Local Plan 2040 Preferred Options
Green Infrastructure background paper

1.   Introduction

The Council published its initial issues consultation for the new Local Plan in the summer of 2021 and as part of the consultation we included a background paper which addressed the issue of green infrastructure and biodiversity. The paper set out the relevant national, regional and local policy context for this topic; then went on to set out the key issues of relevance to the city; before highlighting some potential approaches that could be pursued in developing new policies. This paper should be considered as a continuation of that issues paper, as such for brevity, other than the summary below, it does not repeat content here.

This paper sets out a summary of the feedback we received from the 2021 consultation, before touching upon further analysis we have been conducting on the performance of the existing green infrastructure policies in the adopted plan – including monitoring analysis from our Authority monitoring report, feedback from development management colleagues and specialists within the Council. Following that we go into detail on a few of the key areas that have led us to formulating the options for policy and preferred options that we have set out in the main consultation document.

2.   Context including feedback from Issues consultation

2.1   Summary of 2021 Issues consultation

The Council published its issues consultation for the new Local Plan in the summer of 2021. The consultation included a *Green Spaces, Biodiversity and Open Air Sports Background Paper.* This paper should therefore be seen as a continuation, so material will not be repeated here except for a brief summary below.

The 2021 issues background paper reiterates the vital importance of the green infrastructure network as part of the city's natural capital.   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.   An important part of the green infrastructure network is blue infrastructure, which refers to the various bodies of water that make up the landscape of the city – most notably the two rivers, as well as the canal. These spaces are not just important for ecology, but are also an important resource 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 paper set out the possible approaches by which we might develop options for new policies including:

- protecting what we have
- enhancing what we have
- providing new green infrastructure (where possible)
- increasing public access to existing facilities and spaces

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.

2.2 Feedback received from consultation

Feedback from the summer consultation was varied, reflecting the broad scope of the issues consultation.

Natural England: NE welcomes the priority given to GI and the recognition that it is a cross-cutting theme. A strategic approach is required to GI. Green Infrastructure should be incorporated into the plan as a strategic policy area, supported by appropriate detailed policies and proposals to ensure effective provision and delivery. Evidence of a strategic approach can be underpinned by a Green Infrastructure Strategy.

The plan should provide for an appropriate quantity and quality of green space. Suggest ANGSt standards may be of use when assessing current levels of greenspace and planning improved provision. NE is in the process of developing a Framework of GI standards. This work may be able to inform the plan.

County Council: The benefits of green infrastructure do not need to be qualified as 'arguably' being just as important as more traditional forms of infrastructure as suggested in the document. Both grey and green infrastructure are important to successful and resilient communities. Existing green infrastructure assets should be protected from loss and enhanced where possible, including by the addition of new land. The Local Plan can also have a role in that policy can require green infrastructure assets (e.g. trees, SuDS, meadows) to be managed and maintained by developers so that the assets continue to deliver benefits.

Other Comments: There were a wide variety of other comments covering a broad range of issues and concerns including:

- There remains great concern that green spaces that provide, or have the potential to provide, amenity value, visual relief and ecological benefits for their communities are too easily lost to development.
- There is inadequate commitment shown so far to preserve existing green infrastructure
- There is a wrong presumption that existing green spaces and features provide adequate relief and amenity to residents, where much more is needed

- There is an increase in hard surfacing not just with large schemes and public realm but also with domestic developments, which cumulatively are harmful to drainage increasing flood risk, biodiversity and overall amenity.

2.3 Updates to national/local policy context since 2021 issues consultation

- There are no notable updates to the policy context since we prepared the issues background paper last year.

NPPG references
Green infrastructure can help in:
- Building a strong, competitive economy

- Achieving well-designed places
- Promoting healthy and safe communities
- Mitigating climate change, flooding and coastal change
- Conserving and enhancing the natural environment

(Paragraph: 006 Reference ID: 8-006-20190721)

- Depending on individual circumstances, planning conditions, obligations, or the Community Infrastructure Levy may all be potential mechanisms for securing and funding green infrastructure.

(Paragraph: 008 Reference ID: 8-008-20190721)

NPPF references

Open space and recreation

98. Access to a network of high quality open spaces and opportunities for sport and physical activity is important for the health and well-being of communities and can deliver wider benefits for nature and support efforts to address climate change. Planning policies should be based on robust and up-to-date assessments of the need for open space, sport and recreation facilities (including quantitative or qualitative deficits or surpluses) and opportunities for new provision. Information gained from the assessments should be used to determine what open space, sport and recreational provision is needed, which plans should then seek to accommodate.

99. 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.

101. The designation of land as Local Green Space through local and neighbourhood plans allows communities to identify and protect green areas of particular importance to them. Designating land as Local Green Space should be consistent with the local planning of sustainable development and complement investment in sufficient homes, jobs and other essential services. Local Green Spaces should only be designated when a plan is prepared or updated and be capable of enduring beyond the end of the plan period.

102. The Local Green Space designation should only be used where the green space is:
   a) in reasonably close proximity to the community it serves;
   b) demonstrably special to a local community and holds a particular local significance, for example because of its beauty, historic significance, recreational value (including as a playing field), tranquillity or richness of its wildlife; and
   c) local in character and is not an extensive tract of land.

Conserving and Enhancing the Natural Environment

175. Plans should: distinguish between the hierarchy of international, national and locally designated sites; allocate land with the least environmental or amenity value, where consistent with other policies in this Framework; 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.

Green infrastructure: A network of multi-functional green and blue spaces and other natural features, urban and rural, which is capable of delivering a wide range of environmental, economic, health and wellbeing benefits for nature, climate, local and wider communities and prosperity.

Environment Act
- Sets out the intended approach to securing biodiversity net gain and mitigating measures towards net loss through the planning system.
- Key proposed measure is a mandatory requirement for **all** developments, bar a few exceptions, to secure a biodiversity net gain of 10%.
- Where on-site improvements are deemed not to be feasible, the favoured approach is the use of a mandatory tariff system based on DEFRA's biodiversity metric.
- More detail is expected on how these requirements will be implemented.

Local/Regional context

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.

Oxford City Council Playing Pitch Strategy 2022-2036

An updated Playing Pitch Strategy was recently finalised and approved by the city council. It is a based on a needs and evidence based document that is aligned with the adopted Local Plan, and it seeks to ensure that the City has a good supply of well-managed, well-maintained and efficient playing pitches and other outdoor sports facilities that would help to encourage residents to maintain healthy and active lifestyles. Whilst there was no legal requirement for a Playing Pitch Strategy, the Council had opted to develop one as one of the ways to promote healthier living and reduce inequality. The Strategy would be reviewed every year and refreshed on a five yearly basis.

Oxford Local Plan 2036 (adopted June 2020)
The topic of green and blue infrastructure in the city is addressed in detail in chapter 5 of the adopted Local Plan, 'Protecting and enhancing Oxford's green and blue infrastructure network', which sets out policies G1 to G8.

Oxford Green Infrastructure Study (2022)
An updated green infrastructure was commissioned to form part of the foundational evidence base for the emerging Local Plan. The study comprises of an analysis of open spaces within the city, assessing their quality, multi-functionality and accessibility within the environmental and socio-economic context of the city. It also makes recommendations for improving GI to reduce these deficiencies and address local needs. A more detailed discussion can be found in later sections of this paper.

2.4 How are current Local Plan 2036 policies performing?

Analysis from 2020/21 Authority Monitoring Report (AMR)
At the end of 2021, the Council published its first AMR reporting upon performance of policies within the Local Plan 2036 since its adoption in 2020. Whilst there was limited monitoring data, as the policies had not been in force for a full year upon writing, it has been possible to carry out an analysis of how effective they have been by examining applications – particularly approvals - where Green Infrastructure related policies have been cited.

Policy G2: Protection of biodiversity and geodiversity
- No permissions for development on the ecological sites protected through policy G2.
- There were six major applications which were refused at least in part due to failure to comply with policy G2. Typically, this was due to a lack of ecological assessment information being provided to allow for consideration of biodiversity impacts.

Biodiversity net gain requirement Policy G2
- Few cases to report on in this monitoring period as this is a new policy. A good example of application bringing about net gain is application 20/00116/FUL (erection of 7 three storey buildings and alterations to Fairfield House, Banbury Road to form new student bedrooms/flats). The application was accompanied by a biodiversity calculator which ultimately demonstrated a net gain in biodiversity of 16.77% as a result of the mitigating planting proposed, which exceeded the 5% net gain requirement.

Policy G4: Green Belt
- There were two applications permitted within the Green Belt during the 2020/21 monitoring period, both applications were approved as they were determined to be acceptable in terms of their impact on the Green Belt as they constituted the erection of appropriate facilities in connection with the existing use of land for outdoor sport, which falls within one of the exceptions set out in the NPPF.

Policy G4: Allotments
- No relevant applications during monitoring period.

Policy G5: open space, outdoor sports and recreation.
- Four permissions granted during monitoring period.
- One application was also refused in the monitoring period citing policy G5 as one of the contributing reasons (20/02680/FUL - the erection of a 2 bed house at the Junction of Hosker Close and Merewood Avenue). The development proposed to make use of existing open space but both failed to demonstrate, through the submitted open space assessment, that the site could be considered surplus to requirements, and did not propose its replacement with alternative provision.

Policy G7: protection of existing GI features
- There were four applications refused which included policy G7 within the reasons for refusal. These decisions all related to the impacts of the proposed developments on existing trees, or the failure to submit appropriate studies which would demonstrate that existing trees would not be harmed by the proposal.

Summary of any key feedback from Development Management and Specialists discussions

Officers were generally positive overall about the effectiveness and usefulness of the green infrastructure policies in the plan. A few specific issues came up in our conversations, set out below, that could point towards improvements that may be appropriate for the new Local Plan to address:

- G3 Green Belt – arguably this policy is not specific to protection of green infrastructure, but rather, about maintaining openness, may sit better elsewhere in the Local Plan.
- G4 Allotments and Community food growing – the policy as written does not address reprovision elsewhere, where applications impact existing sites.
- G5 Existing open space, indoor and outdoor sports and recreation facilities – updated playing pitch strategy would help with identifying existing sites that require improvements

that could benefit from strategic allocation of developer contributions where new development cannot create open space onsite.

- G7 Protection of existing GI features – the requirements of mitigation of tree canopy loss in (b) may be too onerous for some minor development, need to consider if this is still the most effective approach, or if there are other methods of securing green infrastructure on sites.
- Existing G8 policy can be a little repetitive and doesn't help application of the Policy.

2.5 What does all this mean?

Green/Blue infrastructure is clearly a policy priority at the national and regional level, and there is a great level of responsibility on local authorities to demonstrate how these are protected and enhanced within their areas. The current adopted policies have had some record of effectiveness in protecting existing green infrastructure within the city, however, there remains scope for improving access and encouraging the creation of new green infrastructure. There are also some gaps with respect to the approach to spaces that do not fall within the protected or other named categories within the policies, which nevertheless are of importance or benefit to their local areas. Increasing access to nature within the city, and preventing the loss of green spaces, and natural features such as trees, is of great importance to the city's residents. After collating the received feedback and carrying out other forms of detailed assessment, several key objectives have emerged which have guided the thinking that has developed the policy options for this topic.

- Identify and protect a network of green and blue spaces from inappropriate development.
- Ensure that, wherever possible, everyone in the city has access to some level of public open space.
- Mitigating unavoidable losses of open space through sensitive management or reprovision
- Securing high quality, multi-functional green infrastructure on new developments.
- Reducing the proportions of artificial/grey surface cover on new development.
- Securing green open space on larger developments.

3.   Formulating policy options for the new Local Plan

The remainder of this paper sets out the additional thinking that has gone into formulating the policy options sets that address green/blue infrastructure provision and biodiversity/ecology in the consultation paper. After briefly revisiting a couple of key concepts that help to reinforce why we need to develop strong policies on this topic, we touch upon the new GI study which will form a key piece of evidence underpinning the new Local Plan. We then move on to set out the framework which around which the local plan policy options have been structured (protect existing green infrastructure, provide new green infrastructure and enhance existing green infrastructure).

Why do we need strong policies relating to green infrastructure?

As the issues paper produced in 2021 set out, green infrastructure provides a range of benefits for the health and wellbeing of residents and ecology in the city. These benefits include measurable environmental and ecological functions such as providing habitat for biodiversity; mitigating flood risk and slowing surface water run-off especially where impermeable surfaces are reduced. They also extend to the contribution they make towards supporting human health and wellbeing, such as ameliorating air quality, mitigating noise and providing space for rest, recreation and contemplation.

Together the wide range of tangible and intangible benefits that stem from GI are often referred to as ecosystem services[1].

Another important concept when thinking about the role of green infrastructure in supporting health and wellbeing is 'multi-functionality'. Multi-functionality is a term which recognises that elements of the natural environment can often play more than one role, providing multiple benefits at one time. For example, an area of parkland can provide a space for people to play and socialise, whilst also supporting biodiversity by providing habitat for wildlife, as well as acting as flood storage for excess rainwater and providing cooling benefits for the surrounding area at time of high temperatures. Multi-functionality can be especially valuable in areas with limited access to green infrastructure but will vary in different contexts. Multi-functionality may be reduced within certain green spaces, e.g. allotments or cemeteries, where they perform a more specific role than other more generalised spaces like parks and amenity land.

The Green Infrastructure Study 2022

Recognising the varied benefits that different aspects of Oxford's green/blue infrastructure network can provide for the city, Ethos Environmental Planning were commissioned by the Council to undertake a comprehensive, independent assessment of the network in order to help inform priorities for the new Local Plan. The GI study they have been working on throughout 2022 comprised of a review of the existing network, with a particular focus on three different aspects of existing provision:
- Quality – Informed by more than 200 site visits, the study includes an assessment of the quality of publicly accessible open spaces around the city, scoring these sites against a set of criteria adapted from the Green Flag awards criteria.
- Accessibility – Using locally determined distance benchmarks modelled through GIS, the study has considered the distribution of different typologies of green space (e.g. parks, allotments, natural green spaces), and identified areas of the city which fall outside of a reasonable walking distance. It also considers access in the context of 15 minute neighbourhoods.
- Multi-functionality – the study includes a high-level assessment of the numbers of 'functions' that public and private open spaces in the city are currently delivering in order to understand which spaces have highest/lowest multi-functionality.

Considering wider socio-economic context, such as areas of deprivation, the assessment uses the above analysis to help identify deficiencies and strengths at present. It also begins to identify opportunities which could help inform priorities for the Local Plan as well as other complimentary strategies in future, in conjunction with Council officer's own analysis and consideration. The study has been published as part of the consultation and can be read alongside this background paper.

Protecting existing green infrastructure

Oxford is a constrained city, with a tightly drawn administrative boundary, large urban areas alongside areas of green space, as well as specific protections that exist outside of the Local Plan such as conservation areas, green belt designation and nationally protected ecological sites. However, there are many demands on space including development pressures such as those arising from the city's high housing need, which we have historically not been able to fully meet within our

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[1] More information can be found here: http://uknea.unep-wcmc.org/EcosystemAssessmentConcepts/EcosystemServices/tabid/103/Default.aspx

borders. Where green spaces are lost, it will be very challenging to reprovide this in an accessible area that benefits local residents.

The new GI study identifies that Oxford's green spaces are providing a variety of roles that support health and wellbeing of residents and ecosystems and that green infrastructure could be particularly important in certain areas, e.g. where access to private gardens is reduced, which could lead to greater reliance of public open spaces to meet certain daily needs. It highlights that whilst there is an even distribution of spaces across the city, gaps in access exist within certain typologies of open space. Loss of open space in certain areas could exacerbate these accessibility problems.

As such, one set of policy options proposed in the consultation relate to the protection of the existing green spaces (which taken together are referred to as the green infrastructure network) and ensuring that any proposals that would result in loss are subject to rigorous justification. The preferred option set out in the consultation proposes that we would continue with the current Local Plan's approach of protected a network of green spaces (the green infrastructure network) and that the same principles of protection/no net loss should be applied to all types of space identified within this network. We have set out a proposed network, based upon work from the GI study (this closely matches the existing protected green infrastructure network). However, this will need to be considered in greater detail over the coming months as we prepare the full draft policy and we intend to publish a refined version of the network at the next stage of consultation.

Of course, the 'network' is made up of a variety of space types with different characteristics and functions that may necessitate additional considerations in how they are protected and where loss may be accepted. For example, there are a large number of allotments that provide a very specific set of benefits for uses, focussed on food growing; equally there are a number of formal playing pitches which are important venues for sports and recreation. Where loss of these spaces could result from an application, it could be even more challenging to find suitable replacement to demonstrate no net loss. As such, individual policies catering for these differences may need to be drafted – similar to how we have separate policy protections for particular types of space in the current local plan (e.g. policy G4 Allotments, policy G5 outdoor space, sports and recreation).

Trees and hedgerows

As with green spaces, individual green features such as trees and hedges offer similar benefits as well as contributing to the character of our urban areas in their own right. The GI study as well as the Council's Urban Forest Strategy identifies the benefits of trees in the city and highlights the importance of protecting these and enhancing canopy cover where possible.

 National policy assigns a high level of protection to ancient and veteran trees and woodland setting out that their loss should be resisted but for exceptional circumstances. These types of trees represent only a small subset of the 'urban forest' though. Some other trees can also be protected through Tree Preservation Orders (TPOs), and there are currently over 250 high quality trees in the city that are protected in this way, a map of these can be found on the website[2]. However, it is likely that a great many more trees of notable quality do not benefit from TPO protection either, though they may still contribute significantly to local amenity.

The policy options in the consultation document include an option for a policy that would ensure that net loss of any trees as a result of new development are avoided, and that appropriate justification is presented where any loss is proposed. As we draft the full policy, we will need to

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[2] https://www.oxford.gov.uk/info/20198/trees_woodlands_and_hedges/696/tree_preservation_orders

consider what this justification should look like, including whether higher justification is required for higher quality trees. There are standards and recommendations for trees in relation to design, demolition and construction set out in the British Standard B.S.5837, which includes an assessment framework for trees – this may be helpful informing our own guidance.

Providing new Green Infrastructure and enhancing existing green infrastructure

Oxford's constrained nature makes the delivery of new green spaces within the city boundary challenging to achieve. More densely developed areas of the city also lack opportunities for other types of greening, such as tree planting. Nevertheless, increasing green infrastructure coverage can have a variety of benefits, not only for health and wellbeing and biodiversity, but also for adapting to the effects of climate change. Where new development comes forward, it will therefore be crucial for applicants to seek to maximise opportunities for greening, though this is likely to take a variety of forms including green roofs/walls, trees and shrubs, or smaller areas of wild planting on smaller sites and potentially areas of open space on larger developments.

In recognition of this, the policy options we have been considering aim to provide flexibility for how new greening comes forwards and incorporate a variety of approaches to securing greening that, when taken together, aim to encourage the delivery of new features at all scales to cumulatively bring about a greener city. The options set out that we would intend to require green and blue infrastructure features on all new development, but that requirements in different areas could be tailored to the needs/context of specific areas of the city. Potential requirements set out in the options include:
- **Greening of specific corridors/routes** - it may be possible to identify linear routes within the city which connect green spaces. Development falling along such routes might be expected to contribute to the strengthening of green connections along these corridors e.g. by setting back the development and incorporating a line of trees or hedges, or else including green walls/roofs that would help to strengthen green links between spaces.
- **Requiring a % of open space on larger developments** – this would work like the existing policy and recognises that on larger sites, there may be room to include an area of new open space in the layout of the development. However, larger applications are not frequent occurrences in the city, the nature of much development in recent years has been of smaller sites, thus relying on this approach alone may not garner much new green space.
- **Setting out specific guidance for sites within allocation policies** – as we develop our site allocations policies, there may be an opportunity to set out expectations for green infrastructure provision on a site-by-site basis. This would allow us to tailor requirements to the specific local context (potentially informed by the analysis set out in the new GI study), for example, responding to deficits in types of green space in the specific locality of a site.

The other approach we propose in the options has a focus not only on delivering new green infrastructure, but also, requiring more effort on quantifying this. We propose to include the use of an Urban Greening Factor in certain areas of the city, requiring applicants to assess existing green provision on a site and to demonstrate betterment through their design proposal via this tool. This is discussed further in the following section.

Enhancement of existing green spaces will likely need to be supported through a variety of means. It is likely that developer contributions on schemes unable to provide the appropriate level of onsite green infrastructure will be an important tool in this way, although there is still some uncertainty as to how contributions will work considering the government's proposed planning reforms. To be

more strategic about guiding such contributions, we could identify nearby sites that would benefit from improvements within the detail of site allocations as we draft those policies, this could be informed by the analysis completed for the GI study. Equally, we could also identify key areas/sites for enhancement within our Infrastructure Delivery Plan, a full one for 2040 is to be published alongside the full draft local plan in 2023.

An Urban Greening Factor for Oxford

Overview

At its most basic, an Urban Greening Factor (UGF) – also referred to as Green Space Factor in some other authorities – is a policy tool that provides a way of simply quantifying green surface cover on a given development site via a metric system. UGF schemes have been applied in several cities through planning policy including the London Plan and the Southampton Local Plan. The Natural England Green Infrastructure Standards (due to be published in late 2022) are also expected to include guidance on application of greening factors.

The UGF can be used to quantify green infrastructure being proposed as part of an application, policies that incorporate the UGF can require proposals to secure a certain target, or to simply demonstrate a betterment in score compared with the existing site. It is a practical and quantifiable way of demonstrating changes in green infrastructure provision.

How does approach work in practice?

The Urban Greening Factor is an excel-based metric tool. It applies scores between 0.1 and 1 to various types of surface cover on a site depending on the naturalness/water holding capacity. The site is assessed using top-down plans of the area. Applicants would measure each distinct area of surface cover, for example XXm2 of the site is building, XXm2 non-permeable surface like tarmac, XXm2 of grass, XXm2 of green roof).

The figure 1 below demonstrates the metric that an applicant would fill out and submit with their planning application. Once an applicant has measured the area of the different surface covers of their site, they would input these into the spreadsheet. The score for each surface cover is calculated by applying the respective factor (the score between 0 and 1). The final score for the entire site is collated at the foot of the table. Applicants are required to assess the surface cover on their site using the tool, both for the site as it is pre-development and for the scheme as designed and proposed as part of the planning application – thus a comparison between scores can then be made.

	B	C	D	E
1. Enter Development Site Area m² HERE►				
Surface Type (see tab for detailed descriptions)	Factor	2. Current Surface Area m²	3.Proposed Surface Area m²	
Primary (Ground Level) Layers				
Building surface area with no green roof	0.0	0.00	0.00	
Extensive greenroofs	0.6	0.00	0.00	
Intensive greenroofs	0.7	0.00	0.00	
Non-permeable surfaces	0.0	0.00	0.00	
Permeable paving	0.2	0.00	0.00	
Semi-permeable surfaces e.g. sand and gravel	0.4	0.00	0.00	
Grassland (short, amenity)	0.4	0.00	0.00	
Grassland (long, rough)	0.5	0.00	0.00	
Shrubs	0.6	0.00	0.00	
Trees on shallow soil/ tree pits	0.6	0.00	0.00	
Woodland/ Trees on deeper soil	1.0	0.00	0.00	
Open Water	1.0	0.00	0.00	
Development Area Total		0.00	0.00	
	Spare Capacity►			
Secondary Layers				
Green walls with a height limit of 10 metres (area of)	0.6	0.00	0.00	
WARNINGS►	OK	OK	OK	
GI SCORE	#DIV/0!	#DIV/0!		
Result		#DIV/0!		

Figure 1: Typical Example of UGF template – this is an example from Southampton City Council which we would likely adapt for use in Oxford.

The application would pass the UGF assessment if the proposed layout of the site achieves a score that meets the requirements set out in the Local Plan policy. This might be a simple betterment in score above a minimum, or else, achieving a certain target based upon type of development. Our proposed approach is discussed more below.

Strengths and limitations of UGF approach

The UGF tool is straightforward to use and interpret with a relatively minimal amount of training required to understand basics. This relative simplicity does result in some strengths and weaknesses.

In terms of strengths, the tool is intended to quantify and visualise the amount of green features on a given site in a high-level way. It is therefore good for making comparisons between pre and post development situations, and to understand changes in levels of green, natural surface cover in a measurable way. The approach is flexible in how a site achieves a score – one could use any combination of surface covers to achieve a certain target which should reduce viability and design challenges. This would be a valuable step forward in analysis capabilities than what we have at present.

Early use of the tool on emerging design proposals can identify shortfalls and options for improving score, inputs into the tool can be quickly adjusted if area of proposed surface cover is known, this allows for immediate feedback on what can improve a development's score – which could be useful in design meetings and in liaison with the Council during pre-app discussions.

UGF policies are generally well suited to urban high-density areas or districts where existing green infrastructure is limited. They can encourage use of traditionally under-utilised spaces, like rooftops and walls for planting. Equally, on highly urbanised, artificial-surfaced sites, the baseline score will be very low, thus an improvement in score can be achieved relatively simply. This means the use of the tool could be well-suited to a number of locations in the city in particular.

Conversely, there are several weakness which we will need to consider carefully. By requiring assessment of surface cover using top-down plans, the UGF is quite two dimensional and may not give full picture of the profile of green features present, especially in situations where there are overlaying features such as a tree canopy over grass (one score would usually be assigned in that location). Equally, green features proposed on a site may not always fall neatly into the assessment categories listed in the metric, so in some cases a degree of judgement/pragmatism will be needed. There are ways we could adapt the tool to account for overlaying features, we could also increase the variety of surface cover types that could be accommodated in the tool, or provide additional supporting guidance, any further complexity needs to be balanced with usability of the tool however.

The simplicity of the tool means that it is not really suited for deep analysis, and it does not consider condition or quality of what features are proposed – e.g. where an area of trees or shrubs are proposed, the score will remain the same regardless of type of species selected. Therefore, it does not negate the need for ecological or arboricultural expertise, (though this is still the case with landscape plans received on applications at present, regardless of using a UGF or not). For these reasons, the use of a UGF could also not replace the need for other assessments in the planning application process, such as the DEFRA Biodiversity metric to assess biodiversity net gain, which has a primary focus on habitat features and will be a mandatory requirement as part of the implementation of the Environment Bill.

A final consideration is that whilst the use of the UGF to assess sites should require very little specific training in itself, the use of the tool would be enhanced where applicants are completing it having some level of basic understanding/training. They should at the minimum be able to differentiate between surface covers (e.g. extensive versus intensive green roof). However, it is anticipated that some of this challenge could be overcome through ensuring the UGF tool is accompanied with detailed user guidance notes (as other authorities do).

It should be noted that UGF is not particularly useful for greenfield sites and is a separate and broader focussed measuring tool than the Biodiversity Net Gain/DEFRA Biodiversity metric so there would be no duplication of findings.

Our proposed approach to applying UGF policy

Requiring applicants to use an UGF is a useful way of improving the way that green infrastructure provision on sites is quantified. Seeking a betterment in score above a minimum would also help to ensure that applications deliver a net improvement in greening and this is what we have proposed within the policy options that relate to the UGF in the consultation document. As we draft the full policy we will need to pay careful attention to the weaknesses highlighted above, which we feel are outweighed by the strengths, and design the tool and supporting guidance to mitigate these as much as possible.

At this stage, we do not propose to make it mandatory across the entire city. Areas that are particularly green would not benefit from its use in quite the same way as other less green areas. Our preferred approach is to tailor its application to certain areas/sites in the city, or potentially

certain scales of development, though further work would need to be undertaken as we draft the full policy to determine exact areas of application. We will also consider any feedback through this consultation.

It will be important to be clear that the use of the UGF is intended to achieve separate objectives to biodiversity net gain (which is its own specific issue as we discuss in the next section), though it will be mutually supportive. Instead, the key intent of the UGF is to help address a variety of wider place-making and environmental issues, for example, making spaces that are more pleasant for people, as well as delivering resilience/adaptation to climate change (more green infrastructure can improve flood resilience and reduce urban heat).

Biodiversity and ecology

There is a close relationship between the topic of green infrastructure and that of biodiversity and ecology. Many of the options above will help to strengthen our approach to protecting and promoting biodiversity in the city, but we have also prepared several sets of more specific options for policies that address this topic, recognising its importance to the future sustainability of Oxford. The options prepared for consultation seek to not only protect existing biodiversity, but also to address biodiversity net gains and securing other ecological enhancements as part of new development.

Biodiversity net gain and the Environment Act

The Environment Act 2021 has now received royal assent, it contains provisions related to ecology and biodiversity that we expect will come into force in late-2023. A key provision within the Act is the requirement for new development to deliver a minimum 10% biodiversity net gain (though government has set out that there are certain exceptions to this requirement). Each site will need to be assessed using the Biodiversity Metric, which assigns scores to existing and proposed habitats and indicates whether the development would increase or decrease the number of habitat, hedgerow, and river units on that site. Whilst the requirement for 10% net gain will be conveyed upon new planning permissions without the need for a specific policy at the local level, we expect that there will be a role for local policy in potentially shaping how net gain is delivered; for example, by identifying what strategies developers should consider in delivering net gain.

Practically, whilst the 10% net gain requirement is a positive step in national legislation, it should be recognised that there are likely to be several challenges to delivering net gain onsite in Oxford. Not only are many of our developments dense and on small sites with limited space, but there can also be a variety of other constraints which can make it very challenging (and in some cases impossible) to deliver to the strict standards required by the DEFRA Biodiversity Metric. As such, biodiversity offsetting, whereby net gain is achieved for a development through the delivery of ecological enhancements on offsite land, will potentially be required in many cases. Again, we expect local policy could be an important tool in setting out the expectations for how any offsetting is delivered, directing net gain that can't be delivered on a site to sites within the local area would be our preference, before applicants consider offset further afield. In the most challenging of circumstances, delivery beyond the city border, but still within Oxfordshire, would seem preferable to an applicant paying into a national offsetting scheme (that could result in net gains being diverted elsewhere in England). This is how we have prepared the preferred policy option.

Encouraging other onsite biodiversity enhancements

Recognising that there may be limited opportunities for onsite biodiversity net gains stemming from the requirements of the Environment Act alone, we have also considered how biodiversity could be supported on sites where onsite habitat creation is not achievable to the standards of the DEFRA metric. We have therefore prepared policy options which seek to secure other forms of design measures that could make space for wildlife and support biodiversity. These could include bat and bird boxes, pollinator friendly wildflower planting, hedgehog holes. Biodiversity net gain is only concerned with habitats, and these measures would offer enhancements for a range of protected species in the City that are not captured in the metric.

Our preference is to include a policy that would set out our expectations for wildlife friendly construction measures and to provide as much certainty as possible to applicants by incorporating a biodiversity points scheme. We would envisage publishing a list of acceptable measures such as in the example in figure below, tailored to Oxford's context, and would set out in policy the number of 'points' expected of development. Points would be secured by choosing options from the list to include on a site and we could set higher points thresholds for larger scales of development, though would welcome views on this through the consultation. In this way, even if the strict 10% net gain requirements of the Environment Bill are not deliverable on site and the applicant choice offsite delivery, we could still secure some enhancements for biodiversity, via this more flexible policy.

1	A bird box for every apartment
2	A biotope for specified insects in the courtyard (water striders and other aquatic insects in the pond)
3	Bat boxes in the courtyard
4	No surfaces in the courtyard are sealed, and all surfaces are permeable to water
5	All non-paved surfaces within the courtyard have sufficient soil depth and quality for growing vegetables
6	The courtyard includes a rustic garden with different sections
7	All walls, where possible, are covered with climbing plants
8	There is 1 square metre of pond area for every 5 square metres of hard-surface area in the courtyard
9	The vegetation in the courtyard is selected to be nectar rich and provide a variety of food for butterflies (a so-called 'butterfly restaurant')
10	No more than five trees or shrubs of the same species
11	The biotopes within the courtyard are all designed to be moist
12	The biotopes within the courtyard are all designed to be dry
13	The biotopes within the courtyard are all designed to be semi-natural
14	All stormwater flows for at least 10 metres on the surface of the ground before it is diverted into pipes
15	The courtyard is green, but there are no mown lawns
16	All rainwater from buildings and hard surfaces in the courtyard is collected and used for irrigation
17	All plants have some household use
18	There are frog habitats within the courtyard as well as space for frogs to hibernate
19	In the courtyard, there is at least 5 square metres of conservatory or greenhouse for each apartment
20	There is food for birds throughout the year within the courtyard
21	There are at least two different old-crop varieties of fruits and berries for every 100 square metres of courtyard
22	The facades of the buildings have swallow nesting facilities
23	The whole courtyard is used for the cultivation of vegetables, fruit and berries
24	The developers liaise with ecological experts
25	Greywater is treated in the courtyard and re-used
26	All biodegradable household and garden waste is composted
27	Only recycled construction materials are used in the courtyard
28	Each apartment has at least 2 square metres of built-in growing plots or flower boxes on the balcony
29	At least half the courtyard area consists of water
30	The courtyard has a certain colour (and texture) as the theme
31	All the trees and bushes in the courtyard bear fruit and berries
32	The courtyard has trimmed and shaped plants as its theme
33	A section of the courtyard is left for natural succession (that is, to naturally grow and regenerate)
34	There are at least 50 flowering Swedish wild herbs within the courtyard
35	All the buildings have green roofs

Figure 2: An example of a green points list highlighted in the TCPA expert paper 'The Green Space Factor and the Green Points System' (2011)[1]. This would need to be tailored to Oxford.

Protecting the ecological network

The other part of our approach to supporting biodiversity relates to existing protected sites. As touched upon earlier, we feel it is important to continue to identify a network of green spaces that ought to be protected from new development in the first instance. A subset of these spaces will be the sites of ecological importance, including the internationally, nationally and locally designated sites. These areas would likely benefit from their own policy compared with other types of green space because there are additional reasons for their protection and consideration for how any loss would need to be assessed. Of course, in the first instance, it will be important that developers follow the mitigation hierarchy, which requires them to avoid, minimise and mitigate impacts on ecology and biodiversity, compensating for losses only as a last resort. Our proposal is then to set out a hierarchy of levels of protection that corresponds with the uniqueness and specialness of the features for which they have been designated, while also capturing sites with ecological value that has previously gone unrecorded.

International and national designations, such as the Oxford Meadows SAC and the SSSIs will be subject to the strongest protection, with local designations falling below them. The local sites are where this hierarchy would be most helpful, this is because Oxford City Council has multiple tiers of locally designated sites; notably, more stringent criteria are applied in designating local wildlife sites (LWS) versus Oxford City Wildlife Sites (OCWS). It seems appropriate to ensure the level of protection is proportionate to the level of ecological interest.

Whilst national and international sites benefit from protections that are conferred upon them by legislation outside of the Local Plan, the protections related to locally designated sites are established through the Local Plan. This means that our policies will be particularly important for these local features which do not reach of the benchmark of higher protections and yet can still be valuable refuges of priority habitats and for local species. A comprehensive review of all local wildlife sites was conducted as part of the background work for the current Local Plan 2036, and it is considered that the work was robust enough that it still has relevance. However, the Council has commissioned TVERC to undertake a review of the data that is held for all local sites and five additional sites being considered for ecological enhancements and potentially protection. The work will help establish which sites subject to existing protections would benefit from further survey work to better understand their condition, and potentially identify local sites which have opportunities for enhancement and that could become targets for biodiversity offsetting in future.