonable, pragmatic and feasible approach should be taken. Additionally, urgent responses to public health instances may take priority over wider planning objectives. For example, when temporary buildings and structures were introduced as part of the response to the Covid pandemic.
- 4.4** The development principles in this SPD are expressed through words and precedent images and not by reference to a masterplan.
- 4.5** The SPD identifies six overarching themes, which are identified below, that promote high quality development and align with the adopted policies for the Campus within the adopted Local Plans and the councils' ambition outlined above. The overarching themes and development principles are:

4a Open spaces and, landscape

4a.1 Multi-purpose role of open spaces

4a.2 Ecology and biodiversity

4a.3 Landscape and key views

4b The public realm

4b.1 Health and wellbeing

4b.2 User experience and community

4b.3 Culture, services and facilities

4c The built form

4c.1 Ground floor activation

4c.2 Scale, character and materiality

4c.3 Townscape and the historic environment

4d Connectivity and movement

4d.1 Wayfinding and permeability

4d.2 Wider integration of the Campus

4d.3 Accessibility

4e Sustainability

4e.1 Climate resilience

4e.2 Design and construction

4e.3 Environmental Health

4f Phasing and delivery

4f.1 Phasing

4f.2 Delivery

4f.3 Stewardship and management

4a Open spaces and landscape

- 4.6** Provision of high-quality open space and landscapes that perform a range of functions and contribute to biodiversity and nature are vital in creating sustainable developments. Green spaces are of particular value in healthcare environments because they can improve air quality, reduce temperatures, provide outdoor space whilst also providing space for activity and relaxation for patients, staff and visitors.
- 4.7** In 2019, the Cambridge City Council passed a [motion to declare a biodiversity emergency](#). The motion sets out how the council aims to reverse the decline in biodiversity in and around Cambridge and pledges to work with organisations and communities to deliver measurable biodiversity net gain. The Council also has a [Biodiversity Strategy](#) that plans to protect and enhance wildlife habitats and promote a greater understanding of biodiversity.
- 4.8** South Cambridgeshire District Council also recognised the ecological emergency in 2019 and agreed to support the aim of doubling nature in South Cambridgeshire. The [Doubling Nature Strategy](#) sets out the approach to supporting the aim and is accompanied by a [Zero Carbon and Doubling Nature Action Plan](#) which lists the action the Council is taking to increase and enhance nature across the Council's buildings and wider district.
- 4.9** Both Councils are part of the [Cambridge Nature Network](#) that highlights opportunities to create and enhance new habitats and natural green spaces in priority areas across the City, to contribute to the ambition of 'doubling nature' across Cambridgeshire.
- 4.10** In recent years, the Campus has seen a number of key public realm and open space improvements delivered with spaces like The Green and Gardens completed and other smaller spaces which are planned as part of the Cambridge Children's Hospital and Cambridge Cancer Research Hospital. However, more needs to be done to provide a coherent approach and ensure that high quality public realm and other open spaces are delivered which embed biodiversity needs as part of their inherent design. Consideration also needs to be made for the open spaces at Nine Wells that could be negatively impacted by increased recreational pressure.
- 4.11** The principles set out in this chapter should be read alongside policies in the adopted Local Plans, set out in Appendix 1 and the [Biodiversity SPD \(2022\)](#), which sets out guidance on how development can enhance biodiversity through the planning process such as integrating biodiversity into the design stages and incorporating habitats into high quality landscape design. The principles should also be read alongside the [Cambridge City Council Tree Strategy \(2016-2026\)](#) that was adopted to enhance the benefits that urban trees can bring to our local communities and to the environment.

Key principles for open spaces and landscape

4a.1 Multi-purpose role of open spaces

- 4a.1.1 Optimise the use of open spaces by designing multi-purpose, high quality spaces that provide for health and wellbeing, ecology and biodiversity.
- 4a.1.2 Create a range of open spaces that provide comfortable formal and informal places to rest, socialise and play for people visiting, living, working or travelling through the Campus. Open spaces may be delivered through appropriately sized greens, gardens, pocket parks, play spaces or courtyards and ensure that the open space and play space needs of the development are met in full and on-site.
- 4a.1.3 Ensure that open spaces are suitable for the different users of the Campus throughout the year. These may be public, communal and private spaces, however, this should be clearly identifiable to users through their design, access routes and integration with the surrounding spaces and buildings.
- 4a.1.4 Create opportunities for open spaces to be used by all in flexible ways such as for allotments, concerts, performances, exercise classes, event spaces, and fetes that offer physical and mental health benefits as well as introduce greenery to new and existing sites and pedestrian routes.
- 4a.1.5 Given the 24-hour nature of the Campus, open spaces should feel safe and inclusive throughout the day and night for all users including for women and girls.

4a.2 Ecology and Biodiversity Net Gain

- 4a.2.1 Identify opportunities where the tree canopy cover across the Campus can be increased, through new street trees and creating opportunities to incorporate native trees and planting, hedgerows, natural and semi-natural water features to form high-quality biodiverse habitats that surround the built form, and at podium and roof levels.
- 4a.2.2 In line with planning legislation, provide for biodiversity and improve ecology on the Campus through habitat retention, creation and enhancement. To achieve the greatest biodiversity benefits, this should be integrated with the wider ecology network within and around the Campus, including wildlife corridors, and identifying specific local species to target through discussions with the councils' Ecology Team.
- 4a.2.3 Seek opportunities to deliver BNG requirements triggered by smaller schemes in a considered and co-ordinated way.

4a.3 Landscape and key views

- 4a.3.1 Seek opportunities to integrate the Campus with the wider landscape and biodiversity network and features with the wider countryside to the south of the Campus.
- 4a.3.2 Identifying and exploring opportunities to incorporate key views and the skyline into and out from the Campus.

4b The public realm and wellbeing

- 4.12** Creating a high quality public realm encourages healthy lifestyles, physically active communities and positively contributes to mental health and wellbeing. The quality of the public realm within the Campus varies considerably and whilst recent developments have either delivered or plan to improve parts of the Campus, there are existing streets and spaces that require significant improvement. A coherent approach to the public realm through the use of materials and street furniture is key to lifting the quality and coordinating streets and spaces on the Campus.
- 4.13** The Campus already provides a range of amenities and facilities to support the clinical and research functions and to provide for the everyday needs of patients, staff and visitors as well as those in surrounding neighbourhoods. In 2020 the NHS Property Services (NHSPS) launched the [Healthy Places programme](#) that focuses on transforming spaces and delivering projects that improve community wellbeing. As the Campus grows and develops, opportunities need to be taken to enhance and extend the range of amenities provided and to explore ways in which provision can be made both on a temporary and more permanent basis. Access to cultural facilities, retail and leisure also contributes to a sustainable community for people living and working in the area, visiting or using healthcare facilities.

Key principles for the public realm to support wellbeing

4b.1 The public realm

- 4b.1.1** Maximise opportunities to improve key streets and spaces throughout the Campus by aligning with emerging development proposals and maintenance regimes to achieve a high quality, consistently detailed and legible public realm.
- 4b.1.2** Create high-quality public realm that promotes health and wellbeing and improves the user experience of the Campus through encouraging walking, wheeling and cycling and the use of outdoor spaces.
- 4b.1.3** Activate streetscapes, open spaces and the public realm by creating routes and places of interest, opportunities to play, for people to encounter nature and dwell whilst forming legible routes that promote pedestrian and cycle movement.
- 4b.1.4** Create flexible spaces for health and wellbeing activities such as exercise, social activities and space that fosters a sense of wellbeing and community on the Campus.
- 4b.1.5** Paving materials, street furniture and lighting within the public realm should focus on materials which can be re-used or re-located in the future to suit the Campus as it is developed. Materials should be aligned and coordinated with architectural proposals, wayfinding and improvements to connectivity and movement.
- 4b.1.6** Identify opportunities to improve wayfinding through additional or improved signage.

4b.1.7 Support meanwhile uses which promote active and healthy lifestyles whilst providing a meeting place for the various communities to come together and interact prior to the availability of permanent facilities.

4b.2 User experience and community

4b.2.1 Positively contribute to the sense of place of the Campus by providing clear definition between buildings and the public realm and improving the relationship with existing buildings on the Campus.

4b.3 Culture, services and facilities

4b.3.1 Seek and support opportunities to provide additional and enhanced services and facilities including a mix of flexible retail and commercial units that support the needs of patients, employees and visitors of the Campus throughout the day and night as well as supporting residents and the wider community.

4b.3.2 Review the range and location of food and beverage, retail, sports, recreation, faith and leisure services as proposals come forward to cater for all users throughout the day and night. This could be informed by the principles from the [NHS Healthy New Town programme](#) including access to affordable and healthy food, designing multi-functional green spaces and establishing community hubs or spaces. Where possible, ground floor uses facing onto the street should include active retail and leisure units.

4b.3.3 Improve, and where needed, provide cultural facilities that foster a sense of belonging for Campus users to help to create a sense of community and provide valuable social infrastructure on the Campus.

4b.3.4 Explore temporary 'pop-up' facilities and meanwhile or interim provision to bridge gaps in provision and meet with the expectations of a world leading Biomedical Campus site.

4c Built form

4.14 Built form can be defined as the arrangement of streets, blocks and open spaces that are arranged to complement and work together in order to create a well-designed place. The built form can encourage the interaction between people and place and can respond to the local character, materiality and the historic environment.

4.15 The Campus has a range of buildings that vary significantly in terms of age, function and complexity. The need for delivering well designed buildings that meet the needs of patients, staff and visitors is well understood in hospital design and delivery and so achieving this on the Campus is a key part of helping it to maintain its reputations for excellence in terms of facilities and research.

- 4.16** Whilst large scale projects can plan and integrate current clinical and research needs, there are also a range of existing buildings where upgrades and refurbishment will be needed over the coming years. The principles below will need to be considered with the ambition of creating coherent and user-friendly spaces across the Campus.

Key principles for built form

4c.1 Ground floor activation

- 4c.1.1** Design ground floors and outdoor spaces to accommodate a mix of flexible uses to extend access to café, co-working spaces, nursery facilities and other leisure needs across the Campus for patients, employees and visitors of the Campus as well as supporting residents and the wider community.
- 4c.1.2** Opportunities to improve the visibility of existing amenities should be taken and new amenity uses should ensure that they are well-located to activate adjoining streets and spaces.
- 4c.1.3** Create a clear definition between public, communal and private spaces, and provide natural surveillance of the public realm.

4c.2 Scale, character and materiality

- 4c.2.1** Seek to positively relate new buildings to the surrounding built form by using appropriate form, massing and material palettes to strengthen the sense of character and place.
- 4c.2.2** Contribute to the user experience of the Campus for patients, visitors, workers and the wider community by providing high quality 'human scale' buildings, by ensuring that entrances, receptions and other points of interaction should employ more tactile materials and think about user comfort.
- 4c.2.3** Create opportunities to use landscaping and planting that soften the space from the surrounding streets and built form and to create a sense of defined enclosure.
- 4c.2.4** Plant and service demands on existing and future buildings should be designed flexibly to allow future demands to be met. This may also include exploring whether other more sustainable options are possible, such as alternatives to diesel back up generators, and whether it is possible to rationalise plant and equipment within existing buildings and spaces and if additional equipment can be sensitively integrated into existing roof spaces or podium level before utilising other ground level and external locations.
- 4c.2.5** Recognise that some temporary and meanwhile buildings and structures may have a different scale, character and materiality to permanent solutions which may be considered acceptable in the context of a meanwhile proposal.

4c.3 Townscape and the historic environment

4c.3.1 Design buildings that positively respond to the emerging contemporary architectural character of the Campus whilst achieving coherent design with existing adjacent buildings.

4d Connectivity and movement

4.17 The Campus needs to meet a wide range of users needs throughout the day. This creates challenges about who and what has priority and how key blue light and service delivery routes are integrated. However, streets and spaces should create safe and attractive routes that promote walking, wheeling and cycling for those who can, and which can connect into Campus facilities, such as the patient shuttle bus, and so reduce dependency on private car use.

4.18 In 2021 Paths for All commissioned the Sensory Trust to develop The Outdoor Accessibility Guidance to support in creating outdoor places, spaces, routes and facilities more accessible and inclusive for all users. The guidance sets out principles and examples of good practice that can be implemented in designing outdoor spaces for walking, wheeling or cycling. This guidance along with the [Active Travel England: planning application assessment toolkit](#) should be referred to and incorporated into relevant development proposals.

4.19 Car parking provision to meet the needs of the Campus is well understood but needs to continue to be controlled and monitored in order for the Campus to continue to reduce its modal shift ambitions and to recognise the significantly enhanced public transport opportunities that will be available for the Campus in the coming years including Cambridge South Station. There will need to be a careful balance between car parking provision for those who need to access healthcare facilities, with those working or visiting the Campus.

Key principles for connectivity and movement

4d.1 Wayfinding and permeability

4d.1.1 Create permeable streets, spaces and movement networks that are accessible to all users, allow users to navigate the Campus with ease and prioritise external spaces based on the street user hierarchy which prioritises the needs of pedestrians.

4d.1.2 Maintain the important network of internal streets and connections within Addenbrooke's hospital, whilst also incorporating the operational needs of strategic blue light routes along Dame Mary Archer Way and Robinson Way.

4d.1.3 Review routing and arrangements for delivery and service vehicles, including last mile delivery hubs and cycle-based deliveries. This should minimise the impact of servicing and deliveries on pedestrians, cyclists and public transport and limit peak time travel demand on the Campus whilst supporting the delivery of materials to research buildings.

4d.2 Wider integration of the Campus

4d.2.1 Improve the integration between the Campus and the surrounding communities by enhancing walking, wheeling, cycling and public transport connections to and from the Campus including to key healthcare and employment buildings.

4d.2.2 Integrate new development with new and emerging transport schemes and projects to create a joined-up approach to wayfinding, connectivity and across the Campus and to nearby areas. These schemes may include the development of Cambridge South Station and other projects.

4d.3 Accessibility

4d.3.1 Promotion of Active Travel measures should underpin travel planning for the Campus with opportunities to connect into existing and future sustainable travel modes (such as Cambridge South Station and CSETS) maximised to meet the needs of those who experience reduced mobility.

4d.3.2 Encourage cycling and other forms of wheeling to and from the Campus by locating cycle and other wheeled parking within or adjacent to building entrances to allow for users on the Campus to be able to access their destination safely and comfortably.

4d.3.3 Develop cycle and car parking strategies to prioritise the provision of new or improved cycling infrastructure, further develop the walking and cycling network in and around the Campus and to manage the approach to car parking.

4d.3.4 Develop clear strategies for car parking to understand and mitigate cumulative impacts and support the transition towards a greater use of electric vehicles through vehicle charging points (both active and passive) which, given the urban nature of the Campus, reflect the standards applied within Cambridge City.

4e Sustainability

4.20 Cambridge City Council shared the sustainability vision to be net zero carbon by 2030, setting targets through a Climate Change Strategy and Carbon Management Plan. South Cambridgeshire District Council declared a climate emergency in 2019 and has adopted a Zero Carbon Strategy to reduce carbon emissions and support businesses and local communities to achieve carbon net zero.

- 4.21** The principles set out in this chapter build on the adopted Local Plans and should be read alongside the Greater Cambridge Sustainable Design and Construction SPD (adopted 2020). The SPD provides guidance on ways to reduce energy demand and associated carbon emissions, as well as carbon reduction requirements for achieving BREEAM ‘excellent’ and BREEAM ‘very good’ through mandatory credits. Proposals should adhere to or go beyond requirements for sustainability set out in the Sustainable Design and Construction SPD to design and deliver more sustainable forms of development.
- 4.22** The Cambridgeshire Flood and Water SPD (adopted 2018) should also be referred to. The SPD provides guidance for developers on how to manage flood risk and the water environment as part of new development proposals. It includes issues such as how to address flood-risk issues as part of the planning application process, and how to design developments to manage and mitigate flood risk. It also covers how to incorporate sustainable drainage systems into new developments.
- 4.23** Greater Cambridge has committed to deliver continued air quality improvements working towards the World Health Organisation air quality guidelines in the Greater Cambridge Air Quality Strategy (2024). To protect the health of users on the Campus whilst supporting continued growth and development, all proposals should design out air quality impacts and reduce contribution to overall emissions. All proposals should include an Air Quality Statement detailing how this has been achieved.

Key principles for sustainability

4e.1 Climate resilience and mitigation

- 4e.1.1** Support the use of sustainable and energy efficient building materials with low embodied carbon that will support the transition to net zero carbon and contribute to achieving high quality design of buildings. Minimising the contribution of building materials to the urban heat island effect must also be considered.
- 4e.1.2** Prioritise a Retrofit first approach to existing buildings that focuses on retaining, adapting and existing buildings and structures as the first design option to be considered and assessed. Where this is not a viable long term option, consider the use of buildings on a meanwhile basis and maximise the reuse of materials on the same building or Campus.
- 4e.1.3** Integrate the principles of sustainable design and construction in all aspects of design, including energy efficiency and renewable energy generation, biodiversity and green and blue infrastructure provision, heat and water demand. Applicants are encouraged to commit to post-occupancy evaluation studies with measurable data on the building’s performance including energy and water efficiency standards.

4e.1.4 For non clinical uses, seek to exceed water efficiency targets by including non-potable water supply, harvested rainwater or re-used greywater and including sustainable urban drainage systems (SuDS).

4e.2 Design and construction

4e.2.1 Follow the energy hierarchy and take a 'fabric first' approach, which maximises the performance of the materials and components that make up the building fabric itself, before considering the use of electrical or mechanical building service systems.

4e.2.2 The thermal performance of the building fabric should seek to provide a comfortable internal environment throughout the year, with a specific emphasis upon the prevention of summertime overheating and winter heat loss. Providing natural ventilation, adequate daylight and the use of external shading are key elements of a passive design approach that will save energy and help achieve net zero carbon.

4e.2.3 Seek opportunity for buildings orientation to be set out to minimise energy demand and maximise renewable energy generation potential, with the use of simple building forms to improve energy performance and efficiency. Any external equipment must be shown on plans and elevations to show how they have been integrated into the building design.

4e.2.4 Seek opportunities to support the transition to net zero carbon with reference to relevant frameworks including the NHS Net Zero Building Standard.

4e.3 Environmental health considerations

4e.3.1 Consider impacts on air quality, noise and vibration, and contaminated land through the uses on the Campus and through construction phases of development.

4e.3.2 Ensure lighting of buildings and open spaces is ecologically sensitive to avoid impacts on the rural edge and Hobson's Brook and overall levels of light pollution.

4e.3.3 Promote sustainable transport and dedicated routes for cycling and pedestrians to reduce dependency on car use and improve air quality.

4e.3.4 Create well-ventilated buildings that encourage convective air movement.

4f Phasing and delivery

- 4.24** The nature of projects likely to come forward during the timeframe of this SPD varies in terms of size and complexity. As such the phasing and co-ordination of change on the Campus is difficult to set out in any great detail. Large scale projects can deliver significant and coordinated change, but smaller projects present more of a challenge. The other key challenge is how to resolve and achieve beneficial change to areas that sit outside of replacement or refurbishment programs. Co-ordinating funding streams and maintenance and management plans creates the possibility of achieving coherent and comprehensive change and schemes coming forward will be challenged to demonstrate how they fit into the bigger picture plans for the Campus.
- 4.25** In March 2024, Cambridge City Council published its Community Wealth Building Strategy and Approach which seeks to address the significant inequalities experienced across parts of the City. A key approach identified in the Strategy is to take a holistic, systems-based approach by working collaboratively with a range of stakeholders including partner organisations and businesses. The Campus is well placed to support the implementation of this strategy. As an anchor organisation and key employer in the region, the Campus has good opportunity to play its part in bringing forward improvements to the health and wellbeing of the City and region.

Key principles for phasing and delivery

4f.1 Phasing

- 4f.1.1** Seek to deliver the Campus through appropriate strategies, assessments and evidence that conform to the adopted Local Plans.
- 4f.1.2** Deliver where appropriate infrastructure to support individual phases of the Campus and the longer-term proposals coming forward to future-proof the design of the Campus.
- 4f.1.3** Effectively deliver and manage a range of temporary permissions and meanwhile uses to improve the Campus for workers, visitors and local people. Therefore, positively contributing to the needs of existing and future users of the Campus and to effectively utilise space in the short-term.

4f.2 Delivery

- 4f.2.1** Actively manage the timely delivery of infrastructure and public realm enhancements at early phases of development to support the needs of all users of the Campus.
- 4f.2.2** Opportunities to deliver co-ordinated improvements to the streets and spaces across the Campus should be maximised as part of redevelopment and estate maintenance and renewal programmes.

4f.2.3 Seek to overcome barriers to delivery through appropriate strategic or site-specific strategies.

4f.3 Stewardship and management

4f.3.1 Encourage stewardship of streets and spaces to create opportunities for wider community involvement.

4f.3.2 Identify ways to work in partnership with campus users, the wider community and other stakeholders across the City to support the Cambridge Community Wealth Building Strategy. This can range from providing skills and training opportunities to meet current and future skills gaps, community decision-making, supporting local businesses and social enterprises through supply chains to exploring opportunities to use or manage buildings and land assets for community wider benefit.

4f.3.3 Share knowledge and lessons learned in the delivery and phasing of development on the Campus with relevant landowners and stakeholders.