Green infrastructure and biodiversity topic paper

This topic addresses: Green infrastructure, blue infrastructure, leisure facilities and playing fields and public open space. **SA Objective:** 7. To provide adequate **green infrastructure**, leisure and recreation opportunities and make these readily accessible for all; and to conserve and enhance Oxford's **biodiversity.** **SEA Theme:** Landscape, human health, biodiversity, flora, fauna, soil, water, air.

Introduction

The green infrastructure network is an important issue to be addressed in the new Local Plan. There are various definitions used for the term Green infrastructure (GI); however, the National Planning Practice Guidance (NPPG)[1] defines it as embracing:

A range of spaces and assets that provide environmental and wider benefits. It can, for example, include parks, playing fields, other areas of open space, woodland, allotments, private gardens, sustainable drainage features, green roofs and walls, street trees and 'blue infrastructure' such as streams, ponds, canals and other water bodies.

Green infrastructure forms an essential part of the city's natural capital which is the various elements of the natural environment which provide us with a variety of valuable goods and services. An important feature of GI is its multi-functional nature, which means that it can perform a range of services from which people can benefit and which can contribute positively to achieving various policy objectives. Such services include, supporting physical and mental health and wellbeing; encouraging investment and regeneration; building resilience to climate change; providing space for nature and supporting biodiversity; reducing flood risk; and contributing to improved air quality (figure 1). The Council must balance competing development needs in the city whilst also ensuring that it plans in a positive way for the creation, protection, and enhancement of Oxford's green infrastructure so that these various benefits can be maximised for the city in the future.

Figure 1: The multi-functional benefits of Oxford's green infrastructure (MHCLG 2019)

Topic	Benefit provided by green infrastructure
Wellbeing	▪ Provide opportunities for leisure, sports and recreation (physical health) ▪ Attractive environment/proximity to nature/tranquillity (mental health) ▪ Provide opportunities for social interaction (building communities) ▪ Provide opportunities for play/exploration/learning (child development)
Heritage	▪ Significant contributions to the setting of listed buildings ▪ Significant contributions to the character of conservation areas ▪ Important to historic views

[1] https://www.gov.uk/guidance/natural-environment#green-infrastructure

	▪ Some green spaces are of heritage value in their own right and are designated historic parks or local heritage assets
Sense of place	▪ Contribute to the special character of the city and part of what makes Oxford unique ▪ Green belt prevents unrestricted sprawl and stops neighbouring towns/villages from merging into each other ▪ Provide links with the surrounding countryside
Biodiversity	▪ Provision of habitats for plants and animals (particularly important are those that are recognised as being of European or national significance) ▪ Enable the movement/migration of species and genes
Water Management	▪ Active floodplain for Oxford's rivers, streams and brooks (water storage and retention) ▪ Help to manage surface water runoff (sustainable drainage)
Air quality	▪ Vegetation helps to improve air quality (also benefiting human health)
Climate change mitigation	▪ Natural cooling (provision of shade, enabling air flow) ▪ Vegetation provides carbon capture and storage ▪ Flood protection
Jobs	▪ Businesses and jobs related to the use and management of green spaces
Tourism	▪ Historic parks and views attract visitors to the city ▪ Green spaces encourage visitors to spend longer in the city
Attractive setting for business	▪ Green spaces are part of the character of the city and the "Oxford brand" ▪ Creates a more attractive business environment
Workforce	▪ Contact with nature and active recreational use of natural green spaces contributes to people's psychological well-being and physical health, reducing sick days and increasing productivity and staff retention. ▪ Opportunities for formal and informal learning, training and education through the use and management of green spaces, including volunteering.
Resources	▪ Opportunities for local food production including allotments, city farms, orchards and agriculture (also reduces food miles) ▪ Potential sources of low carbon energy such as biofuels and hydro power

Oxford's green infrastructure network can be broken down into a variety of typologies, including public and private open spaces; blue infrastructure including urban blue spaces, rivers and the canal; individual assets such as trees, hedgerows, green roofs and walls; as well as the various components of the ecological network and these will each be talked about in turn in this paper[2]. The intention is to set out the current situation in respect to the GI network as well as framing the key issues that the Council considers will be important for the new Local Plan to address.

[2] *The green belt forms an important part of the green infrastructure network in Oxford also. The green belt is addressed within a separate Green Belt topic paper however.*

Plans Policies and Programmes

National policy

National Planning Policy Framework and Planning Practice Guidance

National planning policy and its supporting guidance highlights that planning for green infrastructure can help deliver a variety of planning policy objectives including: 'building a strong, competitive economy'; 'delivering a wide choice of high quality homes'; 'requiring good design'; 'promoting healthy communities'; 'meeting the challenge of climate change, flooding and coastal change'; and 'conserving and enhancing the natural environment' with multiple references to the need for securing net biodiversity gain and net environmental gain.

The PPG states[3] that as part of the approach to planning green infrastructure strategically such as through Local Plans:

Strategic policies can identify the location of existing and proposed green infrastructure networks and set out appropriate policies for their protection and enhancement.

The NPPF specifically highlights in **paragraph 20** that green infrastructure is an element which local planning authorities should address in their strategic policies. **Paragraph 171** states that plans should: take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure; and plan for the enhancement of natural capital at a catchment or landscape scale across local authority boundaries.

Paragraph 150 states that new development should be planned for in ways that avoid increased vulnerability to the range of impacts from climate change and include suitable adaptation measures including through the planning of green infrastructure. **Paragraph 181** highlights that as far as possible at the plan-making stage, opportunities to improve air quality or mitigate impacts should be identified and that green infrastructure should be considered as part of this approach.

Further references are made to green infrastructure elsewhere in the document:

- **Para. 34**: plans should set out the development contributions expected in association to green infrastructure and set out the levels and types required.
- **Para. 91**: Provision of safe and accessible green infrastructure is one example of a way that local authorities can enable and support healthy lifestyles.
- **Para. 127**: developments should optimise the potential of the site to accommodate and sustain an appropriate amount/mix of development including green and public space.

Open space and recreation

In relation to open spaces and sports provision, **paragraph 92** states that plans and policies should plan positively for the provision and use of shared spaces, community facilities such as sports venues and open spaces. **Paragraph 96** highlights that in order to determine required level of provision, policies should be based on robust and up-to-date assessments of need for open space, sport and

[3] https://www.gov.uk/guidance/natural-environment#green-infrastructure

recreation facilities (including quantitative or qualitative deficits or surpluses) and opportunities for new provision.

Paragraph 97 states that Existing open space, sports and recreational buildings and land, including playing fields, should not be built on unless:

a) an assessment has been undertaken which has clearly shown the open space, buildings or land to be surplus to requirements; or
b) the loss resulting from the proposed development would be replaced by equivalent or better provision in terms of quantity and quality in a suitable location; or
c) the development is for alternative sports and recreational provision, the benefits of which clearly outweigh the loss of the current or former use.

Biodiversity

Chapter 15 (**paragraphs 170-183**) set out the national planning policy position in relation to conserving and enhancing the natural environment. The over-arching policy position is that planning policies should contribute to and enhance the natural environment. **Paragraph 170** sets out that this should be done by protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils in line with their status or identified quality. It also sets out that impacts should be minimised and net gains in biodiversity should be provided including by the establishment of coherent ecological networks that are more resilient to current and future pressures. The PPG (paragraphs 10-35) covers responsibilities regarding protected and priority species and habitats; 'proportionate' information and assessment required on biodiversity impacts at all stages of development; local ecology networks and nature recovery networks; application of mitigation hierarchy, net gain metrics, and promotion of woodlands

National Design Guide

The National Design Guide[4] is a material consideration and forms part of national planning guidance. The guide sets out ten characteristics of good design, of which designing to incorporate nature is one. It highlights the value that natural spaces can bring to people and encourages networks of green and blue infrastructure within the design of spaces.

Conservation of Habitats and Species Regulations 2017 (as amended)

Legislation that previously transposed the European Habitats Directive (European Commission 92/43/EEC) into English law was amended[5] upon exit from the EU in order to transfer functions from the European Commission to the appropriate authorities in England and Wales but otherwise functions broadly the same.

The Regulations designate Special Areas of Conservation (SAC) and Special Protection Areas as priority locations for biodiversity conservation. In Oxford, this is the Oxford Meadows SAC, and near Oxford are the Cothill Fen SAC and Little Wittenham SAC. The effects of any plan or programme on these

[4] https://www.gov.uk/government/publications/national-design-guide
[5] https://www.gov.uk/government/publications/changes-to-the-habitats-regulations-2017/changes-to-the-habitats-regulations-2017

designated areas must be assessed via a Habitats Regulations Assessment (HRA) which will be conducted alongside the Sustainability Appraisal as the Local Plan is developed.

Natural Environment and Rural Communities Act 2006

Section 40 of this Act places a duty on all public authorities in England and Wales to have regard, in the exercise of their functions, to the purpose of conserving biodiversity.

N**ational Parks and Access to the Countryside Act 1949**

Section 21 of this Act enables local authorities to designate Local Nature Reserves where they are of high natural interest in the local context.

Wildlife and Countryside Act (1981) (as amended)

The Wildlife and Countryside Act 1981 is the key piece of legislation in respect of invasive non-native species. All invasive species are listed under Schedule 9 of the Act. It is illegal to plant or otherwise cause any invasive species to grow or spread into the wild. When encountered on a development site an Invasive Species Management Plan will be required.

Small Holdings and Allotments Act

This places a duty on local authorities to provide allotment gardens where demand for them exists. Requests for allotments submitted by at least six local people must be taken into account when considering whether demand exists. Allotment provision is also subject to other legislation arrangements less related to the planning process, including the Allotments Acts of 1922, 1925 and 1950.

The 25 Year Environment Plan and the Environment Bill

The government's 25 year plan for the environment of 2018 sets out various aspirations in relation to green infrastructure including providing more and higher quality GI in towns and cities, with particular mention of encouraging more planting of trees in and around our urban areas. The document also states that the government wishes to establish a cross-government project, led by Natural England, that reviews and updates existing standards for green infrastructure, and then support Local Authorities to utilise these in their own assessments. The recent consultation on the National Model Design Code in early 2021 indicated that these standards are still in the process of being prepared.

Following up on the 25 Year Environment Plan, the government has set out an ambitious set of targets, plans and policies for improving the natural environment through the Environment Bill. The outline of the Bill was originally published more than a year ago and due to postponements for the 2019 election and the Covid-19 pandemic are, at the time of writing, still being considered at by the Public Bill Committee, however once given Royal Assent it will have various implications for planning and how the environment is to be considered in that process.

One of the most pressing considerations for planning will be the introduction of a requirement of delivering net gains in biodiversity (currently envisaged to be a 10% improvement) on all new developments, as measured through DEFRA's Biodiversity Metric. Where net gains cannot be delivered on site, developers will have the option of buying into net gain off-site in the local area or purchasing credits which will deliver into a national net gain delivery system (though exact details on how these processes will work are yet to be published). The Bill is also set to make provision for statements and reports about environmental protection; for the Office for Environmental Protection; about waste and resource efficiency; about air quality; for the recall of products that fail to meet

environmental standards; about water; about nature and biodiversity; for conservation covenants; about the regulation of chemicals; and for connected purposes.

As the Environment Bill progresses through to Royal Assent, the Council will need to consider how its implementation fits into the broader policy approach to green infrastructure provision in the city and this paper will be updated as new information emerges around how government is intending to proceed with implementing the fundamentals of the Bill.

Planning for the future (white paper)/National Model Design Code consultations

The government has engaged in a couple of notable consultations on changes to national policy. In its white paper, 'Planning for the future'[6], the government proposes to designate all areas of land into three categories – growth, renewal and protected. The intention of the protected classification is to impose more stringent controls on development in recognition of their particular environmental and/or cultural characteristics. Protection areas would include green belt, conservation areas, important green spaces, areas of flood risk, as well as biodiversity designations like local wildlife sites. Amongst other proposals in the paper, the government also reiterated its intention to make all new streets tree-lined and consulted on changes to the NPPF subsequently in relation to this.

Following up on the National Design Guide publication, the government recently consulted on a new national model design code[7] intended to provide guidance for the creation of local design codes. The guidance included various references to green infrastructure like trees and open spaces and sets out guidelines in respect to nature, and public open space, green infrastructure, sustainable drainage systems, and biodiversity – these issues are expanded upon in the supporting guidance notes. Reference is also made to the ongoing development of a National Framework of Green Infrastructure Standards for blue and green infrastructure which will be published in the future.

Sports England's 'Uniting the Movement' Strategy[8]

This strategy sets out a ten year vision from Sport's England which aspires to create more equal, inclusive and connected communities, where people live happier, healthier and more fulfilled lives. It advocates for movement, sport and physical activity and seeks to address five key issues: recovery and reinvention after the covid pandemic; connecting communities; positive experiences for children and young people; connecting with health and wellbeing; and creating and protecting active environment like parks and pitches.

[6] https://www.gov.uk/government/consultations/planning-for-the-future
[7] https://www.gov.uk/government/consultations/national-planning-policy-framework-and-national-model-design-code-consultation-proposals
[8] https://www.sportengland.org/why-were-here/uniting-the-movement

Local context

The Oxfordshire Plan 2050

The Oxfordshire Local Planning Authorities (including Oxford City Council), working together as the Oxfordshire Growth Board, are developing a Joint Strategic Spatial Plan (JSSP) for the area, known as the Oxfordshire Plan 2050, which will set out strategic policies for the county. An initial consultation was launched on the Plan in February 2019 and a further consultation is being launched in the summer of 2021. The summer 2021 consultation will include a number of options, which will be concerned creating a Nature Recovery Network and achieving biodiversity net gain.

The Oxfordshire Plan will be submitted to the Secretary of State for examination in September 2022. It will be important to ensure that the Oxfordshire Plan and the Oxford Local Plan 2040 work closely together; there will be many common themes and objectives and much shared evidence behind the two plans.

Oxford City Council Green Spaces Strategy 2013-2027

The strategy focuses on green space that is freely available to the public for informal recreation, allotments and play irrespective of who the land is owned by. It states that current levels of green space should be maintained and opportunities sought to increase this. It also states that a green space standard linked to population (e.g. former Core Strategy Policy CS21) is no longer appropriate. Instead the focus should be on protecting and enhancing existing green space and ensuring that new developments contribute to the provision of high-quality, multi- functional green space where it is required most (e.g. financial contributions to improve the quality of existing spaces or on-site provision of new green space).

“Linking the green spaces identified within this study are the wide flood plains of the River Thames and the River Cherwell which comprise thousands of hectares of agricultural land and private land which together have the potential to form an integrated network of green infrastructure. Improving public access to these areas by collaborating and building partnerships with stakeholders is a key aim of this strategy.”

“Our aspiration is that people do not have to walk more than 1,900m to their nearest large park, not more than 750m to their nearest medium park and not more than 400m to their nearest small park. This standard will be applied to all new developments as well as existing residential areas.”

Oxford City Council Local Plan 2036 Green Infrastructure Study

As part of the supporting work for the development of the Local Plan 2036 the Council carried out an Oxford Green Infrastructure Study which was completed in 2 stages. The first stage comprised of the identification of green spaces to be included in a green spaces audit, followed by an assessment of their social, economic and environmental functions. The findings from this stage were put out for consultation as part of the preferred options stage for OLP 2036. The second stage of the Study built on the outcomes of the first, and comprised of further assessment taking into consideration the existence of potential opportunities for improvements of existing spaces and enhancement of the wider network. It also took into account local interest/feelings regarding the sites, in particular by reference to responses received to the consultation and in relation to a Park and Leisure campaign.

Oxford City Council Playing Pitch Strategy 2012-2026

The strategy assesses current and future need for playing pitches in Oxford. It was developed through consultation with Sport England and other stakeholders. The main conclusion is that there is currently a shortage of playing pitch provision in Oxford that has secured community use, however additional new pitches are not necessarily required to meet the shortfall, as securing community use at currently unsecured sites could result in adequate provision for all sports.

Draft Oxford City Council Playing Pitch Strategy 2019-2039

A refresh of the Playing Pitch Strategy is underway. Data has been collected and analysed. The full report is not yet completed, but the implications of the data were summarised into an interim report to form part of the evidence base for the Oxford Local Plan 2036 examination[9]. This shows there is currently sufficient grass pitch provision, although the quality of some is a concern. Over time demand for grass pitch football at youth/junior/mini level is likely to outstrip supply. To maintain supply to keep up with demand there is a need to protect pitches and take opportunities for enhancements.

Biodiversity Action Plan 2015-2020

The Council's action plan[10] identified opportunities for improving wildlife and habitat connectivity, including cross- boundary networks, in line with Planning Practice Guidance. The action plan sought to work as a practical tool for us to influence and encourage biodiversity work within the City Council's direct influence rather than being intended to be a Biodiversity Action Plan for the city as a whole.

The plan set out a range of short and longer term actions for the various services of the Council including planning. Amongst these actions was a commitment to publishing a Technical Advice Note on biodiversity for developers on how to conserve and encourage biodiversity.

Biodiversity Review for Oxford City Council Parks and Nature Areas 2020

In 2020, Oxford City Council completed a Biodiversity Review[11], building off the work of the Action Plan. It set out the work already done to support biodiversity in its green spaces in recent years, and identified a wide range of further habitat improvement projects and environmental initiatives for the next five years**.**

The review highlights 12 priority projects which related to site-specific habitat enhancement and creation within the city's larger parks and natural areas, as well as secondary list of schemes targeting the city's smaller sites. The intent is to keep the document as a live list to be updated as and when appropriate.

Tree Canopy Assessment (2015 Treeconomics), iTree Eco Survey (Treeconomics, 2021[12]), Draft Urban Forest Strategy (not yet published)

The tree canopy assessment assessed the percentage of tree cover and shrub cover across the city. Details such as the number of different species and health of trees are also described. The iTree Eco

[9] https://www.oxford.gov.uk/downloads/file/5752/grs11_-_interim_playing_pitch_strategy_2019-2039
[10] https://www.oxford.gov.uk/info/20213/biodiversity/861/what_we_are_doing_to_enhance_biodiversity
[11] https://www.oxford.gov.uk/info/20213/biodiversity/229/biodiversity_in_oxford
[12] https://www.oxford.gov.uk/downloads/download/1219/oxford_i-tree_eco_study

Survey assesses the benefits brought by trees in economic terms, for example the value of the water interception from the trees.

The draft Oxford Urban Forest Strategy aims to build on the tree canopy assessment. Its three overarching objectives are, to protect, improve and manage (e.g. manage pests and disease and improve vegetative health); to expand, enhance and develop (e.g. increase canopy cover and resilience, with biodiversity and landscape character in mind); and to engage, promote and employ (e.g. engage communities and key stakeholders). It notes the many benefits of trees and canopy cover and promotes a 'right tree right place' and seeks to ensure quality of planting over quantity in order to maximise benefits for nature and for people.

Oxford Local Plan 2036 (adopted June 2020)

Chapter 5 of the adopted Local Plan, 'Protecting and enhancing Oxford's green and blue infrastructure network', sets out policies G1 to G8.

- **Policy G1** – Seeks to preserve the existing green/blue network within the city for their social, environmental and economic value.
- **Policy G2** – Protects important sites for biodiversity and geo-diversity within the city, particularly the Oxford Meadows SAC and various SSSIs, as well as those sites non-statutory sites of local biodiversity value.
- **Policy G3** – Relates to the protection afforded to the Green Belt.
- **Policy G4** – Seeks to protect allotments within the city as well as encouraging provision of community food growing spaces on larger developments of 50+ dwellings.
- **Policy G5** – Protects existing open space including indoor and outdoor sports provision from inappropriate loss as well as setting out expectations for re-provision and community use agreements.
- **Policy G6** – Relates to how proposals on residential garden land will be assessed and the circumstances in which they would be considered to be acceptable.
- **Policy G7** – Protects existing green infrastructure features on a development site such as trees and ancient woodland.
- **Policy G8** – Sets out the Council's expectations in relation to provision of new green and blue infrastructure.

Biodiversity Technical Advice Note

The biodiversity technical advice note (TAN)[13] outlines Oxford City Council's requirements for information on biodiversity to be supplied in support of planning applications. It has been produced to summarise the approach expected of developers in avoiding, mitigating and compensating for biodiversity impacts in Oxford. The TAN also provides guidance for developers and planners on how to enhance and make space for nature within new developments.

[13] *Updated April 2021*

Current situation

As set out in the introduction, green infrastructure in the city can be broken down into various typologies and classifications. This section of the paper is broken down to focus on the main constituents of the network in turn.

Open space (public and private)

Open space in the city can serve a variety of functions, from more specific such as cemeteries and allotments, to more broad such as parks, playing pitches and other spaces. Some of these spaces are publically accessible, whilst others have more restricted access.

The Oxford Green Infrastructure Study undertaken to support the development of the Local Plan 2036, identified and assessed green spaces across the city. Conclusions were drawn about whether the identified sites form part of the Green and Blue Infrastructure Network or not, and also whether there should be a specific protection for biodiversity, outdoor sports or allotments. Sites were considered to form part of the Green and Blue Infrastructure Network if they have a multi-functional use or are clearly important as part of a network.

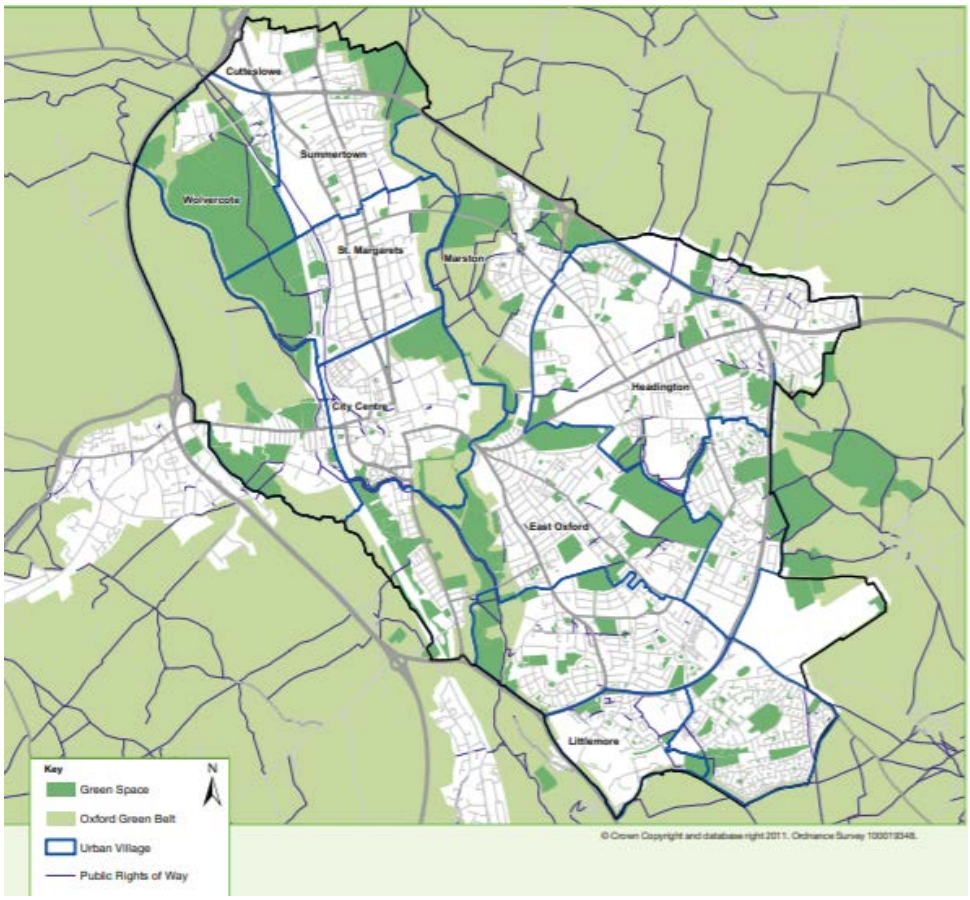
Small, isolated green infrastructure features, while also important, are considered to be protected through other policies of the Plan. Sites were assessed as forming part of the Green and Blue Infrastructure Network if they have biodiversity importance (including Conservation Target Areas) or more than one of the following criteria were met:

- Good level of public use/demonstrably high local public value (or public sites with no other available sites in the local area)
- sports
- allotments
- significant visual interest or townscape importance
- significant flood storage value (area of high flood risk were used as a proxy for this (flood zone 3).

Parks / Public Open space

There are a variety of parks and gardens throughout the city and these are mapped out in Figure 2 below which includes also includes play areas and allotments within the city.

Figure 2- Parks and Open Spaces distribution in the Oxford Green Spaces Strategy 2013-2027 (OCC 2013)



The Green Spaces strategy categorised the different types and sizes of parks that perform different roles within the city as is illustrated in Figure 3.

Figure 3: Categorisation of green spaces within the Oxford Green Spaces Strategy 2013-2017 (OCC 2013)

Park size	Also known as:	Description	Examples
Large Park	City Park (URS Report)	Of a significant size (vary between 7 ha and 122 ha), with secure boundaries and prominent entrances. Usually of a historical significance and sub-regional importance. A high quality landscape comprising a range of elements inc. sports facilities, play areas for all ages and car parking. Likely to have a wide catchment area and significant weekend use	Cutteslowe & Sunnymead Park Hinksey Park Florence Park
Medium Park	Neighbourhood Park (URS Report)	Intimate relationship with local neighbourhood. Provision of a flexible space, with prominent trees, possibly with some planting and shrubberies. With sports facilities such as fenced-off basket ball hoops or multi use games area (MUGA) or Street Sport site. Children's play area and extensive site furniture often including youth shelter	Fry's Hill Park Botley Park Headington Hill Park
Small Park	Local Park (URS Report)	To serve the immediate locality and needs. Often containing some children's play equipment, but not necessary	John Allen Park Ridgefield Road Recreation Ground Gaisford Road Recreation Ground
Formal	Parks: city, neighbourhood and local; playgrounds; sports grounds; square/garden and civic squares		
Informal	Ecological sites; green links; greens and commons; and churchyards /cemeteries		
Allotments and development sites are not included within the definition of formal and informal green space provision			

The Green Flag Award is an international standard that recognises the cleanliness and attractiveness of parks and green spaces. Five of Oxford's large, City Council managed, parks have achieved this award. However the Green Spaces Strategy states that a number of medium and small parks currently fall below their potential.

Sports and Recreation Provision

One classification of open space which is particularly important to the health and wellbeing of the city's residents is that of playing pitches. According to the Oxford City Council Playing Pitch & Outdoor Sports Strategy 2012-2026, provision of publicly accessible outdoor sport and physical activity spaces in Oxford includes:

- 117 playing pitches (used for various sports including football, cricket, rugby and hockey)
- 12 Synthetic Turf Pitches
- 58 tennis courts
- 14 Multi Use Games Areas.

The main conclusion from this strategy was that there is a shortage of playing pitch provision in Oxford that has secured community use; this is especially prevalent in cricket. Given this shortfall, the assessment suggests that all provision within the city should be protected. The strategy does not necessarily suggest that additional new pitches are required to meet the shortfall, as securing community use at currently unsecured sites could result in adequate provision for all sports.

Provision for youth and mini football is an exception, but in the main this shortfall can be addressed by the spare capacity in other pitch provision. The pitches within the city are generally of good quality and this needs to be maintained to ensure no reduction in their capacity. Any loss of provision would place greater pressure on the other remaining facilities. Policy G5 of the Oxford Local Plan 2036 seeks to address this.

The above-mentioned Playing Pitch Strategy was updated in an Interim Playing Pitch Strategy 2019-2029. At this stage of the development of the new Playing Pitch Strategy, taking into account the available data, the conclusion was that there is currently sufficient grass pitch provision to meet the demands of the sports identified within the study area. The study identified the quality of some of the grass playing pitch provision as a concern and the importance of looking at options on how we continue to improve the standards highlighted.

The future pictures of provision over the Interim strategy period show that despite predicted increased demand, there is generally spare capacity across both grass pitch provision and artificial grass pitch provision. The exception to this would be within grass pitch football at youth/junior/mini level football where demand outstrips current pitch provision.

As with the Oxford City Council Playing Pitch & Outdoor Sports Strategy 2012-2026, it is expected that this shortfall could be accommodated in existing sites and especially at the playing pitch hubs given the spare capacity across both adult grass pitches and artificial grass pitches. The Interim strategy also highlights the importance of continuing to work to secure community use at education sites.

In addition to this, although there is currently spare capacity in the artificial turf pitch provision both now and in the future, this could turn into a deficit if the AGP at St. Gregory the Great, which is at the end of its life, is not replaced with a new and improved 3G surface. The study also found that there is no 3G football provision which is accessible to clubs in the north of the City and a new 3G pitch would be supported in this area at a site such as Cherwell School or similar.

The Oxford Local Plan 2036 identifies that there is great potential in Oxford to enhance the public accessibility of open space. The supporting text to Policy G5 sets out that the City Council will work with private landowners to increase access to existing green spaces and to seek public access to private and institutional facilities through sharing schemes and joint user agreements which will be secured through a planning condition or a planning obligation.

Existing open space, indoor and outdoor sports and recreation facilities will be protected and enhanced through Policy G5. This will be important to ensure there remains excellent access to sport and recreation facilities as Oxford's population continues to grow.

Allotments

There are 35 allotment sites currently in active use in Oxford. The Oxford and District Federation of Allotment Associations (ODFAA) have gathered a large amount of data covering most sites. Current data shows that Oxford's allotments are well used. However there is some variation between allotment sites, with some having a small proportion of vacant plots available and others having a number of people on waiting lists. This may reflect varying levels of supply and demand across the city and the relative attractiveness of different sites to allotment users.

There is a fairly good spread of allotments around Oxford, although the South East of the city has the highest concentration of allotments (Figure 4 and 5). Allotments tend to be located on the edges of more suburban areas, close to where people live. There is no provision in the city centre. This is perhaps expected as this part of the city is predominately non-residential.

Figure 4: Categorisation of green spaces within the Oxford Green Spaces Strategy 2013-2017 (OCC 2013)

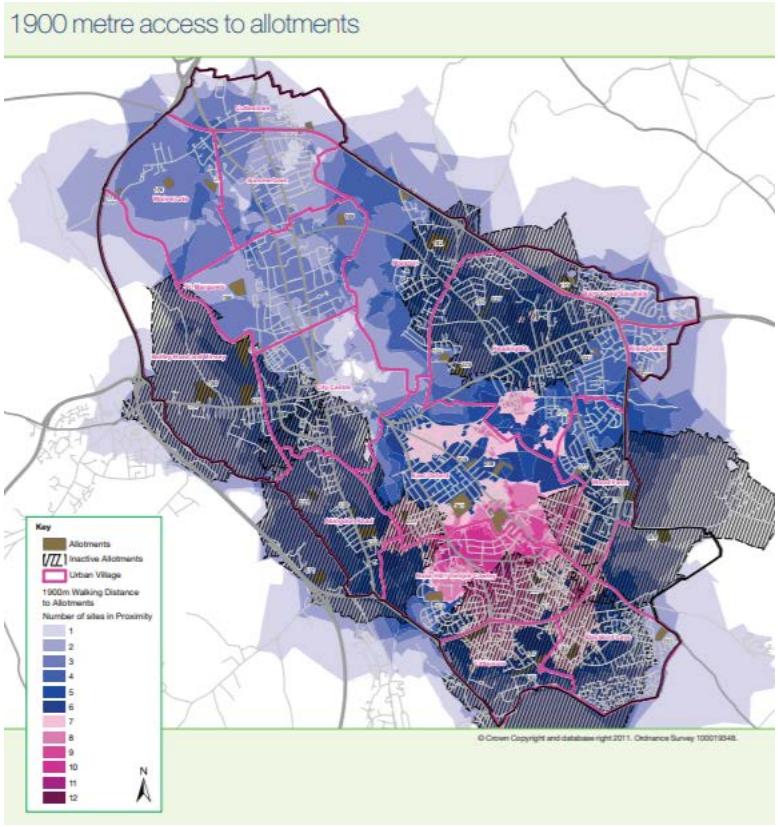
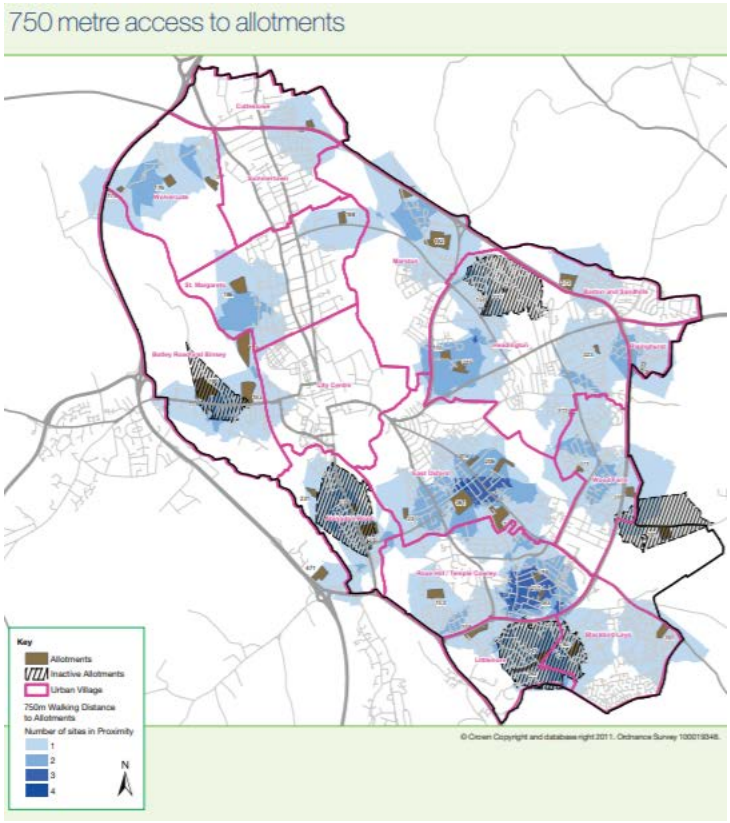


Figure 5: Accessibility distances to allotments in the city (1900 metres top; 750 metres bottom) (OCC 2013)



Allotments are protected because of their various benefits. Some are also protected as part of the Green Infrastructure Network. The Oxford Local Plan 2036 sets out that the City Council will support attempts by allotment associations to widen the community role of their allotment sites, to enhance sites and bring any disused plots back into cultivation.

The Oxford Green Spaces Strategy notes the importance of allotments being available close to homes. There are waiting lists for many allotment sites in Oxford, and most sites are in full or almost full active cultivation, demonstrating a strong demand for allotment space in the city. These are an important recreational and community resource requiring protection and, where possible, enhancement by the provision of better facilities or by bringing unused plots back into use.

Policy G4 of the Oxford Local Plan 2036 protects those allotment sites and plots shown on the Policies Map, and encourages the provision of new community food growing space on new residential developments of 50 or more dwellings.

Cemeteries

Cemeteries and other burial grounds not only provide an essential service for burying the dead, but often provide important habitat for biodiversity, as well as providing an important source of heritage and history. These locations can also offer space for quiet contemplation within the city. There are four main cemeteries in the city which are managed by the Council, these are:

- Botley cemetery
- Headington cemetery
- Rose Hill cemetery

- Wolvercote cemetery

Private green spaces in the city

There are a variety of greenspaces in the city which are not freely accessible to public, yet still make an important contribution to the overall green infrastructure network. For example, many of the schools and colleges in the city have their own playing fields and outdoor spaces (Figure 6) which play an important role in the health and wellbeing of the young people and children in attendance and add to the sense of place locally.

Figure 6 – Playing field at Oxford High School (Google images, 2021)

In addition, according to most recent land use data (2018)[14] from the Ministry of Housing, Communities and Local Government, around **19.9%** of Oxford's land use is classified as residential gardens. Planning policy has only very limited control in how these spaces are utilised, thus there is significant diversity in the amounts of green infrastructure that is present across Oxford gardens, but many of these spaces nevertheless are an important location for green assets like trees in the city. Whilst only being accessible to individuals within the home, private gardens offer an important outdoor space for socialising and being active. Of course there is not an equal distribution of this type of space across the community, and many individuals, particularly those living in flatted developments or house shares, may not have any privately accessible green space at all.

Private residential gardens were not included in the Green Infrastructure Study cited earlier, as the majority would not meet the 1,000m2 size threshold. Whilst residential gardens contribute to Oxford's GI, particularly in terms of their environmental benefits, their nature and maintenance cannot be guaranteed and it would be unreasonable for the Local Plan 2036 to attempt to guarantee this.

[14] https://www.gov.uk/government/collections/land-use-in-england

Individual green assets

Beyond the network of open spaces in the city, there are a number of individual elements which further contribute to Oxford's green infrastructure network which will now be discussed in turn.

Canopy cover

The tree canopy assessments carried out by Treeconomics found that across the city there is 15.9% tree canopy cover and 6.4% shrub cover. This amounts to approximately 248,200 trees and a total of 73 different species, the most common being ash, poplar and willow. The benefits of this have been quantified, and where possible expressed in economic terms, for example:

- Intercepts 255,000m^3 of rain water every year, equivalent to an estimated £81,000 in avoided stormwater treatment costs.
- Filters an estimated 65 tonnes of airborne pollutants each year, worth more than £1.12m in social damage costs
- Stores 76,400 tonnes of carbon

The tree canopy assessments broke down the amount of canopy cover by ward and is illustrated in Figure 7.

Figure 7 – Percentage of canopy cover in each of Oxford's wards (Treeco$_2$nomics, 2015)

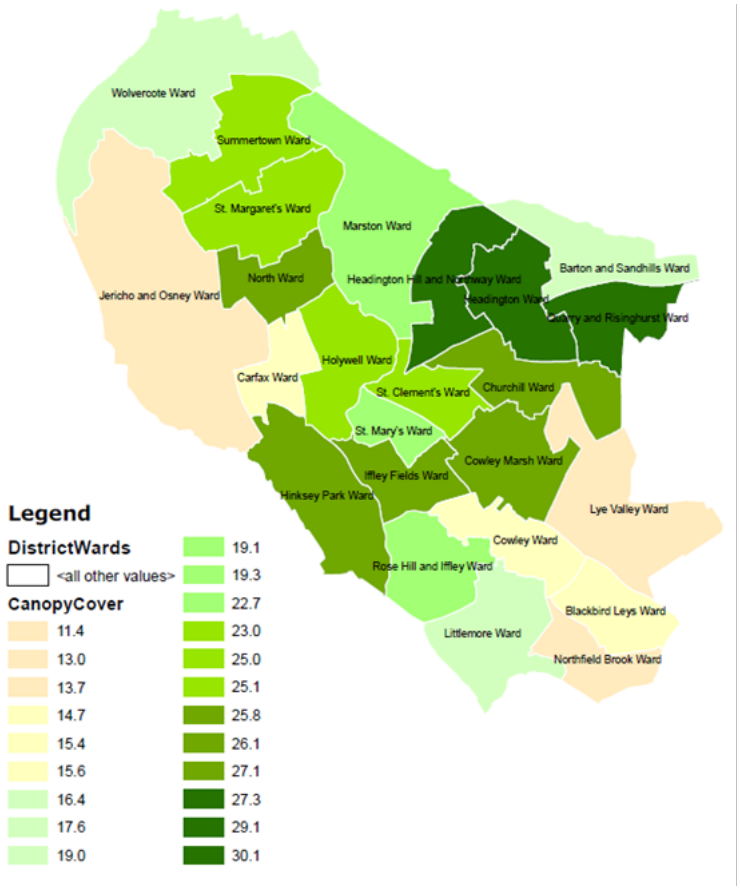


Figure 7 shows that there is a general trend for lower canopy cover in more deprived areas of the city. For example, Headington has approximately double the canopy cover of Blackbird Leys. The low canopy cover in Jericho and Osney can be accounted for because Port Meadow, a significant area of open space with few trees, is located in this ward.

Trees/Woodland

The Woodland Trust Ancient Tree Inventory records trees of notable, veteran and ancient status within the city boundary, including whether or not they are in public or private land. No star trees (public or private) have been identified within the city and there is no recording of lost trees of notable status, though this does not mean that trees of this nature may be discovered and recorded in future.

In the Green Infrastructure Study cited earlier, street trees were not included as it was deemed that trees that provide significant benefits would be more appropriately protected using TPOs rather than Plan policies.

The Ancient Woodland Inventory[15] identifies several thousand ancient woodland sites nationwide. Approximately seven such sites can be identified within the Oxford boundary, all of which are form part of other broadly designated sites.

Hedgerows

Countryside hedgerows are protected and in general it is an offence to remove a hedgerow that is more than 20 metres long without giving the council 6 weeks prior written notice. If the hedgerow is assessed as being "important" a Hedgerow Retention Notice (HRN) must be served, which prevents removal of a hedgerow without written consent. It should be noted that hedgerows that form the boundary of domestic gardens are not protected.

The Oxford City Local Biodiversity Action Plan 2015-2020 provides an overview of actions by the council to support biodiversity and to protect species and wildlife habitats. One of the actions/objectives adopted by the council is to assess opportunities to introduce deciduous hedging instead of fencing or walls in Council developments, not only to provide wildlife habitat, but to reduce air and noise pollution and opportunities for graffiti.

Green Roofs/Walls

Green roofs and walls are simply roofs or walls that have been intentionally covered, in whole or in part, in vegetation (Figure 8). Green and brown roofs and walls are thought to bring about several environmental and biodiversity benefits such as introducing valuable habitats to urban areas and help to keep buildings cool in summer. Their impacts are more likely to be felt at a very local level, although there may be possibilities for cumulative effects if they are widely adopted especially in combination with other biodiversity enhancements.

[15] https://naturalengland-defra.opendata.arcgis.com/datasets/a14064ca50e242c4a92d020764a6d9df_0/explore

Figure 8 – St. Luke's Hospital Living Wall in Oxford (Biotecture, 2019)[16]

The Oxford Local Plan 2036 recognises the potential benefits of green roofs and walls and is supportive of their use. The Biodiversity Action Plan also endorses them for their biodiversity benefits and actively encourages their integration into development schemes. There has been no city wide audit of green walls/roofs and no systematic methodology of accounting for them as part of the city's wider green infrastructure.

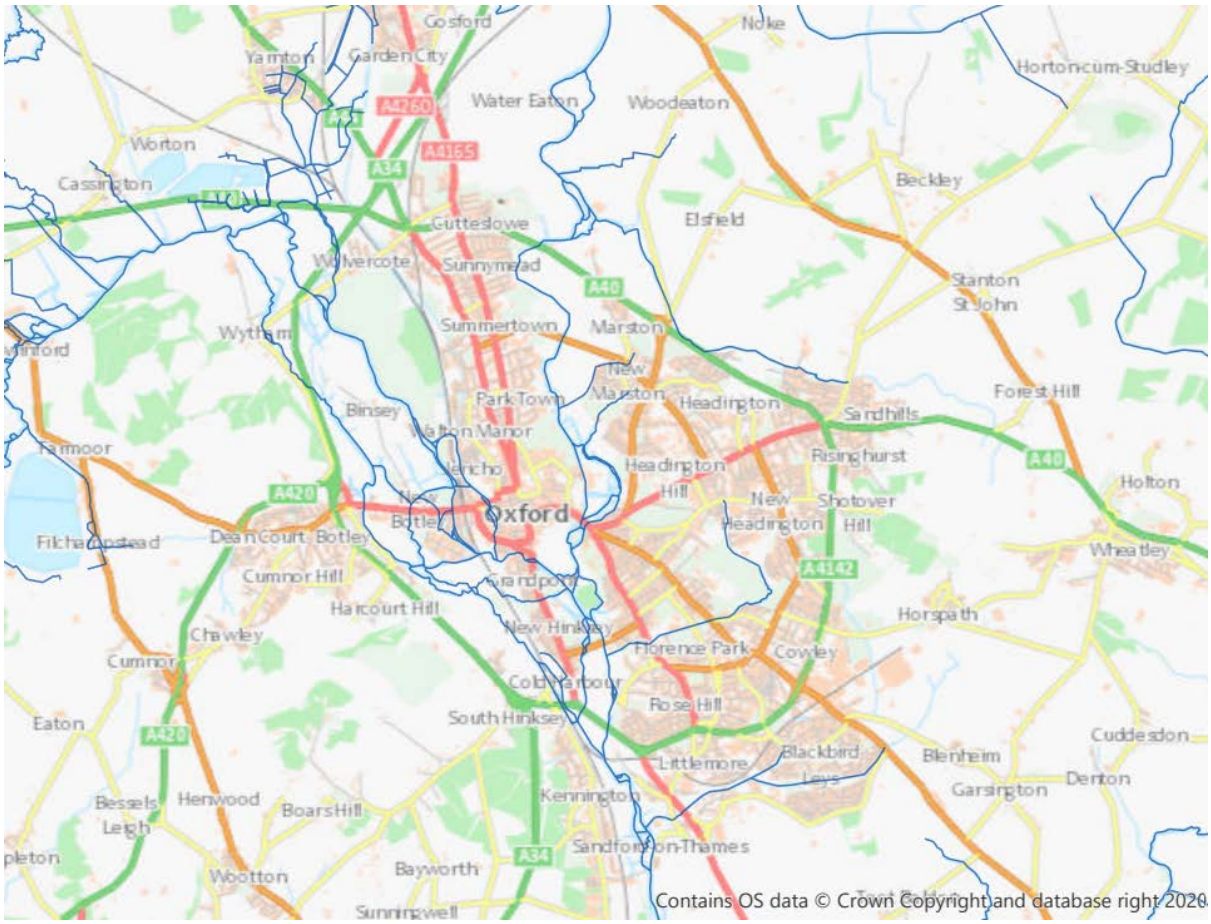
Blue infrastructure

An important part of the green infrastructure network is blue infrastructure, this includes various bodies of water that make up the landscape of the city. Most notable are the Thames and Cherwell rivers and the canal. These spaces are not just important for ecology, but are also an important resource for recreation, with popular paths alongside them and opportunities for boating and swimming, as well as contributing to the climate resilience of the city (water storage).

The city's "green lungs" include the flood plain land along the confluences of the two converging rivers, which act as an existing coherent network of predominantly local ecological sites. The rivers, along with their diverging brooks and streams are illustrated in Figure 9.

[16] https://www.biotecture.uk.com/portfolio/st-lukes-hospital-living-wall-oxford/

Figure 9 – Environment Agency designated main rivers (EA 2020)[17]



Another important water body to the character of the city is the Oxford Canal. The canal is an important part of the city's history, opened during the 18th century for the purposes of transporting coal from Coventry and with much of its southern section remaining unaltered compared with other sections that were straightened throughout the 19th century[18]. Running adjacent to the canal along the towpath is the long distance Oxford Canal Walk which runs up to Hawkesbury.

Biodiversity and Oxford's ecological network

One of the most important roles of the city's green infrastructure is the role they play in contributing to Oxford's biodiversity. There are many natural habitats in the city, according to most recent land use data (2018)[19] from the Ministry of Housing, Communities and Local Government, around **7.8%** of Oxford's land use is classified as forest, open land or water. Whilst many smaller sites arguably contribute to biodiversity, this section details some of the key spaces that comprise the ecological network.

Oxford Meadows SAC

The Oxford Meadows Special Area of Conservation (SAC) is an internationally important site of nature conservation importance. The SAC is situated on the broad floodplain of the River Thames to

[17] https://www.gov.uk/government/collections/main-river-map-for-england-proposed-changes-and-decisions
[18] https://canalrivertrust.org.uk/enjoy-the-waterways/canal-and-river-network/oxford-canal
[19] https://www.gov.uk/government/collections/land-use-in-england

the west and north-west of Oxford. The site is made up of an extensive complex of meadows and pastures which support species-rich grassland vegetation which would once have been widespread on floodplains in lowland England but which is now very rare. The grasslands include Pixey and Yarnton Meads and Port Meadow and Wolvercote Common which have a very long history of management by traditional hay making with aftermath grazing and extensive pasture management respectively. This continuity and stability of management contributes to the special character and composition of the grasslands.

According to Natural England[20], the qualifying features of the area for which it was designated as a SAC are the presence of Lowland Hay Meadows habitat and the species *Apium repens* (creeping marshwort), which is a very rare plant of seasonally-flooded habitats which are unshaded and have very low levels of competition with surrounding vegetation. The Port Meadow population of this plant remains the largest and most consistently recorded in the UK. It is specially protected through inclusion in Schedule 8 of the Wildlife and Countryside Act 1981 which makes it an offence to pick or uproot any part of the plant for the purpose of offering for sale.

Assessments by Natural England indicate that the colony of *Apium repens* is under pressure from hydrological changes in the areas, possibly due to deeper, more prolonged and frequent flood episodes. There is also concern about invasive species moving into the habitat from other parts of the meadow and outcompeting the plant.

There are also two other SACs within 20km of Oxford, these are:

- **Cothill Fen SAC** is a 43ha site located 7km from the city boundary. It is designated for its lowland valley mire, which contains one of the largest surviving examples of alkaline fen vegetation in central England. In 2015 the alkaline fens were of good overall value, and the alluvial forests were of significant global value. It is highly threatened by pollution to groundwater and human-induced change in hydraulic conditions.
- **Little Wittenham SAC** is a 69ha site located 19km from the city boundary. It is designated because it contains one of the best-studied great crested newt sites in the UK. In 2015 it was of good overall value, but it is highly threatened by non-native invasive species.

The condition of the constituent parts of the Oxford Meadows SAC is available from Natural England. A separate Habitats Regulations Assessment will assess the impact of the emerging Local Plan 2040 on the integrity of the SAC.

Sites of Special Scientific Interest (SSSI)

Oxford City includes four geological SSSI and eight ecological SSSIs that are wholly or partly within the city, these are illustrated in Figure 10 with their condition assessment in Figure 11. Four of these SSSIs comprise the Oxford Meadows SAC:

- Cassington Meadows SSSI
- Pixey and Yarnton Meads SSSI
- Port Meadow with Wolvercote Common and Green SSSI
- Wolvercote Meadows SSSI

[20] http://publications.naturalengland.org.uk/publication/5815888603250688

Figure 10: Map showing distribution of SSSI sites in the city (OCC)

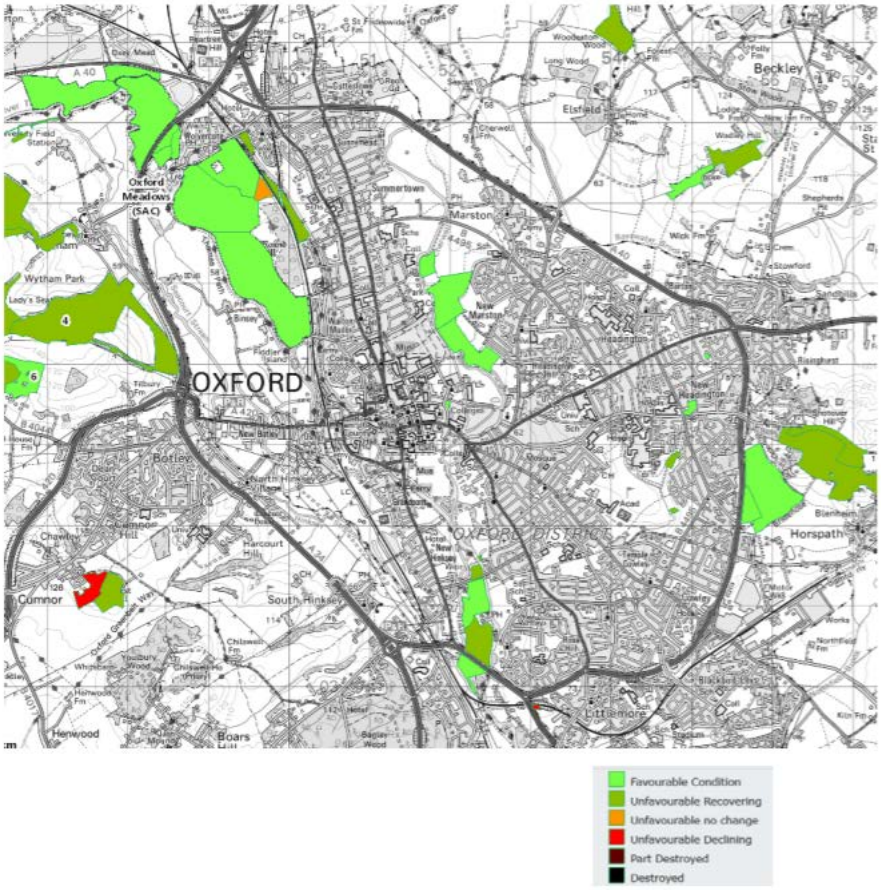


Figure 11: The condition assessment of each site (as mapped above) (Natural England)

Site of Special Scientific Interest	Size (ha)	Condition
Cassington Meadows	6.9	Favourable
Hook Meadow and the Trap Grounds	11.3	Unfavourable, Unfavourable Recovering
Iffley Meadows	36.1	Favourable, Unfavourable Recovering
Littlemore Railway Cutting	0.5	Unfavourable Declining
Lye Valley	2.3	Unfavourable Recovering
Magdalen Grove	0.4	Favourable
Magdalen Quarry	0.4	Favourable
New Marston Meadows	44.7	Favourable
Pixey and Yarnton Mead	86.4	Favourable
Port Meadow with Wolvercote Common and Green	167.1	Favourable, Unfavourable Recovering
Rock Edge	1.7	Favourable
Wolvercote Meadows	7.1	Favourable

Ecological networks – Non-statutory Sites

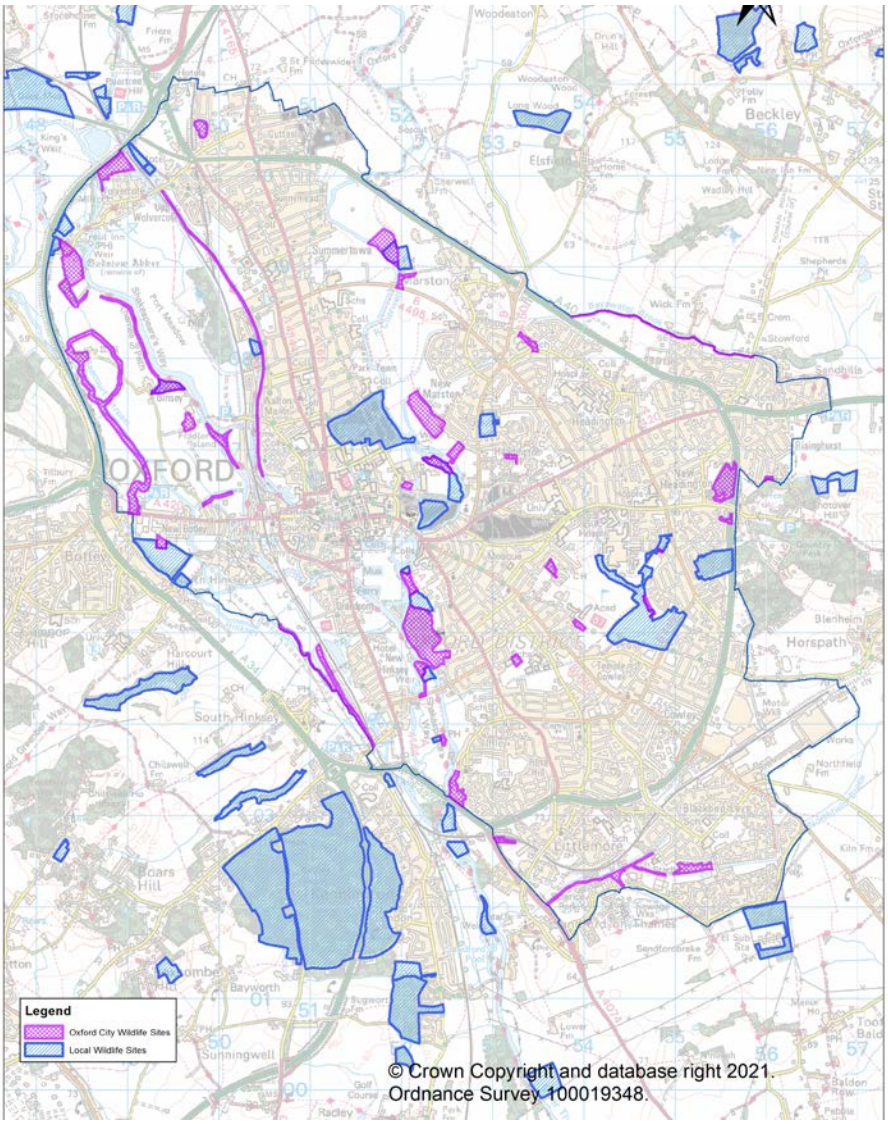
In addition to the nationally designated ecological sites in the city, Local Wildlife Sites (LWSs) are non-statutory sites of local importance for nature conservation, recognised for having high conservation value, containing rare species or habitats. In Oxford there are 14 LWSs, amounting to

around 125 hectares, which do not warrant statutory protection but receive protection through national and local planning policy.

Oxford also has numerous other important wildlife sites, amounting to around 202 hectares, known as City Wildlife Sites (formerly referred to as Sites of Local Importance for Nature Conservation or 'SLINCs'). Oxford City Wildlife Sites also have significant biodiversity value, however overall their interest has not been considered sufficient to be of county level importance in the same way LWSs are. With appropriate management, many do however have the potential to become LWSs in the future.

These non-statutory sites are mapped in Figure 12 below.

Figure 12: Non-statutory nature conservation areas in the city (OS 2021)[21]



[21] *© Crown Copyright and database right 2021. Ordnance Survey 100019348.*

Notable species in Oxford

Under Section 41 of the Natural Environment and Rural Communities Act 2006, the Secretary of State is obliged to publish a list of habitats and species which are of principal importance for the conservation of biodiversity in England. Species that are present in Oxford and that are protected under the Act include, but are not limited to:

- Hedgehogs,
- Water voles,
- Dormice,
- Swifts,
- Slow worms.

Likely trends without a new local plan

Impacts of Covid and Brexit

The importance of having locally accessible green spaces seems likely to have become of increasing concern for many living under the recent restrictions to movement. This is particularly valuable to those who do not have access to sufficient private open space within their homes.

It should however be recognised that communities often do not have equal access to green space in their local area. According to research by Burnett *et al.* (2021)[22], it is likely that inequalities in access to green space have been exacerbated by the limits on travel that were imposed during the national lockdowns. They reported that individuals from ethnic minority groups and those working in more manual or service professions were less likely to visit green spaces before and during lockdown restrictions.

Of relevance to Brexit and the economic recovery from the pandemic, there is an increasing understanding of the positive value that green infrastructure can bring in supporting the economy of an area. Research by the UK Green Building Council[23]suggests that green infrastructure investment within public spaces in town centres can boost commercial trading by up to 40%. The Land Trust found that the creation of a new park could bring about significant uplifts in local property values, particularly for those houses within 500 metres of the green space, which benefited from an additional £8,674 in value on average in one case study[24].

Climate emergency and net gain agenda

The multi-functional benefits of a high quality, well-connected green infrastructure network, comprising all the spaces detailed above, are integral to addressing the challenges of climate change and biodiversity decline across the UK. However, climate change is also likely to put pressure on

[22] https://bmjopen.bmj.com/content/11/3/e044067
[23] https://www.ukgbc.org/wp-content/uploads/2017/09/Demystifying-Green-Infrastructure-report-FINAL.pdf
[24] https://thelandtrust.org.uk/wp-content/uploads/2018/02/The-economic-value-of-our-green-spaces.pdf?utm_source=Green+Infrastructure+Partnership&utm_campaign=0796a252e6-EMAIL_CAMPAIGN_2017_08_31&utm_medium=email&utm_term=0_f4eb0dc7a3-0796a252e6-103376005

many of these spaces, particularly ecological sites. Increases in summer temperatures, milder winters, changes in rainfall distribution and seasonality, and more extremes of weather are anticipated long term impacts of climate change. The effects of these changes are uncertain and may occur as sudden and unexpected step changes. Changes in climate could lead to changes in species distribution as they move to better suited climates. It could also lead to influxes of invasive species that are better suited to the new climate. Generally, it has been suggested that in the longer term, there is a significant risk of direct impacts on priority habitats.

Furthermore, the indirect effects of climate change, including adaptation action by other sectors that are key to land and water management, could have a significant impact in the short term and may bring positive or negative consequences for biodiversity and the delivery of ecosystem services.

Carbon emissions, which are a key contributor to this process, can be locked up by the natural environment as trees and plants grow. Well-established green spaces, with a variety of flora, as well as the soil they grow in can therefore act as carbon sinks, naturally removing carbon from the atmosphere. Wetland habitats have been shown to be particularly effective at storing carbon, meaning that blue infrastructure can be just as important in this.

Green infrastructure also plays an important role in building resilience to the risks associated with a changing climate, such as the milder, wetter winters and hotter, drier summers that have been predicted for the UK in future. Trees, green walls, and open spaces can naturally cool the urban environment through various means including direct shading of surfaces, as well as evapotranspiration (the process by which moisture stored on and within flora evaporates into the air removing heat with it). Green spaces also act to slow down water and reduce surface runoff, as well as storing water in the soil, this is particularly valuable during extreme rainfall events helping to relieve pressure on sewer systems and reduce flood risk[25].

It has long been noted that the biodiversity around the country is under intense pressure and has been in prolonged decline. This biodiversity loss is particularly pronounced in cities and urban areas as wildlife is forced out of natural habitats due to development pressure, recreational disturbance, pollution from various sources, as well as climate change. The government set out in its 25 Year Environment Plan the intention to be the first generation to leave the environment in a better state than we found it, and enhancing the green infrastructure network will be a key means of achieving this.

What trends do data show?

Open space, sports and recreation

A growing population means that there is likely to be increasing demand for outdoor sports provision and public open spaces in the long term. Ongoing development pressure as the city grows means that these spaces will continue to need to be protected and access enhanced wherever possible. Nationally there is a focus on increasing people's activity levels, as highlighted in Sport England's 'Uniting the Movement' Strategy. This means less traditional routes into sport are required

[25] www.oxford.gov.uk/2040

and a wider remit that includes informal, recreational play. This translates into a need for ensuring we maintain open space alongside pitches.

Trees and other individual assets

Development pressure is likely to continue and existing trees will need to be protected from inappropriate development. Addressing the unequal distribution of tree cover across the city particularly in areas of deprivation would likely have a variety of benefits for residents' health and wellbeing as well as more broadly for other objectives like climate resilience and biodiversity.

Allotments

The 2020 'State of the Market Report' (Allotments)[26], based on a survey conducted by The Association of Public Service Excellence (APSE), reported that over 66% of respondents stated that over 18 months was the average waiting time for a plot, and almost 90% reported that the Covid-19 pandemic had caused an increase in demand.

The City Council Green Space Strategy noted that whilst the waiting lists for allotments in the city are varied and constantly changing, there are several factors are likely to drive an increased demand for allotment plots. These include increasing population; the effect of the recession meaning that more people may be more inclined to grow their own food; and if there is a lack of garden provision in new developments.

Biodiversity

Increasing development, recreational disturbance, climate change and pollution will continue to put pressure on biodiversity in and around the city and the local plan will need to continue to protect designated spaces and encourage net gains.

The Environment Bill, when enacted, will require a mandatory 10% biodiversity net gain on all new development and will be set as a condition unrelated to the Local Plan. As such, there is potential that biodiversity could receive increasing support going forwards regardless of the new Local Plan. However having a Local Plan that is aligned with the objectives of the Bill would enable the Council to help steer the delivery of net gain in the city in a more strategic way.

The Oxfordshire Plan is proposing to identify a Nature Recovery Network recognising the importance of the County's habitats, natural resources and landscapes in supporting biodiversity, connecting habitats and aiding nature's recovery. There are likely to be opportunities to align greening policy in the city with the development of this wider network.

Options for the new Local Plan

It is likely that the new Local Plan will need to consider Green Infrastructure through several different lenses:

- protecting what we have
- enhancing what we have

[26] https://www.apse.org.uk/apse/

- providing new green infrastructure (where possible)
- increasing public access to existing facilities and spaces

Recognising the constrained nature of parts of the city, the varying development and environmental pressures, and the limited green spaces in particular locations, it will be important to continue to protect existing trees and green spaces from inappropriate development and loss. A mixture of open space protection, tree preservation orders and considered decision making will all be important tools to utilise as part of this process.

Beyond simple protection, where possible, the development of the new Local Plan will need to investigate how it can best contribute to the enhancement of these spaces too. An approach which seeks to recognise and supplement the multi-functional benefits that certain green spaces can provide, as well as boosting accessibility for the community will be valuable not only in securing the health and wellbeing of the community, but also in achieving other objectives such as securing biodiversity net gain, building resilience to climate change and promoting recovery to the ongoing Covid pandemic.

There may also be opportunities to consider how new green infrastructure provision can be provided in the city going forwards. Whilst creation of larger green spaces may be more challenging, especially in the more densely developed areas of the city, there are likely to be opportunities for creating smaller pockets of green space as part of new development as well as addressing areas of particular deficiencies in distribution. The Local Plan could also explore how green spaces could be better linked up through the establishment of green corridors that can not only encourage active travel across the city, but also service the movement of wildlife between habitats. Incorporation of other elements of green infrastructure, such as green roofs, walls, trees, wild areas and green drainage systems (SuDS) would also help to avoid large expanses of hard surfacing and again contribute to complementing objectives such as reducing surface water run-off (reducing flood risk), cooling urban heat islands, and potentially improving air quality.

As the Treeconomics canopy cover assessment highlighted, there is reduced tree cover within some of the most deprived areas of Oxford. This suggests a potential priority area to focus on when it comes to establishing new green infrastructure in the city in order to maximise of the variety of benefits this could bring for communities in these locations

With respect to biodiversity in particular, Oxford's ecological network is wide-ranging and diverse and includes internationally protected sites, nationally important bio- and geo-diversity designations as well as locally important habitats and species. It is an important resource to protect and conserve in its own right and brings many benefits to the city including health and well-being benefits that come with being close to nature. It also provides the city's green lungs as the biodiversity resource follows the two river flood plains as the two rivers converge within the city boundary. In a compact city such as Oxford there will always be competing pressures from development which threatens biodiversity in the city. It is only through careful planning and management and the appropriate protection of our biodiversity resource that we will be able to continue to manage development pressures so that they do not adversely affect the biodiversity network. In particular, the Habitats Regulations Assessment for the Local Plan will ensure the ongoing integrity of the Oxford Meadows SAC.

As was identified earlier in the paper, the new Local Plan is being developed in parallel to a variety of wide-ranging reforms to national planning policy and policy relating to the natural environment. The expected changes in relation to biodiversity net gain, and the creation of regional nature recovery networks will be important to developments that local policy can support and link up with. Natural England are also working on a set of national standards for green infrastructure provision which may need to be accommodated in any new policy going forwards.

Conclusion

Oxford's green infrastructure network is a multi-faceted resource that bring multiple social, environmental and economic benefits to the sustainability of the city. Its protection and enhancement will be an important issue for the new Local Plan and there are likely to be a variety of measures that can be explored going forwards to contribute to these goals.

Sustainability/Plan issues

- The Oxford Meadows SAC is already negatively affected by air pollution and is threatened by recreational pressure.
- Three SSSIs out of the twelve in the city are in unfavourable condition and two are partly in unfavourable condition.
- Green infrastructure, and particularly tree cover, is lacking in some of the city's most deprived wards.
- Development pressure on, or near to protected sites could result in direct loss of habitat or species, fragmentation of ecological networks, as well as indirect impacts e.g. from noise, light, air pollution.
- Unequal access to, and distribution of, green infrastructure across the city exacerbate wider health inequalities but also mean that there are likely priority areas which would benefit particularly from increased greening.
- Infill development within the city, particularly on garden land, can provide some habitat for wildlife.
- Climate change is likely to impact habitats and species distribution.
- Increased recreational pressure as a result of new development generating additional residents/visitors in area puts pressure on GI and biodiversity.
- Air pollution from increased vehicle movements impacts sensitive sites in locality.
- There is likely to be an increased need for providing sites for off-site biodiversity net gain stemming from development nearby (Environment Bill).
- Water quality impacts from new development – nitrate pollution as well as run-off from roads etc. can negatively affect biodiversity.