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A Local Plan for

Lancaster District

2020 - 2031

Plan period 2011 - 2031

Green & Blue Infrastructure (GBI) Strategy

December 2021

Shaping
a better future

LANCASTER CITY COUNCIL
Promoting City, Coast & Countryside

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Contents

The Green and Blue Infrastructure (GBI) interactive map that accompanies this Strategy, alongside the User Guide which includes a list of all of the datasets included and a Glossary can be found **here.**

To keep the GBI interactive map a live and up-to-date useful tool, it is anticipated that the map will be updated twice a year to reflect the most recent available data (where possible, around November-December and July-August).

Strategy Summary

Section 1:

Introduction

This introductory section sets out the answers to some of the fundamental questions behind the meaning and purpose of this Strategy. 'What is Green and Blue Infrastructure (GBI)?', 'What is a GBI Strategy?', 'Why are we carrying out a GBI Strategy?' and 'Why the Lancaster District?'. Given the wealth of green and blue infrastructure definitions that exist, and the varying approaches taken towards producing GBI Strategies, it was pertinent to set out from the beginning the intentions of this pre-dominantly map-based Strategy. Continuing then to set out **Our Vision** for the Strategy, **Our Key Aims** and **Objectives** as to how this is to be achieved.

Section 2:

Planning Policy Context

The purpose of this section is to set out the **National Context** that has underpinned the preparation of this GBI Strategy, such as the National Planning Policy Framework, associated Planning Practice Guidance, Climate Change Act, NERC Act, 25 Year Environment Plan and the Environment Act. Followed by the **Local Context** within which this Strategy sits, in relation to the Lancaster City Council Corporate Plan, Lancaster District Local Plan and the emerging Climate Emergency focussed review of the Local Plan.

Section 3:

Methodology

When using and applying the GBI Strategy it is important to understand the process that has been followed to prepare the Strategy. This section outlines the study area (the entire Lancaster District) and how the evidence was collated to inform the Strategy (both the document itself and the associated interactive mapping) through both primary and secondary sources, utilising reports and datasets produced by key stakeholders to ensure the most up-to-date information has been used. Two forms of consultation were also carried out to feed into the preparation of this Strategy: a 'Call for Projects' online survey and a series of online interactive workshops.

Section 4:

Green and Blue Infrastructure Functions and Benefits

The two key facets of GBI are connectivity and multifunctionality. This Strategy aims to highlight the importance of connecting high quality, multifunctional green and blue spaces together, to create corridors and chains that make up the wider GBI network. The value of our GBI assets need to not only be protected but also better harnessed and utilised, for example in how we respond to climate change, because one green or blue space does not just have one use. The array of different 'types' of GBI arises due to the various uses and functions of green and blue spaces. From providing opportunities for recreational activities, natural scenery, homes for wildlife, space for water, corridors for travel and settings for heritage assets, whilst also providing means of climate change adaptation and mitigation. Ultimately GBI provides an array of environmental, social and economic benefits, mirroring the three overarching objectives of the NPPF. To help focus the scope of this Strategy 6 key themes, effectively uses of GBI, have been identified:

- Recreation/Accessible Greenspace
- Ecology & Biodiversity
- Landscape
- Active Travel
- Water Management
- Historic Environment

Section 5:

Lancaster District's Existing Green and Blue Infrastructure Network

In order to be able to understand the existing GBI network it was considered important to be able to see what it currently looks like. So, an audit of all of the known relevant datasets was undertaken, on a theme-by-theme basis, and subsequently mapped using GIS (Geographic Information Systems).

It is acknowledged that whilst many of these datasets have been mapped before (for example on the Local Plan Policies Map or internal planning constraints mapping), the data has always effectively been mapped in isolation and not considered as part of the bigger picture and the role it plays in the wider GBI network. Therefore, utilising the Council's own datasets such as evidence obtained through the open space study, grassland management strategy and local landscape designations, through to County Council datasets such as biological heritage sites (BHS') and ecological networks, to data produced by key stakeholders such as Natural England's priority habitat mapping and the Environment Agency's flood risk zones, the full extent of the known District-wide GBI network has been mapped.

Section 6:

Lancaster District's Wider Socio-economic Picture

To provide some further background context to facilitate the analysis of the existing GBI network two additional key themes were explored: Quality of Life and Greater Economic Output. It is recognised that there are key socio-economic factors such as population density, food insecurity and deprivation that can impact upon and subsequently be impacted by the provision of , or lack of, green spaces. Research has shown that enhanced green space, and better access to it, can alleviate crime levels and improve the physical and mental health of the population, increase productivity at work, whilst also providing spaces for food growing which helps to address the risk of food insecurity and reduce food miles. Mapping this demographic data can help to identify opportunities for the improvement of green and blue infrastructure, which is covered in the next section.

Section 7:

The Strategy (Findings and Recommendations)

Once the existing GBI network has been identified and mapped, and the socio-economic picture better understood, the next step is to identify opportunity areas as to how the GBI network, in relation to each of the 6 themes, can be improved (via enhancement, extension or creation).

For each of the 6 themes, firstly, the **Key Issues** were identified following the stakeholder workshops and the mapping exercise. Secondly, a series of **Objectives** have been established to set out what we would like the GBI Strategy to help achieve in relation to each theme. Finally, some **Emerging Opportunities** have been identified to set out how these objectives could be achieved to address the key issues identified. The Emerging Opportunities set out the principles, and the interactive mapping seeks to identify spatially where such opportunities could be located. As this Strategy is dual purpose, the close of this section sets out how the outcomes of this Strategy can be embedded into policy as part of the Local Plan Review, and given the specific focus of the review the scope of the amendments are also limited, and so a series of **Aspirations for the Future** have also been listed.

Section 8:

Delivering the Strategy

This section seeks to set out how the GBI promoted through this Strategy can be delivered on the ground. The primary, preferred route for the delivery of GBI is onsite as part of a development, hence this approach is recommended to be promoted through policy. Alternative mechanisms include Section 106 agreements, CIL, wider funding and legislation. Appended to this document is a list of projects, which the Council anticipates will evolve over time, listing projects within the Lancaster District that could help to facilitate GBI delivery on the ground. Followed by three Case Studies within the Lancaster District, which provide good examples of GBI design in proposals.

Section 9:

Conclusion and Next Steps

Overall, it has been recognised that the connectivity and multifunctionality of our green and blue spaces is key to a having robust, thriving and resilient wider GBI network, particularly in the face of climate change. Monitoring the effectiveness of this Strategy will be key moving forward.

1.0 Introduction

1.0 Introduction

What is Green and Blue Infrastructure (GBI)?

There is no one, fixed universal definition for 'green infrastructure' and 'blue infrastructure'. Whilst 'green infrastructure' is a more frequently and widely used term, this Strategy seeks to demonstrate how the approach taken towards green infrastructure from a planning perspective should be deeply intwined with that taken towards blue infrastructure.

Green and blue infrastructure, also referred to throughout this document as GBI, can be described in a number of different ways (as demonstrated on pages 8 and 9). This arises due to the varied nature, and highlights the varied uses, of our green and blue spaces. For the purposes of this Strategy, the Council has adopted the European Commission definition, which can be found on page 11. The 'Green Infrastructure Guidance' produced by Natural England, identifies a list of different 'green infrastructure' typologies, which are listed below, and whilst the specific term 'blue infrastructure' is not included, a number of these assets are subsumed within them.

Parks and Gardens - urban parks, Country and Regional Parks, formal gardens

Amenity Greenspace - informal recreation spaces, housing green spaces, domestic gardens, village green, urban commons, other incidental space, green roofs

Natural and semi-natural urban greenspaces - woodland and scrub, grassland (e.g. downland and meadow), heath or moor, wetlands, open and running water, wastelands and disturbed ground, bare rock habitats (e.g. cliffs and quarries)

Green Corridors – rivers and canals including their banks, road and rail corridors, cycling routes, pedestrian paths, and rights of way

Other – allotments, community gardens, city farms, cemeteries and churchyards

The inclusion of the typology 'other' demonstrates that this list is not exhaustive. However, as the wordcloud highlights, there are common themes that emerge from each of the definitions, emphasising the key multiple elements, functions, and subsequent benefits, of green and blue infrastructure.

It is important to note that GBI can be in public or private ownership and be in any condition.

National Planning Policy Framework

(February 2019)

"A network of multi-functional green space, urban and rural, which is capable of delivering a wide range of environmental and quality of life benefits for local communities."

National Planning Policy Framework

(January 2021)

"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, health and wellbeing benefits for nature, climate, local and wider communities and prosperity."

National Planning Practice Guidance

(July 2019)

"Green infrastructure can embrace a range of spaces and assets that provide environmental and wider benefits. It can, for example, include parks, playing field, 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. References to green infrastructure in this guidance also apply to different types of blue infrastructure where appropriate."

Landscape Institute

(Green Infrastructure Position Statement) (2013)

"The network of natural and semi-natural features, green spaces, rivers and lakes that intersperse and connect villages, towns and cities"...."Individually, these elements are green infrastructure assets, and the roles that these assets play are green infrastructure functions".

Natural England

(2009)[2]

Green Infrastructure is a strategically planned and delivered network comprising the broadest range of high-quality green spaces and other environmental features. It should be designed and managed as a multifunctional resource capable of delivering those ecological services and quality of life benefits required by the communities it serves and needed to underpin sustainability. Its design and management should also respect and enhance the character and distinctiveness of an area with regard to habitats and landscape types.

Green infrastructure includes established green spaces and new sites and should thread through and surround the built environment and connect the urban area to its wider rural hinterland. Consequently, it needs to be delivered at all spatial scales from sub-regional to local neighbourhood levels, accommodating both accessible natural green spaces within local communities and often much larger sites in the urban fringe and wider countryside."

Natural England

(2009)[3]

Blue Infrastructure... "This term is sometimes used to describe riverine and coastal environments within a green infrastructure network."

Natural England

(September 2020)[4]

"Green infrastructure is the network of green and blue spaces and features in both urban and rural places. It can include wildlife area and woodlands; road verges and rights of way; parks and gardens; canals; rivers and wetlands; green-grey infrastructure such as green bridges or green walls or roofs, and natural flood management and sustainable drainage. Green infrastructure is a vital element of healthy places."

Forest Research

(October 2010)[4]

"Green infrastructure refers to the combined structure, position, connectivity and types of green spaces which together enable delivery of multiple benefits as goods and services. It is important to consider green infrastructure holistically and at landscape as well as individual site scale."

University of Sheffield

(September 2020)[5]

"Green infrastructure is a hybrid concept, combining green space and semi-green built systems (including fields, woods, rivers, lakes, and gardens) that are found between and within our built-up areas. Together, these features enable ecosystem resilience, as well as supporting human wellbeing."

[2] Green Infrastructure Guidance, Natural England, 2009
[3] Green Infrastructure Guidance, Natural England, 2009
[4] https://beyondgreenspace.files.wordpress.com/2020/10/neer015-a-rapid-scoping-review-of-health-and-wellbeing-evidence-for-the-framework-of-green-infrastructure-standards-final-draft-sept-2020-1.pdf
[4] https://www.forestresearch.gov.uk/research/benefits-of-green-infrastructure/
[5] https://doi.org/10.15131/shef.data.13049510.v1

Our GBI definition

"Green and blue infrastructure is a strategically planned network of natural and semi-natural areas with other environmental features designed and managed to deliver a wide range of ecosystem services such as water purification, air quality, space for recreation and climate mitigation and adaptation. This network of green (land) and blue (water) spaces can improve environmental conditions and therefore citizens' health and quality of life. It also supports a green economy, creates job opportunities and enhances biodiversity."

European Commission (2013) – definition adopted for the purposes of this Green and Blue Infrastructure Strategy (adapted to include 'blue infrastructure' at the beginning and not just 'green infrastructure')

What is a Green and Blue Infrastructure (GBI) Strategy?

In their Position Statement in 2013, the Landscape Institute stated that "to be truly successful, Green Infrastructure needs to be part of a shared vision that permeates every level of the planning and design process, at every scale of development." The purpose of this GBI Strategy, therefore, is to ensure Lancaster City Council achieves just that.

Whilst it should not be understood that the Council does not currently have an adopted approach towards green and blue infrastructure, because it does (as demonstrated by the relevant policies set out in Table 1), it is recognised that a more holistic approach is required. The Local Plan Policies Map identifies internationally designated environmental sites, biological heritage sites, ancient woodland, open spaces, to name but a few, but they are identified and protected as individual assets. There is a need to look at the bigger picture, and to not simply designate and protect these individual green and blue assets in isolation, but to further explore the multi-functionality of these spaces and how these benefits can be better harnessed through the planning system, and ultimately incorporated into new development proposals. It is also important to recognise that these are not just individual spaces, but that they are part of a wider green and blue infrastructure network, creating corridors and chains, which ultimately plays a key role in the functioning of these spaces and therefore needs to be protected and enhanced to resist the threat of fragmentation, which ultimately impacts upon the habitats and species living there, and the valuable ecosystem services that they provide. In the words of The Lawton Review 'bigger, better and more joined up'.*

Mapping the existing green and blue infrastructure network will therefore from a key part of this Strategy. **The GBI Interactive Map Data Sources List** sets out all of the existing green and blue infrastructure data that has been mapped to identify the existing network, to create a visual representation of the 'bigger GBI picture' for the entire Lancaster District. We need to identify the existing network in order to be able to understand how it can be better protected, enhanced, and extended to highlight future opportunities that would enable this to happen.

* Making Space for Nature: A review of England's Wildlife Sites and Ecological Network, September 2010

Why are we carrying out a GBI Strategy?

In January 2019 Lancaster City Council declared a Climate Emergency, calling all areas of the Council to review the ways in which the Council could address the rising impacts of climate change in the Lancaster District. However, when the declaration was announced, the Council had already submitted its Local Plan to the Government for examination (in May 2018), and whilst the planning policies within the submitted plan did address climate change, the Local Plan was too far advanced to take account of the content of the Climate Emergency declaration. Therefore, upon adoption of the Local Plan on the 29th July 2020 (consisting of the Strategic Policies and Land Allocations DPD, and the review of the Development Management DPD), the Council committed to an immediate review, with the specific aim of revising the policies from a climate change perspective. This will ensure that wherever possible, development that comes forward through the planning system addresses and appropriately implements measures to mitigate and/or adapt to the impacts of climate change, following Lancaster City Council's declaration of a Climate Emergency.

Inevitably, a key area of focus is the impact climate change has upon the natural environment, and how policies in the Local Plan can ensure new development protects and enhances the District's natural environment, and in turn maximise the benefits these GBI assets can provide to ensure the District is as resilient as possible in the face of climate change.

Box 1: Through the Climate Emergency declaration the Council committed itself to:

- Set up a Climate Change Cabinet Liaison Group, involving councillors, residents, young citizens and experts from our two universities
- Convene a citizens' assembly to help identify how our activities can be made net-zero carbon by 2030
- Proactively include young citizens in this process
- Introduce climate change impact assessments, including carbon emission appraisals in reports to Cabinet and Council
- Support Lancashire's Air Quality Champions network and request a city councillor to attend meetings
- Commission a report from our pension funds and investments on levels of investment in the fossil fuel industry

As demonstrated in Box 1, one of the Council's commitments was to set up a People's Jury to help identify ways in which the Council could help tackle the impacts of climate change, and so a Climate Change People's Jury was established. From which a series of recommendations were made and those which are relevant to GBI are outline in Box 2 below.

Box 2: Climate Change People's Jury green and blue infrastructure related recommendations:

- Make it easier for people to grow their own food. Allotments and food growing spaces serve to both address climate change, promote sustainable living and many other issues faced by our community i.e. growing as a tool for community based improvements – social cohesion, mental and physical wellbeing as well as using allotment/growing to address food waste through composting.
- Conduct a survey/audit of land which is suitable for crops, vegetables, fruit growing and for small mixed farms. Also identify land available for tree planting, hedgerows and wild meadows.
- The council should firstly, open more allotments and growing space and secondly raise awareness that residents can request more allotments
- Additional land for allotments/community growing areas should be identified and large private landowners encouraged or incentivised to release such land
- All new housing must have adequate drainage so there is no additional flood risk.

The approach taken to review the planning policies needs to be directed, informed and subsequently underpinned, by a robust evidence base. Therefore, the Council has decided to prepare this GBI Strategy. The aim of which is to carry out an audit of the existing green and blue infrastructure assets that exist across the District, and to map this existing network to gain a clearer understanding of the interconnectivity of these green and blue spaces and the multiple functions and benefits they provide. This will then aid the identification of opportunities where the existing network could be enhanced and/or extended to better protect and support habitats and species, whilst continuing to provide the invaluable ecological services us humans are so heavily dependent upon and at the same time, preparing the Lancaster District to be able to mitigate and adapt to the impacts of climate change faced.

Where applicable, the outcomes of this GBI Strategy will inform the revision of the policies outlined in Section 2 ,and will form the evidenced justification for the changes in the approach taken within these policies.

The intention is that this Strategy will then also become a tool that can be used by Developers when designing their development schemes, emphasizing the importance of GBI within their proposals, and enable them to better understand, and therefore consider, the location of their proposal in relation to the existing network and how they could contribute towards its enhancement and/or extension, building upon the opportunity areas that this Strategy identifies. Additionally, the Strategy will be a key piece of evidence that can be utilized by colleagues in Development Management when determining planning applications.

The Council is also conscious that besides the existing designations that are currently identified on the Local Plan Policies Map, that there are a number of other green and blue infrastructure projects that have been implemented or are in the process of being set up, and are datasets that have been produced, by a variety of organisations and groups that are external to the Council, which also form a key part of the Lancaster District's existing GBI network and thus should inform our understanding and direction within this Strategy. Therefore, there has been the opportunity for key stakeholders to be involved in the preparation of this Strategy to ensure it accurately reflects the current picture with regards to the provision of GBI and sets out the most appropriate and realistic way forward. The details of which are set out in Section 3: Methodology.

Furthermore, 2020 and 2021 brought a global pandemic which has altered the nation's work and home life patterns, and has forced us all to reduce the contact we have with other people indoors. In such unprecedented times, open areas of green and blue spaces have been invaluable, and critical in helping to maintain people's health and wellbeing,

particularly from a mental health perspective, allowing people to come together in small groups when we have been unable to at our homes. These spaces have provided a vital opportunity for exercise and self-care whilst gyms and leisure centres have been closed. The pandemic has also brought a renewed connection with nature, with greater appreciation for the open spaces around us, which in turn has caused a change in opinion regarding how we view and subsequently use our surrounding area. The British environment, which is a finite resource, must now be at the forefront when planning for our future.

Finally, it is also hoped that the outcomes of this Strategy will be used as a baseline and a springboard for future Council-wide Strategies. As previously stated, this is the first Strategy of its kind that has been produced specifically for the Lancaster District and so it has been complied in such a way that the outcomes and findings of this Strategy can be used to lead the way for upcoming, cross-Council projects and strategies, which will all ultimately be working towards addressing the Climate Emergency declaration.

Why the Lancaster District?

Lancaster, as shown in Figure 1, is the most northerly District in Lancashire and covers an area of 565 square kilometres. Over 90% of the District is rural with drumlin fields and rolling upland farmland forming the predominant landscape types. This is complemented by the coastal drumlins along the western edge of the District, lining Morecambe Bay, which is home to the coastal towns of Morecambe and Heysham. The historic city of Lancaster is the largest settlement in the District, through which the River Lune flows. Further inland the floodplain valley of the River Lune, and the wooded limestone hills and pavements at Silverdale, provide additional unique landscapes. Within the District there are also two Areas of Outstanding Natural Beauty (AONBs), the Forest of Bowland, and the Arnside and Silverdale AONB. On the edge of the latter lies the railway town of Carnforth.

These characteristic landscapes provide the setting for the four main settlements within the District; Lancaster, Morecambe, Heysham and Carnforth. The proximity of the rural landscapes to the main urban settlements is a particular asset of the District, with residents and visitors readily able to access the countryside.

Figure 1: Map of Lancaster District

Whilst the District has a wealth of GBI assets, as will be explored throughout this document, the purpose of this Strategy is to enhance and extend the existing network, to maximise the multi-functionality of these spaces. As will be explained through the Strategy, there will be a particular focus upon the urban areas of the District (Lancaster, Morecambe, Heysham and Carnforth) to correspond with the District's Spatial Strategy that focusses future development at these locations, due their more sustainable nature. However, this subsequently places increased pressure upon the green and blue assets within these areas, and so it is considered that a Strategy is needed to ensure the District's GBI network can thrive within these pressurised and evolving environments. Even more so with the rising impacts of climate change the District is facing.

Our Vision

"Lancaster is a District that is home to an extensive and thriving high quality green and blue infrastructure network that connects an array of multifunctional green and blue spaces and corridors. A network that provides multiple benefits to enable the creation and recovery of habitats, enhances the abundance and sustenance of species, and achieves biodiversity net gain, whilst at the same time providing an invaluable resource to humans, socially and economically, through their array of ecosystem services. To ensure the network is resilient and able to mitigate and adapt to the impacts of climate change, and sustainably managed and monitored to ensure the District's assets can be enjoyed for generations to come."

Our Key Aims and Objectives

Aims

Ultimately following the Council's declaration of a Climate Emergency, through this GBI Strategy, we want to ensure our GBI network is as resilient as possible to the impacts of climate change. So overall this Strategy aims to:

- Identify and protect the existing GBI network across the Lancaster District,
- Highlight and positively amplify the multifunctional value and multiple benefits GBI assets can provide from an environmental, social and economic perspective
- Locate opportunity areas where the quality, attractiveness and functionality of green and blue spaces can be enhanced within the existing network to reduce the threat of fragmentation and be more resilient to the impacts of climate change
- Locate opportunity areas where the existing green and blue infrastructure network could be extended to better connect and widen the accessibility of the network to nature and humans
- Embed an approach within the local planning system to ensure blue and green infrastructure is a key part of future planning proposals
- Adopt an inter-disciplinary approach to GBI whereby all stakeholders (organisations, groups and individuals) work together to ensure the potential of the network and this subsequent Strategy are maximized for the benefit of both nature and humans
- Provide a framework to ensure the GBI network is managed and maintained in a sustainable way for the long-term future, and that appropriate monitoring mechanisms are put in place
- Provide a baseline for future GBI based strategies for the Lancaster District
- Be a living Strategy given the ever changing nature of GBI to ensure considerations are made based upon the most up-to-date data available to best reflect what is happening on the ground to ensure the connections and functions of these assets are maximised to their potential

Objectives

To achieve the above aims this Strategy will seek to:

- Identify the varying nature, uses, key functions and subsequent benefits of GBI assets within the Lancaster District
- Understand the legislative background and planning policy context at both a national and a local level for GBI
- Conduct an audit of the current GBI assets, by collating spatial data that can be mapped, to identify and understand the existing GBI network
- Identify 'other' GBI projects that have been implemented or are in the process of being that will contribute towards the existing network so that they can also be mapped
- Work alongside key stakeholders and engage them in key aspects of consultation throughout the preparation of the Strategy to ensure an inter-disciplinary approach is adopted
- Spatially locate areas, having analysed the make-up of the existing network, where there could be opportunities to expand and enhance the existing GBI network
- Incorporate case study examples to act as a guide for Developers to demonstrate how GBI can be purposely embedded within the design of a proposal from an early stage so that the maximum benefits for both humans and nature can be delivered
- Hold workshops to engage key stakeholders in the preparation of the Strategy
- Inform the setting of appropriate and effective monitoring indicators to record the outcomes that are delivered as a result of the Strategy, and ultimately the planning policies driving their delivery
- Produce an online interactive map that can be updated as new evidence comes to light to ensure as accurate a picture as possible of what is happening on the ground if reflected to best inform future decisions, including the production of future GBI based Strategies for the Lancaster District

2.0 Planning Policy Context

2.0 Planning Policy Context

National Context

National Planning Policy Framework (2021)

The National Planning Policy Framework, known as the NPPF, sets out the Government's planning policies for England and how these should be applied, when both plan-making and decision-taking.

As one of the main purposes of this Strategy is to underpin the review of the Lancaster District Local Plan, within the specific context of addressing the impact of climate change, this section will focus upon the direction in the NPPF which specifically relates to plan-making.

Paragraph 20 of the NPPF states that:

"strategic policies should set out an overall strategy for the pattern, scale and quality of development, and make sufficient provision for… conservation and enhancement of the natural, built and historic environment, including landscapes and green infrastructure, and planning measures to address climate change mitigation and adaptation".

Paragraph 154 highlights that "new development should be planed for in ways that:
a) Avoid increased vulnerability to the range of impacts arising from climate change. When new development is brought forward in areas which are vulnerable, care should be taken to ensure that risks can be managed through suitable adaptation measures, including through the planning of green infrastructure."

The NPPF is clear that planning policies should contribute to and enhance the natural and local environment, and details six ways in which this can be achieved. One of which is by "minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures". (paragraph 174)

Paragraph 175 continues by saying that "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."

It is also stated that in order to protect and enhance biodiversity and geodiversity, plans should:
a) Identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity, wildlife corridors and stepping stones that connect them, and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation; and
b) Promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity" (paragraph 179)

"Opportunities to improve air quality or mitigate impacts should be identified, such as through traffic and travel management, and green infrastructure provision and enhancement. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications." (paragraph 186)

"Planning policies and decisions should aim to achieve healthy, inclusive and safe places which…enable and support healthy lifestyles, especially where this would address identified local health and well-being needs – for example through the provision of safe and accessible green infrastructure". (paragraph 92)

The revised 2021 NPPF places an increased emphasis upon the multifunctional role of GBI, stating that 'access to a network of high quality open spaces…is important for the health and well-being of communities, and can deliver wider benefits for nature and support efforts to address climate change' (paragraph 98).

National Planning Policy Guidance (PPG) (2019)

The National PPG recognises that green infrastructure is a natural capital that can provide a wide range of benefits, at varying scales, known as ecosystem services. The guidance also highlights the ways in which green infrastructure can help to achieve planning goals, by:

- 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

National guidance also emphasises the importance of approaching green infrastructure at a strategic level, by identifying existing and proposed GBI networks and putting in place policies to protect and enhance them. It is recommended that in order to inform such policies, GBI frameworks or strategies need to be prepared, which are underpinned by evidence, such as assessments of the quality and provision of existing GBI assets.

Climate Change Act (2008)

The Climate Change Act 2008 commits to reducing the UK's greenhouse gas emissions to net zero by 2050, compared to a 1990 baseline. The Act administered a system of carbon budgeting, established the Committee on Climate Change, encourages activities that reduce or remove greenhouse gas emissions, makes plans for adaptation to climate change, and so forth.

The Committee on Climate Change are required to provide recommendations to the Government, regarding the carbon budgets set out in the Act. The UK is on track to meet its third carbon budget (2018-2022), but not the fourth (2023-2027) or fifth (2028-2032). It is imperative for local authorities to consider smaller scale activities to contribute to meeting these targets.

As part of this GBI Strategy, there is a need to recognise GBI as part of a wider network to improve maintenance, provide better protection, and harness their benefits. The Committee refer to certain GBI as one of four primary and significant areas in which we can contribute to the reduction of emissions. The UK must plant at least 30,000 ha of trees per year, alongside other measures, to meet the net zero target. From 2035, this should increase to 50,000 ha per year. Afforestation of mixed woodland has a significant impact on removing atmospheric carbon dioxide. Additionally, higher levels of peatland restoration are also recommended to further increase carbon storage capacity. The Committee state that investments in these projects must be immediate.

Furthermore, the Committee affirms the importance of behavioural changes in meeting the net zero target. The enhancement, expansion and/or advertisement of some GBI's, such as allotments, or green corridor cycle routes, may contribute to these behavioural changes. Allotments, for example, encourage sustainable food production, whilst cycling reduces the demand for carbon-intensive travel; both of which are essential in meeting the net zero target.

GBI can also assist with the necessary adaptation to climate change. Ensuring the continued existence and maintenance of GBI protects the natural functioning of the ecosystem; such as the provision of natural flood defences, particularly as flooding events become more frequent.

Therefore, a GBI Strategy is an arena in which significant aspects of the Climate Change Act can be addressed.

Natural Environment and Rural Communities (NERC) Act (2006)

This GBI Strategy will play an important role in ensuring the Local Plan Review for the Lancaster District achieves the relevant obligations set out within the NERC Act, which requires Local Planning Authorities to consider the impacts on "species of principal importance for the conservation of biodiversity". Section 40 of the Act places the duty on Local Planning Authorities in England to conserve biodiversity whilst exercising its functions, and Section 41 lists the habitats and species that are of principal importance in England. Section 42(3)(a) then requires that the Council "take such steps as appear to be reasonably practicable to further the conservation of the living organisms and types of habitat included in any list published under this section" or, Section 42(3)(b) to "promote the taking by others of such steps". Therefore, this Act sets out the legislative context and premise for the fundamental role of this GBI Strategy.

A Green Future: Our 25 Year Plan to Improve the Environment (2018)

The 25 Year Environment Plan, released in 2018, explicitly discusses and makes plans for green infrastructure. Its policies focus on:

- Using and managing land sustainably
- Recovering nature and enhancing the beauty of landscapes
- Connecting people with the environment to improve health and wellbeing
- Increasing resource efficiency, and reducing pollution and waste
- Securing clean, productive and biologically diverse seas and oceans
- Protecting and improving the global environment

The plan takes a natural capital approach to better inform long-term policies, with the understanding that a healthy environment supports a healthy economy, and a healthy, fairer society. Through using a natural capital approach, improved and more efficient decisions are made; particularly those that "support environmental enhancement and help deliver benefits, such as reduced long-term flood risk, increases in wildlife, and a boost to long-term prosperity".

Improving existing green infrastructure is directly referenced as a policy in Chapter 3. It states:

> "Our aim is to improve existing green infrastructure by encouraging more investment while making sure there is a presumption for sustainable development. Initially, we will focus on areas where we know that there is not enough accessible green infrastructure, or that what is there is of poor quality. We will draw up a national framework of green infrastructure standards, ensuring that new developments include accessible green spaces and that any area with little or no green space can be improved for the benefit of the community."

There are further relevant policies dictated in the document, including:

- Clean and Plentiful Water

- "Improving at least three quarters of our waters to be close to their natural state as soon as is practicable."
- Such as, "reducing the damaging abstraction of water from rivers and groundwater, ensuring that by 2021 the proportion of water bodies with enough water to support environmental standards increases from 82% to 90% for surface water bodies and from 72% to 77% for groundwater bodies."

- Thriving Plants and Wildlife

- "We will achieve a growing and resilient network of land, water and sea that is richer in plants and wildlife."
- Such as, "creating or restoring 500,000 hectares of wildlife-rich habitat outside the protected site network."

- Reducing the risks of harm from environmental hazards

- "We will reduce the risk of harm to people, the environment and the economy from natural hazards including flooding, drought and coastal erosion."
- Such as, "bringing the public, private and third sectors together to work with communities and individuals to reduce the risk of harm."

- Using resources from nature more sustainably and efficiently

- "We will ensure that resources from nature, such as food, fish and timber, are used more sustainably and efficiently."
- Such as, "improving our approach to soil management: by 2030 we want all of England's soils to be managed sustainably, and we will use natural capital thinking to develop appropriate soil metrics and management approaches."

- Enhancing beauty, heritage and engagement with the natural environment

- "We will conserve and enhance the beauty of our natural environment, and make sure it can be enjoyed, used by and cared for by everyone."
- Such as, "making sure that there are high quality, accessible, natural spaces close to where people live and work, particularly in urban areas, and encouraging more people to spend time in them to benefit their health and wellbeing."

Thus, it is evident that the Government are supportive of GBI Strategies. This agenda is pursued by the Government as they acknowledge that the "provision of more and better-quality green infrastructure, including urban trees, will make towns and cities attractive places to live and work, and bring about key long-term improvements in people's health. Better green infrastructure will promote local social interaction and help to develop strong community networks through participation and shared achievements"; alongside its environmental benefits. Therefore, the intentions of the Environment Plan are clearly consistent with the intentions of the GBI Strategy.

Environment Act (2021)

The Environment Act sets out some fundamental changes to the way in which we approach our natural environment, bringing into UK law environmental protections and recovery, and so this GBI Strategy will pave the way for achieving some of these requirements in the Lancaster District.
"In this Part the "natural environment" means –
a) Plants, wild animals and other living organisms,
b) Their habitats,
c) Land (except buildings or other structures), air and water, and the natural systems, cycles and processes through which they interact."[5]

Whilst the Act addresses both green and blue assets, specifically with regard to nature and biodiversity, Section 7A of the Act mandates biodiversity net gain for development, and thus developers are required to deliver a minimum 10% biodiversity net gain before seeking planning permission. It anticipated that further net gains will be sought in the future, as the 25 Year Environment Plan committed the Government to exploring the potential for a wider environmental net gain.

> ""In future, we want to expand the net gain approach used for biodiversity to include wider natural capital benefits, such as flood protection, recreation and improved water and air quality… they will enable local planning authorities to target environmental enhancements that are needed most in their areas and give flexibility to developers in providing them"[6].

The preferred delivery route for biodiversity net gain is onsite as part of a development proposal, and so this Strategy seeks to highlight the multifunctional value and benefits of our green and blue spaces, to provide guidance to Developers as to how net gain could be achieved through the design of their proposal. Where onsite delivery has been explored and considered not to be possible, the next preferable option is delivery offsite locally. As this GBI Strategy evolves, the intention is that it will help to build up a portfolio of projects (in Appendix 4) that could facilitate biodiversity net gains offsite. This Strategy will also provide a baseline framework for future strategies, such as a Local Nature Recovery Strategy, another requirement set out in the Environment Act. Questions are often raised in relation to the management of GBI and farming practices, and whilst planning has very little control over this, through emerging Environmental Land Management Schemes (ELMS) the opportunity will arise for farmers to facilitate the delivery of Local Nature Recovery Strategies and other practices such as tree planting and woodland creation.

Local Context

Lancaster City Council Corporate Plan

"Our vision is for the Lancaster district to thrive as a vibrant regional centre in the north west of England, making the most of our district's many attributes as a great place to live, work and visit."

The Council's corporate priorities were updated in January 2020 and are set out in the table below. Following the declaration of a Climate Emergency in January 2019 there has been a significant shift to ensure that mitigating and/or adapting to the climate change impacts we face across the District is at the heart of what the Council seeks to achieve. Climate change impacts upon a number of functions and services across the Council, and so this priority has heightened the importance of collaborative working throughout the Council's departments. Planning inevitably has a significant role to play in ensuring development that comes forward within the District is as sustainable as possible, whilst at the same time protecting and enhancing the assets (natural and built) that we value within our District. This GBI Strategy will play a crucial role in enabling the Council to achieve these aims, and whilst a Strategy that has been produced to inform both plan-making and decision-making, it is hoped that this Strategy will act as a springboard for future Strategies across the Council.[7]

[5] newbook.book (parliament.uk)
[6] Environmental Net Gain | CIEEM
[7] Corporate plan - Lancaster City Council

Lancaster City Council | Priorities Update 2020

Priorities / Themes	A Sustainable District	An Inclusive and Prosperous Local Economy	Healthy and Happy Communities	A Co-operative, Kind and Responsible Council
Climate Emergency *Taking action to meet the challenges of the climate emergency*	➢ net zero carbon by 2030 while supporting other individuals, businesses and organisations across the district to reach the same goal ➢ moving towards zero residual waste to landfill and incineration ➢ increasing the amount of sustainable energy produced in the district and decreasing the district's energy use ➢ transitioning to an accessible and inclusive low-carbon and active transport system ➢ supporting our communities to be resilient to flooding and adapt to the wider effects of climate change ➢ increasing the biodiversity of our district	➢ supporting the development of new skills and improved prospects for our residents within an environmentally sustainable local economy ➢ advocating for fair employment and just labour markets that increase prosperity and reduce income inequality ➢ supporting new and existing enterprises in sustainable innovation and the strengthening of local supply networks ➢ using our land, property, finance and procurement to benefit local communities and encouraging residents, businesses, organisations and institutions to do the same ➢ securing investment and regeneration across the Lancaster and South Cumbria Economic Region	➢ supporting wellbeing and ensuring local communities are engaged, involved and connected ➢ addressing health and income inequality, food and fuel poverty, mental health needs, and loneliness ➢ focused on early-intervention approaches and involving our communities in service design and delivery ➢ (re)developing housing to ensure people of all incomes are comfortable, warm and able to maintain their independence ➢ improving access to the arts, culture, leisure and recreation, supporting our thriving arts and culture sector ➢ keeping our district's neighbourhoods, parks, beaches and open space clean, well-maintained and safe	➢ listening to our communities and treating everyone with equal respect, being friendly, honest, and empathetic ➢ working in partnership with residents, local organisations and partners recognising the strengths and skills in our community ➢ investing in developing the strengths and skills of our staff and councillors ➢ focused on serving our residents, local organisations and district ➢ embracing innovative ways of working to improve service delivery and the operations of the council ➢ providing value for money and ensuring that we are financially resilient and sustainable
Community Wealth-Building *Building a sustainable and just local economy that benefits people and organisations*				
Community Engagement *Drawing on the wealth of skills and knowledge in the community and working in partnership*				

Lancaster District Local Plan

On 29th July 2020 Lancaster City Council adopted its Local Plan, consisting of the Strategic Policies & Land Allocations DPD and the Development Management DPD. The former contains a suite of policies that allocates land for development, and that also designates land to be protected from development. The Development Management DPD contains policies that are used to assess and ultimately determine planning applications for development.

Table 1 below outlines the policies that are relevant to both green and blue infrastructure within the DPD's.

Protecting the Natural Environment* - Policy SP8

Areas of Outstanding Natural Beauty - Policy EN2

The Open Countryside - Policy EN3

The North Lancashire Green Belt - Policy EN4

Local Landscape Designations - Policy EN5

Areas of Separation - Policy EN6

Environmentally Important Areas - Policy EN7

Local Green Spaces - Policy SC2

Open Space, Recreation and Leisure - Policy SC3

Green Space Networks* - Policy SC4

Recreation Opportunity Areas* - Policy SC5

Cycling and Walking Network* - Policy T2

Lancaster Canal - Policy T3

Open Space, Sports and Recreation Facilities*- Policy DM27

Key Design Principles*- Policy DM29

Sustainable Design*- Policy DM30

Development and Flood Risk* - Policy DM33

Surface Water Run-off and Sustainable Drainage* - Policy DM34

Protecting Water Resources and Infrastructure* - Policy DM36

Green Infrastructure* - Policy DM43

The Protection and Enhancement of Biodiversity - Policy DM44

Protection of Trees, Hedgerows and Woodland* - Policy DM45

Development and Landscape Impact - Policy DM46

Enhancing Accessibility and Transport Linkages*- Policy DM60

Walking and Cycling*- Policy DM61

Table 1: Local Plan policies specifically related to GBI

The table on page 26 demonstrates the array of planning considerations that involve GBI assets, highlighting the importance of the approach the Council takes towards these assets, particularly with the increasing pressures arising as a result of climate change.

As outlined in Section 1, the Council has committed to undertaking an immediate review of the Local Plan, with a specific focus upon climate change following the Council's Climate Emergency Declaration.This therefore means that the review is only going to focus on revisiting particular policies, and those policies relevant to GBI are marked with an asterisk in Table 1. The table clearly shows that the majority of these policies are within the Development Management DPD, which sets the policy criteria for the assessment of development proposals that come forward through the planning application process.

It is crucial that policy seeks to make sure that development schemes carefully consider and subsequently incorporate appropriate and adequate provision for GBI assets as part of their proposals, to ensure that as a District we are doing all we can to mitigate and adapt to the impacts of climate change.

Looking at those policies within the Strategic Policies and Land Allocations DPD which relate to green and blue infrastructure that the Council are looking to update as part of the review, they are either strategic policies which set out the over-arching planning policy direction for the District or relate specifically to the identification of networks or opportunity areas.

It is important to note that at this stage the role of the GBI Strategy is not to recommend further specific allocations or designations of land, such as open space and local green space designations, but instead to identify areas in which, and principles that are to be implemented, to enhance and/or extend the existing GBI network. It is anticipated that as the Strategy evolves it will be able to identify specific projects that will also facilitate this.

Despite this, as indicated in Table 1 above, policies SC4 (Green Space Networks) and SC5 (Recreation Opportunity Areas) are allocation policies that will be revisited as part of the Local Plan review.

What does the current 'Green Space Network', identified under Policy SC4 in the Adopted (2020) Local Plan, look like?

The Green Space Network as it currently exists in planning terms is identified on the adopted Local Plan Policies Map, designated under policy SC4 within the Strategic Policies and Land Allocations DPD, which states that:

Policy SC4: Green Space Network

The Council has identified on the Local Plan Policies Map a number of greenspace networks that will be protected from development which could cause inappropriate harm and damage to their value and integrity.

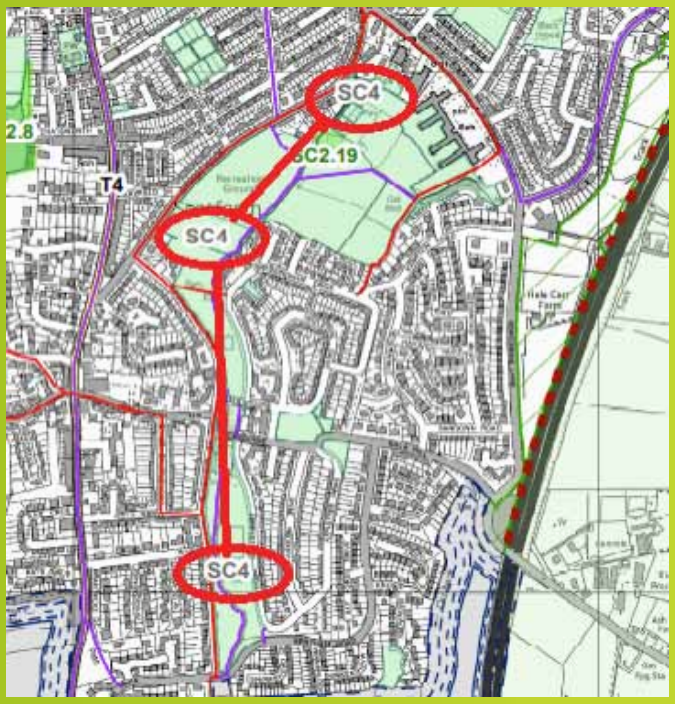
- Morecambe Promenade & Heysham Promenade and Coastline
- The chain of open spaces surrounding Lancaster City Centre
- The River Lune corridor from Marsh Point to Glasson Dock
- The chain of open spaces along the Burrow Beck Valley
- Lancaster Canal
- The Lancaster to Morecambe Cycle Track & the Morecambe Railway Triangle

The Council will investigate opportunities to improve and enhance the connectivity within these networks where appropriate to do so.

Four of the Green Space Networks identified in policy SC4 (Promenade/Coastline, River Lune. The Lancaster Canal and the Morecambe to Lancaster Cycle Track) have a clear, specific location and so they have been identified on the Local Plan Policies Maps using linear symbology. However, in the cases where the Green Space Network is made up of more of a chain of open spaces, point labels have been used, as demonstrated in Figure 2. As the purpose of policy SC4 is not to specifically designate an area/parcel of land, this was considered an appropriate means of identifying the Green Space Network and it is recommended that this approach is to be replicated on the Local Plan Review Policies Map.

Figure 2: The map above is an original extract of the adopted Local Plan Policies Map which identifies the location of the Green Space Network using point locators labelled 'SC4'.

As the map below demonstrates, when these points are joined together to create connections, the Green Space network is revealed. In this example, the SC4 point labels are identifying 'The Chain of open spaces along the Burrow Beck Valley' in South Lancaster.



Policy SC4 clearly states that "the Council will investigate opportunities to improve and enhance the connectivity within these networks where appropriate to do so". This will therefore be explored through the GBI Strategy, the findings of which are set out in the **GBI Strategy Addendum: Initial Outcomes of the GBI Strategy (Appendix 7)** which translates the outcomes of the GBI Strategy at this stage into recommendations to feed into the review of the relevant policies.

Review of the Lancaster District Local Plan

To aid the preparation of the Local Plan Review, on 25th September 2020 the Council launched a Scoping consultation, which ran until 20th November 2020. The purpose of which was to seek people's opinions on what issues matter most to those who live, work and visit the District with regards to climate change, what they believe are the greatest challenges we face in the Lancaster District, how these issues can be addressed through the policies within the Local Plan, and therefore, which policies in particular the review should be focussing on. Of the 76 responses, the most frequently referenced Development Management DPD policy was DM43 (Green Infrastructure), followed by DM45 (Protection of Trees, Hedgerows and Woodland), DM34 (Surface Water Run-Off and Sustainable Drainage) and DM61 (Walking and Cycling). Evidently GBI are considered to play a crucial role in the way in which policies through the Local Plan can help to address the challenges faced as a result of climate change.

With regards to the Strategic Policies and Land Allocations DPD, the most frequently identified policy requested to be a part of the review was T2 (Cycling and Walking Network), followed by SC4 (Green Space Networks) and SP8 (Protecting the Natural Environment). This shows that the value and importance of these networks are widely recognised, and thus emphasises the significance of this Strategy in ensuring such networks are protected, enhanced, and where possible extended, to ensure that as a District we are more resilient to the potential impacts of climate change.

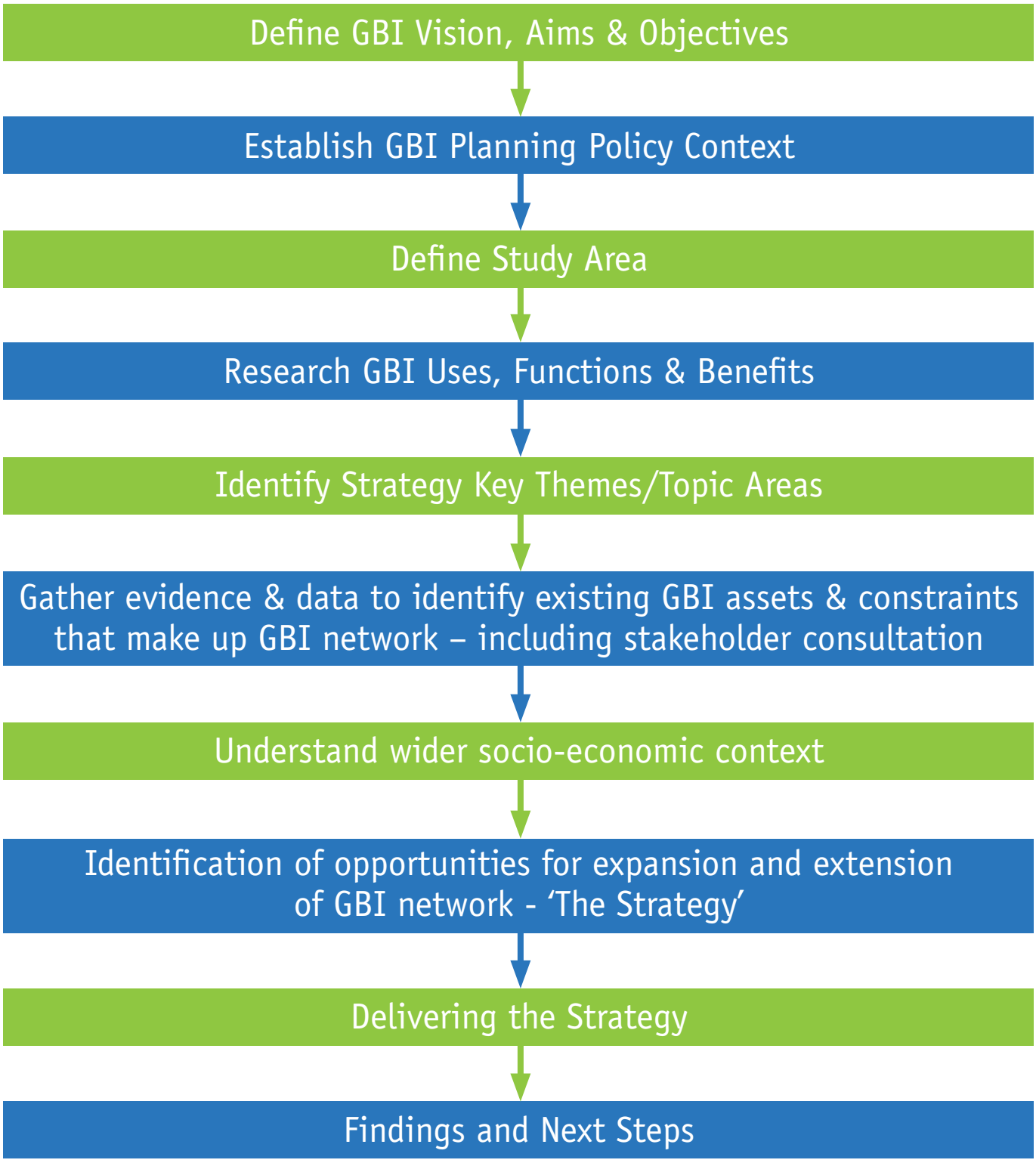
Other recommendations proposed through the Scoping consultation exercise in relation to GBI were to:

- Take an integrated, holistic approach to green and blue infrastructure, with developments making space for water and the wildlife that thrives in that environment, whilst providing recreational spaces. Emphasising the multi-functionality of green and blue infrastructure.
- Increase the green and blue space in development to act as water retention areas.
- Include monitoring requirements for the implementation and management of SuDS and green infrastructure in policies.
- Set standards for water management, maintenance and SuDS should be written into policies and enforced.
- Require plans for the management of surface water to be included at the preplanning stage and considered as part of any application.
- Consider the benefits of integrating habitat forming schemes through the GBI Strategy
- Address peatland protection.
- Ensure the provision of safe, extended, enhanced, traffic-free walking and cycling routes in policies.
- Make space for the provision of tree planting schemes, possibly for development carbon emissions offsetting. Additionally, develop urban tree planting schemes.
- Establish policies to retain native, existing, well established and mature trees and hedgerows.
- Consider Biodiversity Net Gain targets.
- Investigate 20-minute neighbourhoods.
- Provide explicit examples of green and blue infrastructure that should be implemented.
- Identify, protect and unlock land for productive agroecological growing within the District. Focus on urban areas, for example by including the provision of edible landscaping. The planning process should prioritise food growing within new developments; schemes should be required to create productive land or community gardens, orchards and allotments.
- Identify land to be designated as green open space and encourage community involvement in identifying and managing new public green spaces.
- Ensure that the protection for national and local sites remains as part of policy changes.
- Cross reference environmental policy in policy DM53 to ensure compliance with habitat regulations.
- Carefully consider siting of large apparatus and potential impacts on designated sites and AONB through policy DM59
- Strengthen green and blue infrastructure networks and links

3.0 Methodology

3.0 Methodology

Summary of Method



The Study Area

This GBI Strategy covers the entire Lancaster District which is located on the North-West Coast of England. To the north lies the District of South Lakeland in Cumbria, to the east Craven in Yorkshire and Ribble Vallley in Lancashire, to the south the Lancashire authority of Wyre and to the west is Morecambe Bay. The extent of the Lancaster District is shown in Figure 3 below. The M6 motorway runs north-south through the District, situated to the west of which are the predominantly urban areas, in comparison to the more rural areas to the east of the M6.

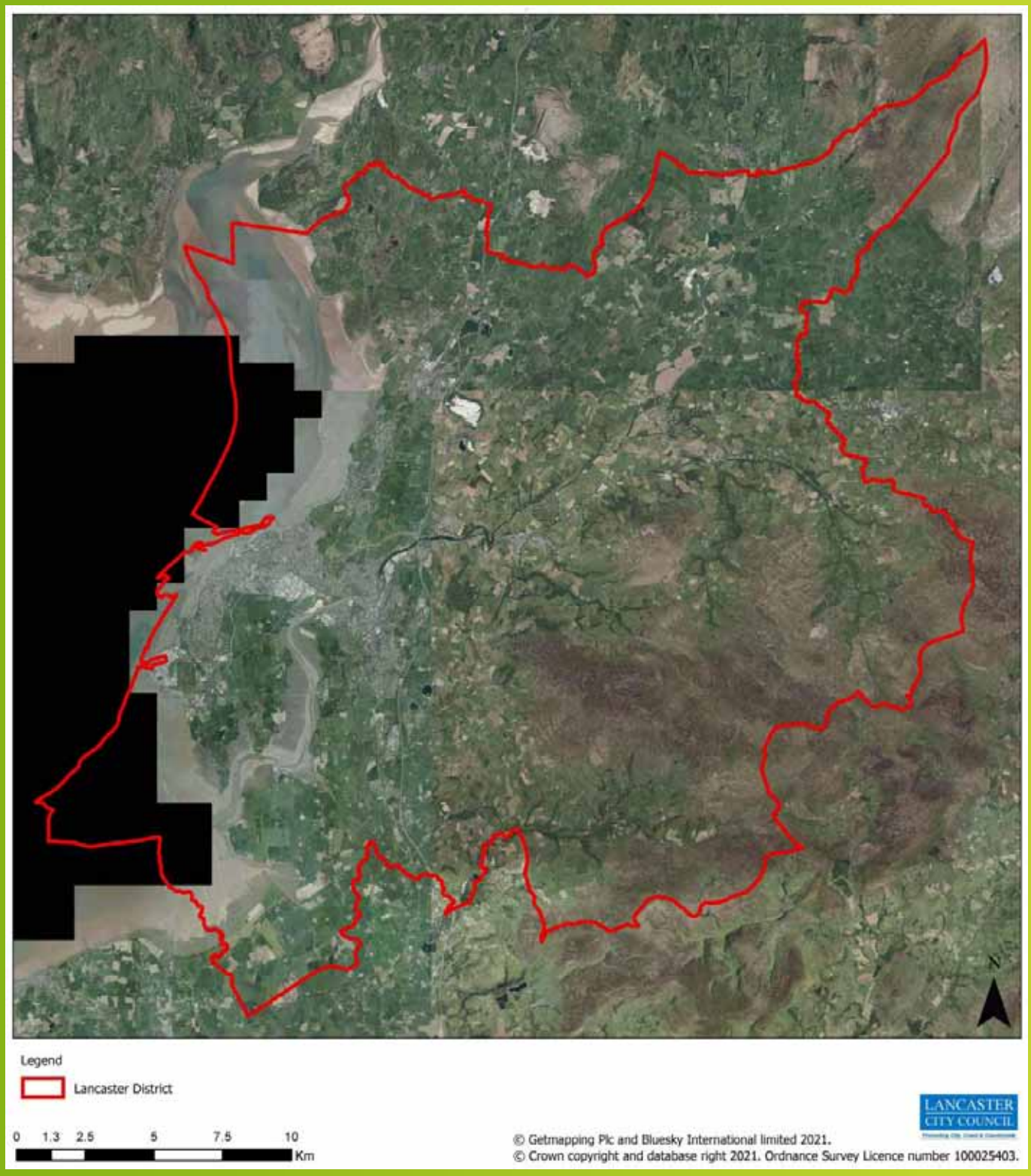


Figure 3: Map of Lancaster District (The Study Area)

Evidence Collation

Literature Review

In order to be able to plan for GBI, and subsequently prepare a strategy for these assets, it was important to research and understand the varying uses, functions and subsequent benefits of GBI. A thorough desk-based review of relevant literature was undertaken to generally explore the key principles, which could then be applied at a local scale within the context of GBI in Lancaster. This included reviewing relevant planning documents such as Acts of Parliament, emerging national legislation, national and local planning documents (as set out in Section 2), and then other relevant sources of information such as journal articles and reports, detailing the findings of research undertaken in relation to GBI, to outline the key uses and benefits which have been summarised in Section 4.

GIS Data Collection

Data contained within the GBI Strategy web application interactive map was collected from a variety of primary and secondary sources. External data collection was carried out through the 'Call for Projects' exercise and the Stakeholder Workshops (both outlined in more detail below). Most data sources were obtained from relevant governmental bodies, ensuring data was the most up to date at the time of data collection. There is an aim to keep this data updated within the Strategy following publication.

Large, primary Lancaster City Council and Lancashire County data sources include the Grassland Management Strategy, Grassland Ecological Network and the Woodland Ecological Network. Large, secondary datasets include the Natural England Priority Habitat Inventory, Environment Agency Flood Zones, Historic England Listed Buildings and Forestry Commission National Forest Inventory. Some of these large datasets contain thousands of data points covering the district of Lancaster. All datasets were assessed against the values and themes of the GBI Strategy.

Smaller primary datasets with a focussed spatial extent include Active Travel GBI Corridors and sites identified through the 'Call for Projects' exercise. Smaller secondary data sources include RSPB Reserves and designated Nature Reserves. Most of these small datasets once split into the different themes contain under one hundred data points and cover a smaller spatial extent, focusing on particular areas across the district.

Designations defined in the current Local Plan have also been included under the relevant themes, such as Local Green Space, International and National Environmental Designations and Current Land Allocations for Employment and Housing.

A full list of the data that has been mapped at the point of publication can be found in the User Guide that accompanies the **GBI interactive map.**

'Call for Projects' Survey

On 6th May 2020 the Council launched a 'Call for Projects' targeted consultation, whereby stakeholders, including local groups, larger national organisations and businesses/developers signed up to the Consultation database, whom the Council believed could be actively involved in a project that involved green or blue spaces within the District, were contacted via email and asked to complete a short survey. To ensure members of the public who may also be involved in the delivery of such projects were aware of the consultation, the survey was also circulated to all Councillor's and Parish Council's, as representatives who know what is happening in their ward/parish best. Whilst the survey was open for anyone to complete, and publicly accessible on the Council's website, given the specific scope of the research, the consultation was designed to target a specific audience. The consultation closed on 15th July 2020, and 25 completed responses were received. The series of questions that were asked in the survey are attached in Appendix 1.

Approximately 40 individual projects were brought to the Council's attention and based upon the specific details, where known, the location of each project has been mapped under the relevant theme/topic area as identified in Section 4 (and explained in more detail below). As well as notifying the Council of existing projects, groups/organisations were asked if they had any aspirations for future GBI projects, where possible these have also been identified on a map and explored further through Section 6: The Strategy.

To inform the context and shape the direction of the GBI Strategy, respondents were asked what they considered to be the constraints to the creation of a green/blue infrastructure network across the Lancaster District. The following constraints were highlighted:

- Lack of funding
- Absence of developer interest
- Physical constraints (i.e. due to the built-up nature of urban areas)
- Land assembly (land ownership and control)
- Planning constraints (limited power of the planning system)
- Limited knowledge and education of GBI benefits

The constraint that was most frequently raised, was the lack of funding to physically implement the expansion and enhancement of the GBI network. There was a sense of frustration amongst the respondents that more needed to be done, and that this was one of the keys needed to unlock solutions to the other constraints. The delivery of the GBI network will be covered in more detail in Section 8.

Respondents were also asked to voice their particular concerns and issues of their group/organisation with regard to the existing GBI network. In addition to the constraints identified above, concerns were raised in relation to:

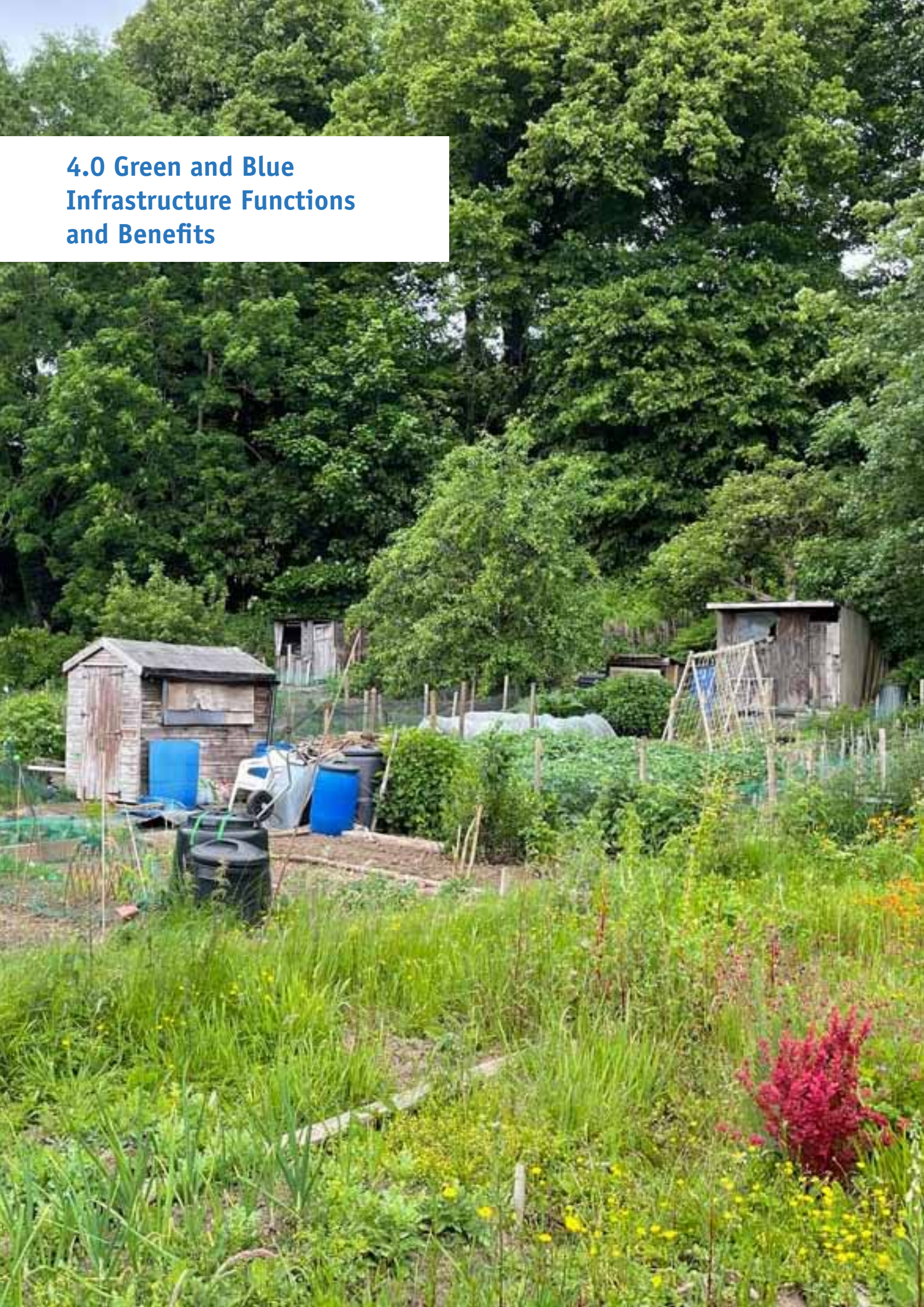
- Walking and Cycling routes – their limited availability along certain routes, and the impact cycle routes can have upon ecology (when the two are combined)
- Increase in housing development and the pressure this is placing on the District's existing green spaces, and the subsequent threat of losing these assets
- Need for a shift in approach to planning a development - whereby green spaces are planned before housing and not the other way round, also for proportionate distribution of green spaces (concern raised regarding level of provision in Morecambe)
- Management of green spaces and monitoring their perpetuity (such as the conversion of front gardens to parking spaces)
- Water quality
- Impact upon ecology and biodiversity
- Conservation and enhancement of heritage assets and their settings

Stakeholder Workshops

On 24th and 25th February 2021 the Council held a series of online stakeholder workshops, whereby groups and organisations were invited to attend a workshop session dependent upon the theme/topic area considered most appropriate to their area of work/interest. Three sessions were held and structured around the 6 key themes that have been identified in Section 4 below.

Appendix 2 details the groups/organisations who attended each of the stakeholder workshop sessions and the format that each workshop followed.

4.0 Green and Blue Infrastructure Functions and Benefits



4.0 Green and Blue Infrastructure Functions and Benefits

Green and Blue Infrastructure (GBI) Uses and Functions

GBI provides an array of uses and functions, and as Figure 4 below demonstrates, there is much overlap between the services provided by green and blue spaces. The two types of infrastructure are inextricably linked, particularly when it comes to tackling the effects of climate change. From improving air and water quality, providing storage for carbon and space to grow food, to increasing biodiversity and sustainable active travel corridors. Which in turn brings further social, economic and environmental benefits through the ecosystem services these natural and semi-natural green and blue spaces provide. "These characteristics, in turn, improve resilience to climate change impacts, especially to higher temperatures and flooding, two of the largest climate risks facing people in the UK"[8]. The latter of which is a particular concern for the Lancaster District, with many areas experiencing some form of flooding annually. Green and blue spaces can therefore play a key role in omitting these risks in many ways, as well as being more cost effective.

Importantly one space does not necessarily provide only one function. Whilst a green or a blue space may have a primary use, it can also provide many other uses within the same space. For example, an open space may primarily be used for recreation, however, when needed it could also be used for floodwater storage, and in appropriate locations, provide habitats for wildlife and potentially even a crucial connection for an active travel corridor (foot or cycle). This Strategy therefore seeks to emphasise and ultimately help to deliver the multifunctional value of these assets.

Figure 4: Uses of GBI

[8] Integrating-green-and-blue-spaces-into-our-cities---Making-it-happen-.pdf (imperial.ac.uk)

A key concern when it comes to GBI is the threat of fragmentation, particularly in locations under pressure from development and in the face of climate change. This was highlighted in the 'Making Space for Nature' Lawton report (2010):

"There is compelling evidence that England's collection of wildlife sites are generally too small and too isolated, leading to declines in many of England's characteristic species.
With climate change, the situation is likely to get worse. This is bad news for wildlife but also bad news for us, because the damage to nature also means our natural environment is less able to provide the many services upon which we depend.[9]"

The very nature of GBI, in the multiple uses provided, means that such spaces are not intended to exist in isolation. Connectivity is crucial to their effective functioning. Therefore, GBI is to exist as part of a wider GBI network. Consequently, it is becoming increasingly important to strengthen the connectivity between GBI assets to implement chains and corridors, that can, for example, provide a safe passageway for wildlife to move freely between habitats.

What is most appropriately located where, in terms of GBI provision and the benefits provided, all depends upon the context within which it sits. This is to be explored further throughout this Strategy.

[9] 'Making space for nature': a review of England's wildlife sites published today - GOV.UK (www.gov.uk)

Green and Blue Infrastructure Benefits

Table 2 below shows how multifunctional GBI can be; by providing social, economic and environmental benefits. For example, they can provide walkways and cycle paths for members of the public to use, which may be tree lined to enhance the landscape character whilst facilitating carbon sequestration. This in turn reduces transport emissions, improves air quality and subsequently people's health and wellbeing. It must be remembered, no area of green or blue space is required to deliver all these services, but a healthy ecosystem will provide many of them.

Category	Benefit group	Benefit
Social	Health & wellbeing	• Improved quality of life • Enable nature-based play • Reduced Stress levels • Reduced obesity rates due to more accessible exercise/active travel routes • More recreational opportunities (such as food growing) • 'Green social prescribing' by medics to link people to nature-based interventions and activities that involve green and blue environments (For example, 'The Bay: A Blueprint for Recovery Project' being run by Lancashire Wildlife Trust in conjunction with the NHS which provides free coastal nature sessions)
	Noise absorption	• Reduced noise disturbance to local communities • Hearing more natural sounds from nature gives a feeling of being closer to nature
	Air quality	• Extend distance between pollutant sources and receptors, enhancing dilution and dispersion to reduce concentrations at a given receptor • Reduced risk to human health due to artificial pollutants
	Education & research	• More opportunities for outdoor learning and research of wildlife • Raising awareness and education around environmental protection and enhancement • Opportunity to learn how to grow own food

[9] 'Making space for nature': a review of England's wildlife sites published today - GOV.UK (www.gov.uk)

Category	Benefit group	Benefit
Economic	Floodwater storage	• Allowing a river to swell or floodwater to collect in designated green areas reduces the risk of flooding in a populated area
	Storm damage control	• Reduced costs of property damage due to protection from wind • Reduced cost of loss of resource production
	Employment/Job opportunities	• More employment opportunities for skilled people involved with managing green and blue spaces
	Productivity	• Productivity of employees can increase if near or within visible range of green space
	Reduced strain on health care systems	• Help people to lead healthier lives when near green spaces, therefore less costly on the NHS
	Sponsorship	• More sponsorship opportunities of new areas with particularly outstanding natural beauty to maintain it
	Tourism	• Employment supported by tourism • Increased nature tourism opportunities • Boost to local economies
	Increased exposure	• More visually aesthetic places may receive more exposure attracting more visitors

Category	Benefit group	Benefit
Environmental	Increased biodiversity	• Greater species abundance and richness • Overall healthier habitats
	Maintenance of soil quality	• Increased yields • Better quality produce • Rare, more specialised species move in
	Pollination	• More variety of plant species • Nearby communities' gardens benefit from more wild pollinators • Increased yields of nearby crops
	Water purification	• Cleaner water brings specialised water bound species
	Carbon storage	• Climate change targets more readily met as carbon is stored in trees, bodies of water and soil
	Green and Blue corridors	• Connects areas of fragmented green and blue space • Greater genetic diversity with free moving organisms
	Temperature control	• Reduced peak summer surface temperatures • More shaded areas on especially hot days
	Historic environment	• Provide and protect the setting of valuable heritage assets • Contribute towards our socio- cultural historic understanding

Table 3: Social, Environmental and Economic benefits delivered by GBI

One of the key purposes of this GBI Strategy is to inform the emerging GBI policies as part of the Local Plan review. As set out in the NPPF, the purpose of the planning system is to contribute to the achievement of sustainable development. To do so, the planning system has three overarching objectives:

Environmental

To contribute to protecting and enhancing our natural, built and historic environment; including making effective use of land, helping to improve biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy.

Economic

To help build a strong, responsive and competitive economy, by ensuring that sufficient land of the right types is available in the right places and at the right time to support growth, innovation and improved productivity; and by identifying and coordinating the provision of infrastructure;

GBI is most commonly associated with environmental objectives and benefits, but as Table 2 has demonstrated, the green and blue spaces across our District can also contribute towards achieving social and economic objectives, and delivering the benefits associated with these too. Therefore, this GBI Strategy plays a key role in informing and directing plan-making and decision-making in the future of the Lancaster District, to ensure we identify ways in which we can seek the most, but more importantly the best, benefits out of the finite GBI assets we have to mitigate and adapt to the impacts of climate change.

Social

To support strong, vibrant and healthy communities, by ensuring that a sufficient number and range of homes can be provided to meet the needs of present and future generations; and by fostering a well-designed and safe built environment, with accessible services and open spaces that reflect current and future needs and support communities' health, social and cultural well-being; and

Key Themes

As has been demonstrated, green and blue spaces provide an array of uses and functions for different purposes. Importantly, whilst GBI can have a number of uses, it is not one use for one space. These spaces are multi-functional, and thus one space can generate multiple benefits for different users.

However, to help analyse the different functions and benefits of GBI, based upon the findings above, the following key emerging themes (uses) have been identified:

- Recreation/Accessible Green Space
- Ecology & Biodiversity
- Landscape
- Active Travel
- Water Management/Space for Water
- Historic Environment

Whilst these six specific key themes have been identified, it is important to remember that these are not independent of one another. In fact, they are inter-dependent. There is also a key overarching cross-cutting theme which runs through each of the six topics:

- Climate Change

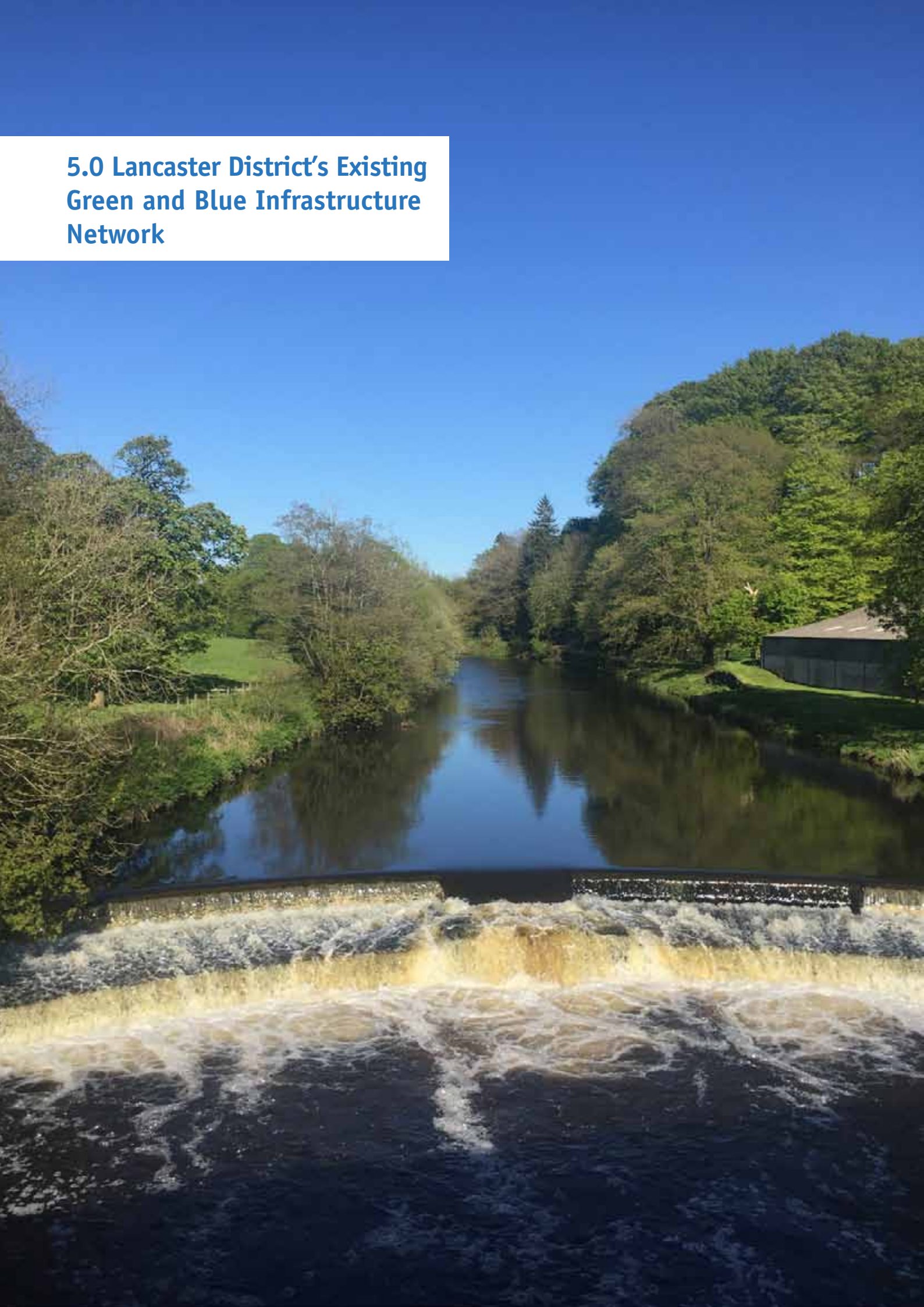
As seen above, there are many benefits from the implementation/maintenance of GBI but there are some recurring themes emerging from the different types of GBI: as a general trend GBI can help to increase a community's economic output; local communities health and wellbeing improve with reduced stress and obesity levels, in addition to the increase in biological and genetic diversity amongst the flora and fauna of the area.

Therefore, as part of this Strategy consideration will also be given to:

- Quality of life
- Greater economic output

This will be covered in Section 6.

5.0 Lancaster District's Existing Green and Blue Infrastructure Network



5.0 Lancaster District's Existing Green and Blue Infrastructure Network

Identifying the existing GBI Network

Lancaster has a wealth of green and blue spaces which contribute to its local distinctiveness and character, and this Section provides an audit of these spaces across the Lancaster District in order to be able to understand the existence of the current District-wide network. Given that green and blue spaces can be used for a number of different uses and purposes, subsequently, there are many different types of green and blue infrastructure. In order to be able to identify the existing GBI network it is useful to map the location of the District's current GBI assets and constraints (i.e. the GBI 'baseline'). Whilst a number of GBI assets have previously been identified on the Local Plan Policies Map, such as open spaces, cycle routes and biological heritage sites, and on the Council's internal Planning Constraints Maps, such as flood risk zones and tree preservation orders (TPO's), they have often been mapped as an individual asset. However, this Strategy seeks to look at the way in which these spaces interrelate, interconnect and function together as part of the District-wide GBI network.

This audit is presented on a thematic basis, focused upon the key topic areas identified in Section 4. However, it should be noted that GBI assets; due to their multifunctional nature can often relate to more than one theme. Whilst the maps identifying the current GBI network are shown, based upon the data relevant for each theme, given these are presented at a District-wide scale, the detail is difficult to see. Therefore, we have created an online interactive map which can be viewed **here**:

Recreation/Accessible Green Space

Overview of Lancaster District's Recreational Provision

There is a vast array of different recreational uses and subsequently different types of green and blue recreational spaces within the Lancaster District. These include the District's Parks and Gardens such as Williamsons Park and Happy Mount Park which are iconic destinations within the District due their strategic scale. Local playing pitches which provide a place for competitive sport to be played as part of a league. The Lancaster Canal, which is a landmark feature running north to south through the District, providing recreational value both on its waters and along the adjacent towpath. Then there's also smaller 'pocket' parks such as amenity greenspaces and children's play areas within existing housing developments to serve those living on the nearby streets, and green and blue spaces such as nature reserves which may provide more of a haven for wildlife but can still provide recreational value for humans watching species at home in their own habitat. Whilst these spaces cover a range of scales, dependent upon the purposes they serve, they all contribute towards the role and function of the wider GBI network across the District.

Whilst historically, such uses have often been isolated within their own silos, it is becoming increasingly apparent that greater benefits can be reaped from a social, economic and environmental perspective, as has recently been highlighted through the Council's Grassland Management Strategy (further details below). Such spaces need not only serve a recreational purpose, but also facilitate biodiversity net gains and space for above ground water management, as an example. Although the wider benefits of shared uses are becoming increasingly recognised, the sensitivity of the different uses are still to be respected. So when 'linking' these sites up as part of the wider network or incorporating multiple functions within a site that has historically only ever been used for recreational purposes, when seeking to identify a

future opportunity, the use of existing surroundings should be carefully considered to determine the suitability of such connections and multi-functionalities as not all uses are considered compatible, hence why we have these different types of recreational space.

On the recently adopted Local Plan Policies map, open spaces have been designated across the District under policy SC3 which states that 'these sites, identified for their recreation, environmental and/or amenity value will be protected from inappropriate development in accordance with relevant national and local planning policy'. Whilst a significant number of these spaces are Council owned, a large proportion are also under private ownership.

However, it is still important to recognise the recreational role and value of these open spaces within the wider GBI network.

The Council's Public Realm team are responsible for the management and maintenance of all of the Council-owned spaces, and also some of those which are owned by Parish Council's and Lancashire County Council. In addition to this, Public Realm Officer's work alongside community-led Local Friends Groups who take on the role of looking after many of the green spaces across the District. The Council therefore actively encourages members of the public to take pride in their local green spaces by becoming actively involved in bringing out the best in these spaces so that they can be enjoyed by the local community, both humans and nature.

Open Spaces

To inform the designation of open spaces through the Local Plan process, in April 2018, consultants Knight, Kavanagh & Page (KKP) carried out an Open Space Assessment.

To reflect the different uses of open spaces across the District, nine open space typologies were identified and each site within the study was classified based upon its primary open space use/ purpose. The following typologies, set out in Table 3, were identified:

Typology	Primary purpose	Examples in Lancaster District
Parks and Gardens	Accessible, high quality opportunities for recreation and community events	• Williamson Park and Ryelands Park (both in Lancaster) • Happy Mount Park (Morecambe)
Natural and semi-natural greenspaces	Wildlife conservation, biodiversity and environmental education and awareness	• Nature reserves around Middleton and Heysham • Woods such as Barley Cop Woods
Amenity greenspace	Opportunities for informal activities on mown grassed areas close to home or work or enhancement of the appearance of residential or other areas	• Miss Whalley Field and Scotch Quarry Park (Lancaster) • Village playing fields: Fell View (Caton) Home Farm Close (Wray), Church Bank (Nether Kellet)
Provision for children and young people	Designed primarily for play and social interaction for children and young people, such as equipped play areas, MUGAs, skateparks and informal football areas	• Play areas can often be attached to playing fields such as the play area adjacent to the amenity greenspaces on Fell View at Caton or close to Community Centre's such as Bolton-le-Sands (whilst not necessarily 'green' for safety and all-year round accessibility, they are often adjacent or surrounded by green infrastructure)
Allotments and Community Gardens	Opportunities for those who wish to grow their own produce as part of the long term promotion of sustainability, health and social inclusion	• A number of rural settlements (such as Halton, Galgate and Warton) have community allotments, • There are also a number within the urban areas such as Fairfield Allotments (Lancaster) and Greenfingers Community Allotment at Daisy Bank (Heysham)

Typology	Primary purpose	Examples in Lancaster District
Cemeteries, disused churchyards and other burial grounds	Quiet contemplation and burial of the dead, often linked to the promotion of wildlife conservation and biodiversity	• Are adjacent or near to places of worship (e.g. churches and chapels), or • On the edge of larger urban settlements (such as Scotforth Cemetery and Carnforth Cemetery)
Green corridors	Routes which provide for walking, cycling or horse riding, whether for leisure purposes or travel. May also offer opportunities for wildlife mitigation and enhancement	• Key linear corridors that run through the District such as the River Lune and Lancaster Canal
Coastal areas	Land adjoining or near to the sea	• Coastline, which includes a range of spaces and sites around Morecambe Bay (again not necessarily 'green' or 'blue' themselves, but are either adjacent or in close proximity to the sea)
Significant other land	Areas of green space helping to provide breaks in the urban form and to define character of the local area	• Former landfill site at Salt Ayre and Claver Hill (which is now home to a community allotment project)

Table 3: Open space typologies identified through the Lancaster District Open Space Assessment produced by KKP

Sites were assessed based upon their quality, value and accessibility. Specific criteria and percentages were used to assess their quality and value, and travel distances were established based upon how long people were willing to travel by car or by foot to access the different types of open spaces. For example, it was recognised that people were willing to drive further to access a Park and Garden, in comparison to a children's play area where it is considered a walking distance is more appropriate. The assessment also looked at overall quantity of each type of open space provided, based upon the size of the population. As a result of which, the assessment identified where there were deficiencies, from either a quantity, quality/value and accessibility perspective across the District. It also enabled a benchmark based upon the current provision of open space to be established, which was subsequently used to produce a set of standards for each open space typology. These open space standards have now been incorporated into a Planning Advisory Note (linked to policy DM27 in the Development Management DPD) so that through the planning system it can be evidenced where there is a need for new open space to be provided onsite as part of a development, or where this not appropriate (i.e. the site size threshold has not been met) an offsite monetary contribution is required from the development to enhance a nearby open space. This evidence can therefore be used when it comes to exploring potential opportunities for the expansion and enhancement of the GBI network.

Green Flag Status

Within the District there are 7 green spaces which have been awarded Green Flag Status[10]. These are:

- Happy Mount Park (Morecambe)
- Regent Park (Morecambe)
- Torrisholme Cemetery (Morecambe)
- Ryelands Park (Lancaster)
- Williamson Park (Lancaster)
- Lancaster University (Lancaster)
- Lancaster Canal (runs throughout District)

"The Green Flag Award scheme recognises and rewards well managed parks and green spaces, setting the benchmark standard for the management of recreational outdoor spaces across the United Kingdom and around the world"[11]. The scheme began back in 1977 when 'decades of underfunding had left many once proud and beautiful historic city centre parks neglected or barely maintained'. The Standard came to be established and as a result other green spaces began to apply for the Award, so it now not only covers Parks, but other green spaces typologies such as canals, nature reserves, allotments, cemeteries, and housing estates, and of any size. To be awarded Green Flag status sites are judged against a series of criteria which covers:

- A welcoming place;
- Healthy, safe and secure;
- Well maintained and clean;
- Environmental management;
- Biodiversity, landscape and heritage;
- Community involvement;
- Marketing and communication; and
- Management.

Such an award has raised the profile of the valuable role our green spaces play, primarily from a recreational perspective but also crucially, their multifunctional role (as indicated by the series of criteria) and the importance of the management and maintenance of these spaces, all of which is echoed through this Strategy.

[10/11] https://www.greenflagaward.org/award-winners/green-flag-award-guidelines.pdf (greenflagaward.org)

Green Flag Status Spaces

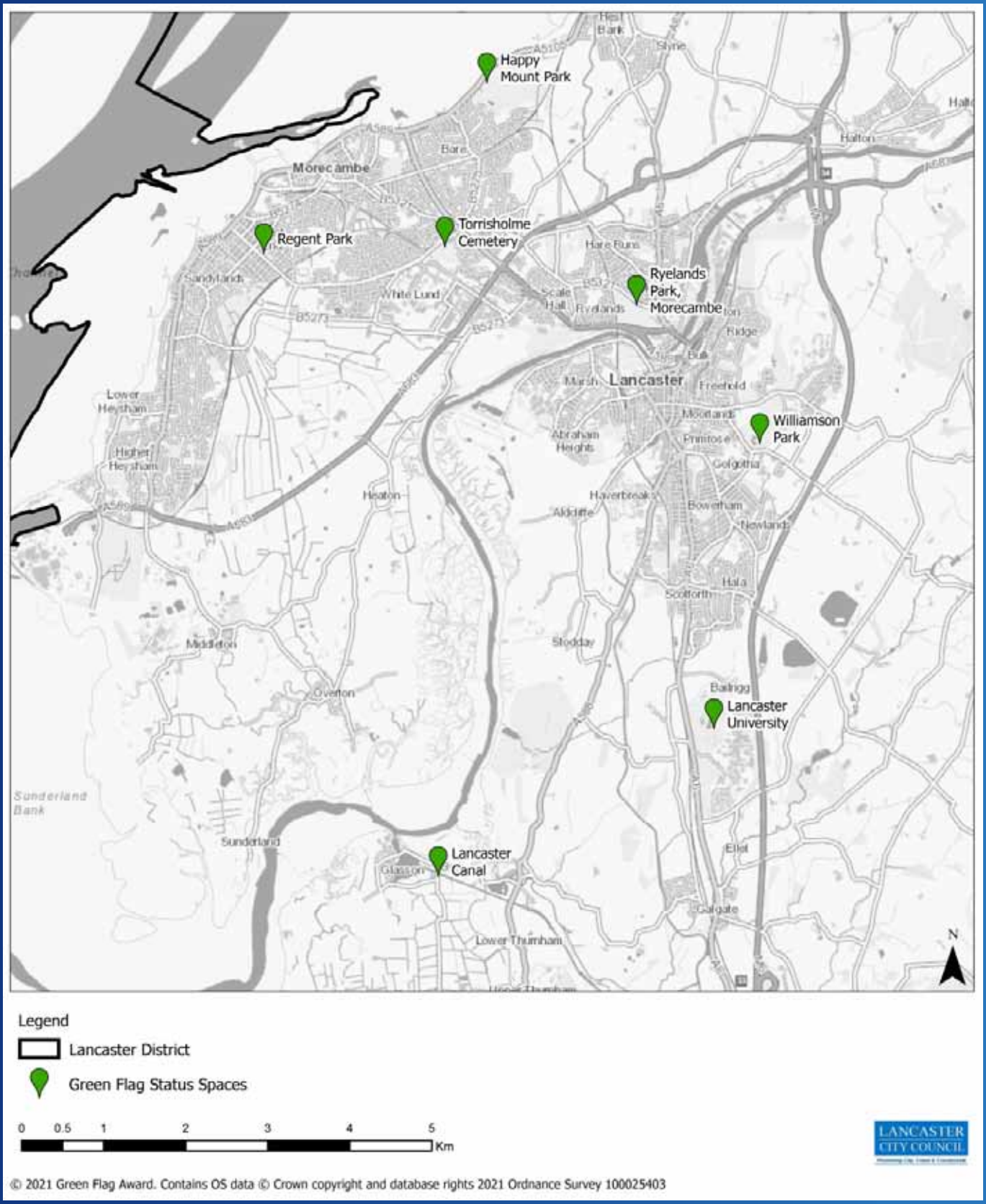


Figure 5: Map to show locations of parks awarded Green Flag status and images of Green Flag Status being awarded to Ryelands Park and Regents Park (on previous page).

Playing Pitches and Outdoor Sports

Another form of open space which was not included within the previous KKP study, are playing pitches and outdoor sports. The approach advocated by Sport England is that these sites should be assessed and their future planned for via a specific Playing Pitch Strategy. Consultants KKP were therefore commissioned to compile the assessment and subsequent action plan for the playing pitches and outdoor sports across the District. These are subsequently also identified under policy SC3 on the Local Plan Policies Map.

It is recognised that these green spaces play a vital role in facilitating the provision of recreation and leisure across the District, and in a more formal context with each sport being represented by a National Governing Body (NGB). Similar to the Open Space Assessment, the current supply of pitch provision for each sport was assessed based upon factors such as quantity, pitch quality and match capacity rating. This then identified where there are gaps in the provision for each sport, and therefore where improvements could be made, which was further supplemented by a site by site, pitch by pitch action plan. This data can therefore be used to help assess where improvements to the existing GBI network from a recreation perspective are needed.

Local Green Spaces

In addition to the open spaces designated under policy SC3, following the new designation that was introduced through the NPPF in 2012, 19 'Local Green Spaces' have also been identified across the District under policy SC2.

(Where there is a designated Neighbourhood Plan Area, Local Green Spaces have not been identified by the Council because it is considered to be the role of the Neighbourhood Plan to designate such spaces should they chose to do so.)

As outlined in paragraph 102 of the NPPF, this is a designation that allows communities to identify and protect green areas of particular importance to them. The framework is also clear that "the Local Green Space designation should only be used when the green space is:

a) In reasonably close proximity to the community it serves;

b) Demonstrably special to a local community and holds particular local significance for example because of its beauty, historic significance, recreational value (including as a playing field), tranquility or richness of its wildlife; and

c) Local in character and is not an extensive tract of land."

This designation highlights the different values communities can attach to their local green spaces for them to be considered demonstrably special and of particular local significance. Further emphasising and supporting the appropriateness of a thematic approach towards GBI and the multifunctional nature of green and blue spaces. As demonstrated in Table 4 the majority of the designated Local Green Spaces were recognised as being demonstrably special to the local community based upon their recreational and historic value. The history behind many of the green spaces within the Lancaster District and the significance of this will be explored further in the Historic Environment section, again highlighting that heritage is key to understanding our GBI assets.

Site	Reason for designation			
	Recreational Value	Historic Significance	Richness of Wildlife	Tranquillity
Ridge Hill Green	●			
Barley Cop Community Wood	●			
Land at Heysham Coast	●			
Low Moor	●	●		
Greaves Park	●	●		
Giant Axe Playing Field	●	●		
Furness Street Green Space	●			
Dorrington Road Woods	●			
Lune Bank Gardens		●		
Scotch Quarry Urban Park	●			
Quay Meadow	●	●		
Thwaite Woods (Bolton-le-Sands Community Wood)	●		●	
Church Bridge Recreation Area	●	●		
Over Kellet Craggs	●		●	
Ryelands Park	●	●		
Ripley Heights		●		●
Aldcliffe Road Triangle	●	●		
Fenham Carr	●		●	
Barton Road Allotment (and Moorside Fields)	●			

Table 4: Local Green Spaces designated through policy SC2 of the Strategic Policies and Land Allocations DPD

Grassland Management Strategy

As the Council is responsible for the management of a significant number of green spaces across the District, a Grassland Management Strategy has been produced. Through the Strategy the Council seeks to change the way in which it manages grass cutting in order to increase biodiversity, improve workload planning and ultimately achieve the Council's climate change aspirations to reduce carbon emissions, following the Climate Emergency declaration.

Nine different cutting palettes have been identified that will influence and shape the way in which the Council's own grassland is used. They are:

Public Open Space: Areas which are close to residents with little outdoor space. The grass on these sites will be cut with the community in mind for recreational activities.

Managed Long Meadow: Areas which offer lower amenity value will be allowed to grow and will be more sustainable managed and biologically diverse. This will encourage wildlife corridors and has the potential to improve habitats for various fauna that rely on grasslands to nest, feed and breed.

Desirelines: Will be cut frequently into areas of managed long meadow to create routes for walking/running and commuting.

Meadow Edges: Will be cut along the outer edges to retain aesthetic value and to mitigate any adverse impacts on visibility.

Verges: Will continue to be cut in line with Lancashire County Council's verge management policy for visibility purposes.

Amenity Prestige: Areas will be cut regularly with the arisings collected. These will be highly maintained grassland lawns.

Informal sports: Grass will be kept short where sports take place so that the community can enjoy such activities.

Introductory Wildflower Meadows: Rather than the annual wildflower mixes that are non-native, have no pollinator diversity net gain and have to be sown every year, there will now be a more sustainable approach

Perennial Wildflower Meadows: In years 3 and 4 perennial mixes will be added to create more magnificent displays

So whilst traditionally these areas were generally just mown to facilitate recreational activities (to be used as public open space for informal sports or as amenity grassland) it is being increasingly recognised that these spaces can also provide more of a valuable role from an ecological perspective, in the habitats they provide for wildlife, to provide more space for biodiversity to flourish, and ultimately lead to the provision of net gains in biodiversity. This in turn also provides multiple benefits for those who enjoy wildlife being closer to home. Whilst historically the two objectives of enhancing recreational provision at the same time as enhancing biodiversity may have been seen as two conflicting objectives, there is an increasing awareness as to how the two can be harmoniously managed, for the benefit of both humans and nature, and this is what the Grassland Management seeks to achieve, and ultimately what this GBI Strategy seeks to achieve on a bigger scale, connecting up these spaces into the wider GBI network.

Recreation Accessible and Greenspace

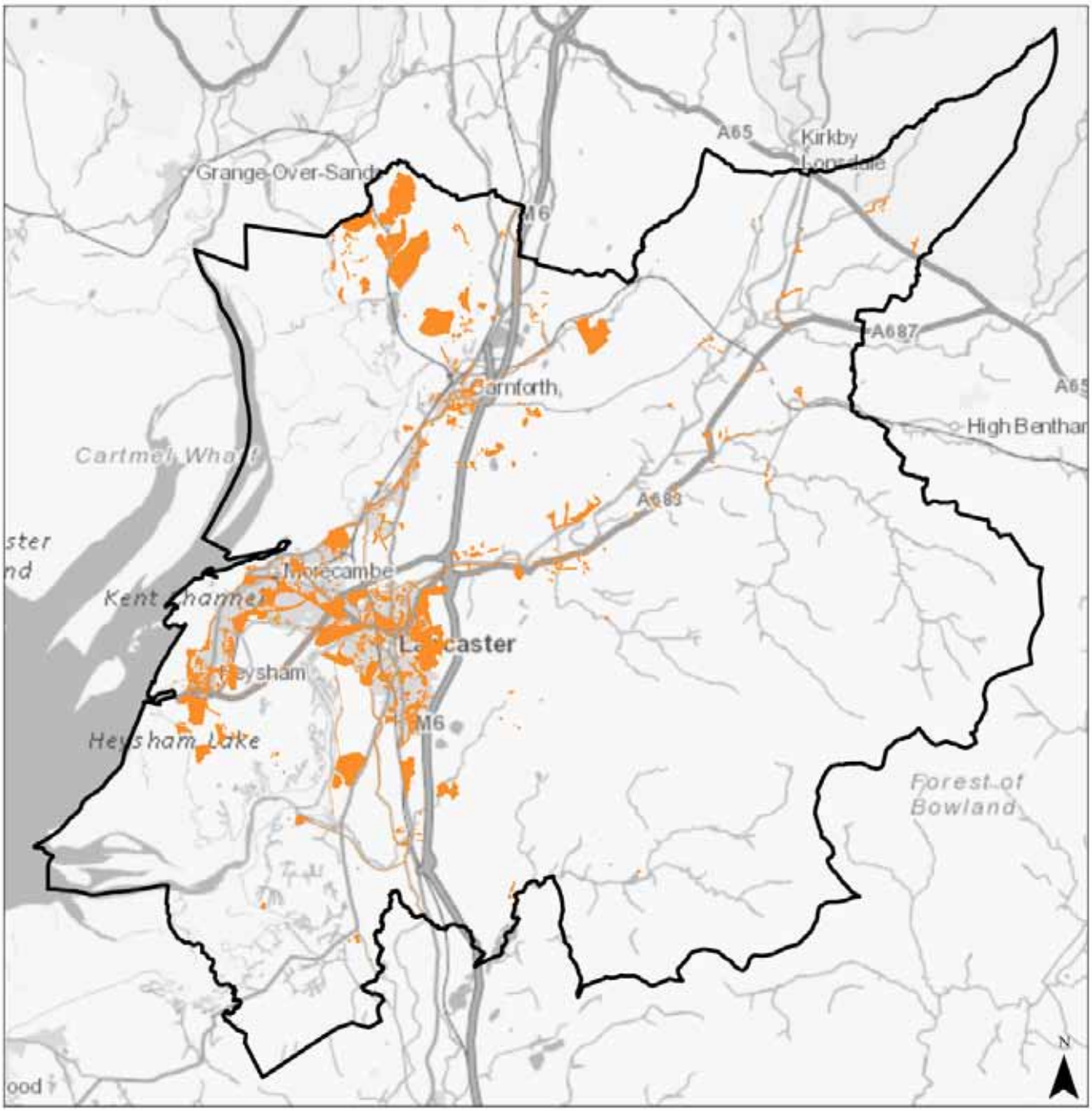


Figure 6: Map to show the extent of the existing 'recreational' element of the GBI network.

Ecology and Biodiversity

Overview of Lancaster District's Ecological Context

The ecological character of the Lancaster District is principally driven by its location along England's northwest coast, which forms the western boundary of the District, the River Lune which runs in a north-easterly to a south-westerly direction through the middle of the District feeding into Morecambe Bay, rising to the uplands in the east. Given the nature of historic settlement patterns, this has subsequently led to the concentration of development being located to the southwest of the District.

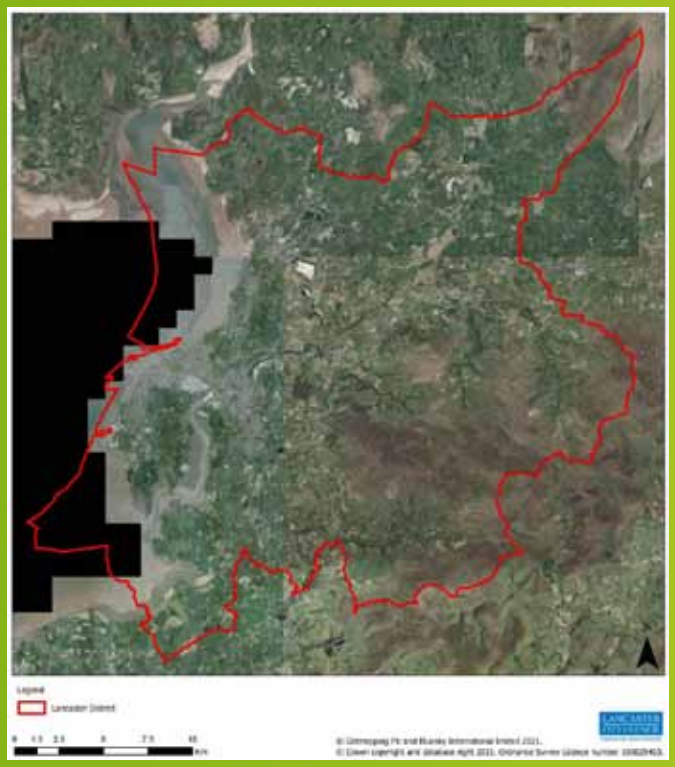


Figure 7: Map of Lancaster District

Whilst the River Lune forms a key ecological corridor running through the centre of the District, this is one of many. Work undertaken by Lancashire County Council identified a series of ecological networks throughout the District (discussed in more detail below). Subsequently, key to the future protection and enhancement of our ecological corridors, is to improve the connectivity between these assets and work towards a network-led approach to ultimately ensure the District's habitats and species are as resilient as possible to the pressures and threats (such as fragmentation) they may face as a result of climate change impacts. Rising temperatures, increased flooding, water quality all contribute towards changing conditions in our local environments and have a subsequent impact upon the District's habitats, so a network-led approach enables species to be more flexible in their movements and behaviours to adapt to climate change. Key drivers for such an approach is the Government's 25 Year Environment Plan which calls for a national Nature Recovery Network as 'an expanding and increasingly-connected network of wildlife-rich habitat', with Local Nature Recovery Strategies based upon a local network being designed to deliver the national aim at a regional scale.

Other such initiatives that promote a strategic scale approach to restoring nature is rewilding. Defined as 'the large-scale restoration of ecosystems to the point where nature is allowed to take care of itself.' The ultimate aim of which is to reinstate natural processes, and where appropriate, missing species. Seeking to reverse biodiversity loss whilst at the same time recognising the importance of rewilding key areas, and connecting them up through a mosaic of nature-rich habitats, enabling wildlife to move and adapt as and when they need to. Restoring valuable habitats such as peatland which absorbs the equivalent of around 3.6 tonnes of CO2 a year and woodland which absorbs 12.8 tonnes of CO2 a year, puts us in a better position to tackle climate change as well.

Priority Habitats and Species

As indicated above, the District boasts an array of habitats, designated and also non-designated such as those which are identified within Natural England's Priority Habitat Inventory and shown on the GBI interactive mapping. From the inter-tidal mudflats and saltmarsh along the coastline of Morecambe Bay, into which leads the River Lune home to floodplain grazing marsh.

Up to the upland heathland and blanket bog in the Forest of Bowland AONB and down to the deciduous woodlands, species-rich limestone grasslands and wetlands within the Arnside and Silverdale AONB. Subsequently in turn, the District is home to a wealth of species, some of which are also protected.

A recent scheme that has been established in Lancashire to preserve a particular protected species, is the Great Crested Newt (GCN) District Level licensing scheme. The purpose of which is to adopt a landscape scale approach providing a better overview of the species distribution, habitats and effects of development on Favourable Conservation Status (FCS) to enable Local Planning Authority's to take GCN's into account at an earlier stage of strategic planning, avoiding future impacts. As part of which GCN risk zone and strategic opportunity area mapping has been produced to locate habitats to maximise the benefits for GCN's and improve habitat connectivity, which have been incorporated onto the GBI interactive mapping.

In total, environmental designations cover 76% of the District (that's 49,946 hectares). This includes the two AONBs (which will be explored in more detail under the 'Landscape' topic) and the largest wetland area in the UK at Morecambe Bay, which is internationally protected due to its wetland habitat and birdlife.

With regards to habitats and biodiversity, the NPPF provides a clear direction in paragraph 179 for their protection and enhancement, emphasising the importance of mapping local wildlife-rich habitats, ecological networks, the hierarchy of international, national and locally designated sites of importance for biodiversity, wildlife corridors and the stepping stones that connect them and any other ecologically valuable areas identified by national and local partnerships. Whilst conservation, restoration and enhancement of habitats has been the primary aim up to now, through the Environment Bill the intention is to take this to the next level through the requirement of measurable biodiversity net gains of at least 10% in new developments.

The NPPF therefore calls upon the need to 'identify and pursue opportunities for securing measurable net gains for biodiversity'.

Designated Sites

At an International level the District is home to 5 Natura 2000 sites:

- Morecambe Bay and Duddon Estuary SAC (Special Areas of Conservation), SPA (Special Protection Area) and RAMSAR site
- Morecambe Bay Limestone Pavements SAC
- Leighton Moss SPA and RAMSAR site
- Bowland Fells SPA
- Calf Hill/Crag Woods SAC

The Morecambe Bay and Duddon Estuary SPA supports numerous coastal and marine habitats that in turn support internationally important assemblages of breeding sea birds and wintering waterfowl. The designated site also supports 3% of the British breeding population of sandwich terns together with important wintering bird populations of northern pinktail, pink-footed geese, ruddy turnstone, dunlin, red knot, Eurasian oystercatcher, bar-tailed godwit, Eurasian curlew, grey plover, common Shelduck and common redshank. There are a number of primary qualifying habitats for Morecambe Bay SAC which include the estuaries, mudflats and sandflats not covered by water at low tide, large shallow inlets and bays.

Given the proximity of the urban areas to Morecambe Bay, with the majority of the District's development being located to the west of the M6, it is often impacts upon Morecambe Bay and subsequent associated functionally linked land that lies outside of the designated area that is the greatest concern when it comes to new development. Whilst appropriate mitigation has been put in place via the Local Plan Habitat Regulations Assessment (HRA), this Strategy also seeks to highlight ways in which the approach towards GBI can help to relieve these pressures. Given the natural attraction of the coastline, this can also lead to concern of the increase in recreational pressure along the bay.

Each year through the Annual Monitoring Report (AMR) the areas covered by each of these international designations are monitored and recorded by the Council.

Designation	Area (ha)	Percentage land cover of the District (%)
SPA	18,051	28
SAC	10,618	16
RAMSAR	10,460	16

Table 5: Areas of Internationally Designated Sites within the Lancaster District

These sites are designated under policy EN7 of the Strategic Policies and Land Allocations DPD, and importantly, this also applies to sites and habitats outside the designated boundaries that support the species listed as being important in the designation of these internationally important sites, often termed as 'supporting habitat' or 'functionally linked land' for example feeding areas used by pink footed geese.

With regards to sites of national importance, there are 32 Sites of Special Scientific Interest (SSSI) in the District, which cover approximately 19,0999 hectares. Of which the Lune Estuary SSSI is one, located to the southwest of Lancaster. As part of Morecambe Bay this SSSI forms a major link in the chain of estuaries along the west coast of the UK used by birds on migration between the breeding grounds in the far north, and the wintering grounds further south. Some of the saltmarshes are also of interest for their breeding bird populations and the plant communities they support. The District is also home to the Morecambe Bay Limestone Pavements (SAC), one of 4 sites in northern England representing Limestone pavements on Carboniferous limestone.

At a regional level, there are also approximately 250 Biological Heritage Sites in Lancaster District. One in particular which forms a key, strategic GBI corridor in the District is the Lancaster Canal. The canal corridor is an important commuting and foraging corridor for bats, and records of otter and water vole have also been known. There are also approximately 25 Geological Heritage Sites.

Designation	Area (ha)	Percentage land cover of the District (%)
SSSI	19,099	29
RIGS*	1,460	2
BHS	6,180	9

Table 6: Areas of Regionally Designated Sites within the Lancaster District

The District is also home to three Local Nature Reserves, all of which are located within the Arnside & Silverdale AONB:

- Warton Crag
- Warton Crag Quarry
- Trowbarrow Quarry

* Regionally Important Geological/Geomorphological Sites

Nature Improvement Area

In the Natural Environment Whitepaper in 2011, 12 Nature Improvement Areas (NIAs) were identified across the country and awarded funding to create joined up and resilient ecological networks at a landscape scale. NIAs are areas that have:

- Opportunities to establish and improve ecological networks by enlarging, enhancing and connecting existing wildlife sites and creating new sites
- A shared vision for the natural environment among a wide partnership of local people, including statutory and voluntary sectors
- Surrounding land that can be better integrated with valued landscapes by restoring wildlife habitats and support natural processes adapt to climate change impacts
- Benefits to urban areas and communities, with, where appropriate, ecological networks extending into urban areas
- 'Win-win' opportunities that offer multiple benefits, such as for:
  - The water environment and Water Framework Directive objectives
  - Flood and coastal erosion risk management
  - The low-carbon economy
- Opportunities to inspire people through an enhanced experience of the natural environment[13]

One of the 12 NIAs was the Morecambe Bay Limestones and Wetlands NIA, which is 13,575ha and covers 21% of the District as shown in Figure 8.

This NIA was delivered by the Morecambe Bay Local Nature Partnership, with Arnside & Silverdale AONB Partnership acting as the lead organisation. Over 1500ha of priority habitat was enhanced as a direct result of the work undertaken through the programme. The map in Figure 8 below shows the progress that was made during the 3 year programme (starting 1st April 2012).

In addition to the establishment of NIAs through the Natural Environment White Paper 2011, another of the commitments was to set up Local Nature Partnerships (LNPs). These are partnerships of a broad range of local organisations, businesses and people who aim to help bring about improvements in their local natural environment. There are 48 LNP's across England, 3 of which lie within the Lancaster District:

- Morecambe Bay
- Lancashire
- Northern Upland Chain

The Arnside and Silverdale AONB is covered by the Morecambe Bay LNP and the Forest of Bowland AONB falls within the Northern Upland Chain LNP, both of which have been active and well-established LNP's for a number of years.

[13] Nature Improvement Areas: about the programme - GOV.UK (www.gov.uk)

The Lancashire LNP covers the whole of Lancashire and so addresses the area between the AONB's whilst also taking into consideration the AONBs themselves. The Lancashire wide LNP recently re-launched in December 2020 and is currently working on creating a vision and framework for county wide support and delivery of environmental improvements.

One of the key elements of the emerging Environment Act is the requirement for Local Nature Recovery Network Strategies, which it is understood are best prepared at a County-wide basis. Whilst the Council awaits further guidance on this, it is intended that this Strategy will provide a firm baseline to inform an emerging strategy for local nature recovery.

Morecambe Bay Limestones & Wetlands NIA

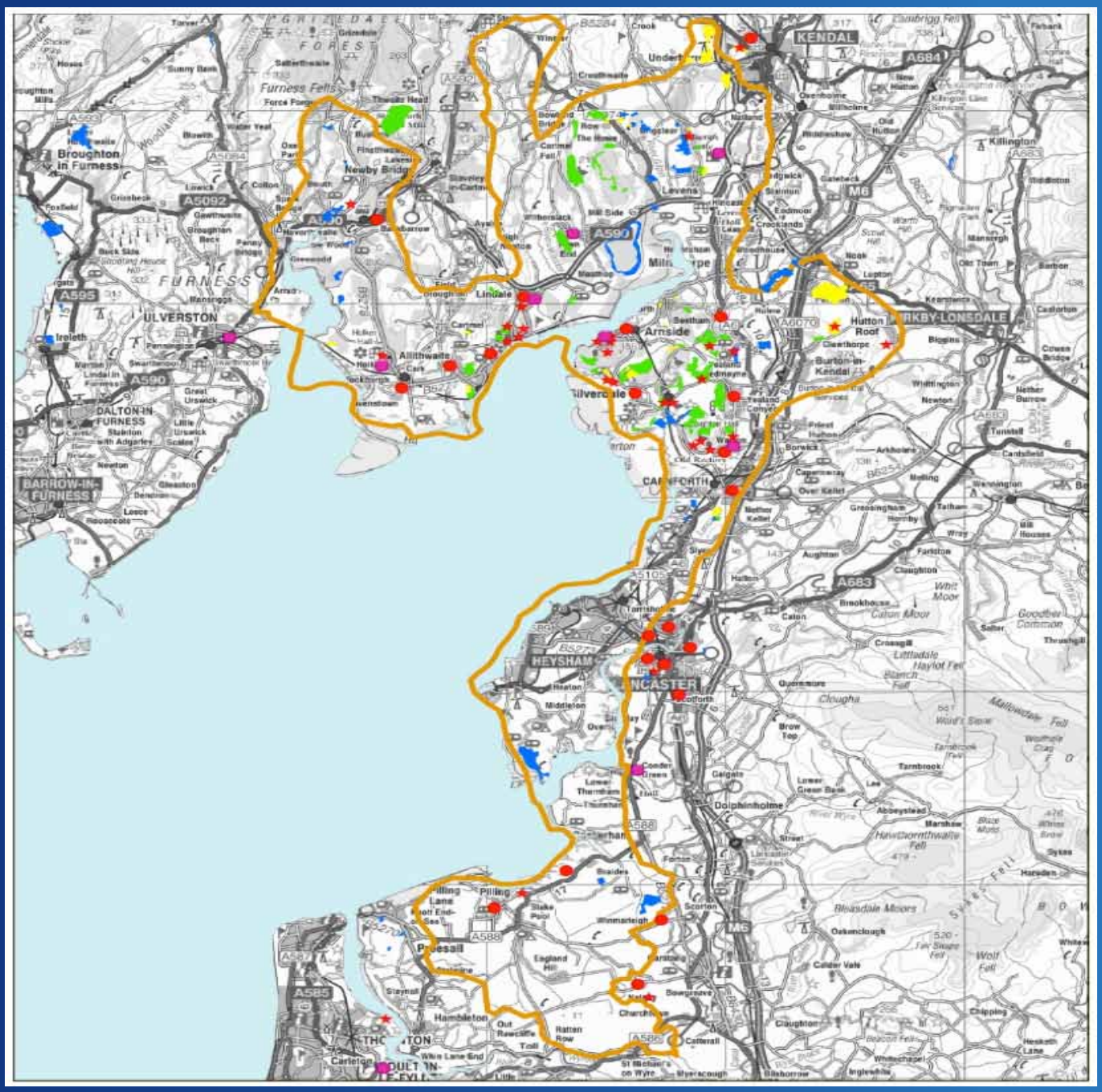


Figure 8: Extent of the Morecambe Bay Limestones & Wetlands Nature Improvement Area
NIA delivery 2014.pdf (morecambebaynature.org.uk)

Ecological Networks

In 2012 the NPPF required local planning authorities to adopt a strategic approach towards biodiversity. Stating that Local Plan policies should "plan for biodiversity at a landscape-scale across local authority boundaries; identify and map components of the local ecological networks… planning positively for the creation, protection, enhancement and management of networks of biodiversity". So, in 2013 a Lancashire Ecological Network approach and analysis project was undertaken by the Lancashire Wildlife Trust (LWT), Lancashire Environment Record Network (LERN) on behalf of the Lancashire Local Nature Partnership[15].

An ecological network is defined as "a collection of suitable habitat patches connected by movement corridors through the intervening habitat matrix." As part of this project for each habitat group that makes up the wider ecological network, the following elements were identified:

- **Core Areas** – wildlife sites identified as being of at least county importance. All Core Areas are classified by the priority habitat groupings for which they are of importance.
- **Corridors** – comprise continuous stretches of permeable habitat that can, over time, be utilised by species to move between Core Areas. (Further classified by distance between similar core areas).
- **Stepping Stones** – sites of local ecological importance and areas of Priority Habitat within or adjacent to corridors. (Classified by habitat and relationship to other network elements)

The approach taken in Lancashire when identifying ecological corridors was to focus on 'landscape integrity'. Defined as "areas that have lower levels of human modification and are in relatively natural condition". Therefore, ecological connections, and subsequently the 'types' of ecological networks were modelled for 3 groupings of priority habitats and the species of:

- **Woodland and Scrub**
- **Grassland**
- **Wetland and Heath**

Unfortunately, the latter was never mapped as part of the project, and so the location of this network is not identified on the interactive mapping.

It is recognised that ecological networks are one of the conservation tools developed to respond to challenges created by habitat loss and fragmentation, which can be brought about through the impacts of climate change.
The report highlights that;

> "Climate change may result in habitat changes that make currently suitable habitat uninhabitable in the future, creating an impetus for species dispersal across the landscape to new habitat patches".

However, such dispersal can only happen if the habitat corridors are in place to enable the movement of impacted species. Additionally, there is a need to consider how species may use the intervening landscape where no special habitat protections may exist. The report also states that;

> "similarly, these analyses may highlight particular sites and/or corridor linkages that are of particular importance to the functioning of the network".

[15]Lancashire Ecological Network Approach and Analysis Document v1.pdf (lancswt.org.uk)

Ecology and Biodiversity

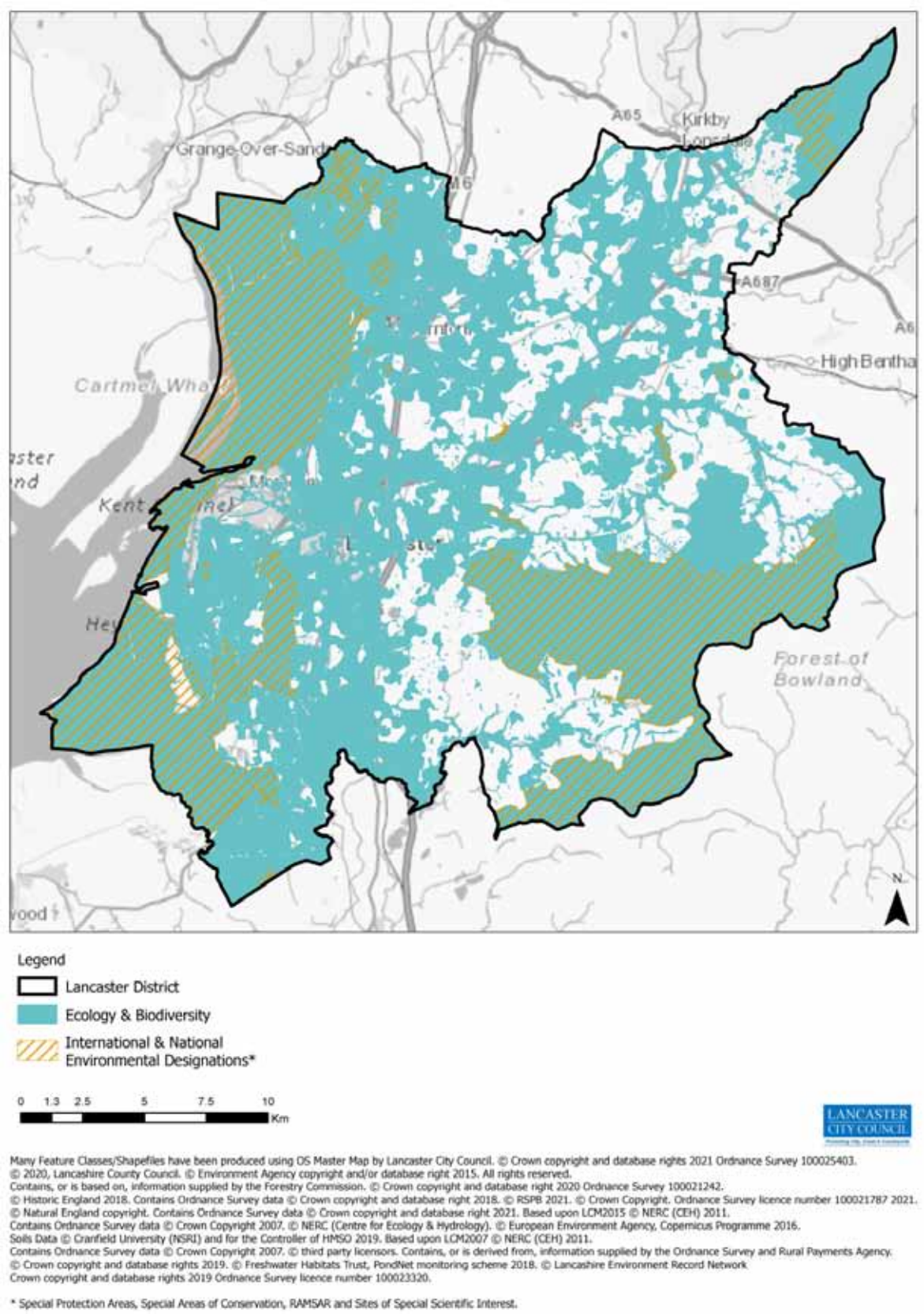


Figure 9: Map to show the extent of the existing 'ecology/biodiversity' element of the GBI Strategy.

Landscape

Overview of Lancaster District's Landscape-scale Approach

Given the geography of Lancaster, the District is home to four national character areas (NCA's). Bordering Morecambe Bay, along the western edge of the District, lies the relatively small and low-lying **Morecambe Coast and Lune Estuary NCA**. Whilst this area does include the populated towns of Morecambe and Heysham and the city of Lancaster, it also encompasses areas of high tranquillity around the Lune Estuary.[16]

So a diverse landscape in itself, but undoubtedly its distinctive identity is strongly linked to its coastal environment being adjacent to Morecambe Bay and the Lune and Keer estuaries. Due to the coastal habitats and wildlife that these support, such as mudflats, salt marshes, intertidal reefs and wader and waterfowl populations, and also the historic cultural links to fishing, trade and tourism. Further inland within the more rural areas, the landscape is mainly used for dairy farming, upon reclaimed grasslands in the lowest-lying areas up to hedged landscapes as the land begins to rise. Woodland cover within this NCA is low.

[16]NCA Profile: 31. Morecambe Coast and Lune Estuary - NE407 (naturalengland.org.uk)

Moving across the District to the east lies the **Bowland Fringe and Pendle Hill NCA**, a transitional landscape which wraps around the Bowland Fells. Over 50% of this NCA is within the Forest of Bowland AONB. The numerous river valleys and associated woodlands are a characteristic feature of the landscape, amongst the species rich hay meadows with irregular hedge boundary field patterns. However, it is recognised that given its location, this NCA faces the challenge of balancing the pressures to accommodate urban expansion around the main centres of population within the District, whilst at the same time conserving the biodiversity assets and distinct landscapes[17].

The Bowland Fells are a distinctive feature within the Districts landscape, hence the Forest of Bowland AONB. Whilst a relatively sparsely human populated landscape, areas of moorland are internationally designated for breeding birds and this NCA is known for its peat soils and blanket bog, which hold the potential for carbon sequestration[18]. However, damage to these moorland soils is leading to problems further downstream due to the rapid run off and flow of water subsequently increasing flood risk. There are also concerns regarding the connectivity of habitat networks and the importance of restoring these to improve the condition of vegetation and ultimately a stronger, more resilient ecological network.

Then towards the northwest of the District lies the **Morecambe Bay Limestones NCA**, which is a lowland landscape that lays around the head of Morecambe Bay, and encapsulates the Arnside and Silverdale AONB. Renowned for its lower carboniferous limestone hills, scars, cliffs and pavements (covering 776ha of the NCA), it is the underlying geology that shapes this landscape.[19] Home to large flat grazing farmland with the backdrop of dramatic limestone outcrops, interspersed with woodland. Closer to the shore lies extensive saltmarsh and mudflats. Subsequently home to an array of habitats, with almost 1/5 of the NCA's area designated as SSSI's.

The NCA has a very rural character feel, home to settlements such as the Kellets, Capernwray, Borwick and Silverdale.

It is evident that these landscapes and their habitats are going to feel the pressures of climate change, combined with the continuing need to accommodate new development, particularly around the urban areas. Within each NCA profile Natural England recognise the importance of creating a coherent and resilient ecological network to prevent against degrading habitats and fragmentation. As not only does this negatively impact upon the character of the NCA itself but has knock on effects across the District and so the District's landscapes and their unique characteristics each have an important role to play in ensuring they harness and maximise the benefits they can provide. So through the planning system we need to seek to do all we can to ensure the GBI network is able to adapt and/or mitigate to the changes posed by climate change, to ensure the built and natural environment which make up our District's landscapes are not put at risk.

National Character Area Ecosystem Services

As part of the National Character Area (NCA) Profiles, Natural England also set out the wide range of benefits each NCA provides to society. In addition to provisioning services, such as food provision and water availability, and cultural services, such as recreation, tranquillity, sense of place and history, it is also recognised that these landscapes provide an important role in the regulatory services they provide that will in turn bolster the resilience of the GBI network to combat climate change.

[17] NCA Profile: 33 Bowland Fringe and Pendle Hill - NE372 (naturalengland.org.uk)
[18] NCA Profile: 34 Bowland Fells - NE365 (naturalengland.org.uk)
[19] NCA Profile: 20 Morecambe Bay Limestones - NE518 (naturalengland.org.uk)

NCA	Regulating Services
Morecambe Coast and Lune Estuary	**Climate regulation:** Contains extensive areas of salt marsh and significant areas of grazing marsh and peat bog which have potential to sequester and store large amounts of carbon when appropriately managed. **Regulating coastal flooding and erosion:** Coastal margin is dominated by salt marsh which naturally acts as a regulator and defence of coastal flooding and erosion.
Bowland Fringe and Pendle Hill	**Regulating climate change:** Soil carbon levels are generally low (between 0-5%), reflective of the mineral soils that cover 72% of the NCA. Smaller areas of soil that can store significant volumes of carbon adjoin the peaty uplands. Degraded peat bogs release carbon and other greenhouse gases. Therefore sustainable management of blanket bog and other moorland habitats is needed. **Regulating soil erosion:** Almost 1/3 of the NCA has a high risk of soil erosion. Due to the wet acidic, slowly permeable peaty surfaced soils with poor vegetation coverage. Rapid water run-off combined with easily damaged peat results in soil erosion. **Regulating soil quality:** Predicted over 70% of NCA is facing soil quality issues. Due to wet acidic, clayey and slowly permeable soils which can be easily damaged when compacted/capped resulting in poor water infiltration and increased surface water runoff. **Regulating water quality:** Considered to be moderate or poor in much of the River Lune catchment. Although its noted that the Wenning and Greta have good water quality. River Conder is of moderate quality. **Regulating water flow:** Wrapped around the steep Bowland Fells this NCA contains the section of the rivers along the middle of their course that drain the upland area. Combined with waterlogged moorland soils and high rainfall means the watercourses struggle to respond to rapid, high intensity rainfall, resulting in increased fluvial flood risk.
Bowland Fell	**Climate regulation:** Carbon levels in the soil are generally high (20-50%) due to the deep peat rich soils, which can store large volumes of carbon. However degraded peat bogs lead to the release of carbon into the atmosphere and through surface water run-off. **Regulating soil erosion:** Large areas of peatland soil are in poor condition and vulnerable to erosion. Very acidic loamy soils covered in wet peat on the steep slopes are subject to rapid run-off and easily damaged peat layers. On the plateau tops lie blanket bog peat soils that are at risk of gullying due to damaged vegetation.

NCA	Regulating Services
Bowland Fringe and Pendle Hill	**Regulating soil quality:** Acidic, wet, slowly permeable upland soils with a peaty surface and blanket bog peat soils are at risk of losing organic matter as a result of soil erosion and climate change. Such soils when wet are also easily damaged, and can suffer compaction and/or capping which leads to poor infiltration and increased surface water-run off. **Regulating water quality:** Bowland Fells are the source of many watercourses which in turn discharge water from the fells. High rainfall and extensive semi-natural habitat lends itself to generally good water quality. **Regulating water flow:** Steep topography, impermeable rock and narrow flood plains, combined with high rainfall lead to water rapidly entering watercourses downstream, increasing fluvial risk in these areas. Given this NCA is sparsely populated, blanket bog that is in a good condition can aid interception of water fall and slow the flow to help reduce flood risk.
Morecambe Bay Limestones	**Climate regulation:** Salt marshes and extensive woodland of the limestone outcrops have significant roles to play in carbon sequestration and storage. **Regulating water quality:** Wetlands as nutrient sinks and pastoral agricultural land influence water quality **Pollination:** Semi-natural habitat supports large populations of pollinators **Regulating coastal processes:** Salt marshes help control coastal flooding and coastal erosion

Table 7: Ecosystem/Regulating services provided by the National Character Areas within the Lancaster District

National Designations

The Lancaster District is home to two Areas of Outstanding Natural Beauty (AONB); Arnside and Silverdale AONB, and the Forest of Bowland AONB. Each with its own unique characteristics. The two AONB's cover 2,277ha, which is approximately 47% of the District's land cover. Therefore, almost half of the District is within an area that is protected for its landscape value.

Both AONB's have an adopted Management Plan, which sets out the overall strategy for managing, conserving and enhancing each of the AONB's and their special qualities, and are a material consideration in making planning decisions.

"The primary purpose of this designation is to conserve and enhance natural beauty. In pursuing the primary purpose of the designation, account should be taken of the needs of agriculture, forestry, and other rural industries and of the economic and social needs of local communities. Particular regard should be paid to promoting sustainable forms of social and economic development that in themselves conserve and enhance the environment."

Forest of Bowland attributes[20]	Arnside and Silverdale attributes[21]
• Grandeur and isolation of the upland core • Steep escarpments of the Moorland Hills • Undulating lowlands • Visual contrasts between each element of the overall landscape • Serenity and tranquillity of the area • Distinctive pattern of settlements • Wildlife (heather moorland, blanket bog and breeding upland birds) and the landscape's historic and cultural associations	• Diverse range of habitats • Mosaic of limestone pavements • Low limestone hills • Ancient woodlands • Wetlands and mosses • Orchards and meadows • Coastal cliffs • Intertidal flats • Coastal setting on Morecambe Bay • Wildlife (butterflies, wildflowers and breeding birds) and the landscape's historic and cultural associations

Table 8: The attributes which contributed towards the designation of Lancaster District's two Areas of Outstanding Natural Beauty

Since the 1st August 2016, 2,277ha of the District also became part of the Yorkshire Dales National Park, which accounts for 3% of the District. They are the local planning authority for this area of the District, and they are currently working on a review of their Local Plan which will include policies that will be used to determine planning applications within these areas.

[20] What is an AONB | Forest of Bowland AONB
[21] A Special Place - Arnside Silverdale AONB : Arnside Silverdale AONB

Landscape Character Assessment

Due to its unique characteristics, the Lancaster District is home to an array of landscapes as identified in the Character Assessment undertaken by Lancashire County Council[22] (green), Arnside and Silverdale AONB Landscape & Seascape Character Assessment (orange) and the Forest of Bowland AONB Landscape Character Assessment (purple) as shown in Figure 10. As demonstrated by the asterisk, there is much correlation between the character types between the Lancashire-wide Assessment and the AONBs.

Figure 10: Landscape Character Types within the Lancaster District

[22] landscape2col.qxd (lancashire.gov.uk)

Local Landscape Designations

The value of our landscapes on a more local level is also recognised through the Local Plan. Given the pressures placed upon those landscapes encapsulating and traversing through our urban areas it was considered important to designate these areas to recognise the valuable characteristics and settings for significant areas and features these landscapes provide, and have done so throughout history, and subsequently to protect them from development.

Therefore, two local landscape designations have been identified:

Landscapes	Definition	Examples
Key Urban Landscapes (KUL)	Include those areas within the main urban area which are integral to the built form of the District, providing a setting for important features and/or heritage assets. They play an important role in defining the townscape of the main urban areas and are inextricably linked to the experience of the wider setting of these features. Such areas also provide amenity value for the local community and visitors.	• Lancaster Moor Hospital • University of Cumbria • Ripley St Thomas School • Williamsons Park • Quay Meadow • Ryelands Park and • The coastline between Sandylands and Higher Heysham
Urban Setting Landscapes (USL)	Are peripheral to the built form and are located on the edge of the main urban area. They provide a visual frame for the urban area, providing an important role in the setting of existing development and providing a significant context or legibility to features within the existing landscape or surrounding areas.	• Elevated land to the east of Lancaster • Open countryside to the north of Lancaster and • Land surrounding Morecambe and Carnforth
Key Settlement Landscapes	Are private (not publicly accessible) areas of open space within the four AONB Local Service Centres that make a particular and important contribution to the character of the AONB by bringing the countryside into the settlements and reinforcing their rural character as well as providing key views and offering variety in settlement form, fabric and feel.	• Townsfield, Silverdale • Bank House Farm, Silverdale • Boon Town Farm, Warton

Table 9: Local Landscape Designations made through policy EN5 of the Strategic Policies and Land Allocations DPD and policy AS06 of the Arnside and Silverdale AONB DPD

Woodland and Trees

The exact tree coverage for the Lancaster District is currently unknown, with the latest figure being from 2010. Therefore, the Council is exploring establishing a more up-to-date tree canopy cover figure to act as a baseline to monitor future tree planting progress. However, it is known that there are currently 2,271 individual trees with a Tree Preservation Order, and 644 groups of trees.

There are 193 Ancient and Semi-natural Woodlands within the Lancaster District. In England, Ancient Woodlands are defined by the Woodland Trust as areas of woodland that have persisted since 1600 and as a result they are irreplaceable, and form the richest and most complex terrestrial habitat in the UK. They can be classified into different categories:

- **Ancient semi-natural woods:** that have developed naturally. Most have been used by humans, often managed for timber and other industries over the centuries, but they have had woodland cover for over 400 years.
- **Plantations on ancient woodland sites:** which are ancient woods that have been felled and replanted with non-native species. Although damaged, the complex soil of ancient woodland remains and contain remnants of the woodland specialist species which occurred before[1].

Ancient, Veteran and Notable trees, and important hedgerows, are key assets which make an important contribution not only to our landscape, but they provide many valuable multifunctional benefits, such as habitat corridors through our landscape.

- **Ancient Tree:** one that has passed beyond maturity and is old, or aged, in comparison with other trees of the same species.
- **Veteran Tree:** one with habitat features such as wounds or decay.
- **Notable Tree:** usually magnificent mature trees which stand out in their local environment because they are large in comparison with other trees around them[2].

[1] Ancient Woodland - British Habitats - Woodland Trust
[2] Layout 1 (woodlandtrust.org.uk)

In response to the Climate Emergency declaration the Council has an ambition to plant a Million Trees. The ambitious project announced in 2019 aims to improve air quality, mitigate flood risk, support the rural economy and connect people with nature. The Council is working with the Woodland Trust who will contribute up to 85% of the costs to anyone wanting to incorporate trees on their land through its MOREwoods scheme. The Trust will provide a wide range of native trees and shrubs, all sourced and grown in the UK to reduce the risk of disease.

The council will plant trees and hedgerows on its own land and is also contacting landowners across the district to ask for their help in providing space for planting.

The Woodland Trust's Senior Farming Adviser, Helen Chesshire, said;

"A well devised and implemented agroforestry system can pay dividends. Trees can provide shelter for crops and livestock, improve soil quality and stability, reduce surface run off, attract pollinators and provide an additional cash crop as well as a home for wildlife. And with our best ever subsidy there's no better time to think about planting for a stronger more viable future.
"The area covered by the Northern Forest has below average woodland cover - just 7.6 per cent compared to the UK average of 13 per cent - but we have above average ambition and farmers, smallholders and landowners are an integral part of our vision."

The 2021 NPPF places an increased emphasis upon the role of trees:

> "Trees make an important contribution to the character and quality of urban environments, and can also help mitigate and adapt to climate change. Planning policies and decisions should ensure that new streets are tree-lined*, that opportunities are taken to incorporate trees elsewhere in developments (such as parks and community orchards), that appropriate measures are in place to secure the long-term maintenance of newly-planted trees, and that existing trees are retained wherever possible." (paragraph 131)

In May 2021 The England Trees Action Plan 2021-2024 was published, to help deliver the Government's target of increasing tree planting rates across the UK to 30,000ha per year by the end of this Parliament, recognising the valuable role of trees and woodlands in delivering the UK target of net zero greenhouse gas emissions by 2050, whilst at the same time being a pivotal part of our landscapes. One of the actions is to set up new Woodland Creation Partnerships which aim to bring together local stakeholders, drawing on local knowledge, to identify opportunities for woodland creation to help deliver sustainably designed woodland, improving the connectivity of priority habitats and provide enhanced natural capital value within the landscape. The Action Plan recognises that the enrichment of the tree landscape will often be created with the help of Local Authorities. Lancaster City Council is aware that more needs to be done to enhance and extend tree cover across the District and so is seeking to develop a Tree Strategy for the District.

The Action Plan also emphasises the interaction of trees and peatland.

Peatland

"Woodlands and peatlands are two of our largest natural climate regulating ecosystem types; our climate change and biodiversity obligations require us to manage them both sustainably[3]".

Therefore, it is important that plans to expand woodland cover and restore peatland are aligned, and so alongside the England Trees Action Plan sits the England Peat Action Plan.

Peatlands are wetland landscapes characterised by waterlogged soils made of dead and decaying plants. The wet and acidic conditions slow decomposition which enables organic matter to gradually accumulate over centuries and millennia to form deep peat deposits. Consequently, they are a valuable GBI asset within our District, as a valuable carbon store, home to endangered wildlife such as large heath butterflies and wading birds like dunlin, and the natural flood management and water quality benefits they provide[4]. However over 80% of the UK's peatlands are damaged, and so the Peat Action Plan sets out a long-term vision for the management, protection and restoration of our peatlands. The NPPF (2021) makes clear that peat is to be protected and that planning permission should not be granted for peat extraction from new or extended sites (paragraph 211).

[3] The England Trees Action Plan (publishing.service.gov.uk)
[4] Peatland solutions | The Wildlife Trusts

Landscape

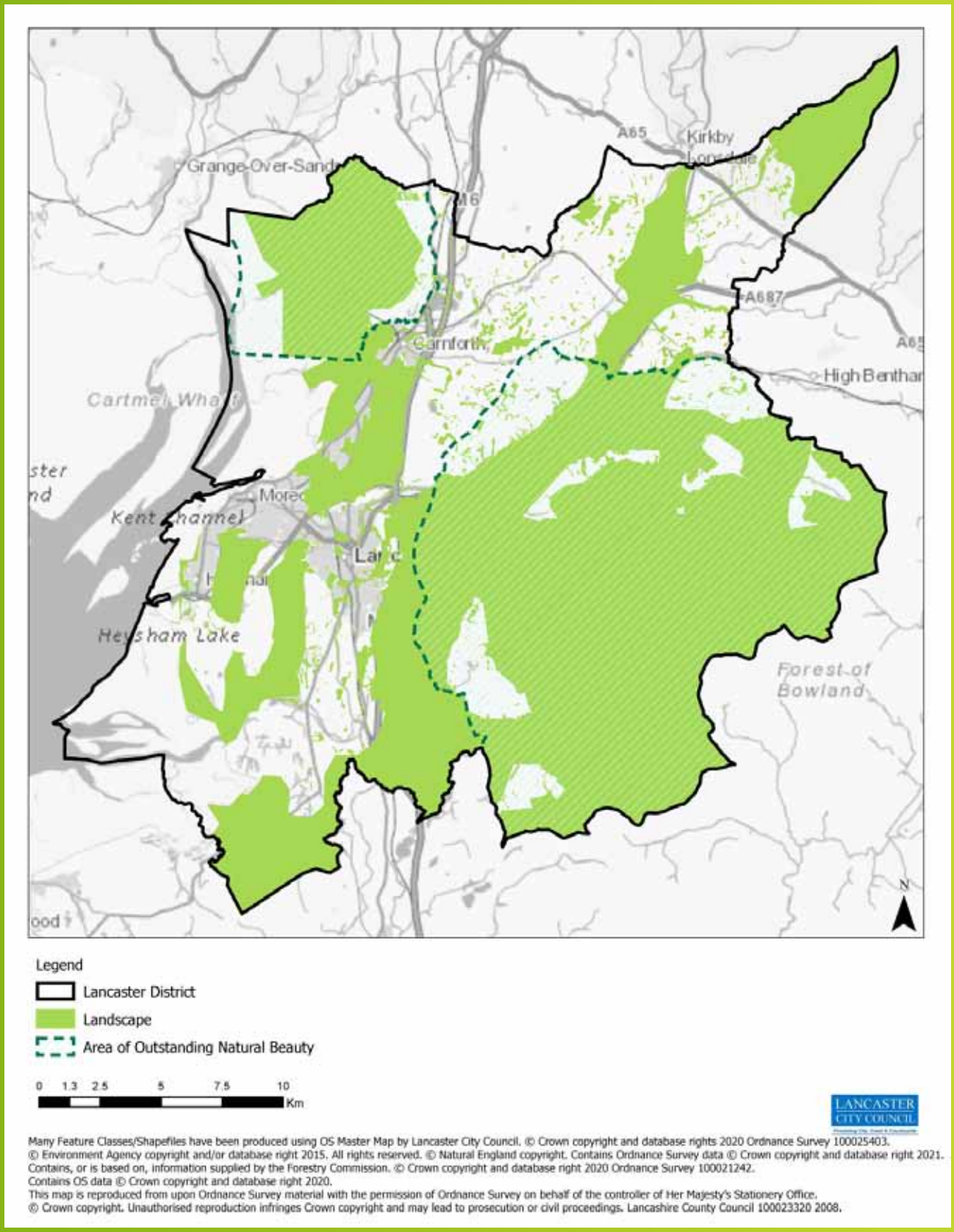


Figure 11: Map to show the extent of the existing 'landscape' element of the GBI network.

Active Travel

Overview of Transport System in Lancaster District

The district of Lancaster lies within the nationally significant north-south transport corridor that includes the West Coast Main Line railway and the M6. This provides excellent connectivity with other parts of the UK, including London, the West Midlands and Scotland. The A6 parallels the motorway whilst the A682 runs through the Lune Valley to provide connections to North Yorkshire and the A65. The Port of Heysham provides a significant link, particularly for freight, to Northern Ireland, the Republic of Ireland and the Isle of Man, with daily ferry services. The district has a long history as a transport corridor and the legacy of the canal network and a number of redundant railway lines now serves the district well in providing green corridors suitable for walking and cycling. This network is further enhanced by the Millennium Bridge across the River Lune which provides an important pedestrian and cycle link between Lancaster and Morecambe.

Engagement in Active Travel

Rates of Active Travel in the Lancaster area are very high when compared to national and regional averages. Data collated by the Department for Transport in 2019 shows above average levels of active travel in the district with 14% of residents cycling at least once a day and 78% walking at least once a day. This compares to the average across England of 11% and 70% respectively. (National Travel Survey (NTS) and the Active Lives Survey (ALS)).

Furthermore, data collected in the 2011 Census also shows above average levels of journeys to work are carried out by foot or bicycle. In the Lancaster, Morecambe and Heysham urban areas, the modes share of cycling and walking are 5% and 18% respectively, representing higher mode shares than the County, regional and national averages.

The data reveals that of the 1312 commuting trips between Lancaster City Centre and West Lancaster 51% of people making this trip are doing so by walking which demonstrates a strong base of walking trips.

Active Travel Network (Walking & Cycling)

There are a number of reasons for these relatively high rates. In part it is due to the compact nature of the urban area, particularly in Lancaster, where employment areas, schools, shopping and residential areas are close together. The primary reason, however, is that the district benefits from an good network of off-road pedestrian and cycle routes. These provide safe and attractive links between the main urban areas of the district and beyond to areas of attractive countryside.

The Lancaster Greenway links Morecambe to Lancaster via the Millenium Bridge and the River Lune Cycle Path provides a link between Glasson Dock through Lancaster to the Lune Valley. The Lancaster Canal also provides an attractive north/ south green corridor through Lancaster and up to Carnforth. The district also contains a significant part of the Bay Cycle Way. This is a Sustrans National Cycle Route route which starts at Glasson Dock, passes through Lancaster, Morecambe and Carnforth, and extends along the Morecambe Bay coast.

The district also benefitted from being a Government supported Cycle Demonstration Town between 2005 and 2011. This project enabled the existing network to be improved and extended. There was also extensive signage put in place, and education and other promotional work provided in the local community. Subsequent research showed an increase in cycle use was seen following the project.

For the purposes of this GBI Strategy, there will be a particular focus upon those walking and cycling routes that are off-road and situated within a GBI setting. Therefore, within the context of this Strategy, 'Active Travel' refers to:

"Those walking and cycling routes that are along green corridors, or run alongside green infrastructure assets, or in some cases blue corridors (such as along the coastline, canal or riverside). On the interactive map they are referred to as 'Active Travel GBI Corridors', and as indicated on the map, some of which are 'existing' and some are 'aspirational', with the latter being identified as part of the opportunity mapping."

Proposals for the Future

Although very well used, the existing network does not provide a comprehensive network for the district. A noticeable missing link is between the city centre and the University. Data shows that there are very high levels of journeys made by cycle on the A6, which leads to relatively high levels of accidents on the route.

Furthermore, the need to accommodate the housing growth set out in the Local Plan also means that walking and cycling networks will need to be added to and improved if car borne traffic is to be kept to acceptable levels. This includes the city centre itself where the gyratory system already struggles to cope with existing levels of traffic.

To address these issues the County Council, as Highways Authority, is currently putting forward proposals for a number of transport related schemes. This includes the Lancaster City Movement Strategy which aims to reconfigure the city centre highway gyratory system to encourage more cycling and walking by providing a sustainable transport corridor through the city centre. They are also proposing a Cycle Superhighway to the University to improve safety and encourage modal shift. These will be largely on-road routes but there may be off-road sections at the southern end of the cycle superhighway where it provides links to the University and the proposed Bailrigg Garden Village.

Sustrans is the organisation responsible for the National Cycle Network and they are currently helping to develop a number of routes in the district. The proposed Lune Valley Greenway will extend the existing off road River Lune Millenium Park route beyond Caton and onto Hornby, Wray and Wennington. This has been a long-standing aspiration that has recently benefitted from funding in order to bring it forward. They are also looking at extending the Bay Cycle Way south from Glasson Dock. This will provide a link to the southern boundary of the district and on to Fleetwood.

The Lancaster Canal Regeneration Partnership is putting forward proposals to improve the canal towpath in the north of the district. It is currently surfaced as far as Carnforth but the intention is to provide a surfaced path that would eventually provide a link to Kendal in the neighbouring District; South Lakeland.

Active Travel

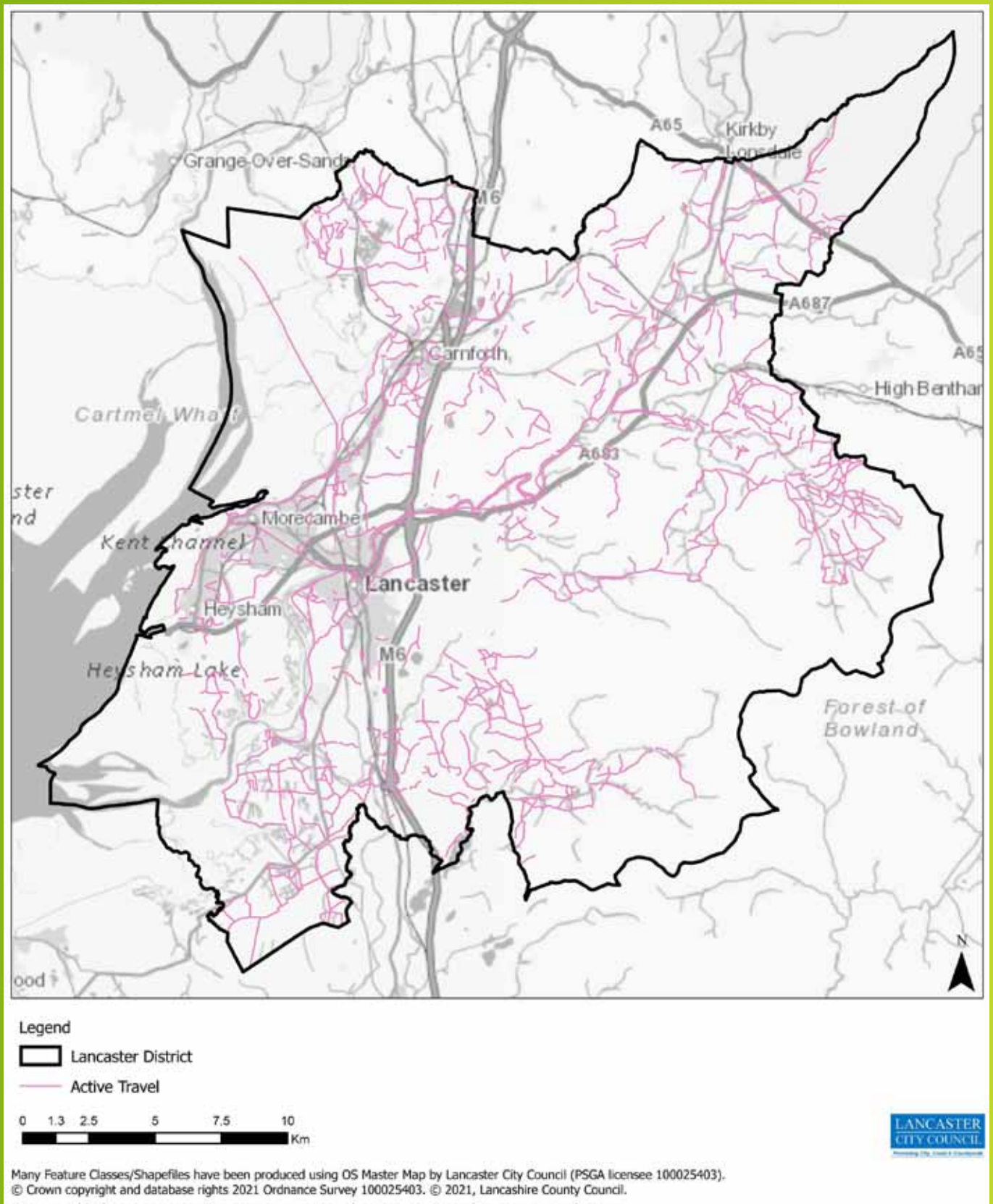


Figure 12: Map to show the extent of the existing 'active travel' element of the GBI network.

Water Management/Space for Water

Space for Water within the Lancaster District

Being located on the northwest coast of England, and home to a number of significant water bodies including five main rivers and a canal which runs the length of the District, combined with a number of severe flood events across the District over recent years, means that the way in which water is managed is a significant challenge. Therefore, providing space for water and the subsequent management of this water is a key consideration for the planning system, both plan-making and decision-making, and engagement at an early stage with key stakeholders such as Lancashire County Council as the Lead Local Flood Authority, the Environment Agency and United Utilities is crucial.

The topography of the District is characterised by the higher ground of the Forest of Bowland and Yorkshire Dales to the east, and lower-lying floodplain to the west. Due to the nature of historic development patterns, the district has a number of large distinct areas of residence and employment; Lancaster including Galgate and the south Lancaster area, Morecambe, Heysham, Carnforth and Halton, all of which are to the west of the District. There are also numerous other semi-rural and rural villages many of which have been developed along the River Lune and other watercourses.

The revised 2021 NPPF highlights the role green infrastructure can play in the management of blue infrastructure, in relation to adopting a sequential, risk-based approach and managing any residual risk by…'using opportunities provided by new development and improvements in green and other infrastructure to reduce the causes and impacts of flooding, making as much use as possible of natural flood management techniques as part of an integrated approach to flood risk management' (paragraph 160).

Key Waterways

The main watercourses and their tributaries are key features that define our District, and how it has been developed by humans and shaped by nature over time. The most significant main rivers in the District are the:

- River Lune
- River Keer
- River Conder
- River Wenning
- River Wyre

The first three of which drain south-westwards into the Irish Sea at Morecambe Bay, and the River Wenning is a tributary of the River Lune. The Lune is tidally influenced as far as Skerton Weir in Lancaster.

The **Lancaster Canal** is another key waterway, albeit a manmade one, which forms a key defining feature in the Lancaster District. The canal runs in a north-south direction through the District, and a significant stretch of its length lies within the urban areas of Lancaster and Carnforth and so it is a welcome GBI asset in a predominantly built-up environment. Whilst a body of water, the canal also provides opportunities for recreation and active travel both on its waters and along its towpath, is a designated biological heritage site (as previously identified) and is itself a historic feature of the District which has shaped the landscape and townscape. The Lancaster Canal is a perfect example of how one GBI asset covers each of the 6 key themes.

Main Rivers

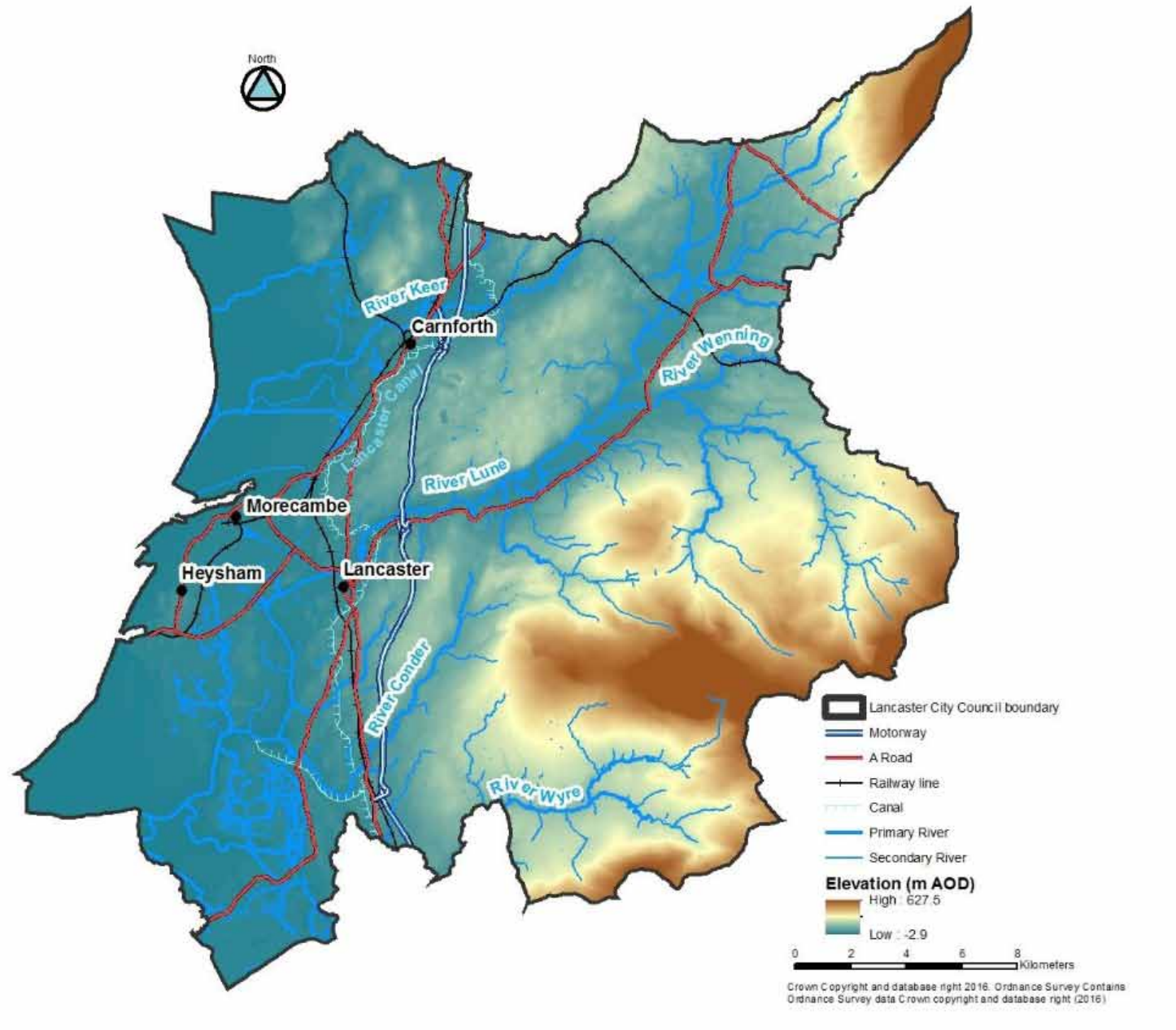


Figure 13: Map to show the location of the main rivers in the Lancaster District (taken from SFRA).

Catchment	Characteristics & Risks
River Lune	• The main source of flooding is tidal. • Approximately 2,200 properties are potentially at tidal flood risk from a 0.5% annual probability event (APE), although most of these properties benefit from flood defences. • Approximately 500 properties are at risk of fluvial flooding (from rivers). • By 2100, it is estimated that there will be 700 properties at risk of fluvial flooding due to the effects of climate change.
River Wyre	• The Wyre is steep and rural in its upper catchment with rapid runoff. • The Lower Wyre is at a low elevation, urbanised and sometimes at or below sea level. • Approximately 7,600 residential and commercial properties are at a 1% annual risk of fluvial flooding (90% of which are in settlements outside of the Lancaster District). • In the future it is estimated that over 9000 properties will be at risk from a 1% fluvial event after taking account of climate change.
River Wenning	• Rural tributary of the Lune draining from the western slopes of the Yorkshire Dales. • There are a few small villages in the catchment where properties are at flood risk in the District, including Hornby and Wennington. • The nature of flood risk is particularly hazardous due to the fast responding and flowing rivers. • There is a total of 140 properties at risk in the sub-area from a 1% APE. Of these 80 are protected by raised defences in Hornby. • The average depth of flooding to properties is typically less than 1m but it is expected to increase by 0.5m by 2100 and the total number of properties at risk increase to 2208 as a result of climate change.

Table 10: River Catchment characteristics and risks extracted from Lancaster District's Strategic Flood Risk Assessment Part 1.

The Coast and Coastal Waters

As previously highlighted, one of Lancaster District's key distinctive features is its location along the coast of Morecambe Bay. The confluence of four principal estuaries, one of which being the River Lune, together with other smaller examples such as the Keer. Collectively these form the largest single area of continuous intertidal mudflats and sandflats in the UK and are considered to be the best example of muddy sandflats on the west coast . Extensive saltmarshes and glasswort beds are characteristic of the Lune estuary, whilst supporting an abundance of saltmarsh grass, they also act as a valuable resource for carbon sequestration and storage.

The coast is therefore a fundamental GBI asset for the District, but with it also comes the risk of tidal flooding. The Level 1 SFRA produced in October 2017 set out the sea level allowance for North-West England, with the cumulative rise between 1990 and 2115 predicted to be 0.99m.

Flooding in Lancaster District

The Lancaster District Level Strategic Flood Risk Assessment (SFRA) Part 1 (October 2017) identifies a number of sources of flooding that pose a risk to parts of the District. The main sources include:

- Fluvial (rivers)
- Tidal
- Surface water
- Groundwater
- Infrastructure failure

15.42% of the District is identified as being in Flood Zone 3, with 2,004 residential properties located within this area (as of March 2020 data). These are the areas that are identified as being at the greatest risk of flooding. Significant areas of the District also fall within Flood Zones 2 and 1, as defined in Table 11 below and shown on the interactive GBI mapping.

Flood Zone	Definition
Zone 1 Low Probability	Land having a less than 1 in 1,000 annual probability of river or sea flooding. (Shown as 'clear' on the Flood Map – all land outside Zones 2 and 3)
Zone 2 Medium Probability	Land having between a 1 in 100 and 1 in 1,000 annual probability of river flooding; or Land having between a 1 in 200 and 1 in 1,000 annual probability of sea flooding. (Land shown in light blue on the Flood Map)
Zone 3a High Probability	Land having a 1 in 100 or greater annual probability of river flooding; or Land having a 1 in 200 or greater annual probability of sea flooding. (Land shown in dark blue on the Flood Map)
Zone 3b The Functional Floodplain	**This zone comprises land where water has to flow or be stored in times of flood.** Local planning authorities should identify in their Strategic Flood Risk Assessments areas of functional floodplain and its boundaries accordingly, in agreement with the Environment Agency. (Not separately distinguished from Zone 3a on the Flood Map)

Considered over the lifetime of development, such an apparently low frequency or rare flood has a significant probability of occurring. For example:

- A 1% flood has a 26% (1 in 4) chance of occurring at least once in a 30-year period - the period of a typical residential mortgage
- And a 49% (1 in 2) chance of occurring in a 70-year period - a typical human lifetime

Table 11: National Planning Policy Framework definitions of Flood Zone 1,2,3a and 3b.

Unfortunately, a number of flood events have been experienced across the Lancaster District, with some extreme and significant events in recent years, notably the 2015, 2017 and 2018 storm events.

2015 witnessed the impacts of Storm Desmond and Storm Eva. In December 2015 when Storm Desmond hit it resulted in the highest recorded flow for an English River on the River Lune (approximately 1700 cubic metres per second). The River Lune runs through the centre of the District and so consequently, flooding was widespread across the District. In Lancaster 356 properties are known to have been affected by internal flooding, mainly due to the River Lune overtopping its banks. The electricity substation was also flooded, which resulted in around 68,000 homes and businesses being without power for 48 hours. The River Keer also topped its banks flooding 14 properties in Carnforth and 27 in Warton. Properties in Borwick were also affected. Numerous settlements further upstream along the River Lune and its tributaries also experienced internal flooding. In addition to Heysham, Morecambe and Slyne.

In November 2017 an unprecedented level of rainfall occurred again. The weather station at Hazelrigg (Lancaster University) recorded 73.6mm of rain, the highest level in more than 50 years since recording at this location began. Subsequently, combined with flooding from the River Conder and Burrow Beck, Ellel and Galgate were badly flooded. As were Halton and Caton, due to surface water flooding, and also villages and properties further upstream along the River Lune.

There have been other flooding events in the District, while these have been less extreme, the impact they have upon residents and business are no less severe. Burrow Beck has caused a number of flooding events at Canterbury Avenue and Barton Road, further flooding occurred in Halton in February 2020, and rainfall in surface water hot spots at Hest Bank and Bolton-le-Sands has caused flooding.

Water Management

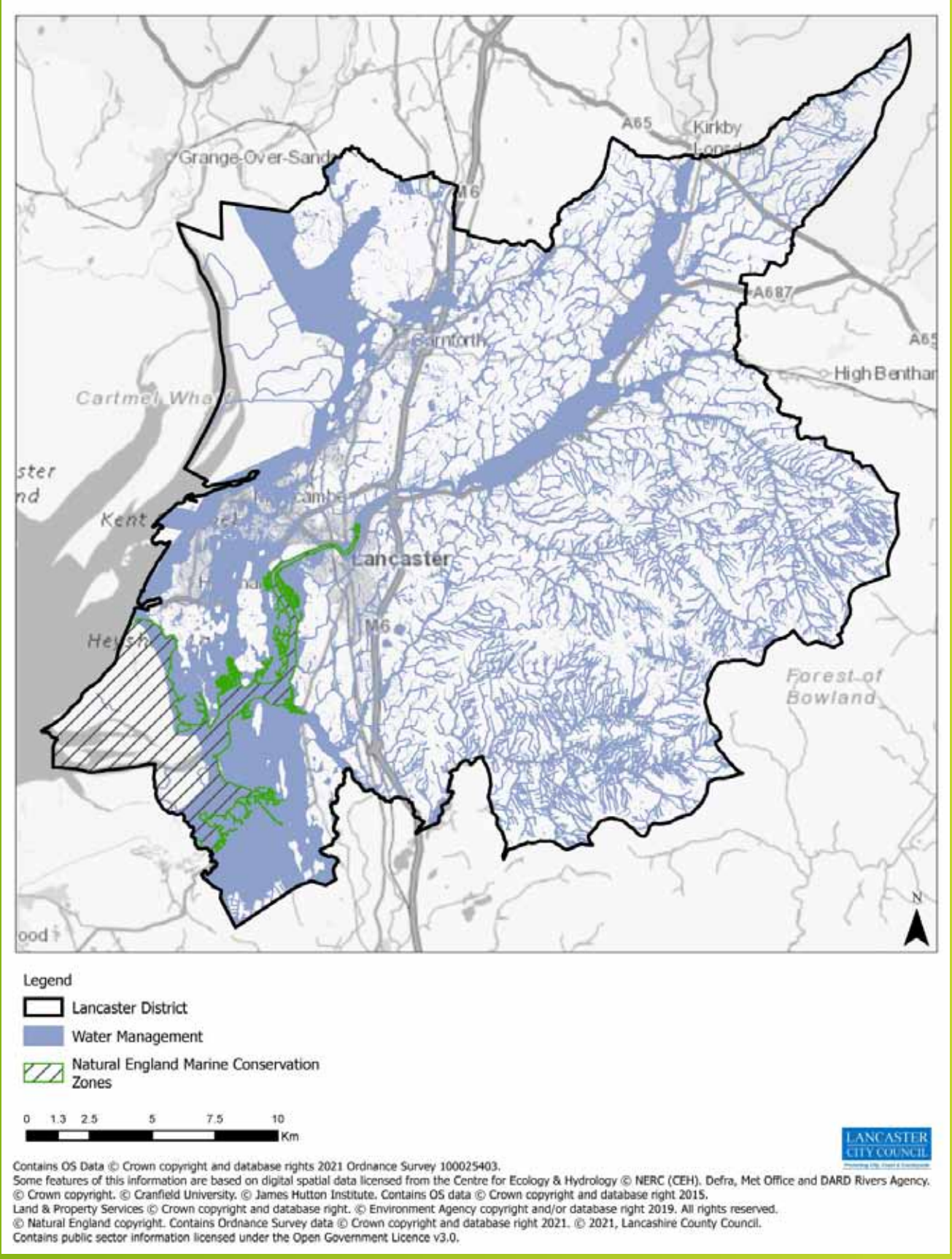


Figure 14: Map to show the extent of the existing 'water management' element of the GBI network.

Historic Environment

Overview of the history of the Lancaster District

The Lancaster District has a rich and diverse cultural heritage, with archaeology, architecture and landscapes of national and international importance. There are over 1,300 Listed Buildings: 24 at Grade I, 69 at Grade II*, and 1245 at Grade II; 37 Scheduled Ancient Monuments; 3 Registered Parks and Gardens; and countless non-designated heritage assets.

This wide variety of heritage assets is a palimpsest of the district's past, and of the role of the city of Lancaster itself as a regional centre of importance throughout its history. It was the site of a Roman fort and vicus, upon the remains of which an urban centre became established in the medieval period.

As a port, Lancaster came only behind London, Bristol and Liverpool during the 18th century, gaining rapidly in prosperity through transatlantic trade, including of enslaved people.
Other settlements owe the character of their built environment to quite different narratives. Morecambe, for example, developed from, and rapidly enveloped, the tiny fishing village of Poulton in the Victorian and Edwardian periods. The establishment of the railway network, and changing national policy which allowed factory workers in the northern industrial centres to travel cheaply by rail, saw the town quickly become a popular seaside resort.

Due to the wealth of heritage within the District, the Council has its own in-house Conservation Team, who not only produce documents such as the District's Heritage Strategy but also provide site-specific conservation advice at both the plan-making and decision-making stages. The Council has also designated 37 Conservation Areas across the District in the following locations:

Conservation Areas across Lancaster District

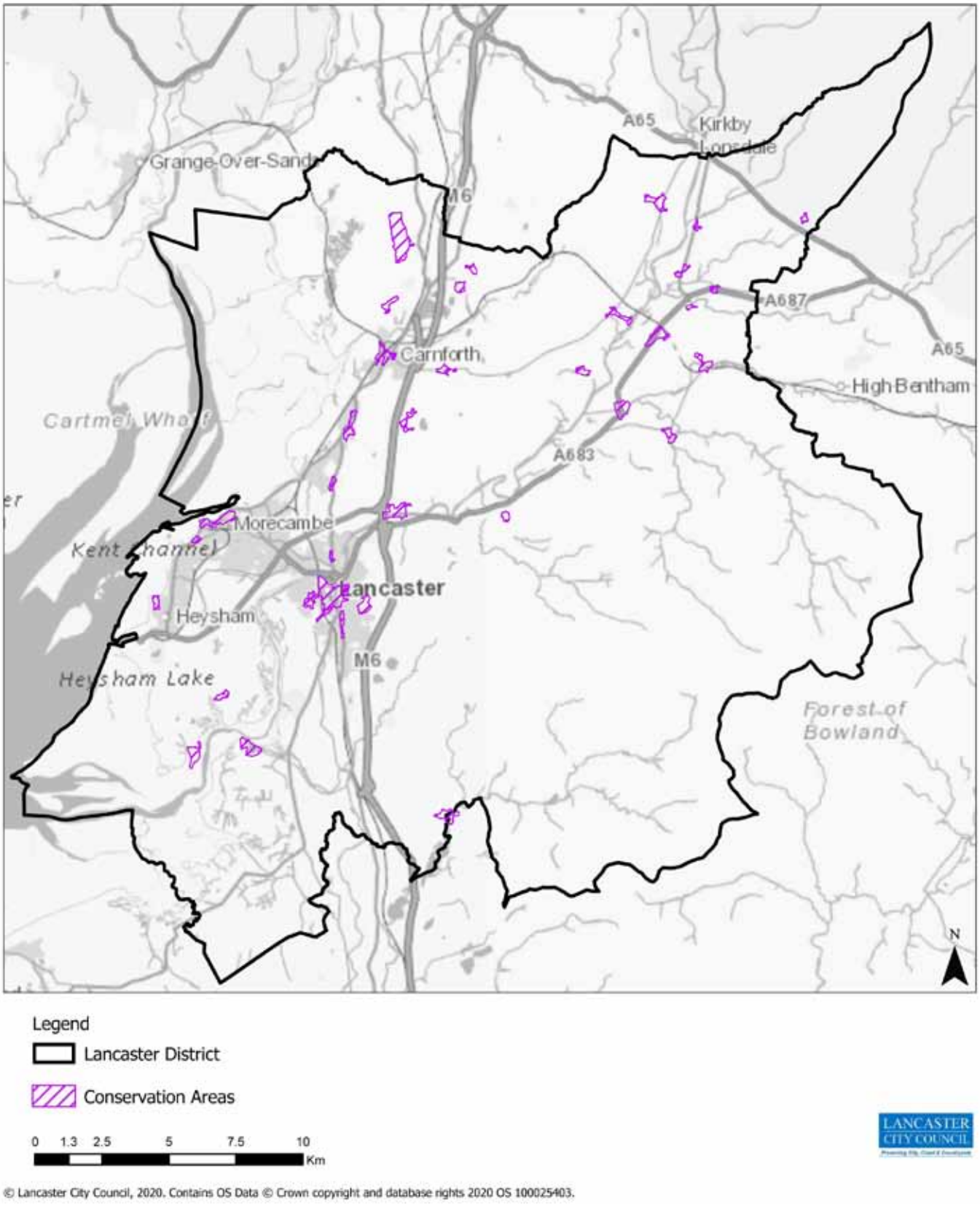


Figure 15: Map to show the Conservation Areas designated within the Lancaster District.

Historic Parks and Gardens

There are over 1600 assets upon the "Register of Historic Parks and Gardens of special historic interest in England" and emphasis for inclusion on the register is on gardens, grounds and other planned open spaces, such as town squares.

Within the Lancaster City Council District there are 3 Registered Parks and Gardens, these are Ashton Memorial Gardens and Williamson Park, Lancaster Cemetery and Capernwray Hall.

Williamson Park is situated to the east of the city centre and was once a quarry for Lancaster's building stone. It ceased as a quarry in the mid-C19 and was laid out as a park in around 1870 for James Williamson with a further phase in 1904 for his son, also James Williamson, who became Lord Ashton in 1895. The park incorporates some important listed buildings, is a self-contained Conservation Area and a Registered Park and Garden (grade II).

The principal historic feature in the park is the Ashton Memorial, a grade I listed building constructed between 1905 and 1909 for Lord Ashton. It is finished in Portland Stone and Cornish granite, it stands some 150 feet tall above the parkland. In view of its elevation it can be seen from many vantage points across the city and is a landmark for the city. Also in the park adjacent to the memorial is the Palm House c.1909, grade II listed, built on a brick plinth with timber and metal glazing bars, it is now used as a butterfly house with the inside laid out as a tropical rain forest.

Also in the park is a tower around 100 metres to the south of the memorial, which is the remains of the Temple Shelter, a garden pavilion c. 1909. Constructed in limestone with a hexagonal plan it is grade II listed. The bridge over the ornamental lake incorporates a single semi elliptical arch in sandstone and dates from 1909 and is grade II listed.

Lancaster Cemetery is a prime example of an asset with commemorative value. The Lancaster Burial Board was established in 1854 which closed the city's burial ground and replaced it with the newly laid out cemetery we see today. The chapels and lodges found within the site are by Edward Paley and the grounds were laid out by registrar, Henry Moore.

Capernwray Hall is a large country residence built for George Marton by Edmund Sharpe in 1844. It is surrounded by nineteenth century formal gardens, a Rose Garden of 1901 by Thomas Mawson, and early nineteenth century landscaped parkland. The Rose Garden has a perimeter promenade and a central circular fountain flanked by rectangular lawns with geometrical beds. A second set of steps lead up from the south side of the garden to connect with curving walks through woodland.

The park consists of gently rolling land with areas of woodland, individual trees and clumps, all of which carefully placed to frame picturesque views. The River Keer runs through the north-western corner of the park, and there is a lake with an artificial island surrounded by with ornamental planting.

Grab Lane Preserved Setting Area

As part of the preparation of the current Local Plan, a site at Grab Lane was identified for housing development. The landscape assessment identified that some heritage assets would be affected by development at this location and so a Setting Study was commissioned to assess the potential impact upon the historic environment further.

The setting study found that the most significant assets affected by the site would be the Grade 1 Ashton Memorial and Williamson Park as it was concluded that the fields around Grab Lane contribute positively to these assets and are very important views in from the east. One of the recommendations made through the study therefore was to reduce the area of land proposed for development to reduce the level of harm to the setting of these heritage assets to an acceptable level. Therefore, following detailed discussions with Historic England, a smaller area was identified, and it was subsequently considered important to identify the remaining land as a 'preserved setting area'. This is now designated through policy EN8 to ensure that these landscape areas remain permanently open and free from development.

Through the policy, these areas are now identified to deliver GBI benefits, as set out in Figure 16:

POLICY EN8: GRAB LANE PRESERVED SETTING AREA

The land surrounding the residential development at Grab Lane has been identified for protection under Policy EN8 of this DPD. The protection is to ensure that the landscape areas remain permanently open and free from future development. The Council has identified two specific areas of protection in order to address the following:

POLICY EN8.1	Land adjacent to Fenham Carr Lane has been protected for a range of open space uses, including informal amenity space and opportunities to deliver innovative storage solutions for drainage, such as the creation of balancing ponds and other sympathetic SuDS schemes. It will preserve the immediate rural setting provided by the valley fields of the Ashton Memorial and Williamson Park (which are designated heritage assets) and help protect the Park's setting in closer views north-west from Wyresdale Road and on Fenham Carr Lane.
POLICY EN8.2	Land adjacent to the M6 has been protected to maintain a green gap between development and the motorway to protect residential amenity and the wider setting of the Ashton Memorial and Williamson Park. It will preserve the public's visual amenity and appreciation of the designated heritage assets from Newlands Road and the M6.

Figure 16: Wording of policy EN8 of the Strategic Policies and Land Allocations DPD.

Historic Environment

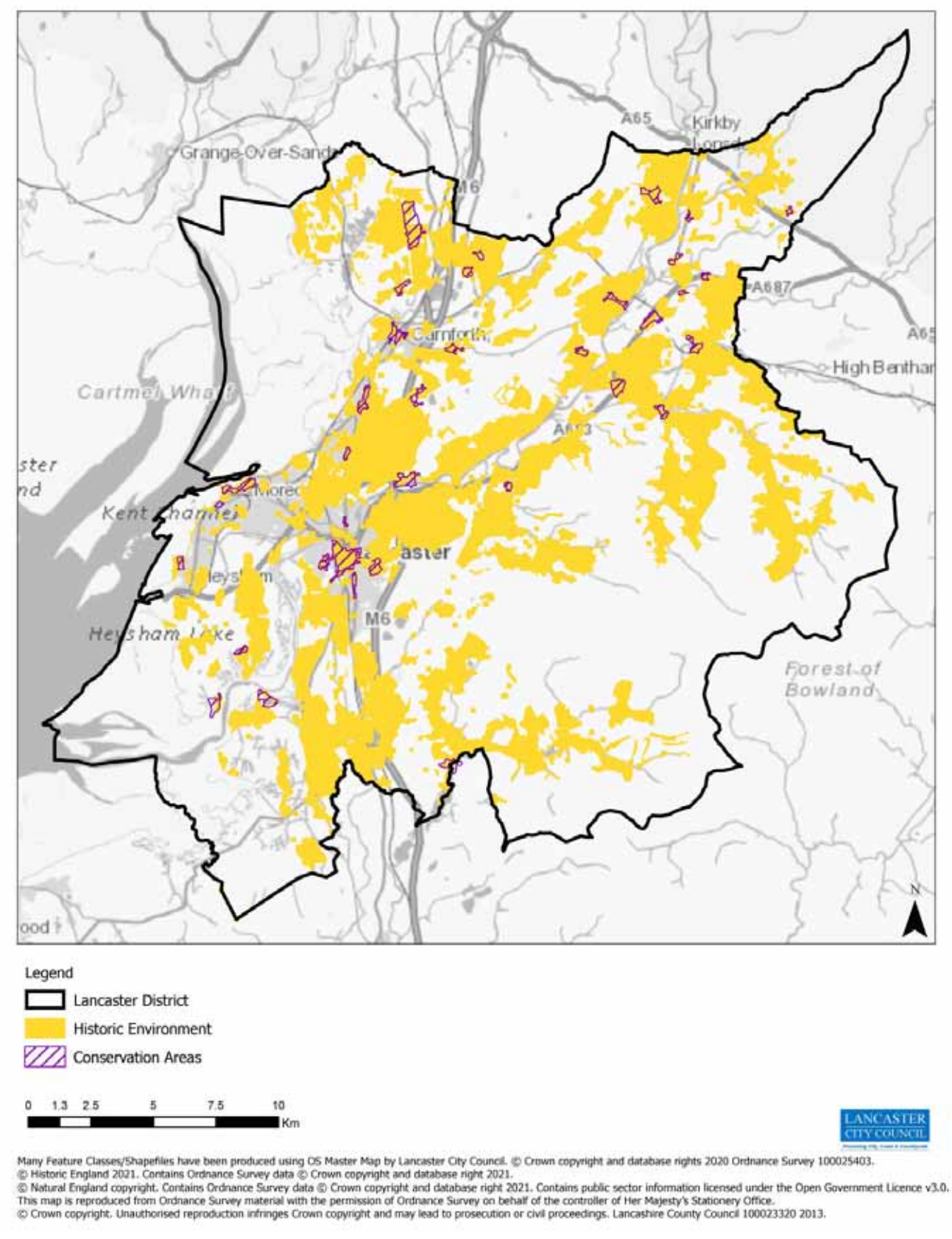


Figure 17: Map to show the extent of the existing 'historic environment' element of the GBI network.

Climate Change

How can the GBI network help to tackle climate change?

As set out at the beginning of this Strategy, the issue of climate change and how we adapt and mitigate to its impacts through the planning system is at the heart of the Local Plan Review. It is also a cross-cutting, fundamental consideration within each of the six overarching themes identified through this GBI Strategy, as they each have a role to play when it comes to tackling climate change.

Table 12 below demonstrates how the GBI network, by looking at each of the key themes in turn, can help to achieve the ultimate aim of mitigating and/or adapting to the challenges the Lancaster District may face as a result of climate change.

To clarify what is meant by the terms 'mitigation' and 'adaptation' in the context of climate change, the definitions set out within the NPPF's Annex 2 Glossary, and reiterated within the RTPI's 'Rising to the Climate Crisis' paper are set out below[24]:

Climate change adaptation:
Adjustments to natural or human systems in response to the actual or anticipated impacts of climate change, to mitigate harm or exploit beneficial opportunities.

Climate change mitigation:
Action to reduce the impact of human activity on the climate system, primarily through reducing greenhouse gas emissions.

Topic	How can it help **mitigate** climate change?	How can it help **adapt** to climate change?
Recreation/ Accessible Greenspace	Appropriately maintained green space absorbs CO2 from the atmosphere, thus reducing emissions. Green spaces can provide opportunities for food growing, so that people can enjoy locally sourced homegrown produce, reducing food miles to help mitigate against impacts of climate change.	Increasing and maintaining the quality of green spaces in urban areas improves the microclimate and air quality which mitigates heat extremes, as a result of climate change impacts. Open green space manages surface water run-off providing storage for excess water, particularly in urban areas. They can also temporarily store storm water and aid with infiltration. Soil quality enhancement in allotments reduce the risk of food insecurity, by reducing stresses caused by climate change. Community and private food growing spaces, such as allotments, reduce the risk of food insecurity by decreasing stresses caused by climate change.

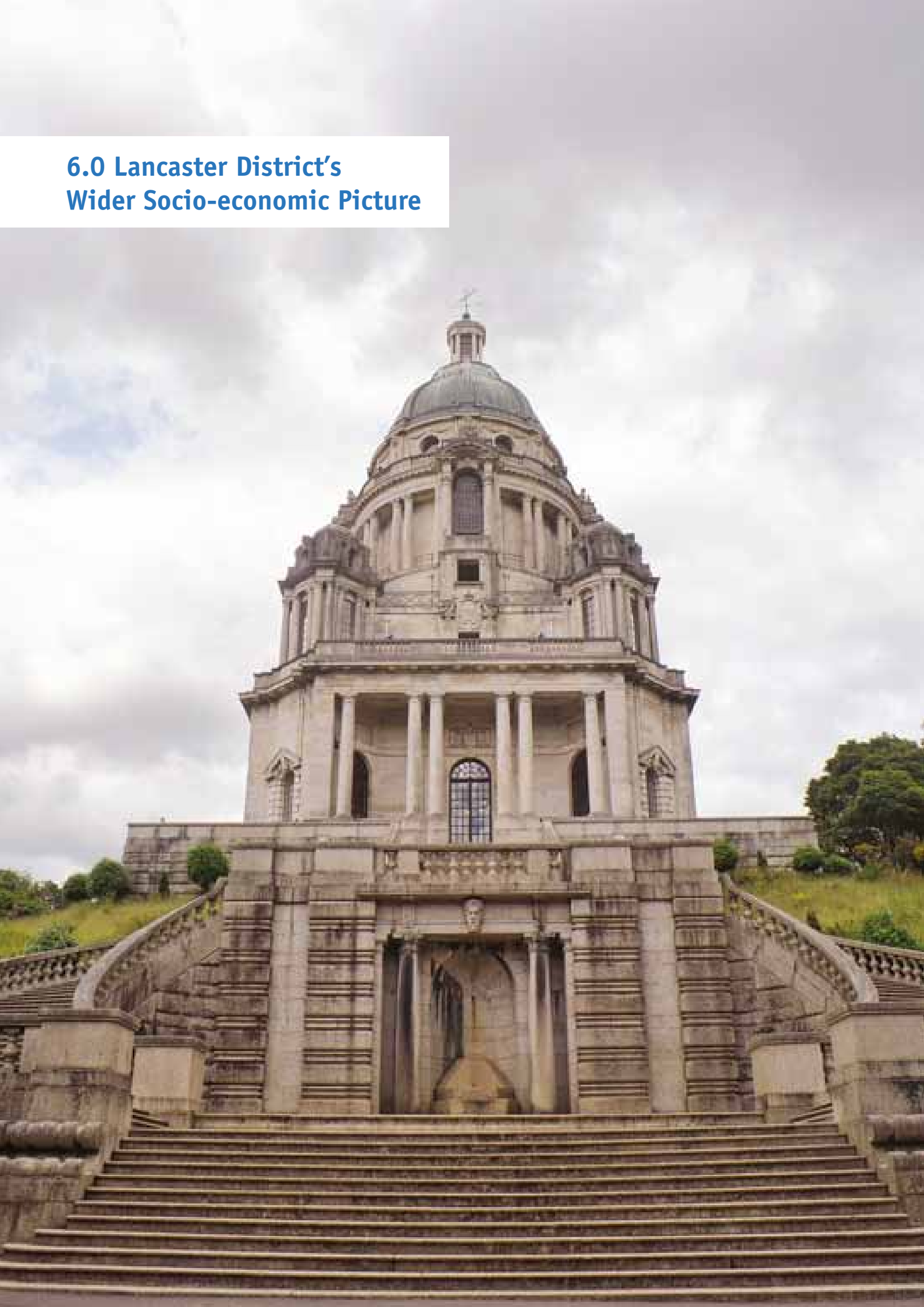
[24] PfCCv2-Web.qxd (rtpi.org.uk)

Topic	How can it help mitigate climate change?	How can it help adapt to climate change?
Ecology & Biodiversity	Appropriately maintained peatlands, wetlands and coastal ecosystems play a crucial role in absorbing CO2 from the atmosphere, thus reducing emissions and mitigating climate change. Green infrastructure, such as trees, can help to stabilise soil (particularly on slopes) so they can better support habitats and withstand (mitigate) the impacts of climate change.	Peatland, wetland and woodland maintenance and restoration reduces flood risk as they increase the water retention capacity and intercept rainfall, which slows the infiltration process. Cultivating diverse forests reduces the risk of fires; an increasing threat of climate change impacts. Coastal ecosystems provide natural shoreline protection from storms and flooding. Preserving and enhancing the natural ecological structure reduces vulnerabilities and increases resilience of ecosystems and biodiversity to climate change impacts. This enhances and prolongs the mitigation and adaptation measures mentioned above.
Landscape	Appropriately maintained green space absorbs CO2 from the atmosphere, thus reducing emissions. Peatlands and saltmarshes can act as particularly valuable carbon stores. Increasing tree coverage can help to increase shading which reduces ground level temperatures, mitigating the impacts of climate change. Trees, can help to stabilise soil (particularly on slopes) so they can better support habitats and withstand (mitigate) the impacts of climate change.	Using appropriate agricultural and forestry practices increases water retention capacity, subsequently reducing flood risk in urban areas. Green infrastructure, particularly trees, can act as a barrier between a pollutant source and a receptor, adapting to the impacts of climate change. Natural features in the landscape, such as trees and hedgerows can act as wind shelters, as a means of adapting to a changing climate. Trees also provide shading and cooling to the immediate environment, allowing humans and nature to adapt to the increasing temperatures as a result of climate change.

Topic	How can it help mitigate climate change?	How can it help adapt to climate change?
Water management/ Space for water	Blue spaces can contribute towards urban cooling, mitigating the impacts of climate change. Blue spaces can harvest rainwater, which can then be re-purposed, whilst also mitigating the impacts of climate change.	Water management using trees and SuDS mitigates the flood risk resulting from climate change through rainfall interception, increased soil infiltration, water uptake, water storage and the delay of peak flows, all of which reduce the quantity of water requiring management. (Green spaces upstream can be used to hold floodwater) Maintaining quality of the canal, rivers and reservoirs will ensure a stable water storage capacity to reduce flood risk. This is under the jurisdiction of the Environment Agency however. Maintaining the quality of reservoirs and implementing certain SuDS, such as rainwater harvesting systems, will reduce the risk of water stress and insecurity resulting from climate change-induced droughts.
Sustainable Transport	Increasing the number of journeys made via sustainable transport by enhancing and extending active travel corridors reduces the amount of greenhouse gas emissions, therefore mitigating climate change.	Implementing green corridors with permeable surfaces for active travel corridors enables the infiltration of water, as opposed to water run-off from hard impermeable surfaces, facilitating adaptation to the impacts of climate change.
Historic Environment	Appropriately maintained green space absorbs CO2 from the atmosphere, thus reducing emissions. New street trees, especially large-growing species, will lock up carbon for their lifetime of 100 years or more. Some species more appropriate for our historic townscape than others - for example large and small leaved lime.	Many of the above adaptation examples apply to how GBI within the historic environment can adapt to climate change whilst sensitively considering the heritage value.

Table 12: Ways in which each of the key themes can contribute towards climate change mitigation and adaptation.

6.0 Lancaster District's Wider Socio-economic Picture



6.0 Lancaster District's Wider Socio-economic Picture

The socio-economic context is a very pertinent consideration for a GBI Strategy being drafted in 2020/21. A year where the availability and accessibility to green and blue spaces came to the forefront of everyday life for the vast majority of the UK population, as people became reliant upon these areas for their daily doses of fresh air and exercise during the lockdown restrictions imposed as a result of the Covid-19 pandemic. A survey undertaken by Natural England revealed that during April-June 2020 almost nine in ten adults in England reported that protection of the environment is important to them personally[25]. "Four in 10 adults reported spending more time in nature than before the coronavirus pandemic, with health and wellbeing being amongst the main reasons for getting outside"[26]. Whilst recognition of the value of such spaces may have increased, losses of income and volunteer hours during the pandemic have been experienced across the country and so these precious assets need more support[27]. Therefore, there is a pressing need to protect, enhance and extend the provision of GBI in the Lancaster District.

GBI has the ability to positively impact multiple socio-economic circumstances, and it is an ever-greater necessity in areas with a high population density. The understanding of this need has been heightened by the Coronavirus pandemic, with the realisation of inequalities in access to green space. GBI enhancements can reduce food insecurity and crime, as well as improve physical and mental health.

By mapping the population density, food insecurity risk, crime levels, employment levels, income levels and health, we can distinguish which areas require greater enhancements to reduce general deprivation and inequality in access to green space.

Quality of Life

Population Density

The highest population densities can be found in the Primrose area of Lancaster (17,150 People per Sq Km) and the Sandylands area of Morecambe (14,042 and 12,510 People per Sq Km). This is followed by the Golgotha, Freehold, Bowerham, Moorlands, Bulk, Marsh and the Greaves areas of Lancaster, Skerton and Ryelands, central Morecambe and its West End and centrally; ranging from 5593 People per Sq Km to 10,560 People per Sq Km. Therefore, these are the areas where green space enhancements and expansions must be concentrated, to ensure that those in areas of high population density have their needs met in terms of access to green space.

[25] Public love for nature during Covid-19 highlighted by new survey - GOV.UK (www.gov.uk)
[26] Public love for nature during Covid-19 highlighted by new survey - GOV.UK (www.gov.uk)
[27] Financial impact of COVID-19 on parks and green spaces - Leeds City Council | Local Government Association

Population Density across the District of Lancaster

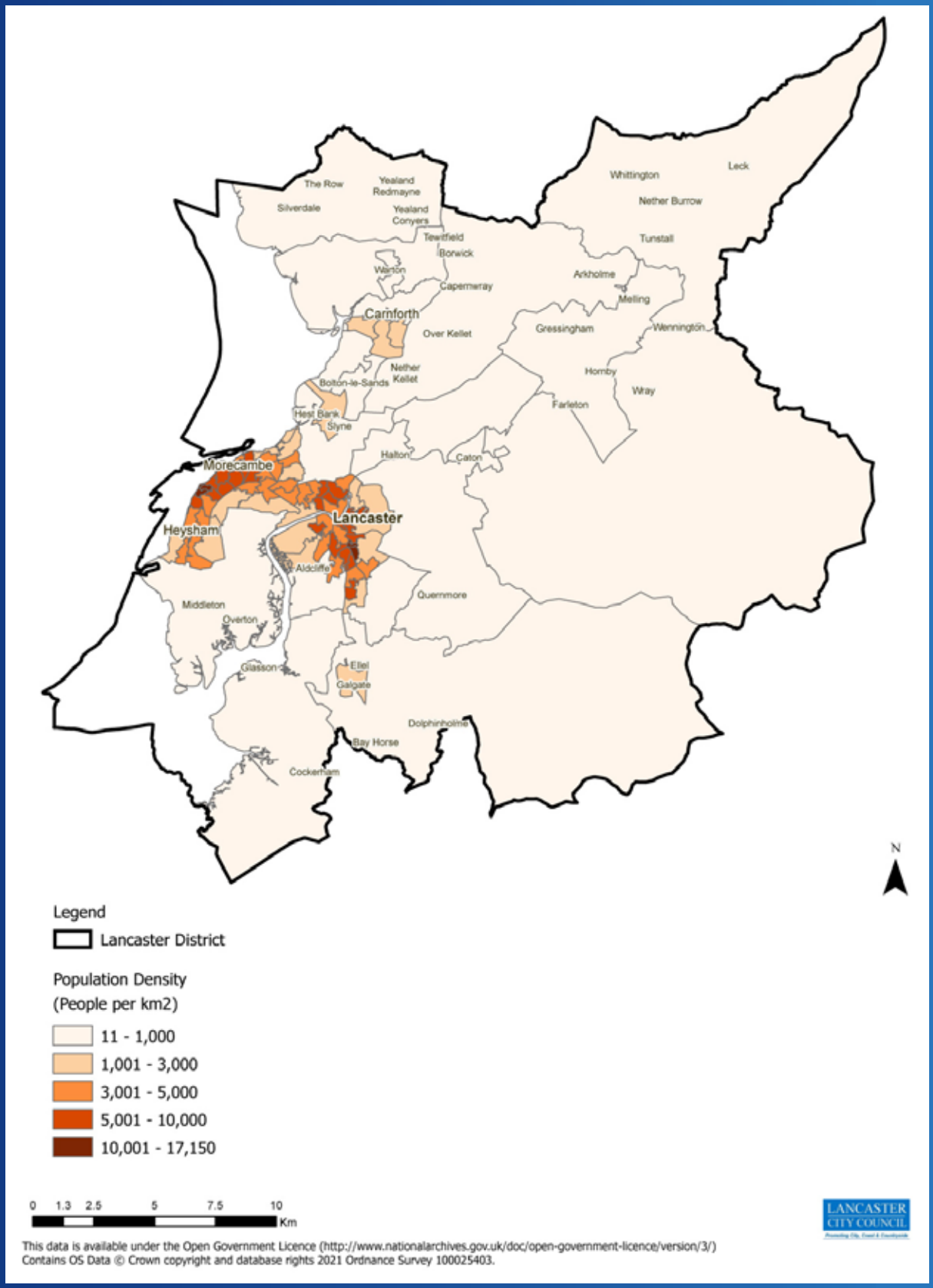


Figure 18: Map to show population density across the Lancaster District.

Food Insecurity

Our food insecurity mapping deducted that food insecurity risk was highest in and around Morecambe, Skerton and Heysham. In Heysham, 19% of the population were at a higher risk of food insecurity, rising to 25.5%in Skerton, and up to 29% in Morecambe. The remaining areas of the District fell below 16.5%. Therefore, there is a stark contrast, with the risk of Morecambe's population being two-thirds greater than the District average. Food Poverty was already a priority issue in the Council's Ambitions plan 2018-2022 prior to impacts from the Covid-19 pandemic. The Lancaster District Food Poverty Alliance Five Year Action Plan (2021) identifies the need for community food provision through community food growing and provision of places to grow food such as allotments, gardens, and community growing spaces. Research indicates that these growing spaces can improve the quality of diets, secure access to fresh food, reduce household food costs and improve gardener's physical and mental health[28]. The E-Food desert index from the Consumer Data Research Centre and University of Leeds, as shown in Figure 19 below, highlights the areas of the District which are food deserts[29]. The areas which score highest also tend to be those where residents also experience higher risk of food insecurity. This indicates that there is a significant need for targeted GBI provision to support residents experiencing food insecurity and residing in food deserts.

[28] https://www.sciencedirect.com/science/article/pii/S1353829200000137?casa_token=eiezTMelQXMAAAAA:Chyu-lbYawpFie9xyMVOr484Esm5efpXUXtbH0d9mI6BjOKzSo5GPXwPX6awuvvYHLeXUf6tfiM

[29] CDRC Maps: E-Food Desert Index

Risk of Food Insecurity across the District of Lancaster

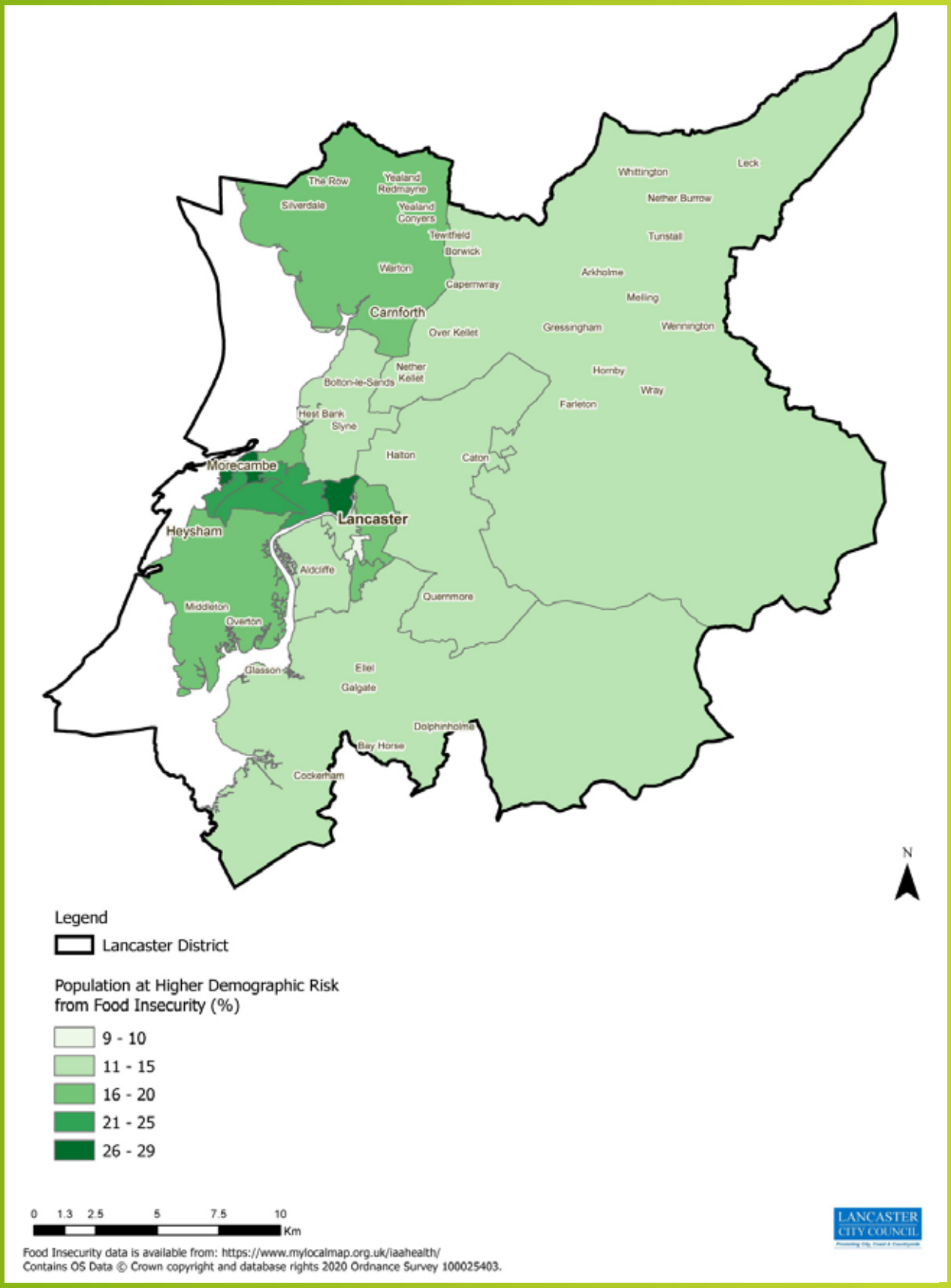


Figure 19: Map to show the population of Lancaster District most at risk of food insecurity.

Deprivation

Crime rank deprivation mapping indicates that the areas of highest crime are Morecambe, Skerton, Heysham, Carnforth, Lancaster City Centre, and the Marsh, Ridge, Bulk and Freehold areas of Lancaster. This pattern is repeated in the employment rank, income rank, and health rank mapping; showing that lower levels of employment, income and health exist in the areas. These circumstances are impacted by a multitude of factors, including each other. Research shows that enhanced green space, and better access to it, can alleviate crime levels, and improve the physical and mental health of the population; particularly in those areas where employment and income levels are lower, as they are more likely to suffer from mental health problems.

Index of Multiple Deprivation: Health Rank Score across the District of Lancaster

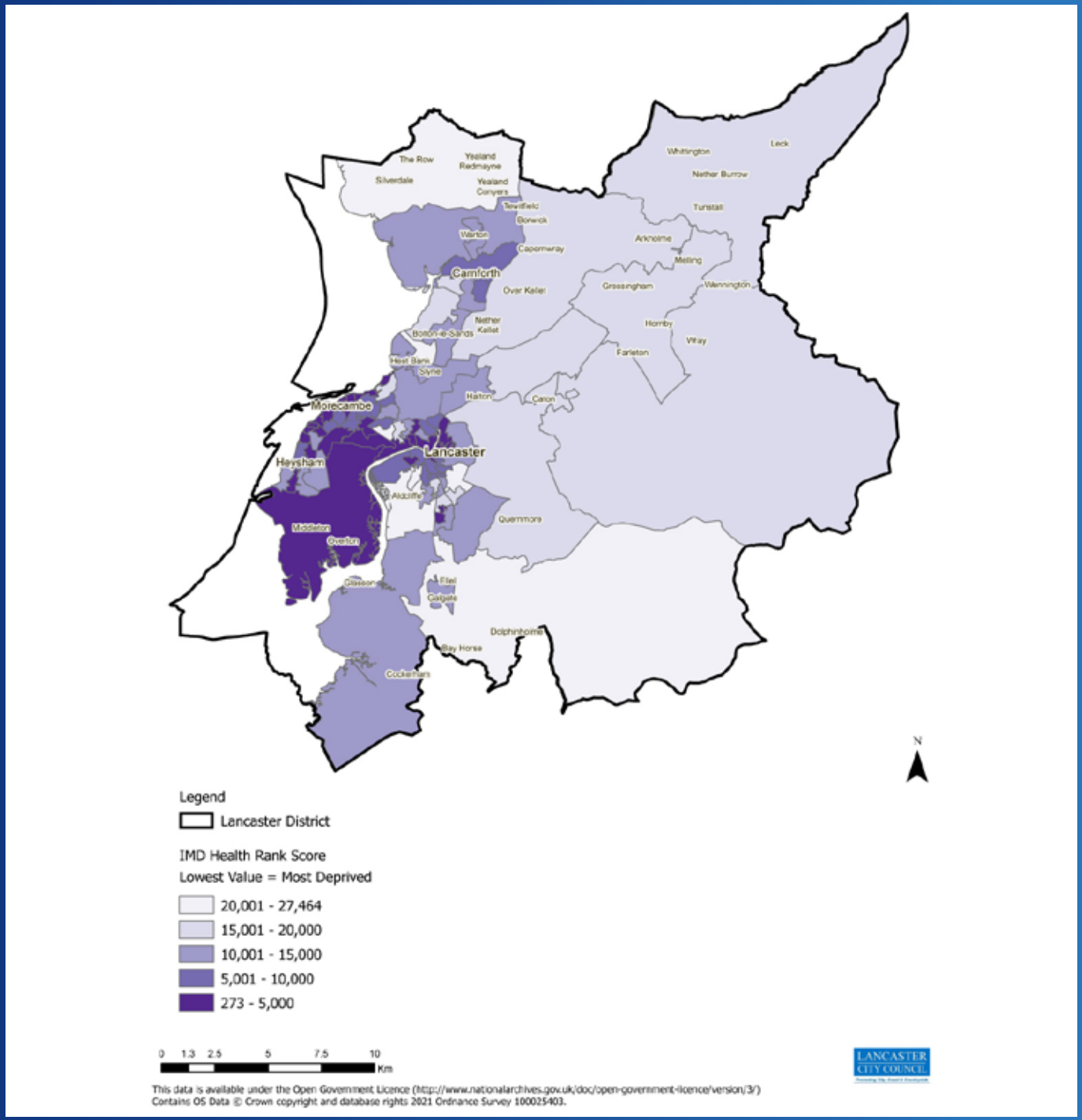


Figure 20: Map to show index of multiple deprivation health rank scores across the Lancaster District.

Open Space Provision

Back in 2017/2018 when KKP were carrying out the Open Space assessment work, an element of the study involved a community survey. Respondents were asked to rate the importance of open space to them, the results of which are shown in Figure 21 below.

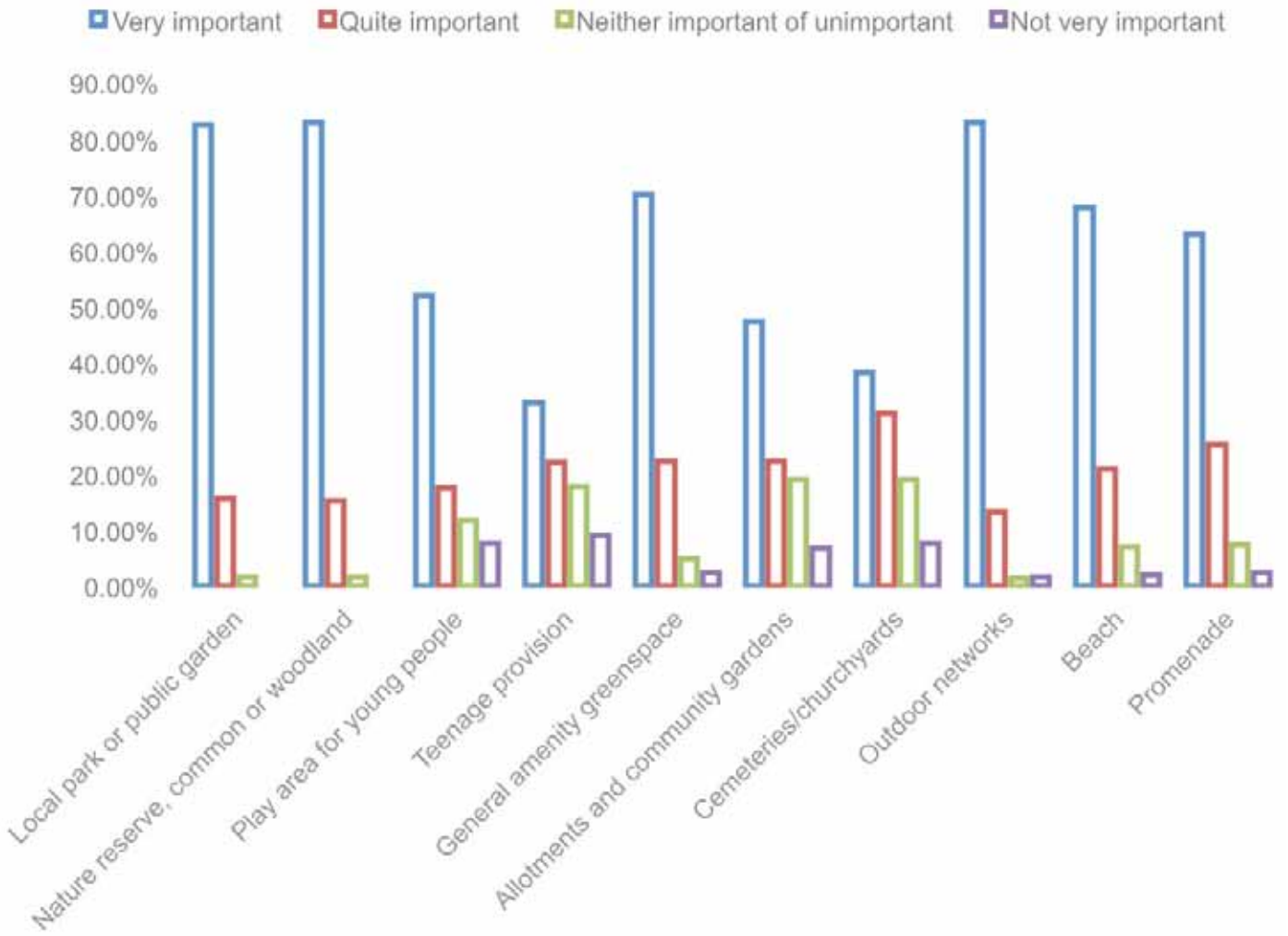


Figure21: Results of Community Survey carried out by KKP as part of the Lancaster District Open Space Assessment (2018)

It is recognised that if this survey was to be undertaken now, the results may be different again given the impact Covid19 has had on people's use of open spaces. However, these results highlight that even back in 2017/2018 (pre-pandemic) open space was recognised as important. In particular, outdoor networks (83%), local parks and gardens (83%) and nature reserves (83%). Whilst play areas for young people, teenage provision, allotments and cemeteries returned more mixed responses, as stated in the KKP report, this likely reflects individuals use and knowledge of provision.

Appendix 3 sets out the open space deficiencies with regards to quantity, quality/value and accessibility that were identified through the Open Space Assessment produced by KKP in 2018. (Where a site visit was undertaken, the quality and value of these spaces has been assessed, the results of which are shown on the interactive policies map).

Open Space Accessibility

It is important to recognise that it is not only the availability of open spaces that needs to be considered, but also their accessibility, physically. During the Stakeholder Workshops held in February 2021, it was highlighted that not all open spaces are accessible and open spaces closer to people's homes could be made more accessible (for example school fields). This will be explored further as the GBI Strategy evolves. However, it is important to bear in mind that the planning system cannot control or influence land ownership.

In Heysham and the Ridge, Bulk and Freehold areas of Lancaster, there is greater access to woodlands, but less access to playing fields.

Whereas the opposite is true for Morecambe, Skerton and Carnforth. The mapping also designates numerous areas as 'Public Open Space'. However, from viewing satellite imagery, these areas appear inaccessible to the public, and therefore are likely to be underutilised. Having a lack of GBI, and an absence of variety, restricts who will enjoy the space, and the frequency at which it is used. As a result of the GBI mapping exercise, through this Strategy, the aim is to ensure such issues are addressed.

As part of the Open Space Standards Paper produced by KKP following the Open Space Assessment, a series of accessibility standards were established for each open space typology and are set out in Table 13 below, which should be utilised when assessing the accessibility of open spaces.

Open Space Typology		Hierarchy	Accessibility Standard
Parks & Gardens		Urban	To be within 15 min walk
		Rural	All Sustainable Settlements to be within 15 min drive
Natural & Semi-natural Greenspace		Urban	To be within 15 min walk
		Rural	To be within 30 min drive
Amenity Greenspace		Urban	To be within 12 min walk
		Rural	All Sustainable Settlements to be within 12 min walk
Provision for Children and Young People	Children's Play	Urban	To be within 10 min walk
		Rural	All Sustainable Settlements to be within 10 min walk
	Young People's	Urban	To be within 15 min walk
		Rural	All Sustainable Settlements to be within 15 min walk
Allotments and Community Gardens		Urban	To be within 15 min walk
		Rural	All Sustainable Settlements to be within 15 min drive

Table 13: Open space accessibility standards established through the Open Space Standards Paper produced by KKP in 2018.

Air Quality

Green infrastructure can also play a positive role in the mitigation of air quality. This is highlighted through the planning practice guidance which recommends Local Plans to consider "opportunities to improve air quality or mitigate impacts such as through…green infrastructure provision and enhancement"[30]. Acknowledging that green infrastructure, in particular trees, can create a barrier or maintain separation between sources of pollution and receptors. The creation and enhancement of GBI cycling and walking corridors can also help to facilitate the transition from private vehicles to more sustainable modes of transport, reducing the number of vehicles on the roads (with nitrogen dioxide from vehicle emissions being the main cause/pollutant source which has resulted in the designation of three Air Quality Management Zones within the District). By improving air quality, this subsequently improves people's quality of life, breathing in fresher air.

Greater Economic Output

It is recognised that the Lancaster District has a very self-contained labour market area, with approximately 77.2% of its residents living and working within the District[31].

Within the Local Plan a number of employment sites have been allocated to protect existing employment premises, 14 within the urban areas (Lancaster, Morecambe, Heysham and Carnforth) totalling an area of approximately 283ha, and 7 within the rural areas covering 16.5ha. The Local Plan, through policy EC2, has also allocated land for future employment. With approximately 18.7ha in South Lancaster, 38.8ha around the Heysham Gateway area and 2ha in North Lancaster.

Employment rank deprivation mapping indicates that the areas of lowest employment levels are Morecambe, Skerton, Heysham, Carnforth, Lancaster City Centre, and the Marsh, Ridge, Bulk and Freehold areas of Lancaster. Research shows that enhanced green space, and better access to it, can improve the physical and mental health of the population, particularly in those areas where employment levels are lower, as they are more likely to suffer from mental health problems. For those employed, research also shows that access to green space near your place of work increases productivity and concentration, lessens fatigue, encourages engagement, nurtures positive co-working relationships, increases the capacity to achieve goals, and improves creativity. These positive wellness attributes subsequently boost economic output. Therefore, a thriving GBI network is beneficial for economic growth. The two are often seen as competing objectives, but evidentially, they can complement one another.

There are evidently key linkages with climate change and subsequent benefits that can be achieved to help ensure future employment development proposals coming forward ensure the GBI network is as robust as possible.

[30] Air quality - GOV.UK (www.gov.uk)
[31] Ref in 2019/20 AMR

Lancaster District's Development Strategy

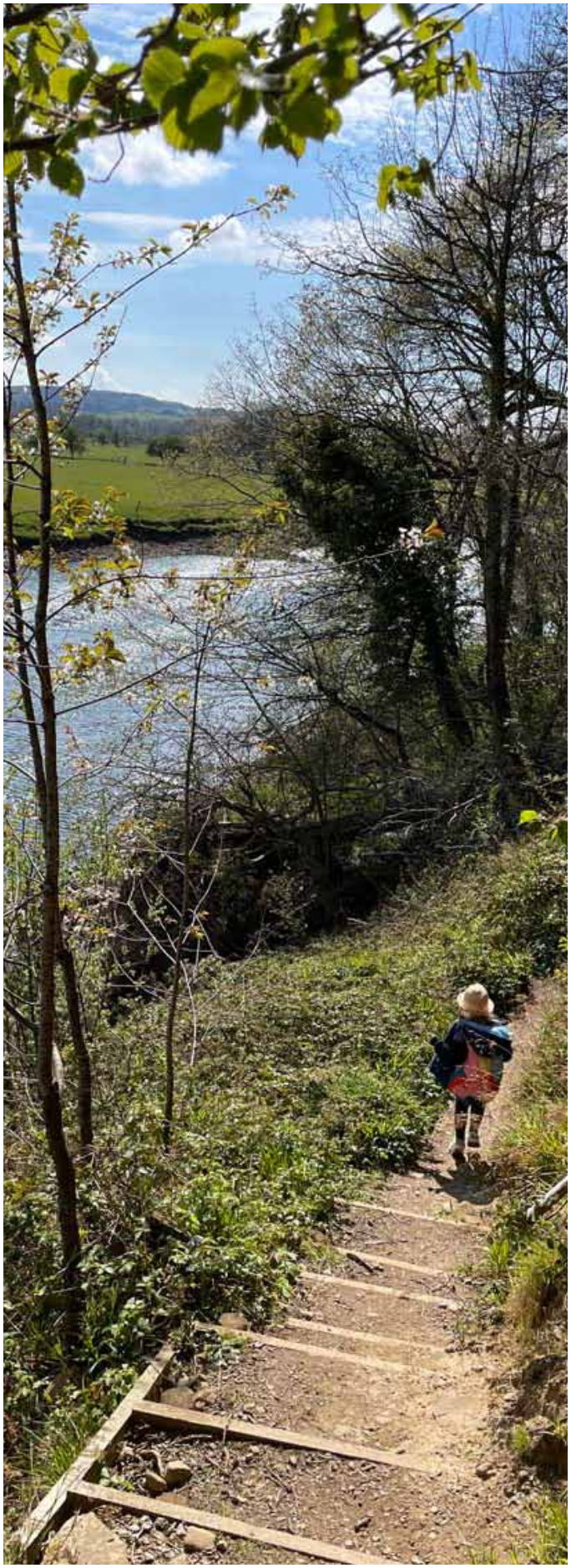
Whilst Lancaster is a predominantly rural District, the majority of the population do live within the urban areas. Understandably due to their nature and scale, the urban areas of Lancaster, Morecambe, Heysham and Carnforth are considered to be the most sustainable locations for development due to their role and function within the District arising from their level of service and infrastructure provision (as outlined within the settlement hierarchy in policy SP2 of the Strategic Policies and Land Allocations DPD). However, that also means that in such locations the development pressures upon land and consequently GBI assets, in these areas are greatest.

The adopted Lancaster District Local Plan identified for strategic sites:

- South Lancaster Broad Location for Growth (greenfield)
- East Lancaster (greenfield)
- North Lancaster (greenfield)
- Land at Lundsfield Quarry, Carnforth (brownfield)

Given the scale and location of these allocations, they present a valuable opportunity to incorporate green and blue infrastructure (GBI) corridors and chains at the landscape-scale and deliver multiple benefits, environmentally, socially and economically. GBI should be the core starting point of their design, to protect, restore, enhance, extent and create valuable GBI assets. Potential opportunities can be explored utilising the interactive GBI mapping.

Therefore, when determining where opportunities should be sought to improve (enhance and/or extend) the GBI network to make it more resilient in the face of climate change, these areas should be a key consideration as GBI can provide a valuable lifeline for many living within these built up areas.



7.0 The Strategy (Findings and Recommendations)

7.0 The Strategy (Findings and Recommendations)

Historically green and blue spaces have been addressed, and subsequently mapped, in isolation, with limited consideration given to the interactions between their functions and their role in the wider network. Yet, when a site has been looked at to assess it's availability, suitability and deliverability as part of the Strategic Housing and Employment Land Availability Assessment (SHELAA) all of these factors have been taken into consideration. Therefore, the aim of this Strategy has been to draw together all of the different uses of green and blue spaces, acknowledging their different types, but most importantly, highlighting their multifunctionality and the multiple benefits they can produce, and the value of these spaces being connected to build up a resilient, wider network.

"This Strategy seeks to make the most of our District's green and blue spaces, and ultimately make them the best they can be. We want green and blue spaces to shape the form of development, and be an integral part of the design process, instead of being an after thought based upon what space is left."

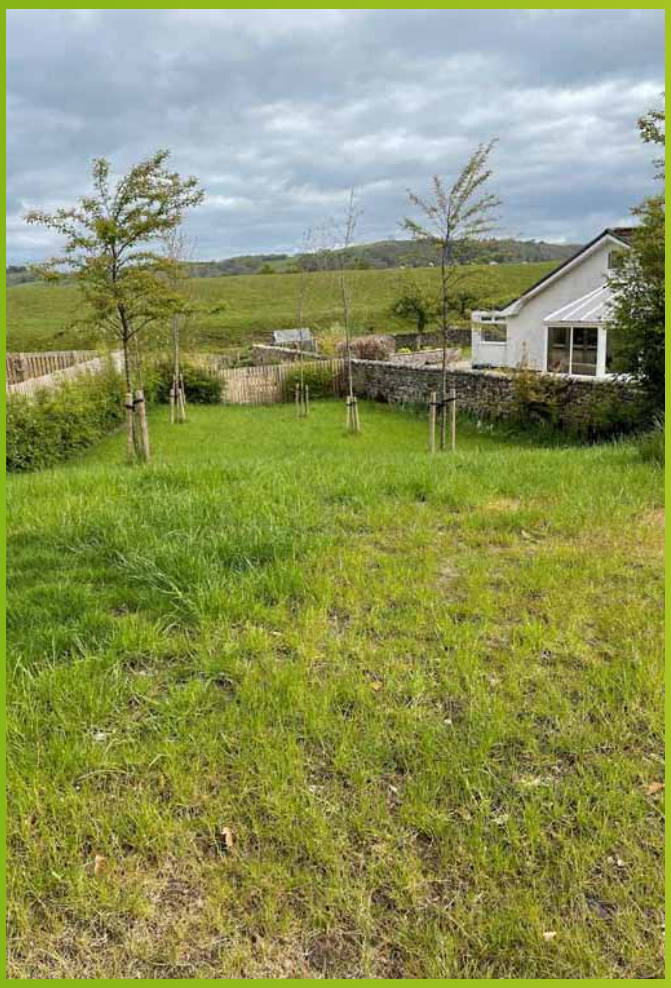


Figure 22: Image on left shows area of greenspace with trees planted in the middle – it is unclear how this space can be used now and in the future. Whereas image on the left shows a multi-functional retention pond.

This will then help to create genuinely sustainable and resilient networks, that are multifunctional and the most 'useful' they can be, for both nature and humans. This in turn will help to ensure the GBI network is as robust as possible to mitigate and adapt to the impacts of climate change.

This Strategy therefore seeks to highlight how perceived different uses of green and blue spaces can in fact be integrated to generate greater benefits, and ultimately more efficient uses of finite space. Although it is recognised, that 'more' is not necessarily 'better' and so how the different purposes may operate and work together needs to be carefully considered, to ensure it is not to the detriment of a key function. Otherwise, the network will have the opposite of the desired effect by causing connections and spaces to degrade.

The Overall Existing GBI Network in Lancaster District

The map below in Figure 23 demonstrates the current distribution of all of the GBI assets that have been mapped under each of the key themes.

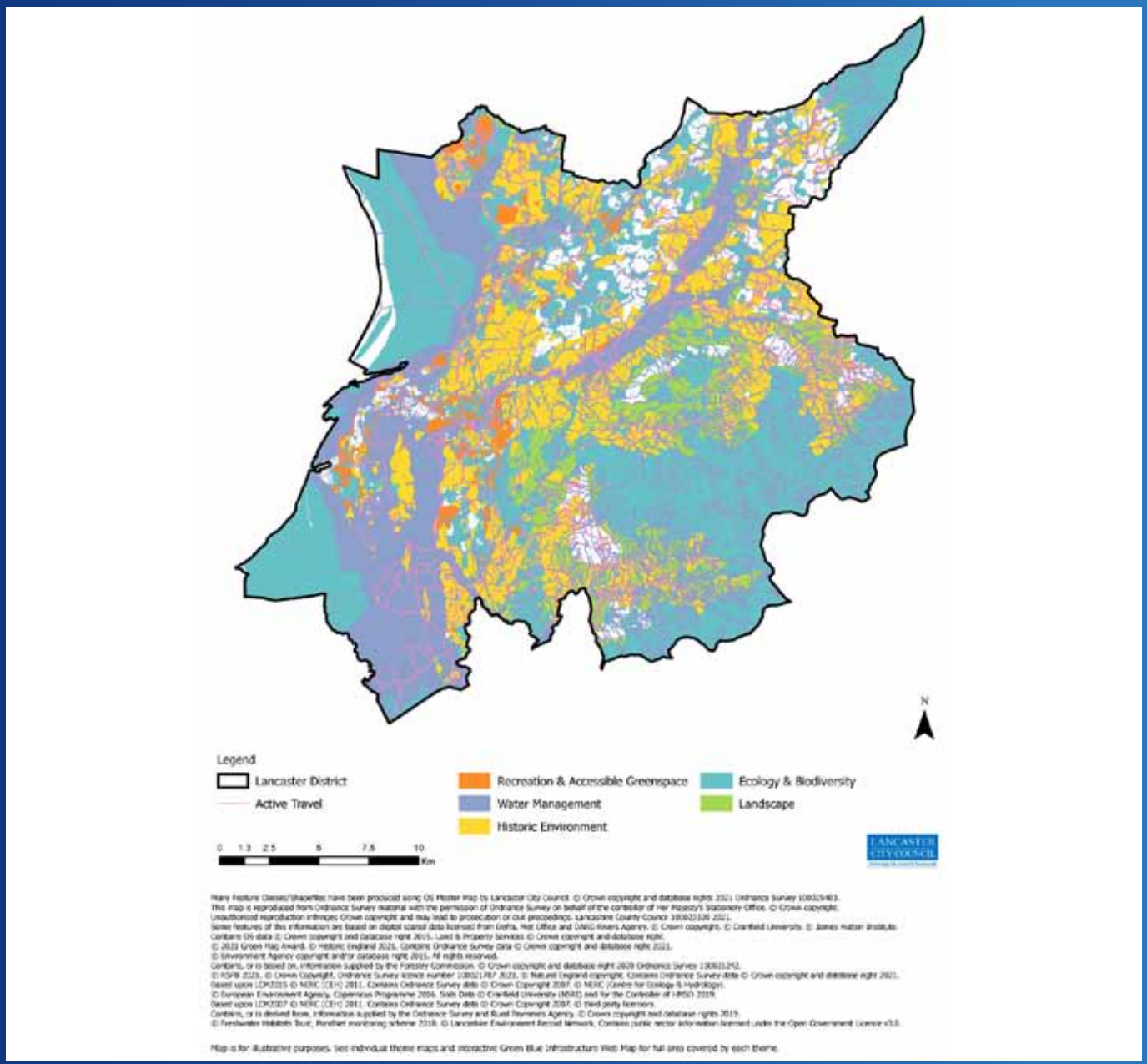


Figure 23: Map to show the full extent of the existing GBI network across the Lancaster District.

Whilst Figure 23 demonstrates that GBI assets do cover a significant area of the District, which in itself is a positive sign, we should not stop there. Not only is it important that these GBI assets are protected, they need to be enhanced, extended, and where there are gaps, created. Not only do we need to consider the quantity, but also the quality/value, functionality and accessibility of these assets. This Strategy therefore aims to ensure these spaces are functioning at their maximum potential. It also seeks to highlight where there may be particular gaps or weaknesses that need addressing. The map in Figure 24 shows how these GBI assets across the District provide multiple functions.

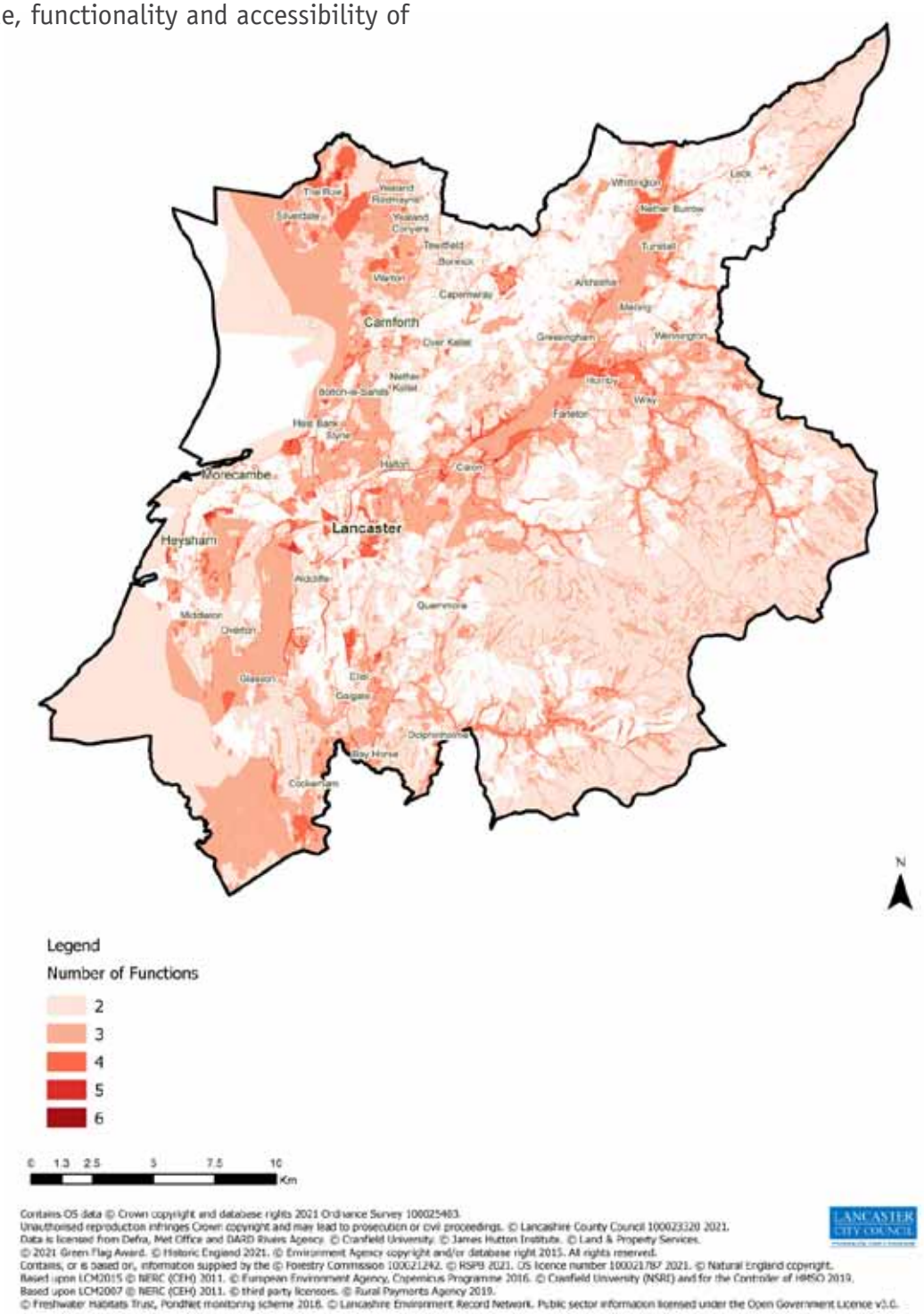


Figure 24: Map to show the multifunctionality of the Lancaster District GBI network

(Please note it is recognised that not all functions have been captured on this map. This map is based upon the data mapped for each theme and it is understood that a dataset can be applicable to more than one theme, but for the purposes of clarity when using the online GBI interactive map, in most cases a dataset has only been mapped for one theme– therefore this map should be seen as indicative of the minimum number of functions)

Analysis of the Existing GBI Network

Having identified and mapped our understanding of the current provision of GBI within the Lancaster District that makes up the existing GBI network, the next stage is to explore for each key theme:

- **Key Issues** – what are the particular concerns in relation to GBI that need to be addressed

- **Objectives** – set out what actions should be established to address these specific GBI concerns

- **Emerging Opportunities** – identify ways in which these objectives can be achieved (i.e. what are the 'emerging opportunities' that could be explored?). **The accompanying interactive GBI map demonstrates spatially where such opportunities (for either enhancement or extension) could be delivered, based on the thematic approach** (points marked with an * below have not yet been mapped and are to be explored). Appendix 4 sets out specific actions, providing project examples, as to how these objectives can be delivered on the ground.

The analysis of the existing GBI network has been informed by the mapping exercise, and also through the discussions that have taken place with key stakeholders (either through the survey or during the workshops).

Recreation/Accessible Greenspace

Key Issues

- Need to protect existing green spaces, particularly where there are development pressures
- Green spaces that lack the support and backing of community/friends groups can struggle with issues such as management and maintenance because these groups take on a stewardship role looking after and tending to green spaces for the benefit of the wider community.
- Need to take a holistic and controlled approach towards how we use and manage land because offsite issues (such as poor drainage) can cause unintentional issues on nearby/adjacent green spaces (such as flooding). Important to adopt a 'we' collective approach and to promote collaborative working.
- Education around land management practices and food growing is important, accompanied by upskilling of such practices
- Correlation between lower levels of deprivation and food poverty and areas where there is poorer access and availability of recreational green spaces and food growing spaces (as shown on the interactive map and explored further in Section 6)
- Need to focus on degraded spaces, it's not always all about quantity; the quality and value of open spaces are important too
- Not all green spaces are accessible to the public for recreational purposes, it is understood that a significant proportion of green spaces within the District are privately owned
- Issues around the management and maintenance of green spaces can be a cause for concern. There are concerns amongst communities about what happens if they are managed by a private management company and that company goes into liquidation
- Need to balance multi-functional uses to ensure the value(s) of green spaces are not lost. More is not necessarily better, and so different uses need to be carefully balanced to ensure they are compatible

Objectives

1. Ensure everyone has equal/fair access to high quality, well maintained and safe green spaces, that are connected to the wider GBI network, to help narrow the gap between the health and wellbeing of the District's residents

2. Ensure the open space, playing pitch and outdoor sport deficiencies (quantity, quality/value and/or accessibility) identified through the KKP Open Space Assessment and Playing Pitch Strategy are addressed, and the Open Space standards are met and delivered

3. To support and enhance the efforts of numerous local community and friends groups working on GBI projects across the District, including new open spaces brought forward through development

4. Create spaces for communities to be able to grow their own food, to raise awareness and education around such practices, promote community cohesion and support people's health and wellbeing

Emerging Opportunities

- Council to continue working with local friends and green groups, and where a new space is provided as part of a development, look to encourage the creation of a community group for that new green space
- Through the Planning System ensure development on a site considers the impact it may have upon neighbouring land uses, or in the case of water management, investigate where water from the site may drain to offsite/further downstream
- Utilise KKP assessments that have been mapped to identify areas deficient in open space provision (such as west end of Morecambe and Skerton), playing pitch provision, and also those sites where enhancements are required to improve their quality/value
- Council to support the creation of new green spaces where there is currently a deficit
- Look to establish an Action Plan to sit alongside this Strategy that sets out offsite open space/playing pitch projects (linking to the most up-to-date Playing Pitch Strategy Action Plan) that will help to fulfil identified recreational deficiencies (enhancement or new provision) that cannot be met onsite
- Encourage community greening and food growing (orchards and allotments) through the delivery of community-led and focussed green infrastructure projects
- Create food growing opportunities within Morecambe, Heysham and Skerton where food insecurity is greatest (such as the micro-garden project in the West End of Morecambe)
- Further understand the accessibility of the District's green spaces by exploring land ownership to determine which land is publicly accessible and which land is private
- Require a Management and Maintenance Plan to be submitted with planning applications that sets out how the green and blue infrastructure assets within the development proposal will be looked after in perpetuity, or for at least 30 years
- Undertake a District-wide Allotment Review
- Council's Public Realm department to hold habitat surveys days (also known as public 'Bioblitz') to count species on Council owned green spaces to raise awareness of their importance and value and better understand the impacts of land management practices upon species distribution (in accordance with the Council's emerging Grassland Management Strategy)
- Council is setting up a Tree Warden scheme working with the Tree Council and also upskilling people in growing food and plants in the Council's Polytunnels
- Have Masterplans in place for all sizeable open spaces within the District which set out a specific plan for the protection of existing GBI and opportunities for enhancement/extension of GBI assets to ensure they continue to deliver the benefits they can provide.

Ecology & Biodiversity

Key Issues

- Protect Priority Habitats (locations of which are identified on the GBI interactive map) and subsequently protected species
- Carefully consider potential impacts of new development upon protected species, and in which locations within the District they are potentially most under threat of species loss (e.g. ash dieback). A particular consideration for areas in the Lancaster District is the impact upon Pink-Footed Geese.
- Recreational pressure on Morecambe Bay increasing levels of disturbance/displacement to birds (upon wading birds and roosting areas)
- Impact of new development upon land that is functionally- linked to a designated site and also high-tide roosts
- Recognise the importance of connections/ corridors and facilitating the ability for wildlife to move between habitats to enable species to adapt and relocate if necessary in response to changing and more extreme weather conditions as a result of climate change
- Highlight ecological value of other green and blue spaces that aren't specifically formally designated for their ecological/environmental value but still may contain areas of ecological value (such as school playing fields, community green spaces, cemeteries, derelict land/brownfield sites, outdoor sports space, street trees)
- Consider from an early stage how development could contribute towards enhancing habitats for species (either new stepping stones or how could connect in to facilitate nature recovery (increasing and restoring nature)
- Recognise the importance of marine net gain as a coastal District
- Establish biodiversity/ecological baseline within the District – so know and understand the starting position to help account for losses and gains to enable effective monitoring of the network from an ecological perspective
- Ensure close working relationship with the Lancashire LNP now that it has been re-launched
- Ensure transparent data sharing in the many projects that are taking place that affect green and blue spaces within the Lancaster District from an ecological perspective (where appropriate to do so) and collate details of ongoing/upcoming projects. A collaborative approach will assist in building up the bigger ecological picture.
- Increase awareness of the interlinkages between wildlife and mental health (now a recognised form of NHS prescription)

Objectives

1. To provide a rich, diverse, expansive and well-connected ecological network as a foundation for the District's Local Nature Recovery Network and greater resilience to the effects of climate change (such as fragmentation and to combat the ecological crisis.)

2. To provide a clear context for the delivery of locally-appropriate Biodiversity Net Gain (BNG) in new development. Preferably onsite, and where demonstrated not to be possible to deliver onsite, locally offsite locations will be considered.

3. To implement mitigation measures to reduce recreational pressure on Morecambe Bay

Emerging Opportunities

- Utilise Natural England Habitat Network Mapping data to highlight 'network enhancement zones' and 'network expansion zones', which is based upon the Priority Habitat Index, to extend and enhance the existing GBI network from an ecological perspective
- Utilise Natural England Functionally Linked Land mapping to identify where land outside designated sites is used for protected species
- In accordance with the HRA for the adopted Local Plan (Part 1) investigate the impact of recreational pressure upon Morecambe Bay for housing developments within 3.5km and employment developments within 1.5km*
- Facilitate the delivery of Natural England's Lancashire District Level Licensing scheme that has recently been introduced for Great Crested Newts
- Better consider the ecological value that all green spaces could potentially provide (not just those that are formally designated) – all have an important role to play in providing stepping stones and corridors between these core areas and so this should be a key consideration when designing the layout of development proposals
- Map how development allocations fit in with the wider GBI network to demonstrate how development could contribute towards facilitating wildlife corridors or stepping stones for habitat
- Quantify losses and gains in biodiversity so that it is possible to monitor any changes effectively – Mandatory Biodiversity Net Gain will massively help with this
- Canals are becoming increasingly important wildlife corridors – for example through the installation of coir rolls which are floating reed and vegetation platforms anchored to the wash wall
- Explore with Natural England and the North West Wildlife Trusts Living Seas Team opportunities for marine net gain
- Work closely with Lancashire LNP moving forward
- Explore establishing a Lancaster District LNP Steering Group moving forward that includes LNP and other key stakeholders
- Where appropriate seek opportunities for rewilding to restore habitats and facilitate nature recovery
- Help support and facilitate the delivery of the Local Nature Recovery Network (including via Agri-environmental schemes)

Landscape

Key Issues

- Protect and conserve existing key landscape features i.e. important hedgerows, trees (including ancient, veteran and notable trees) and ancient woodland, that contribute towards landscape value
- Increase tree coverage within the District's urban areas (contributing towards 'urban greening')
- When planting new trees, it is important to ensure the right tree (species) is planted in the right place
- Whilst it is recognised that tree planting can enhance the landscaping and aesthetics of a site, consideration should also be given to the implications this may have upon safety and security (For example, along the Lancaster Canal this can be a concern in areas of deep cutting as these locations tend to be darker and unlit yet can be a haven for bats shaded by trees). It is important to strive to achieve a balance between the right lighting and visibility in the right locations
- Tree planting along the Lancaster Canal is limited due to its linear nature, with the potential to cause structural damage and increase shading which can have a knock-on effect upon wildlife living in the canal. Hedgerow management is considered more preferable with regards to planting and enhancing
- Ash dieback is affecting a significant number of ash trees in the District
- Increasing pressure from new development upon existing trees which can result in tree loss
- Natural England report that salt marsh erosion along the Lancaster stretch of Morecambe Bay has been rapid in recent decades
- Continue to address the absence of understanding in relation to the linkages between carbon stores/sequestration and land use (landscape type) i.e. saltmarsh and peatland (Natural England report that salt marsh erosion along the Lancaster stretch of Morecambe Bay has been rapid in recent decades)
- Concerns around the ability of landscapes to adapt to changes posed by climate changes whilst maintaining distinctive character

Objectives

1. To increase tree canopy cover across the District to achieve the Council's ambition of planting 1 million trees, ensuring the right trees are planted in the right places

2. To enable Lancaster's landscape to play a key part in mitigating against the effects of climate change by protecting and expanding the District's 'carbon sink'

3. To ensure the landscape is able to adapt to the challenges posed by climate change, such as flood risk, without negatively impacting upon the local character areas

4. To deliver urban greening interventions, planned or retrofitted into existing urban environments to address issues such as air quality and provide shading

Emerging Opportunities

- Highlight (and potentially map) key GBI features (such as trees and woodlands) identified within the County and national landscape assessments that defines that distinctive landscape and how they contribute towards the landscape character, to inform the assessment of the 'landscape value' of new development proposals and to ensure they are in keeping with the landscape character whilst also contributing towards the call to mitigate and adapt to climate change*
- Explore further the impacts climate change can have upon the District's landscapes
- Seek opportunities for urban greening, for example linear green spaces, community green spaces within housing development sites or rows of trees within car parks to act as wildlife corridors
- Increase the ecological permeability of the landscape by promoting the use of native species in landscaping schemes, including street trees and small woodlands, linked to all sizes of development
- Develop a District-wide Tree Strategy to deliver the Council's ambition of planting 1 million trees
- Investigate further the value of our District's landscapes as carbon stores to better understand the role landscape can play in mitigating and adapting to climate change
- Given the development pressures within and around the District's urban areas, further investigate the potential impact upon the distinctive low coastal drumlins around the urban areas
- Promote the wider benefits and values that landscaping can provide beyond purely aesthetics, considering other functions that landscape features can perform and subsequently, needs that can be met
- Opportunity to join up to the 'Lancashire Woodland Connect' campaign, which seeks to create 100km of new or restored woodland alongside the Rivers Ribble, Lune, Wyre and their whole catchments
- Seek opportunities to secure succession and replacement tree planting. For example, to address the issues of tree diseases (Ash dieback is a particular issue within the Lancaster District)
- Seek opportunities for the restoration of peat (including the management of lowland peat)
- Utilise Marine Management Organisation data to identify areas of saltmarsh that have the potential to be improved (for example, suitable for managed realignment)

Active Travel

Key Issues

- Lack of segregated cycle paths in the city centre
- Can be limited access points to join active travel corridors. For example, Bay Gateway has an adjacent footpath/bridleway but it is difficult for pedestrians to access this footpath/bridleway from the Green Lane area
- Recognise challenges in providing shared spaces. For example along the Canal towpath, whilst the Canal and River Trust has developed a towpath code giving priority to pedestrians, the Trust does support efforts to encourage users to share space considerately
- Canal towpath is not suitable along its full length for cyclists, particularly within the rural areas of the District
- Does not always work having all uses for all routes. Multifunctionality not for all, concerns about conflict between users i.e. walkers and cyclists
- Cyclists travelling at fast speeds along shared surfaces can discourage pedestrians from using these routes
- Restricted access onto canal towpath in terms of both access points and also narrow stepped access
- Ensure the safety of the existing network is considered, for example in relation to designated cycle lanes, visibility and lighting
- Acknowledge that routes feel different between day and night
- Recognition that cycling is not always about creating the fastest route. It is important to also consider scenic routes that may be of particular interest in terms of heritage assets and views of the surrounding landscape, and the potential tourism benefits of this.

Objectives

1. To support and facilitate the District's 'modal shift' ambitions towards sustainable and active travel by providing attractive, safe and easily accessible walking and cycling routes, and better connecting the District's network of Active Travel GBI corridors

2. To integrate 'urban greening' features into active travel infrastructure schemes and the design of future corridors

3. To improve the access to, and suitability of, the District's Active Travel GBI corridors for all users

Emerging Opportunities

- Improve connections to existing cycle routes from key nodes/points of access
- Look to map access points onto linear cycle routes to better understand existing access (for example along the Lancaster Canal, Bay Gateway and the Morecambe to Lancaster Cycle Track)*
- Improve number of access points and accessibility of these points to the Lancaster Canal. There is the opportunity to improve access at the bridges (from the roads/paths onto the towpath), given the historical significance of these bridges, the design would need to be sympathetic to preserve the setting of the historic environment. Bridges are also important for bat roosting and so proposals would need to be sensitive in terms of lighting
- Importance of choosing a suitable surface when designing cycle routes to discourage people from travelling too fast i.e. to slow them down in particular areas (for example where shared space is restricted, such as along the Lancaster Canal and so it is important to design a surface that is appropriate to the rural character of the canal)
- Improved signage along Lancaster Canal towpath to show passing places if this route is to be promoted as a cycle route and also to increase awareness from a health and wellbeing perspective
- Looking to make the stretch of the canal from Kendal to Lancaster a formal walking route (project being led by Lancaster Canal Regeneration Group) to create a direct access route
- Lancaster Canal towpath surface improvements to extend route north from Lancaster to Kendal, south through the Bailirgg Garden Village down towards Galgate, and west along the Glasson Branch as part of strategic cycling network
- Extend Lune Valley Greenway from Caton up to Hornby and towards Kirkby Lonsdale to improve linkages out into the rural areas of the District and into South Lakeland
- Through joint working with Lancaster University partners, better connect Lancaster University and Health Innovation Campus to Bigforth Drive and beyond into city centre
- Opportunities for the enhancement of 'urban greening' along the Lancaster to Morecambe cycle track (along the old railway line), along the Greenway out towards Caton and the route along the Quay down towards Glasson Dock (especially around St George's Quay)
- Route at Aldcliffe floods informally every winter, and so there is the potential to use this as a benefit to increase the biodiversity value of this area
- Explore the possibility of surveying the green corridors, 'Active Travel GBI corridors', identified on the interactive GBI map to investigate further the potential multifunctional values they could provide
- Explore further with Lancashire County Council the 'Tramper Trails' which improve the accessibility of the outdoors for those with mobility issues

Water Management

Key Issues

- Important to acknowledge that water does not remain within boundaries and its flow does not depend upon land use. Water makes its own space when it needs to.
- Water management measures should always be sought on site as close to the source as possible
- To be effective SuDS need to be an integral part of the design process to ensure that the layout, design of green and blue space and the design of buildings take every opportunity to reuse, infiltrate and attenuate water. SuDS design therefore needs to take place at the start of the design process.
- Key areas of concern are the River Lune, River Conder and Burrow Beck catchments (based upon recent flooding events in Lancaster District)
- Connections from a blue infrastructure perspective are too good. In periods of high rainfall, water flows quickly downstream which can increase the risk and subsequent event of flooding, and so there's a need to 'slow the flow' of water, particularly further upstream, and keep water away from water courses
- Benefits of above surface water management schemes do not seem to be fully realised and understood
- Need to raise greater awareness of the ability of the Lune Rivers Trust to engage and work with Developers from an early stage (i.e. application stage/pre-development). This is currently restricted due to the lack of funding and the Trust having no legal remit to address flooding. The Lune Rivers Trust are only funded by the project once it gets the go ahead
- When managing water at source and creating new/enhancing blue infrastructure, consideration needs to be given to the potential impacts upon habitats which may rely on water
- Complexity that exists within water management with different agencies having different responsibilities and different organisations having riparian responsibilities, which can create difficulties when trying to deliver projects.

Objectives

1. Slow the flow of water in the areas most at risk of flooding, using natural flood management techniques to reduce the speed at which water flows through the watercourses and also across the land once the ground has reached saturation point and can no longer infiltrate (in particular around Burrow Beck, River Conder and River Lune catchments)

2. Ensure development contributes towards reducing the risk of flooding elsewhere (downstream or on nearby neighbouring sites) and incorporates sustainable drainage

3. Adopt a catchment-wide approach to flood risk management to encapsulate and assess the key contributors to that risk

Emerging Opportunities

- Use Natural Flood Management (NFM) techniques (above ground water management) to slow the flow i.e. green infrastructure (spaces) as opposed to hard engineering techniques
- Use developments to enhance water retention and slow the flow i.e. above ground SuDS schemes (surface water management)
- Promote early engagement with key stakeholders such as the Lead Local Flood Authority, Environment Agency, United Utilities, Canal and River Trust and Lune Rivers Trust, to help solve the source of the problems offsite
- Overlay development allocations to see how development in these locations can be used to slow the flow and explore measures that may be required offsite
- Look at the bigger picture and the multifunctional role of SuDS, for example, exploring the possibility for biodiversity net gains
- The Lancaster Canal has the potential to accept surface water discharge agreements, subject to commercial agreement with the Canal and River Trust. The Trust is not a statutory drainage authority, but there is the potential to consider new discharges on a case-by-case basis, and so the Trust promotes early engagement. (For example, there are known flooding issues along the Glasson branch of the canal, and so there is a need to carefully manage the discharge rate)
- Explore mapping land use can help to identify opportunity areas for water management*
- Explore opportunities highlighted through the Lancaster Surface Water Management Plan when available
- Better understand the connections and interactions of water courses in relation to developments
- Need for better education and greater awareness of water management opportunities e.g. water gardens and ponds in schools

Historic Environment

Key Issues

- Link between GBI and the historic environment is perhaps not as obvious as others (for example ecology), so the benefits need to be more widely emphasised. It's not always about 'built' heritage and so there is a need to raise awareness around the role and contribution of green and blue spaces towards Lancaster's rich heritage, and how the past may have shaped the uses of these spaces and how it continues to shape them. It is considered to play a key role in this Strategy to ensure anything proposed is in keeping with, and takes account of, the historic environment
- Can be difficult to spatially map the 'historic environment' – for example, define the setting of a listed building, which can be made up of green and blue spaces, can be quite subjective and is often dependent on particular contexts (i.e. proposed development) and so it is not straightforward to be able to mark an outline of a setting areas on a map (although for some, such as a Designated Park and Garden and for Conservation areas there is a clear boundary)
- There are aspects of Lancaster's heritage which are not specifically 'designated' but still contribute towards the character of the area and our understanding of the development of historic settlements and their past activities for example historic field enclosures
- There are a number of Registered Parks and Gardens on Historic England's 'Heritage at Risk' register. For example, Capernwray Hall
- Important to protect key views to and from historic assets (for example from St Mary's Steps looking out across the city)
- Need to preserve trees of historic importance, particularly within urban environments. The Victorian streets were lined with trees.
- Natural environment needs to be appropriately managed within the context of the historic environment, because if it is not maintained, it can in fact cause damage to our historic assets (for example invasive plant species along historic walls and tree plantng on cobbles streets around the Castle)
- Importance of preserving and maintaining built structures along the Lancaster Canal and the character of the Canal

Objectives

1. Greater integration and understanding of the role and contribution that GBI makes in shaping our historic environment (designated and non-designated)

2. Ensure the local historic environment is considered and reflected within GBI design proposals

3. Where possible and appropriate to do so, identify the GBI features which positively contribute towards the District's historic assets and their conservation

Emerging Opportunities

- Explore Registered Parks and Gardens on the 'Heritage at Risk' register
- Conservation Areas have a 'definable' boundary and so within these the importance of the green and blue spaces and the contribution they make to the designation could be better incorporated and mapped within the Conservation Area Appraisal. 'Key views', 'positive tree groups' and trees with a Tree Preservation Order (TPO) could also be mapped.*
- Explore the heritage value of the District's green and blue spaces, and how they contribute towards wider social and cultural values. There is a story behind each space.
- Look to specifically identify what the historic GBI features are within the Lancaster District*
- Map Lancashire County Council's 'Historic Landscape Character' data which shows historic field enclosures and can be helpful in understanding the development of historic settlements and their past activities
- Look to identify 'key views' from a historical perspective in localised areas*
- In urban areas along the Lancaster Canal the aim is to preserve the industrial feel (for example in Liverpool) but in more rural areas (such as Lancaster) the aim is to protect and preserve the rural nature of the canal
- Work closely with the Conservation Team and other key stakeholders to ensure the historic environment (including designated and non-designated heritage assets) is thoughtfully recognised and carefully considered as part of the GBI network. This includes within the preparation of planning policies and the supporting documentation itself.
- Ensure the Historic environment is a key consideration when designing GBI (Improve linkages with the Conservation Strategy)
- Consider the use of design codes as guidance on this continues to emerge at national level

Ladies Walk, Lancaster, c1900[32]

East Road, Lancaster, 1905[32]

[32] Red Rose Collections from Lancashire County Council

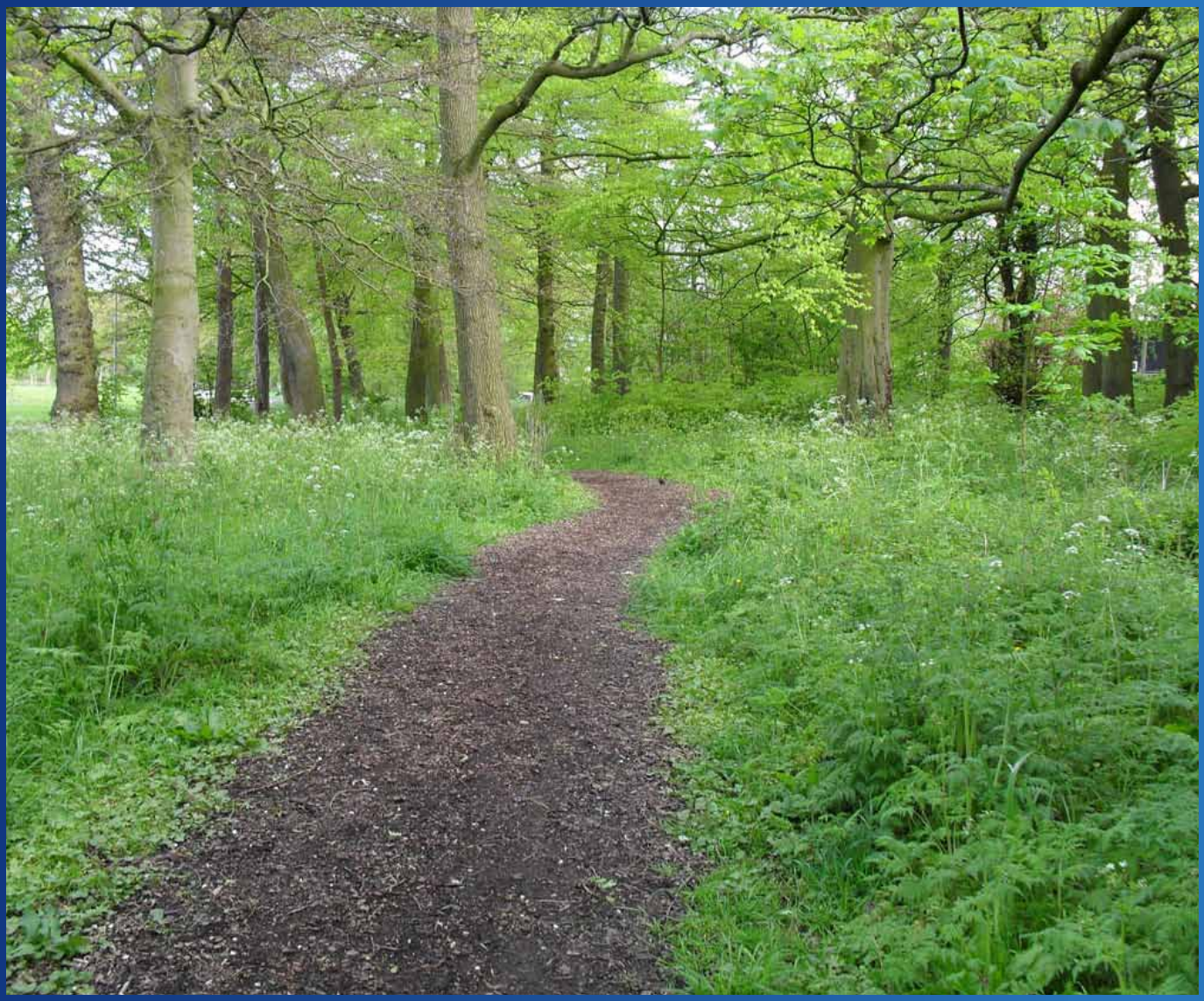
Taking the 'Emerging Opportunities' forward

For each theme, as set out above, a series of 'Emerging Opportunities' have been identified. It is understood that the scale and level of work required to explore these opportunities varies.

- Some are principles that should be applied and considered as part of the design and assessment of a development proposal;
- Some are to be explored through future iterations of this GBI Strategy, as it evolves as a living document (which can then consequently be applied to a development proposal); and
- Some are to be taken forward and explored through separate pieces of work (for example a specific Strategy, such as a Tree Strategy)
- Some will evolve into actions set out in the emerging GBI Action Plan (Appendix 4)

Many of the 'emerging opportunities' identified in this document are not spatially specific. This is because the purpose of this written Strategy is to set out the in principle opportunities. To translate these principles into potentially spatially specific locations, where appropriate to do so and where data is currently available, on the GBI interactive map a series of datasets have been mapped for each theme (under the 'opportunity' tab) to identify potential areas that could help to deliver these 'emerging opportunities'.

The interactive map can be accessed here:
Alongside which a User Guide has been produced, detailing a list of the datasets that have been incorporated (to date) on the interactive GBI map.



Embedding GBI into the Local Plan Review

As set out in Section 1, this Strategy is dual purpose. Primarily it seeks to establish an evidence base to inform the climate change focussed review of the Local Plan policies, and subsequently, planning applications determined within the context of that review. And secondly, the intention is that this Strategy will then go on to form the basis for future, Council-wide GBI related strategies and projects.

Whilst the power of planning lies in its ability to shape the delivery of future development, which plays a significant role in how we adapt and mitigate to the impacts of climate change, there are limits as to what is within the control of the planning system at this stage in the plan process. Therefore, this section seeks to identify a series of **strategic priority opportunities**, which encompass the 'emerging opportunities' for each of the 6 key themes, and act as recommendations for the Local Plan review. As stated in paragraph 175 of the National Planning Policy Framework (NPPF), plans should "take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure" (noting the NPPF definition of green infrastructure also incorporates blue infrastructure).

Therefore, it was considered appropriate to identify and recommend over-arching strategic priority opportunities to be taken forward from the findings of this Strategy and used to inform and justify the approach in the review of the relevant policies within the Local Plan. Further details as to how the outcomes of this GBI Strategy have been translated into the climate emergency Local Plan review is set out in Appendix 7 **(GBI Strategy Addendum: Initial Outcomes of the GBI Strategy)**

It is important to highlight that this review of the Local Plan is just a partial review, and so the scope of the recommendations at this stage are reflective of these requirements.

Strategic Priority Opportunities

Ultimately to ensure the Council is doing all it can to mitigate and adapt to the impacts of climate change through the planning system, the aim should be to increase (extend/create) and improve the provision of GBI within the Lancaster District by seeking opportunities to protect, enhance and extend the existing GBI network. Adopting natural measures, rather than hard engineering solutions. The following recommendations are therefore made in light of the findings to date of this GBI Strategy, to inform the Lancaster District Climate Emergency Local Plan Review:

1. Identify strategic GBI corridors and chains on the Local Plan Policies Map:

to emphasise the important role these play as the backbone of the wider GBI network in areas under greatest pressure from development. Without these corridors and chains the stability and connectivity of the wider network would be significantly undermined. The identification of Strategic Corridors/Chains on the Local Plan Policies Map will signify the strategic nature of the GBI network and highlight the value and importance of the connectivity of GBI within the planning system. This approach will also ensure that these key corridors and chains are protected from the impacts of future development within the areas that are under the most pressure from development and are identified as opportunities for extension and enhancement, and the multifunctionality within them harnessed, to ensure as much resilience as possible via adaptation/mitigation to the impacts of climate change.

2. Identify key GBI design principles to highlight the multifunctional value of GBI as an important starting point for the design of development proposals:

these should be based around the 6 key themes (uses) identified in this Strategy, to promote the delivery of GBI onsite as part of development proposals. Policy should require all developments to deliver some form of GBI onsite, and to consider as part of the early stages of the design process the value GBI can provide in terms of each of the 6 key themes. It could be appropriate to establish a criteria-based policy in the Local Plan based on the 6 key themes. However, it should be emphasised that there is value in considering the role of GBI at the early stages of the design process, and considering each of the 6 key themes when designing proposals – so that their functions can be maximised. To highlight that housing should not be the starting point, instead GBI should be, recognising that GBI can have social and economic benefits as well as environmental

3. Take a holistic approach to GBI and look at the bigger picture:

combining the two points above, through policy, require Developers to consider how their proposal fits within the wider GBI network and how the delivery of GBI on their site can improve existing and/or create new connections (corridors/chains) and enhance the multifunctional nature of the wider network when considering nearby GBI uses, utilising the data mapped on the GBI interactive map. It is important to consider how the 6 key themes (uses) interrelate with one another, to appropriately balance their multifunctionality to deliver the most appropriate benefits. This approach will also ensure that in the delivery of climate change mitigation and/or adaptation, the measures delivered through GBI fit within the wider context (for example, are in keeping with the distinct character of the landscape and site specific).

4. Encourage early engagement to inform the design process:

to enable a truly effective holistic approach to be taken it is important that Developers engage with key stakeholders, and where appropriate the local community, to best understand the GBI needs for that specific location. This will aid in addressing offsite issues and enable a proposal to 'best fit' within the wider GBI network. The importance of adopting a cross-cutting, inter-disciplinary working approach is to be promoted (like the approach taken towards producing this GBI Strategy). For example, in the case of water management, the problem is often most appropriately solved offsite, re-iterating the need for a joined-up approach.

Figure 25: These pictures highlight the importance of good design. Both are designed for above ground water storage. Yet the scheme on the bottom is of greater multifunctional value.

5. Ensure the long-term management and maintenance of GBI:

once GBI has been created, to ensure the subsequent values and benefits are delivered and delivered in perpetuity it will be important to ensure a management and maintenance plan is in place for all GBI.

6. Establish a toolkit to assess the climate change adaptation/mitigation value of the GBI being proposed as part of a development and to provide further guidance on how multifunctional GBI can be delivered:

this Strategy has set out how GBI can play a valuable role in adapting and mitigating the impacts of climate change. Policy should therefore highlight the importance of this value, but at the same time it would be beneficial to establish a tool to assess the value. Such a toolkit should also look to include design criteria that can be used to deliver multifunctional GBI.

Appendix 5 sets out a toolkit that it is proposed should be used.

Aspirations for the Future

It is acknowledged that there are findings within this GBI Strategy that cannot currently be explored at this time due to the nature of this partial Local Plan review. However, it is still important to highlight some recommendations to be considered as part of the plan-making process in the future:

- Setting GBI Standards: due to the specific climate change focus of this Local Plan Review it is not within the remit to review the land allocations and housing numbers set through the adopted Local Plan. Therefore, at this stage it is not possible to establish specific GBI standards due to potential impacts this may have upon the delivery of the sites that are anticipated to come forward. Currently there are just specific standards adopted in relation to Open Space (as set out within the Open Space Planning Advisory Note). It is understood that Natural England are anticipating publishing some initial GBI standards (to update the Accessible Natural Space Standard).

- Creating and designating new green spaces (i.e. for food growing): for similar reasons as set out above, because the ability to allocate specific parcels of land for development is not within the remit of the review, nor is the allocation/ designation of land for other purposes such as spaces to grow food. Instead, through policy the onus is placed upon the applicant to deliver such spaces as part of their development proposal (the delivery of such is explored further in Section 8).

- Measures to reduce recreational pressure: whilst this is something we would like to target through the provision of GBI, in particular large green spaces such as Country Parks, this is adequately addressed and mitigated for through the recommendations through the HRA for the adopted Local Plan which fed into the plan-making and subsequent decision-making processes.

- Feed into future upcoming Design Guide/Codes: (as per new NPPF) This GBI Strategy will help to ensure GBI assets and the wider GBI network are effectively considered.

There are some other findings of this iteration of the GBI Strategy that the Council consider to be important to pursue and so this section sets out our aspirations moving forward that could be explored through future iterations of the GBI Strategy or upcoming strategies:

- Consideration of the role of private gardens in the GBI network

- Exploration of the role of street trees & grass verges (such assets play an important role in defining the character of a local area & creating attractive neighbourhoods)

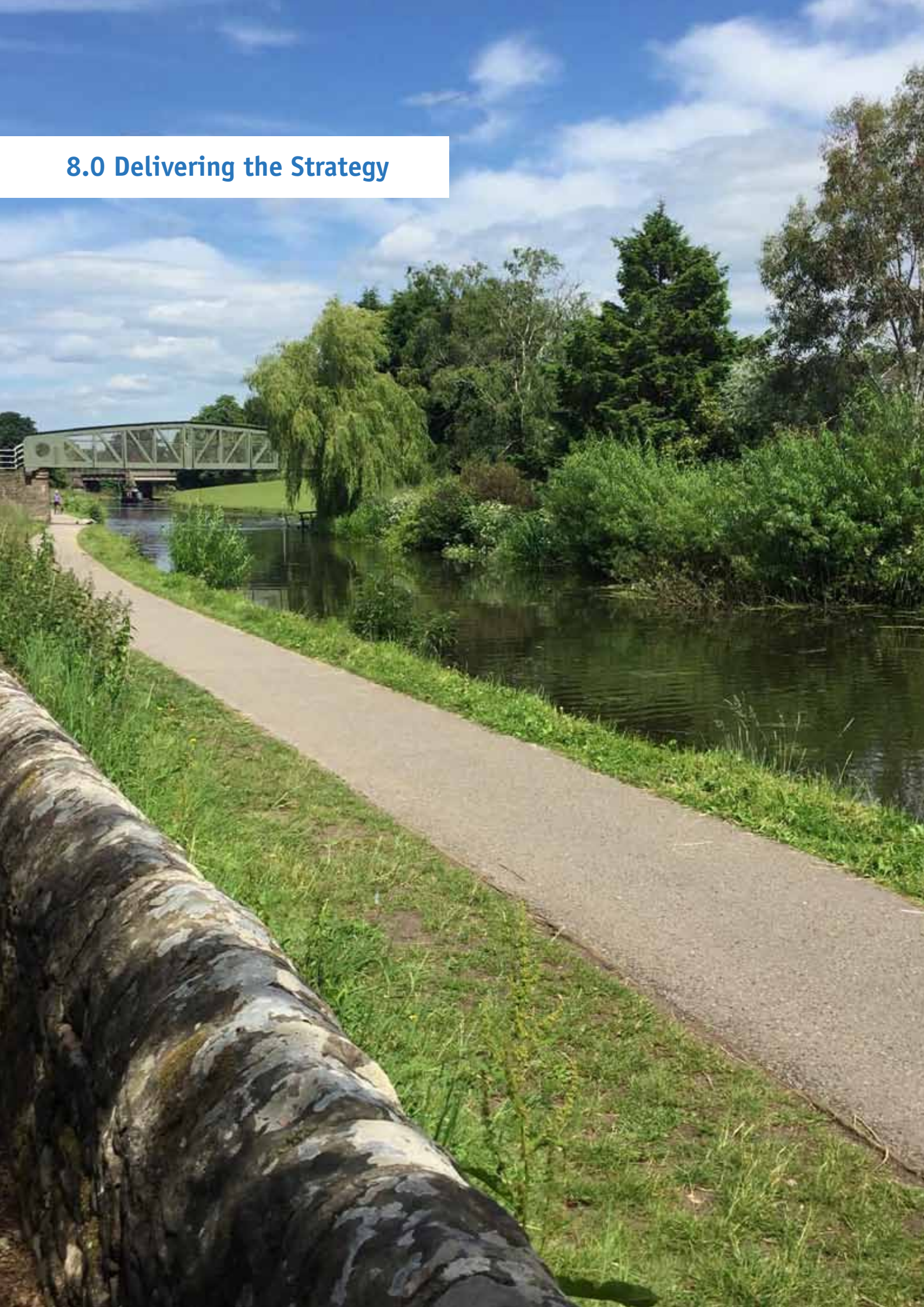
- Investigate further the physical accessibility of green spaces in order to be able to understand the extend to which the accessibility of green spaces need improving, and most importantly, where by looking into land ownership

- Investigate further tree canopy cover in the Lancaster District to inform potential specific tree canopy targets in the future and to enable further informed exploration of GBI air quality benefits

- Facilitate the creation of a Nature Recovery Network through a Local Nature Recovery Network Strategy

- Facilitate the delivery of biodiversity net gain (it is anticipated that further guidance on this will be provided through a Supplementary Planning Document)

8.0 Delivering the Strategy



8.0 Delivering the Strategy

As this Strategy has demonstrated, GBI should be considered right from the start of the design stage of a development proposal, instead of being an add on afterthought. Therefore, the primary policy approach promoted by this Strategy is the delivery of GBI onsite as GBI should be an integral part of new development.

This approach is supported in the NPPF which states that, 'when determining planning applications, local planning authorities should apply the following principles..development whose primary objective is to conserve or enhance biodiversity should be supported; whilst opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate'.

Other ways in which GBI can be delivered include:

- **Section 106 Agreements:** These are Developer contributions that would contribute towards the delivery of a GBI project offsite. In order to be able to require an offsite contribution via a Section 106 Agreement a set of GBI standards would be required to inform a mechanism to calculate how much of a financial contribution should be made based upon the scale/type of development. As explained in Section 7 at this stage through the GBI Strategy it has not been possible to establish specific GBI standards due to the limited nature of the Local Plan Review. However, it is understood that Natural England are in the process of formulating some GBI standards and so this will be kept under review. The only type of green space for which there are currently existing standards relates to the provision of open space and playing pitches, set out in the evidence base documents produced by KKP to inform the adopted Local Plan. How these standards are applied to calculate the quantum of an offsite contribution required by a development via a Section 106 agreement is set out in the Open Space Planning Advisory Note.

- **Community Infrastructure Levy (CIL):** The possibility of which is currently being investigated by the Local Plan's viability consultants Three Dragons. The projects to which CIL contributions could be made are set out in the Council's IDS (which will be updated as the Project Action Plan for this Strategy is updated).

- **Wider Funding:** Outside of the planning system, the delivery of GBI on the ground can also be facilitated by wider sources of funding such as agri-environmental schemes and other grant schemes such as those available for woodland planting.

- **Legislation:** Requirements can also be required through law for the delivery of GBI. Now that the Environment Act is in place, once translated into the Town and Country Planning Act, there will be a requirement for development to deliver a minimum 10% biodiversity net gain, which is in addition to the mitigation hierarchy. The preference for the delivery of which is on the site itself within the application boundary, however where this is not possible, a minimum of 10% net gain in biodiversity should be delivered offsite locally. It is hoped that as the Action Plan accompanying this GBI Strategy evolves, some projects could be explored further to potentially become part of a local habitat bank (it is intended that the Council's approach towards biodiversity net gain will be set out in detail in a future SPD). However, where this is not possible, the net gain will be required offsite on a site identified on the national register (the pilot for which is currently taking place). It is understood that environmental net gain is also being explored.

Projects within the Lancaster District

Whilst the preferred approach for the delivery of GBI is onsite as an integral part of a development proposal, it is recognised that this is not always possible and/or appropriate to meet the needs generated by the development. Therefore, the Council is currently working on preparing a list of projects within the Lancaster District (as part of an Action Plan) that would deliver multi-functional, connected GBI offsite contributing towards the wider GBI network, if required.

Through the preparation of this Strategy a number of ongoing or upcoming GBI projects have been brought to our attention and so to provide an indication as to the types of projects coming forward, or projects that could come forward within the District to help enhance and extend the GBI network, please see Appendix 4. The Council recognises that it is going to become increasingly important to be able to demonstrate how such projects could come forward and be delivered on the ground, for example in relation to the anticipated requirement for 10% biodiversity net gain delivery locally offsite (where onsite delivery has been demonstrated to not be possible), and so it is hoped that over time as this Strategy evolves that Table 1 in Appendix 4 can be developed into a more detailed Action Plan.

Case Studies within Lancaster District

The purpose of this section of the Strategy is to present three recent Case Studies examples, from within the Lancaster District, that demonstrate how GBI was at the forefront when the proposals were designed. This is then reflected in how effectively GBI has been incorporated within each of the developments to provide connected and multifunctional green and blue spaces, corridors, and chains. It is approaches like these that the Council seeks to promote through this Strategy.

Case Study 1

Land to the rear of Pointer Grove and adjacent to High Road, Halton	
Description	Erection of 65 dwellings with associated access, landscaping, open space, drainage, highway and parking improvements and land re-profiling works.
Planning Status	Application permitted.
Current Use	The findings of the ecological appraisal and phase 1 habitat survey highlight that the site is an improved grassland field, currently considered to be of low ecological value.
Proposed Site Layout	
Specific Areas	 (proposed for Public Open Space & Copses, Large Grass Verges, The Central Planted Area & Green/Blue Corridor).

Case Study 1

Land to the rear of Pointer Grove and adjacent to High Road, Halton			
Recreation	✔	**Active Travel**	✔
Landscape	✔	**Water Management**	✔
Ecology/ Biodiversity	✔	**Historic Environment**	✔

Key Features

Blue/Green Corridor*

- Provides a real focus within the site, offering a communal space at the heart of the scheme proposal
- Provides opportunity for the collection and disposal of surface water in a sustainable way
- A key spine in the provision of informal open space as an attractive amenity corridor, potential for seating within this area
- Accommodates a linking path alongside dwellings
- Corridor is to be largely defined by birdsmouth fencing and the creation of aprons of herbaceous bulbs interspersed by swathes of wildflower areas, grassland margins and new slightly more informal tree planting in small groups and clusters

Northern Woodland/Copse Area*

- Key part of wider proposed landscape strategy, providing a block of woodland that connects into the site's existing structure of reinforced marginal hedgerow.
- Footpath made of permeable materials which runs through the woodland, on elevated land, providing views over the Lune valley and connects to other paths within the site, linking up with Blue/Green corridor.
- Proposed planting of native woodland specimens, wildflower and meadow planting of species-rich grasses and increase biodiversity.
- Opportunity for seating area

*(Both of the above are to be transferred to a Management Company alongside other key elements of open space)

Proposed Tree Planting Strategy (including hedges and shrubs)

- Creating an attractive environment with year round colour and interest
- Helping define public areas and boundaries between proposed and existing development

"The blue-green corridor provides an opportunity to provide habitats as does the planting associated with the scheme (especially to the north of the site). On balance it is considered that the development is acceptable from a nature conservation perspective and in time there will be net gain from a biodiversity perspective. The blue green corridor has the potential to be an exemplar of a sustainable drainage scheme in the District that not only promotes effective water management but creates biodiversity gain".

"In this example, the natural environment, drainage (water management) and topography (landscape) has very much been the primary driver shaping the layout of this development proposal to achieve benefits not only for these key themes, but also from an ecological, active travel and recreational perspective."

(Committee Report)

Case Study 2

Forge Weir View on Low Road, Halton	
Description	Erection of 60 dwellings and associated infrastructure.
Planning Status	Built Out.
Current Use	The reserved matters application was granted on 22nd March 2018 and the site is now built out and the dwellings occupied. The site was previously agricultural arable land.
Proposed Site Layout	
Site Photograph	

Case Study 2

Forge Weir View on Low Road, Halton			
Recreation	✔	**Active Travel**	✔
Landscape	✔	**Water Management**	✔
Ecology/ Biodiversity	✔	**Historic Environment**	
Key Features	**Sustainable Drainage System** • A green drainage 'swale' has been created along the corridor between the rear gardens of the new dwellings and the existing houses on Forgewood Drive/Close (along the northern boundary) consisting of a shallow grassed channel and marginal aquatic plants. This swale links to the wetland 'detention' basin. • Due to topography of the site the water flows down into the detention basin from ground higher up where the development is. • The submission stated that the infiltration basin was to be offered to the local authority for adoption as part of the public open space (or alternative management could be provided by a site management company). **Community Orchard (at the North West Corner)** • Wildflower grass with fruit trees designed in an informal layout to create an opportunity for the residents to grow and share fruit • Footpath running through this area to link the new houses with the existing housing on Forgewood Drive **Community Meadow and Wood (at main northern entrance to site)** • An Accessible amenity area around the fringes of the detention basin. • Area includes native wildflowers and bulb planting within a mainly open grassed area for residents to enjoy for informal recreation • Meadow is only to be cut once a year to prolong the 'food bank' for birds each winter • New native open woodland edge mix has been planted to the west side along the boundary to the properties on Forgewood Drive. Picnic benches and tables are to be provided.		

Case Study 3

Land east of Scotland Road, Carnforth	
Description	Residential development comprising 213 dwellings with access, public open space, creation of wetlands areas, construction of attenuation basins and other required infrastructure.
Planning Status	Application to vary conditions of Outline consent has been permitted.
Current Use	The site is undulating pastoral land used for grazing. The northern third of the site is priority habitat (Coastal Floodplain Grazing Marsh). Nether beck passes through the site in a general west-east direction.
Approved Soft Landscaping Layout	
Open Space and Planting Plans	

Case Study 3

Land east of Scotland Road, Carnforth			
Recreation	✔	**Active Travel**	✔
Landscape	✔	**Water Management**	✔
Ecology/ Biodiversity	✔	**Historic Environment**	✔

Key Features

(Information based on approved outline application)

Coastal Floodplain Grazing Marsh (Nature Reserve)

- Approximately 10.8 acres in area
- Area to be retained and enhanced to provide a new wetland bird conservation area, currently of limited ecological value so development will bring biodiversity net gain
- Access via designated perimeter paths only (timber boardwalks) with interpretation boards around the edge
- Within which (the western side of this area) lies Priority Habitat (Coastal and Floodplain grazing marsh) which is to remain strictly undisturbed
- To the north of this area a timber hide is proposed for bird watching
- No planting proposed in this area except for reed filled ditches to provide screening and to help reduce visual disturbance of the birds and prevent dogs from accessing the area and perimeter seeded with meadow grass mixture for wet soils
- Circular pedestrian route will go around the perimeter
- Area will be subject to long-term management via a wildlife management plan

Attenuation Basin Areas

- Two attenuation basins are proposed, together cover approximately 4.8 acres to sustainably manage all surface water run off whilst providing ecological enhancement opportunities and incorporated into wider area of public open space
- Access will be restricted
- Will be surrounded by species rich grassland, marginal planting and wetland trees

Open Parkland

- Approximately 3.1 acres
- Will include a natural play area with earth mounding, boulders, scattered logs, timber swings and tree planting for enclosure
- Area to also include outdoor gym, seating areas and trim trail
- Key vantage point towards Warton Crag

Mountain Bike Track

- Providing activities for young people, with earthworks and self binding aggregate surfacing
- Approximately 1.4 acres in size, with landscape buffer to east

Green Corridor

- A significant green corridor will run in a north to south direction through the site offering a dedicated off-road pedestrian route within a parkland setting
- Benefiting from a series of social and recreational spaces which will be inclusive for all
- Semi mature trees will be planted to enhance the character of the corridor, whilst also offering shelter and shade, and defining routed and key social spaces

Case Study 3

Land east of Scotland Road, Carnforth

Key Features

(Information based on approved outline application)

Cultural heritage considerations

- The Midland Units to the south of the site are considered non-designated heritage assets (NDHA's) as they form a group of former engine sheds originally constructed to provide a sidings yard to the Carnforth and Wennington Branch Line (c1867)
- Between proposed development and the Midland Units lies a public right of way (PROW), which runs along the southern boundary, lined by established trees which separates the NDHA's from the site

"The proposed layout, including the areas of public open space, landscaping and wetland habitat areas have been well thought out with the interface between private and public space suitable to secure a safe and pleasant environment to live."

"The level of open space proposed goes beyond our policy expectations for on-site provision and forms part of a far more integrated community space."

"Whilst amendments have led to a reduction in the density of the development, the scheme overall has effectively utilised land and spaces, taking advantage of land not suitable for housing development to provide necessary ancillary functions, such as the open space and drainage attenuation. Undevelopable areas have also been utilised and enhanced through the landscape masterplan proposals to provide necessary mitigation and enhancement measures to support the natural environment (through the provision of habitat enhancement areas and woodland planting to minimise impacts on the AONB). Overall, the development represents an efficient and effective use of land in compliance with paragraph 122 of the Framework. It is also a good design and will deliver a high-quality and attractive from of development that will provide a distinctive place to live and visit."

(Committee Report)

Appendix 6 details Case Study examples from outside the Lancaster District, demonstrating other ways in which connected and multifunctional GBI can be delivered on the ground.

9.0 Conclusion and Next Steps

9.0 Conclusion and Next Steps

Overall Findings

The key outcomes of this GBI Strategy are that:

- Green and blue infrastructure are inextricably linked, and so it is important that the GBI Strategy, and proposals moving forward, address both

- There is no one set, fixed definition of GBI

- This GBI Strategy is dual purpose. The role of this Strategy is to:
  - Inform and underpin the Local Plan Review, the subsequent design of development proposals by Developers, and ultimately the decision making process through the application of the revised policies
  - Establish a baseline understanding of Lancaster District's existing GBI network and highlight potential opportunity areas for improvements in the provision of GBI that can then be used as the starting point for future Strategies. These could be planning related, such as a Biodiversity Net Gain SPD or a Local Nature Recovery Network Strategy, or related to other Council initiatives such as a Tree Strategy to facilitate the 1 Million Trees project

- It is important that the approach advocated through this Strategy permeates every level of planning, from the plan-making process to ensure the aims and objectives of this Strategy are achieved and delivered on the ground

- GBI assets play a valuable role in our ability as a District to mitigate and adapt to the impacts of climate change and provide an opportunity for us to address the Climate Emergency declaration through the planning system

- Consultation and stakeholder engagement has been key throughout the preparation of this Strategy and will continue to be as it evolves, due to the significant number of GBI assets within the Lancaster District and the way the array of uses interact with each other, to ensure the best outcomes and ultimately benefits are reaped from these valuable assets

- Multifunctionality is a fundamental attribute of GBI that must be harnessed through the design of new development proposals

- Connectivity is an equally foundational attribute to the success of GBI, particularly as the District seeks to combat the impacts of climate change. Enhancing, extending and creating connections, corridors and chains that contribute towards the wider GBI network is vital to ensuring resilience, especially against the threat of fragmentation (development driven or climate driven) to enable both humans and nature to move and adapt to the consequential changes they face

- GBI provides environmental, social and economic benefits

- 6 key themes/uses of GBI within the Lancaster District have been identified, and climate change runs through each of them:
  - Recreation/Accessible Greenspace
  - Ecology/Biodiversity
  - Landscape
  - Active Travel
  - Water Management
  - Historic Environment

- Using a wide range of data sources it has been possible to map the known existing GBI network across the District. A greater number of datasets exist for some themes in comparison to others (for example, there is an abundance of ecological data, but less spatial data is available in relation to the historic environment element of GBI). Identifying the GBI network means we have a more informed understanding of its existence and how it needs to be protected, and where necessary improved

- Strong linkages exist between the provision/ accessibility of green spaces and population density, food insecurity and health. The findings indicate that where there is less available green space, this has a negative impact upon these socio-economic factors

- A wide range of key issues have been identified for each theme. Followed by a series of objectives, established to address the key issues. Utilising feedback from the stakeholder workshops and the interactive GBI mapping, emerging objectives for each key theme have been identified.

- As a result of the findings of this Strategy a number of recommendations have been made to inform the review of the Local Plan's GBI related policies:
  - Identify strategic GBI corridors and chains on the Local Plan Policies Map
  - Identify key GBI design principles to highlight the multifunctional value of GBI as an important starting point for the design of development proposals
  - Take a holistic approach to GBI and look at the bigger picture
  - Encourage early engagement to inform the design process
  - Ensure the long-term management and maintenance of GBI
  - Establish a toolkit to assess the climate change adaptation/mitigation value of the GBI being proposed as part of a development and to provide further guidance on how multifunctional GBI can be delivered

- To keep this document 'live' the intention is that it will be an evolving Strategy and because there are some areas which the GBI Strategy has not yet been able to explore, a series of aspirations for the future have been set out (such as setting GBI standards and investigating the accessibility of green spaces)

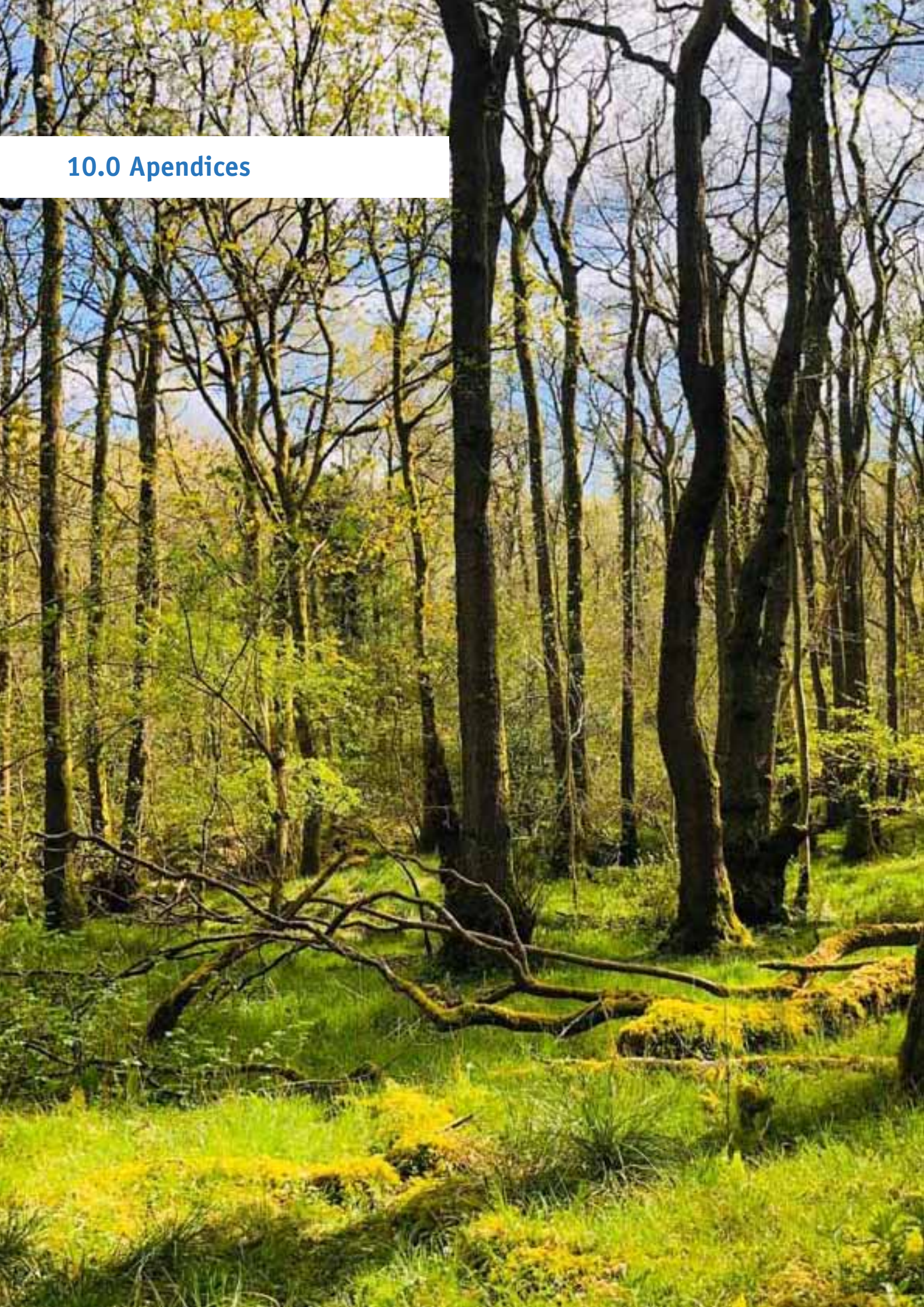
- The primary route for the delivery of GBI is onsite

Moving Forward

Measuring the success of the implementation of this Strategy requires an effective monitoring mechanism to be in place. Therefore, the findings and policy recommendations from this GBI Strategy will be used to inform the monitoring indicators adopted for the Local Plan Review.

As previously mentioned, this is to be a living Strategy which evolves to ensure it is kept up-to-date to facilitate the most effective and beneficial delivery of GBI in the Lancaster District. Whilst the key principles established in this Strategy will remain largely unchanged, it is anticipated that the GBI interactive mapping will be frequently updated to ensure the most current datasets are being used to inform decisions around the protection, enhancement, extension, and creation of GBI.

10.0 Apendices



Appendix 1: 'Call for Projects' Survey Questions

Are you aware of any green space or water based projects in the Lancaster District?
Survey Questions

1. What is the name of your organisation or group? Please state:

.....

2. What area does your organisation/group cover?

- Entire Lancaster District
- Specific parish or ward (Please state which).....
- Specific location/area (Please state where).....

3. Is your organisation/group working on any green infrastructure projects (green space or water based) in the Lancaster District?

.....

4. Please provide details on the Green/blue Infrastructure project(s) that your organisation/group are working on within the Lancaster District:

Name of Project (1)

.....

Location of Project (For each please attach a site location plan, so that we are able to accurately map the location of your project. If it's easier, please send in an email to planningpolicy@lancaster.gov.uk)

.....

Brief Description of the project (what does it involve? Please include a copy of a planting plan or schedule if you have one.)

.....

Project Status (early stages/ongoing/completed)

.....

Source of Funding Anticipated completion date

.....

Name of Project (2)

.....

Location of Project (For each please attach a site location plan, so that we are able to accurately map the location of your project. If it's easier, please send in an email to planningpolicy@lancaster.gov.uk)

.....

Brief Description of the project (what does it involve? Please include a copy of a planting plan or schedule if you have one.)

.....

Project Status (early stages/ongoing/completed)

.....

Source of Funding Anticipated completion date

.....

5. Please attach a site location plan and any planning plan or schemes and connecting ref numbers below:

.....

6. Is your group/organisation aware of any other green space or water based projects going on in the district? If yes, please explain (what and where):

.....

.....

.....

7. Does your group/organisation have any aspirations for future Green/Blue Infrastructure projects in the district? If yes, please explain (what and where):

.....

.....

.....

8. Does your group/organisation think there are opportunities for the expansion of Green/Blue Infrastructure in the Lancaster District? If yes, please explain (what and where):

.....

.....

.....

9. Does your group/organisation think there are any particular areas of concern/issues within the existing Green/Blue Infrastructure network in the Lancaster District? If yes, please explain (what and where):

.....

.....

.....

10. Does your group/organisation think there are any constraints to the creation of a Green/Blue Infrastructure network across the Lancaster District? If yes, please explain (what and where):

.....

.....

.....

11. Please add any additional details or information on your projects that you feel would be useful to us:

.....

.....

.....

Thank you for taking the time to complete this survey.

Appendix 2: Groups/Organisations Involved in Stakeholder Workshops

At the start of each workshop the Council gave a short presentation, outlining the purpose of the GBI Strategy and what it seeks to achieve. Followed by an interactive mapping demonstration to show stakeholders the types of data the Council had been able to map under each topic area to help build up the bigger picture of what the existing green and blue infrastructure across the Lancaster District looks like. The workshop was then divided into break out groups of 5/6 people so that each group could discuss if there was any additional data that they were aware of that could be mapped to help further the Council's understanding of the existing green and blue infrastructure network across the Lancaster District. Questions were then posed to each group to seek their views as to how the analysis could be undertaken to highlight areas, for example of deficit or fragmentation, which would then reveal potential opportunity areas to enhance and/or extend the existing GBI network.

The key issues and potential opportunities that were raised during the stakeholder workshops are incorporated within each of the thematic tables in Section 7.

Please note more groups and organisations were invited but the list below represents those who responded to our invitation and attended a workshop.

Recreational/Accessible Greenspace

- Public Realm (Lancaster City Council)
- The Fairfield Association
- Claver Hill Community Food Growing Project
- North Lancashire Food Futures
- Lancaster Green Spaces*

Ecology and Biodiversity

- Natural England
- Lancashire Wildlife Trust
- Lancashire County Council
- Woodland Trust
- Green Lancaster
- Lancashire Local Nature Partnership
- Canal and Rivers Trust*

Landscape

- Arnside and Silverdale AONB
- Forest of Bowland AONB
- Campaign to Protect Rural England (CPRE)
- Forestry Commission
- LUC

Movement/Sustainable Transport/ Accessibility

- Lancashire County Council
- Imagination Lancaster
- Lancaster University
- Ramblers Association

Water Management/Space for Water

- Environment Agency
- Marine Management Organisation
- Lancashire County Council (Lead Local Flood Authority)
- United Utilities
- Lune Rivers Trust
- South Lancaster Flood Action Group

Historic Environment

- Conservation Team (Lancaster City Council)
- National Trust
- Lancaster Civic Society

(*These groups contacted us separately unable to make the workshop and so a separate meeting was held.)

Appendix 3: Areas of Open Space Deficiency Identified in Open Space Assessment produced by KKP in 2018

Table 1: Areas of Deficiency in Lancaster Analysis Area.

Typology Type	Size of provision (ha)	Quantity (ha per 1,000 population)	Accessibility	Quality (of those sample sites assessed)
Parks and Gardens	47.66	Sufficient by 0.52	No gaps	No deficiency identified
Natural and Semi-natural Greenspace	93.85	Shortfall of 0.73	No gaps	3 sites rate below quality threshold: - Vicarage Field NSN - Ridge Estate Community area - Caton Road NSN
Amenity Greenspace	46.35	Sufficient by 0.26	No gaps	Luneside West AGS rates below quality threshold
Children's play	2.91	Sufficient by 0.01	No gaps	4 sites rate below quality threshold: - Cow Shard 5-aside - Ryelands Play Area - Barnacre Close Playing Area - Tunnel Field 5-a-side 2 sites rate below quality and value thresholds: - Hala Basketball Hoop - Furness Street
Young people (dedicated)		Shortfall of 0.031	Gap identified in catchment mapping against 15 minute walk time	
Allotments and Community Gardens	15.25	Sufficient by 0.14	No gaps	N/A
Cemeteries/Churchyards	15.53	N/A	N/A	N/A
Green Corridors	35.19	N/A	N/A	N/A
Significant Other Land	69.36	N/A	N/A	N/A

Table 2: Areas of Deficiency in Morecambe/Heysham Analysis Area.

Typology Type	Size of provision (ha)	Quantity (ha per 1,000 population)	Accessibility	Quality
Parks and Gardens	8.24	Shortfall of 0.039	Gaps identified in 15-minute walk time catchment for Heysham area Minor gap in 15-minute walk time catchment to south of Morecambe	No deficiency identified
Natural and Semi-natural Greenspace	73.11	Shortfall of 1.06	No gaps	2 sites rate below quality threshold: - Peel Avenue NSN - Jenny Nook NSN
Amenity Greenspace	18.41	Shortfall of 0.25	No gaps	Peel Avenue AGS rates below quality threshold
Children's play	4.78	Sufficient by 0.03	No gaps	3 sites rate below quality threshold: - Altham Meadows (Bartholomew Road) - Woodrush Play Area - Borwick Court Play Area
Young people (dedicated)		Shortfall of 0.02	Gap identified in 15-minute walk time catchment for Heysham area and east of Morecambe area	
Allotments and Community Gardens	4.56	Shortfall of 0.06	No gaps	N/A
Cemeteries/Churchyards	10.35	N/A	N/A	N/A
Green Corridors	7.87	N/A	N/A	N/A
Significant Other Land	24.49	N/A	N/A	N/A

Table 3: Areas of Deficiency in Carnforth/Rural Analysis Area.

Typology Type	Size of provisio n (ha)	Quantity (ha per 1,000 population)	Accessibility	Quality
Parks and Gardens	0.06	Shortfall of 0.39	*Carnforth*: No gaps *Sustainable Settlements:* gap identified in 15-minute drive time for Regional and District provision to Hornby, Silverdale and Wray. Minor gaps at Overton, Over Kellet & Warton.	No assessed sites
Natural and Semi-natural Greenspace	580.67	Sufficient by 12.00	No gaps	2 sites rate below threshold for quality: - Reanes Woods NSN - Lundsfield Quarry North
Amenity Greenspace	23.34	Shortfall of 0.04	*Carnforth*: Very minor gap in 12-minute walk time catchment to north of Carnforth *Sustainable Settlements*: gap in 12-minute walk time at Overton	3 sites rate below quality threshold: - Hall Drive AGS - Fell View AGS - Shore Road AGS
Children's Play	3.41	Sufficient by 0.04	*Carnforth*: No gaps *Sustainable*	3 sites rate below quality threshold: - Halton St
			Settlements: Gaps in 10-minute walk time at Brookhouse & Over Kellet	Wilfred's Park Play Area - Pump Track Middleton - Schoolhouse Lane Play Area
Young Provision		Shortfall of 0.037	*Carnforth*: Gap in 15-minute walk time *Sustainable Settlements*: Gap in 15-minute walk time at Bolton-le-Sands, Brookhouse, Galgate, Hornby, Nether Kellet, Overton, Over Kellet, Silverdale, Warton & Wray	
Allotments and Community Gardens	2.20	Shortfall of 0.09	No gaps	N/A
Cemeteries/Churchyards	13.13	N/A	N/A	N/A
Green Corridors	99.08	N/A	N/A	N/A
Significant Other Land	0.92	N/A	N/A	N/A

Appendix 4: Emerging GBI projects within the Lancaster District

Available separately in accompanying Appendices document.

Appendix 5: Proposed GBI Toolkit

Available separately in accompanying Appendices document.

Appendix 6: Good Practice Examples of GBI Delivery outside the Lancaster District

Green and Blue Infrastructure strategies have already been pursued by some local authorities and organisations, with evident benefits.

People walking along the Rochdale Canal. Photo by the Canal and River Trust.

Huddersfield Narrow and Rochdale Canals

Along Huddersfield Narrow and Rochdale canals, the Canal & River Trust, supported by the Esmee Fairbairn Foundation and People's Postcode Lottery, successfully implemented a three-year 'Community Roots' project which attracted an increase in visitors. Locals, many of whom would not normally visit the canals, took part in creating art trails, paddle boarding, walking and angling tasters, as well as ecological surveys, canal clean-ups and dredging. Subsequently, the canals are cleaner and more attractive. The project attracted more than 1,200 new volunteers, many of which now have new conservation skills. With the extensive Lancaster canal, there is plenty opportunity to encourage the involvement of locals in a range of activities which promote improved mental and physical health, enhanced conservation, and provide enjoyment for all ages.

The Mersey Forest

The Mersey Forest programme is an ongoing community forest project in Merseyside and North Cheshire. They have planted more than nine million trees, creating a 1,300km² network of woodlands, open spaces, urban gardens and street trees. Its planting schemes deliver a wide range of benefits including increased flood resilience, enhanced biodiversity, carbon storage, soil erosion prevention, and improved health and wellbeing for local people. Flooding is an ever-present concern in Lancaster District, and it is vital that measures such as those undertaken as part of the Mersey Forest programme are taken to improve resilience; it is a further advantage that woodlands and trees also provide benefits for biodiversity and health. Furthermore, the Mersey Forest's award winning 'Nature4Health' programme encourages local communities at risk of developing health problems such as diabetes, obesity or depression, to get out into the Forest through conservation activities, mindful walking and forest schools, significantly improving their physical and mental health. A scheme such as this could provide considerable improvement in factors of deprivation in the Lancaster District.

Knowsley, in 2008 and 2012 – before and after its transformation. Photo by Les Starling.

People enjoying the tree shade in Liverpool city centre. Photo by McCoy Wynne.

Children taking part in a Forest School. Photo by McCoy Wynne.

City of Trees and Goldhawk Road, Hammersmith

Street trees have also been the focus elsewhere. Manchester's City of Trees programme has planted street trees across Greater Manchester using specially designed tree pits to channel rainwater; irrigating the trees, providing water filtration and draining excess water to reduce the need to pump and treat surface flooding. London Plane trees were planted in Howard Street, Salford, using an innovative modular system called Silva Cell; a 3-layer system filled with bioretention soil provided by British Sugar. The Soil Cell system uses crates installed under the pavement which are high load bearing structures that can accommodate uncompacted soil, allowing water and oxygen to the tree roots. By providing enough space for the roots, trees flourish, and the canopy created by its branches are maximised. This provides shade during heat waves, making temperatures more comfortable in areas affected by the urban heat island effect, as well as making the area more aesthetically pleasing.

Additionally, the maximised canopy will help to slow the water flow into the drainage system below. At Prestwich High Street in Bury, the planting was part of a planned road regeneration scheme. The use of trees as part of the wider SuDs network in this scheme demonstrates the importance of an integrated approach to both green and blue infrastructure when evaluating new regeneration and highways schemes.

Howard Street, Salford. Photo by City of Trees

A similar scheme was conducted in Hammersmith, London, using the Urban StrataCell modular load-bearing matrix tree pit system to provide a more flexible system.

Manchester's Street Trees resulted in:

- Access to clean water and efficient processing of waste water
- Reductions in surface water flood risk (average delay of storm water peak flow 68 minutes)
- Air quality improvement, reducing air pollution by filtration (NO 2 reduced by 9%, PM10 reduced by +21%)
- Urban cooling
- Improvement in aesthetic appeal of the high street
- 15% increase in revenue for businesses

Therefore, there are measurable benefits to their implementation.

Recycled plastic flexible soil support systems connecting SuDs tree pits from one side of the road to another (left), and the SuDs tree pit when completed (right). Photo by GreenBlue Urban.

Zuidas, Amsterdam

Green roof on top of the Breevast office in Zuidas, Amsterdam. Photo by Breevast.

The Zuidas area of Amsterdam have created green roofs to provide the same benefits as the street tree retrofitting, which has allowed for improved water management, a reduction in the urban heat island effect, increased biodiversity, and improvements to air quality, alongside the additional benefits of generating opportunities for urban agriculture, promoting social cohesion, and improving energy efficiency in buildings.

Milton Keynes 'Forest City'

Milton Keynes, as an example of a large urban area, was designed with the 'Forest City' concept in mind. As a result, around 25% of the urban area is parkland or woodland; and includes two Sites of Special Scientific Interest. There are also lakes, and an extensive network of paths for cyclists and pedestrians. Subsequently, Milton Keynes has provided a place for biodiversity to thrive, and given its' population routes for safe and active travel, space for fishing and leisure, pleasing views, and natural drainage measures to prevent flooding.

People cycling and fishing along the waterside in Milton Keynes. Photo by Caroline Brown.

Barton Park, Oxford and Kingsbrook, Aylesbury

At the Barton Park development in Oxford, hedgerows have been laid before homes are built so that they will be established by the time people move in. The developers believe this will help to create a sense of place and increase biodiversity. Having easy access to green space can increase property values and make areas more attractive to investors too. Kingsbrook in Aylesbury is another development taking a green approach where developers worked with the RSPB to create a green infrastructure design code for their 2450 homes. Many new homeowners in the development said that the nature-friendly ethos attracted them to buy here. Once fully complete, the villages will contain:

- 60% green space, including parks, orchards and a nature reserve;
- wildlife corridors along hedges, wildflower verges, and hedgehog highways;
- sustainable drainage – grassy swales, detention basins, and ponds;
- plants chosen for wildlife – native trees and hedges, wildflower meadows, and fruit trees; and
- wildlife homes, from integrated bird boxes to frog hibernation spots.

Edible Ebbsfleet

Community gardens are another multifunctional green space. Edible Ebbsfleet, for instance, is a project that supported and worked with local residents to develop a series of small-scale food-growing initiatives along local streets, parks and gardens, both to transform the image of the area and to promote education about the health benefits of eating fresh fruit and vegetables. It also encouraged people to become more active, learn new cooking skills and to get to know their neighbours, increasing a sense of community in the area.

The Edible Garden at St Peter and St Paul Church Centre, Swanscombe. Photo by Edible Ebbsfleet.

These are all examples of the multiple ways you can incorporate and enhance GBI in an area, and the wide range of benefits it can have, such as improving physical and mental health, enhancing flood resilience, and providing financial benefits, to name but a few.

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