Sunderland Green Infrastructure Strategy

A105235

Sunderland City Council

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Contents

Executive Summary

Green Infrastructure (GI) describes the strategic network of green, brown and blue spaces that define, connect and intersperse our built environments. These deliver a wide range of socio-economic and environmental benefits, central to the quality of life and economic sustainability of our neighbourhoods and society as a whole.

The National Planning Policy Framework 2012 (NPPF), which guides the development of Local Plans and policies, recognises the importance of strategically planned GI both as an implicit objective in itself and as an aid to delivering the National NPPF's wider objectives towards sustainable development – such as healthy communities and economic prosperity.

This study was commissioned by Sunderland City Council to inform and support Sunderland's Core Strategy and Development Plan (CSDP) 2015-2033. It builds upon a wealth of work already conducted by the Council, in assessing the quality and quantity of greenspace provision in local neighbourhoods across the city and identifying a set of district and inter- district Green Infrastructure Corridors.

The importance of these Corridors in protecting and enhancing the existing GI assets that provide multiple benefits to people and wildlife across Sunderland is highlighted in this study. They define our settlements, whilst providing a connected landscape within which biodiversity, natural processes and ecosystem services can function. The natural capital we derive from these functions will become increasingly important to support sustainable growth alongside climate change and population expansion.

This study also builds upon the Council's Greenspace Audit and utilises a range of wider socio-economic and environmental indicators, relevant to the NPPFs objectives, in order to map where there is greatest area-based need for the public benefits that GI brings. The evidence base is then combined in order to highlight where there is greatest potential for economic, social, environmental and multi-functional outcomes from green infrastructure interventions. The resulting maps provide an overview of where enhancements to promote GI could deliver the greatest benefits for wildlife and people.

The study recognises that certain indicators require further refinement and that the mapping outputs must be considered only as an aid to strategic planning. Local knowledge and conditions; political and community values; ownership, partnerships, access and stewardship are all amongst further factors which must be considered and brought to bear in order to sustainably enhance and connect GI appropriately across the City.

Finally, a set of priorities is defined for GI delivery in Sunderland with a summary of recommended next steps to take the strategy forward. This includes the production of a Delivery and Action Plan, to identify projects, resources and partners, overcome barriers, and deliver the Council's aspirations for green infrastructure on the ground.

1.0 Introduction

1.1 Background and Purpose of the Study

Sunderland City Council (SCC) commissioned WYG Environment Planning Transport Ltd (WYG) in October 2017, to prepare a Draft Sunderland Green Infrastructure Strategy (SGIS) to inform and support the emerging Sunderland Core Strategy and Development Plan 2015-2033 (CSDP). The CSDP sets out a vision and objectives for development, planning and growth in Sunderland over the next 15 years. This SGIS aims to support the strategy with an evidence base and framework for Green Infrastructure (GI) delivery throughout the plan's implementation. It builds upon a wealth of work already conducted by the Council, in assessing the quality and quantity of greenspace provision in local neighbourhoods across the city and identifying a set of district and inter- district Green Infrastructure Corridors.

This SGIS builds upon the Council's Greenspace Audit and utilises a range of wider socio-economic and environmental indicators, relevant to the National Planning Policy Framework (2012) (NPPF) objectives, in order to map where there is greatest area-based need for the public benefits that GI brings. The evidence base is then combined in order to highlight where there is the greatest potential for economic, social, environmental and multi-functional outcomes from GI interventions. The resulting maps provide an overview of where enhancements to promote GI could deliver the greatest benefits for wildlife and people.

The final SGIS is proposed to be adopted as a Supplementary Planning Document to provide guidance in support of the Local Plan to inform planners, developers, stakeholders, individuals and organisations regarding the priorities for protection and enhancement of GI across the city.

A subsequent Delivery and Action Plan will be produced setting out a road map of prescriptive measures, projects and priorities for action to promote and take the strategy forwards to delivery. The Delivery and Action Plan will identify potential resources, partners and ways to overcome barriers, and will deliver the Council's aspirations for green infrastructure on the ground.

1.2 Benefits and Principles of Green Infrastructure

What is Green Infrastructure?

GI is defined in the NPPF as:

"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. [1]"

It is further defined by Natural England as:

"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. [2]"

As stated in the National Planning Practice Guidance (NPPG) document, GI "is not simply an alternative description for conventional open space.[3]" GI can include parks and gardens, amenity greenspace, woodlands, rivers and canals, road and rail corridors as well as street trees, allotments and private gardens. It includes landscapes, natural habitats, biodiversity and geological features, greenspaces and woodland, linear corridors and waterways. It further includes brownfield sites, re-generating previously developed land and the greener elements that soften the built environment.

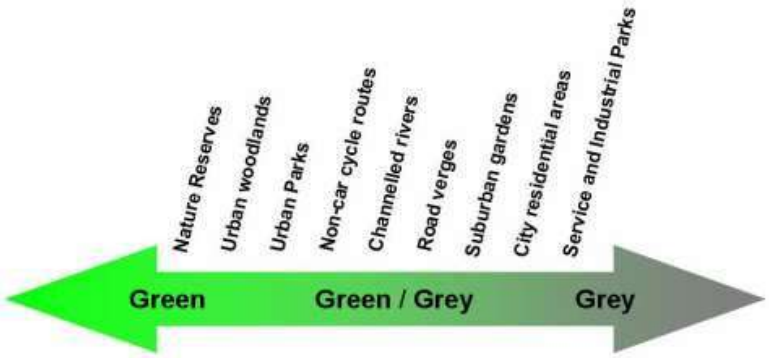


Figure 1: The Grey-Green continuum

[Source: Northwest Green Infrastructure Guide]

[1] Department for Communities and Local Government (2012) National Planning Policy Framework.

[2] Natural England (2009) Green Infrastructure Guidance.

[3] https://www.gov.uk/guidance/natural-environment (Paragraph 027, Reference ID 8-027-2160211)

Green Infrastructure is the network of green spaces and natural elements that intersperse and connect our cities, towns and villages. It is the open spaces, waterways, gardens, woodlands, green corridors, wildlife habitats, street trees, natural heritage and open countryside.

1.3 Why is Green Infrastructure Important?

High quality GI is central to creating an attractive, liveable city; helping current and future residents to enjoy the quality of life expected in a diverse vibrant city. It has an important role to play in the creation of residential and working environments in which people choose to live and invest. Sunderland is already a green city with access to beaches, parks, riverside and open countryside. However, there are considerable disparities in the quantity and quality of GI between neighbourhoods and economic centres. Well-designed GI has the potential to regenerate areas and benefit Sunderland's residents further, by attracting investment, improving access to green spaces, improving health and wellbeing and protecting and enhancing the natural environment. Therefore, the provision of GI is essential to Sunderland's plans for future growth.

It may be seen as the life support of an area; providing functions and environmental services to a community, such as employment, recreation, physical health and mental well-being, social interaction, contact with nature, drainage and flood management, climate change adaptation and pollution control.

"Research demonstrates that people who live in the greenest neighbourhoods experience lower all-cause mortality and lower mortality from circulatory diseases than similar people in less green neighbourhoods… Living in a literally greener and leafier neighbourhood is good for your health regardless of your economic circumstances."

(Urban Green Nation: Building the Evidence Base, CABE 2010)

The National Planning Practice Guidance (NPPG) states:

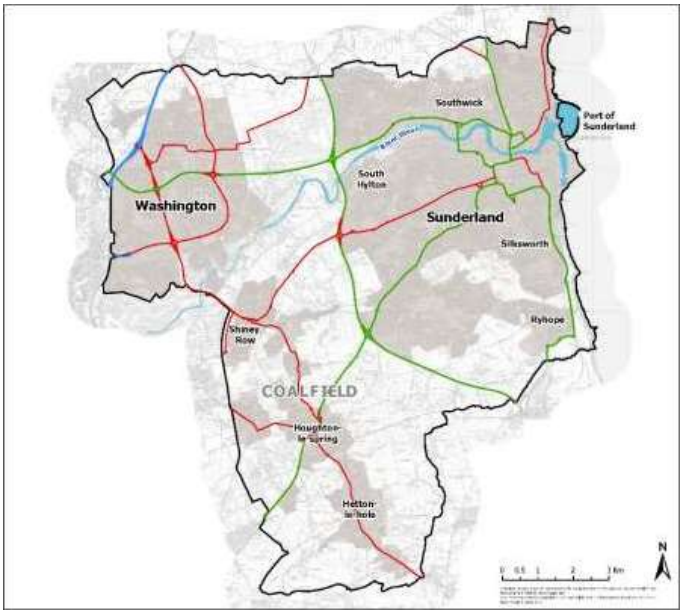
"Green infrastructure is important to the delivery of high quality sustainable development, alongside other forms of infrastructure such as transport, energy, waste and water. Green infrastructure provides multiple benefits, notably ecosystem services, at a range of scales, derived from natural systems and processes, for the individual, for society, the economy and the environment. To ensure that these benefits are delivered, green infrastructure must be well planned, designed and maintained. Green infrastructure should, therefore, be a key consideration in both local plans and planning decisions where relevant[4]."

[4] https://www.gov.uk/guidance/natural-environment (Paragraph 028 Reference ID 8-028-20160211)

1.4 Sunderland in Context

Sunderland is a green city with a wealth of natural assets, though it equally suffers significant areas of environmental and socio-economic deprivation. Protecting the GI assets that support prosperity and identifying priorities for enhancement and regeneration are therefore essential to complement and support the City`s future growth and success.

The city of Sunderland is located on the north-east coast of England and covers an area of 137 square kilometres, bounded by County Durham to the south and west, Gateshead to the north-west, South Tyneside to the north, and the North Sea to the east. The city is bisected by the River Wear which flows through areas of farmland, parks and the urban core, before reaching the Port of Sunderland and the sea.



The main built up area of Sunderland (including the city centre) lies to the east of the A19 and historically developed around the coal, shipbuilding industries and the port. Southwick, South Hylton, Silksworth and Ryhope also form part of the urban core area.

Outside the urban core, there are two further distinct sub areas. Houghton-le-Spring, Hetton-le-Hole and Shiney Row lie to the south and west of the city and are known as the Coalfield area due to their industrial past. To the north of the Coalfield area lies Washington, a new-town which has been part of the Sunderland district since 1974 (Sunderland City Council, 2017).

Sunderland has great variety in its natural environment and includes coastal, riverside and limestone landscapes. The city consists of two National Character Area classifications: the Tyne and Wear Lowlands and the Durham Magnesian Limestone Plateau.

Areas of the Sunderland coast are internationally protected, forming parts of the Northumbria Coast Special Protection Area (SPA) and the Durham Coast Special Area of Conservation (SAC), and also forms part of the Durham Heritage Coast. Whilst Sunderland forms part of the Tyne and Wear conurbation, it benefits from wide green infrastructure

corridors to the north, west and south of the main built-up area, as well as open countryside to the west and east of Houghton and Hetton and a green corridor along the River Wear that runs through the heart of the city. This makes it one of the greener cities in the UK. Indeed 57% (8000 ha) of Sunderland is undeveloped 'green' land, including greenspaces and open countryside (Sunderland Greenspace Audit 2012). This is in part due to Green Belt that helps to preserve open countryside through the centre and fringes of the city area and separating both the city from neighbouring towns as well as its three main areas from each other- Sunderland, Washington and Houghton-le- Spring / Hetton-le-Hole. Settlement Breaks further support open countryside to the south of Sunderland and Coalfield areas.

It is also due to major reclamation schemes carried out following industrial change, enabling improved access through green corridors and cycleways to the River Wear Estuary and the creation of a number of formal parks and country parks (including 5 with Green Flag Awards). Wider provision varies from larger features with restricted access including golf courses and several industrial/infrastructure sites to allotments of which Sunderland has 50% more than the England average recommendation.

Nevertheless, "environmental improvement" is a consistently prominent theme in consultations carried out with local residents and has also been highlighted as an important factor quoted by people who had moved away from the city. There is no clear distinction regarding the quantity of greenspace provision in urban and suburban areas, or between poorer and wealthier areas.

National organisations are noted within the Greenspace Audit as stating:

- Suburban areas tend to have more parks and greenspace than urban areas. In Sunderland there is no obvious pattern at all with parks. Central Sunderland has fewer greenspaces, but there are pockets of low greenspace on the periphery such as Town End Farm and Fencehouses that counter the theory.
- Urban areas have more sports pitches and recreation grounds. Again, this is not true in Sunderland. While the older, established areas may have more parks and therefore tend to have more tennis courts and bowling greens, the more rural Coalfield area by contrast has the highest concentration of cricket fields and golf courses. Colliery reclamation sites have provided new facilities in both urban and urban fringe locations, and the bulk of Washington New Town's football pitches are located on the urban fringe.
- Poor areas have less greenspace, wealthier areas tend to be the leafiest. There is an element of truth in this in Sunderland, but the city's success in land reclamation over the years mean that former colliery areas such as Ryhope, Silksworth, New Herrington and Hetton also rank very highly for overall greenspace provision.

It is clear, however, that deprived areas throughout Sunderland have the lowest greenspace quality (Greenspace Audit p116).

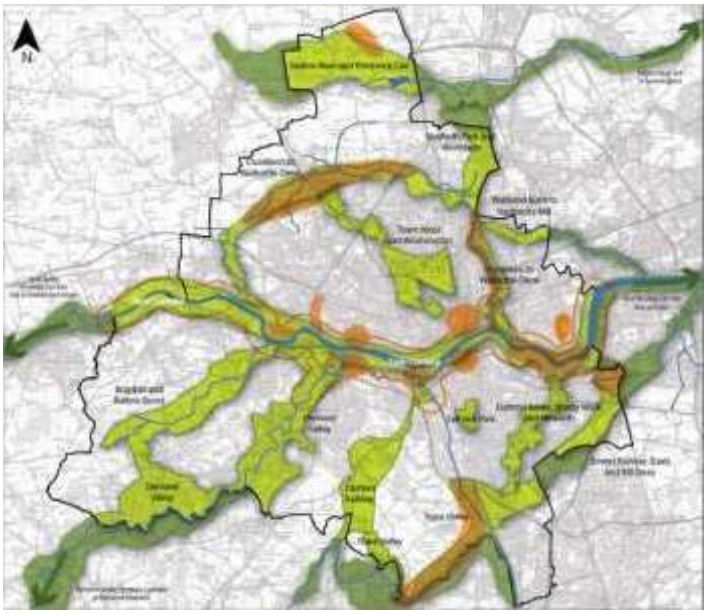
1.5 Cross Boundary Working

Sunderland borders the local authority areas of South Tyneside, Gateshead and Durham. Whilst this assessment was restricted to the administrative boundary of Sunderland, such administrative boundaries present no literal divides to the parks, cycleways and greenspaces of the real world. Further, it is through partnership working and the pooling of ideas and resources that the greatest change can be effected across landscapes. It is important therefore that GI strategies and delivery are consistent and support coordinated delivery.

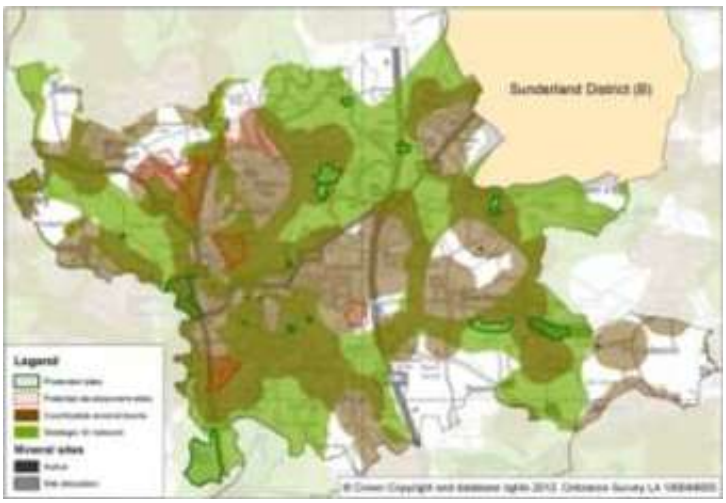
South Tyneside Green Infrastructure Strategy (February 2013) comprises the authority's Local Development Framework, Supplementary Planning Document (SPD3). It identifies 'improving links to neighbouring authorities' as an important objective and notes the Wearmouth – Jarrow Partnership; seeking to improve the Bede`s Way walking and cycle routes that connect the twin monasteries of St Paul's in Jarrow and St. Peters in Monwearmouth, Sunderland. The creation of new cycle routes to increase connectivity to Sunderland and Gateshead is also identified as a priority including an Enterprise Zone Link cycle route to link with the Sunderland Nissan Site.

The district's primary wildlife corridors include the Green Belt that runs east-west between South Tyneside and Sunderland. A joint venture partnership has been formed between the councils to deliver an International Advanced Manufacturing Plant, north of the Nissan car manufacturing plant in this area, including creation of an Ecological Landscape Mitigation Area (ELMA) to offset the adverse ecological effects of development within this inter-district GI Corridor.

The Newcastle City Council and Gateshead Council Green Infrastructure Strategy Report (August 2011) also identifies Herrington Country Park and James Steel Park as visitor destinations based on Green Infrastructure, with reference to the spatial context and strategic GI links of the authority.



The County Durham Plan: County Durham Green Infrastructure Strategy, September 2012, includes a Key Action (Statement 13) of ensuring cross-boundary connectivity with both Gateshead and Sunderland Local Authority areas. A further stated action is improving habitats and access along the Gaunless and Wear, incorporating the route of the Weardale Way and Coast to Coast cycle route, and developing Green Links to Sunderland, Durham, Stanley and other settlements. It notes proposals to create a Local Nature Partnership between County Durham, Gateshead, Sunderland and South Tyneside to raise awareness about the services and benefits of a healthy natural environment.



Since 2001, Sunderland City Council also partners with the following organisations / groups working towards the conservation, protection and enhancement of Durham Heritage Coast, an area defined by Natural England as representing some of the most special, undeveloped coastlines in the country:

- Durham County Council
- Durham Wildlife Trust
- Natural England
- Environment Agency
- Groundwork
- Hartlepool Borough Council
- National Trust
- Northumbrian Water
- Ryhope Development Trust
- Seaham Town Council
- Blackhall Regeneration Partnership
- Easington Colliery Regeneration Partnership
- Horden Regeneration Partnership.

The Partnership is due to publish a Heritage Coast Management Plan which sets out key objectives to guide management of the Heritage Coast between 2018 and 2025.

2.0 Policy Context & Green Infrastructure Guides

2.1 Introduction

This section provides an overview of current and emerging policies relating to green infrastructure. Current policy recognises that the provision of GI not only relates to the environment but has wider economic and social benefits. The GI Strategy will be embedded into the City of Sunderland's wider policy framework and strategic planning activities.

2.2 International / National Policy Context

2.2.1 7th Environment Action Programme (EAP)

The 7th EAP guides European environment policy until 2020[5]. To give more long-term direction, it sets out a vision of where the Union should be by 2050, stating:

"In 2050, we live well, within the planet's ecological limits. Our prosperity and healthy environment stem from an innovative, circular economy where nothing is wasted and where natural resources are managed sustainably, and biodiversity is protected, valued and restored in ways that enhance our society's resilience. Our low-carbon growth has long been decoupled from resource use, setting the pace for a safe and sustainable global society."

The programme lists nine priority objectives and what the EU needs to do to achieve them by 2020. They are:

- To protect, conserve and enhance the Union's natural capital;
- To turn the Union into a resource-efficient, green and competitive low carbon economy;
- To safeguard the Union's citizens from environment-related pressures and risks to health and wellbeing;
- To maximise the benefits of the Union's environment legislation by improving implementation;
- To increase knowledge about the environment and widen the evidence base for policy;
- 5 European Union (2014) General Union Environment Action Programme to 2020. Living well, within the limits of our planet.
- To secure investment for environment and climate policy and account for the environmental costs of any societal activities;
- To better integrate environmental concerns into other policy areas and ensure coherence when creating new policy;
- to make the Union's cities more sustainable; and,
- to help the Union address international environmental and climate challenges more effectively.

[5] European Union (2014) General Union Environment Action Programme to 2020. Living well, within the limits of our planet.

The programme entered into force in January 2014 and it is up to the EU institutions and the Member States to ensure it is implemented, and that priority objectives set out are met by 2020. The 7th EAP directly impacts upon the EU Covenant of Mayors Agreement to which Sunderland City Council has been a signatory since 2007.

2.2.2 European Landscape Convention (ELC)

The ELC is the first international instrument to deal in an integrated manner with the whole landscape. It provides an international context for landscape, placing this important resource alongside biodiversity and cultural heritage[6].

The ELC came into force in the UK on the 1st March 2007, with the aim of enhancing and protecting all urban, suburban and rural landscapes of England. The ELC requires landscape to be integrated into regional and town planning policies in cultural, environmental, agricultural, social and economic policies, as well as any other policies with possible direct or indirect impacts on landscape. The ELC argues that the protection, management and planning of all landscapes in Europe is a task not just for governments, but for all sectors of civil society, entailing 'rights and responsibilities for everyone'.

Natural England is leading the implementation of the ELC in England through the preparation of Action Plans. This GI strategy takes account of proposed actions for the North East.

2.2.3 The Natural Environment White Paper 2011

The Government's Natural Environment White Paper, The Natural Choice: Securing the Value of Nature[7], refers to the role of planning in protecting and improving the natural environment and developing resilient ecological networks'. A number of policies and initiatives were introduced, including:

- Local Nature Partnerships, which are encouraged to work closely with Local Enterprise Partnerships (LEPs) and Health & Wellbeing Boards to, among other things, contribute to local plan and decision making.
- Nature Improvement Areas (NIAs), which are intended to enhance and reconnect nature on a significant scale.
- Biodiversity offsets, which are conservation activities designed to deliver biodiversity benefits in compensation for losses in a measurable way.
- The Green Infrastructure Partnership, which was launched in 2011 to support the development of GI in England. It considers how GI can be enhanced to strengthen ecological networks and improve communities' health, quality of life, and resilience to climate change.

[6] Natural England and Land Use Consultants (2009) Guidelines for Implementing the European Landscape Convention. Part 1: What does it mean for your organisation?

[7] HM Government (2011) The Natural Choice: securing the value of nature.

The Natural Environment White Paper Implementation update report (Defra, 2014)[8] states that "there has been ongoing good progress implementing the commitments with three quarters of the commitments now assessed as 'complete' and many others well underway. The White Paper sets long term ambitions. Many of the "completed" commitments represent initial steps, albeit important ones, towards these ambitions and we are putting in place important foundations for the future."

2.2.4 Biodiversity 2020

Published by Defra in 2011, the biodiversity strategy for England's wildlife and ecosystem services builds on the Natural Environment White Paper and aims to provide a comprehensive picture of how we are implementing our international and EU commitments.

Biodiversity 2020 outlines the Government's vision for the natural environment, shifting the emphasis from piecemeal conservation action towards a more integrated landscape-scale approach. It also sets out how we can better value the natural environment in decision-making and thereby unlock growth in the green economy and reconnect people with nature[9].

2.2.5 Natural Environment and Rural Communities Act 2006

The Natural Environment and Rural Communities (NERC) Act came into force on 1st Oct 2006. Section 41 (S41) of the Act requires the Secretary of State to publish a list of habitats and species which are of principal importance for the conservation of biodiversity in England.

The S41 list is used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under section 40 of the Natural Environment and Rural Communities Act 2006, to have regard to the conservation of biodiversity in England, when carrying out their normal functions.

2.2.6 The Localism Act 2011

This act introduced the duty to cooperate to encourage local authorities and other public bodies work together on planning issues in ways that reflect genuine shared interests and opportunities to make common cause. It stipulates that the content of Local Plans will be shaped by the content of the National Planning Policy Framework, and also introduces a new voluntary neighbourhood planning process.

2.2.7 National Planning Policy Framework (NPPF) 2012

The National Planning Policy Framework sets out the Government's planning policies for England and how these are expected to be applied. It sets out the Government's requirements for the planning system only to the extent that it is relevant, proportionate and necessary to do so. It provides a framework within which local people and their accountable

[8] DEFRA (2014) Natural Environment White Paper Implementation Update Report. October 2014.

[9] DEFRA (2011) Biodiversity 2020: A strategy for England's wildlife and ecosystem services.

councils can produce their own distinctive local and neighbourhood plans, which reflect the needs and priorities of their communities.

With reference to GI, Paragraph 99 of the NPPF states:

"Local Plans should take account of climate change over the longer term, including factors such as flood risk, coastal change, water supply and changes to biodiversity and landscape. New development should be planned to 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."

Paragraph 114 states:

"Local planning authorities should:

- set out a strategic approach in their Local Plans, planning positively for the creation, protection, enhancement and management of networks of biodiversity and green infrastructure; and
- maintain the character of the undeveloped coast, protecting and enhancing its distinctive landscapes, particularly in areas defined as Heritage Coast, and improve public access to and enjoyment of the coast."

2.2.8 National Planning Policy Guidance (NPPG)

The Government's planning practice guidance website[10] provides detailed advice regarding the natural environment. This includes detailed guidance regarding biodiversity, ecosystems and green infrastructure.

Paragraph 029 States:

"What is a strategic approach to green infrastructure?

To assist in planning positively for green infrastructure local planning authorities may wish to prepare an authority-wide green infrastructure framework or strategy. This should be evidence-based by, for example, including an assessment of current green infrastructure provision that identifies gaps in the network and the components and opportunities for improvement. The assessment can inform the role of green infrastructure in local and neighbourhood plans, infrastructure delivery plans and Community Infrastructure Levy (CIL) schedules.

Local Plans should identify the strategic location of existing and proposed green infrastructure networks. Where appropriate, supplementary planning documents can set out how the planning, design and management components of the green infrastructure strategy for the area will be delivered.

[10] https://www.gov.uk/guidance/natural-environment

This strategic approach to green infrastructure may cross administrative boundaries. Therefore, neighbouring authorities, working collaboratively with other stakeholders including Local Nature Partnerships (LNPs) and Local Enterprise Partnerships (LEPs), may wish to consider how wider strategies for their areas can help address cross-boundary issues and help meet the Duty to Cooperate."

NPPG guidance identifies that GI can deliver a variety of planning policies including:

- Building a strong, competitive economy
- Delivering a wide choice of high quality homes;
- Good quality design;
- Promoting healthy communities;
- Meeting the challenge of climate change, flooding and coastal change; and,
- Conserving and enhancing the natural environment.

2.2.9 25 Year Environment Plan

Defra published their 25 Year Environment Plan[11] in January 2018. The plan sets out government action to help the natural world regain and retain good health and calls for an approach to land use that puts the environment first. The plan also aims to set gold standards in protecting and growing natural capital – leading the world in using this approach as a tool in decision-making, taking into account the often hidden additional benefits in every aspect of the environment for national wellbeing, health and economic prosperity.

More specifically in relation to green infrastructure, policies within the 25 Year Environment plan include the following measures:

- "Embedding an 'environmental net gain' principle for development, including housing and infrastructure;
- Focusing on woodland to maximise its many benefits (including supporting the development of a new Northern Forest along the M62 corridor);
- Reducing risks from flooding and coastal erosion including expanding the use of natural flood management solutions and putting in place more sustainable drainage systems;
- Protecting and recovering nature and developing a Nature Recovery Network providing 500,000 hectares of additional wildlife habitat, more effectively linking existing protected sites and landscapes, as well as urban green and blue infrastructure;
- Helping people improve their health and wellbeing by using green spaces including encouraging children to be close to nature, in and out of school, with particular focus on disadvantaged areas; and

[11] *DEFRA (2018) A Green Future: Our 25 Year Plan to Improve the Environment*

- Greening our towns and cities by creating more green infrastructure and planting more trees in and around our towns and cities.

2.3 Sunderland Policy Context

This section provides an overview of current policies and strategy relating to green infrastructure in Sunderland.

2.3.1 Sunderland Unitary Development Plan (UDP)

The current adopted Local Plan for Sunderland is the Unitary Development Plan (UDP) 1998 and UDP Alteration No.2 (2007). These policies will remain as saved policies and part of the Development Plan until such time as the Core Strategy and Development Plan and the Allocations & Designation Plan are adopted. There are no specific policies relating to GI, though Policy CN23 addresses 'wildlife corridors' and these routes broadly reflect those originally identified in the Tyne and Wear Nature Conservation Strategy.

2.3.2 Sunderland Local Plan

Sunderland's Statutory Local Plan is being prepared in three parts:

Part One – Core Strategy and Development Plan (2015-2033) (hereafter referred to as CSDP or the Plan), which will set out an overarching strategy for future change and growth in the city and include detailed development management policies. It is a strategic Plan which covers the period 2015 to 2033. The CSDP will cover the whole of the area within Sunderland's administrative boundaries.

The CSDP will, once it is adopted, become part of the city's statutory planning framework; guiding decisions on all development and regeneration activity over the period to 2033. The CSDP will replace some of the saved policies of the Sunderland Unitary Development Plan (UDP) 1998 and UDP Alteration No. 2 (2007) which covers the Central Sunderland area. A number of policies will remain saved policies and will continue to be used in the determination of planning applications until such time that they are replaced by the Local Plan Part 2: Allocations and Designations Plan.

Part Two – Allocations and Designations Plan; which will set out site specific policies for the development, protection and conservation of land in the city in order to deliver the overall strategy set out in the CSDP.

Part Three – International Advanced Manufacturing Park (IAMP) Area Action Plan (AAP) 2017 – 2037; which sets out site specific policies for the delivery of a large advanced manufacturing park on land to the north of the existing Nissan car manufacturing plant. Sunderland City Council and South Tyneside Council adopted the Plan in November 2017.

The CSDP seeks a positive and proactive approach to the environment in Sunderland, with the emphasis on achieving quality places that are attractive and sustainable, and which contribute to quality of life, community wellbeing and local character.

With reference to the environment, the CSDP includes policies to:

- Deliver high quality design, creating attractive and accessible buildings and public realm that create distinctive and attractive places;
- Protect, preserve and enhance the historic environment and culture of the city; and
- Conserve and enhance the city's natural environment and protect local environmental quality.

The CSDP recognises the need to secure the welfare of the city's environment is a core priority for the Council, and states that "the city's natural environment provides green infrastructure that is essential to urban living, providing more attractive living and working environments and consequently economic and social benefits."

With reference to GI, Policy NE1 within the CSDP states the following:

- "To maintain and improve the Green Infrastructure Network through enhancing, creating and managing multifunctional greenspaces and bluespaces that are well connected to each other and the wider countryside, development should:
  1. incorporate existing and/or new green infrastructure features within their design and to improve accessibility to the surrounding area;
  2. address corridor gaps and areas of corridor weakness where feasible;
  3. support the management of existing wildlife corridors, including reconnecting vulnerable and priority habitats (see policy NE2);
  4. apply climate change mitigation and adaptation measures, including flood risk and watercourse management;
  5. link walking and cycling routes to and through the corridors, where appropriate;
  6. include and/or enhance formal and natural greenspace and bluespace provision;
  7. protect and enhance landscape character; and
  8. have regard to the requirements of the Green Infrastructure Delivery Plan and make contributions proportionate to their scale towards the establishment, enhancement and on-going management.

Development that would sever or significantly reduce green infrastructure will not normally be permitted unless the need for and benefits of the development demonstrably outweigh any adverse impacts and suitable mitigation and/or compensation is provided.

Green Corridors

District and inter-district green infrastructure corridors are identified within the CSDP and will be specifically included in the Allocations and Designations Plan. These corridors aim to build on the existing network, linking the city to the wider region and broadening the range and quality of functions that green infrastructure provides within the city. The corridors are based upon the outcomes of previously developed strategies, as discussed further in Section 4, and have been updated by the recommendations of this strategy.

2.3.3 Sunderland Greenspace Audit and Report 2012 and 2018 Update

The Sunderland Greenspace Audit and Report was designed to set local standards and guidelines based on assessments of local needs, demographics and audits of existing open spaces. It provided the basis for addressing quantitative and qualitative deficiencies through the planning process and recommended policies and actions for inclusion within Council documents.

The audit identified that overall, Sunderland is well provided for in terms of greenspace provision, but not all residents have access to a range of greenspaces that would encourage healthy and active lifestyles to be realised, and in some cases, there are greenspaces that are poorly used due to design and/or location.

The Greenspace Audit proposed the following policy recommendations:

- "Set greenspace guidelines and standards that seek to minimise inequalities in terms of greenspace provision, that in turn will ensure that all areas have a range of greenspaces accessible to them.
- The quality of existing greenspaces should be improved in general, and especially in the more deprived parts of the city.
- Alter the use of some types of greenspace, to enable more greenspace variety in green areas.
- Where justified and agreed, re-use low value greenspaces for other forms of development, ensuring that funds are provided and re-used to improve other greenspace within the neighbourhood.
- Better promote our Greenspace "product":
    - Highlight to inward investors that Sunderland is a green city and has high standards and variety of greenspaces on offer;
    - Ensure that we maximise the publicity regarding the coast, river and natural environment;
    - Focus on promoting regional tourist activities such as the National Cycle Network, facilities at the marina and in our parks and country parks."

2.3.4 Sunderland Health and Well Being Strategy (2013)

Sunderland's Health and Wellbeing Strategy aims to make best use of all resources in order to achieve better health and wellbeing outcomes. It notes that differences in people's health

result from differences in the opportunities that people are able to take advantage of during their lives. The strategy aims to develop healthy and sustainable places and communities; it is recognised that Sunderland has an attractive coast and easy-to-reach countryside and urban green spaces that provide opportunities for promoting an active lifestyle.

2.3.5 Economic Masterplan (2010)

The Economic Masterplan includes an includes an aim to develop the city as a national hub of the low carbon economy. Green infrastructure is seen as an important element in successful 'villages' providing attractive settings for homes, a cared for, sustainable, well managed environment with green spaces for recreation and exercise.

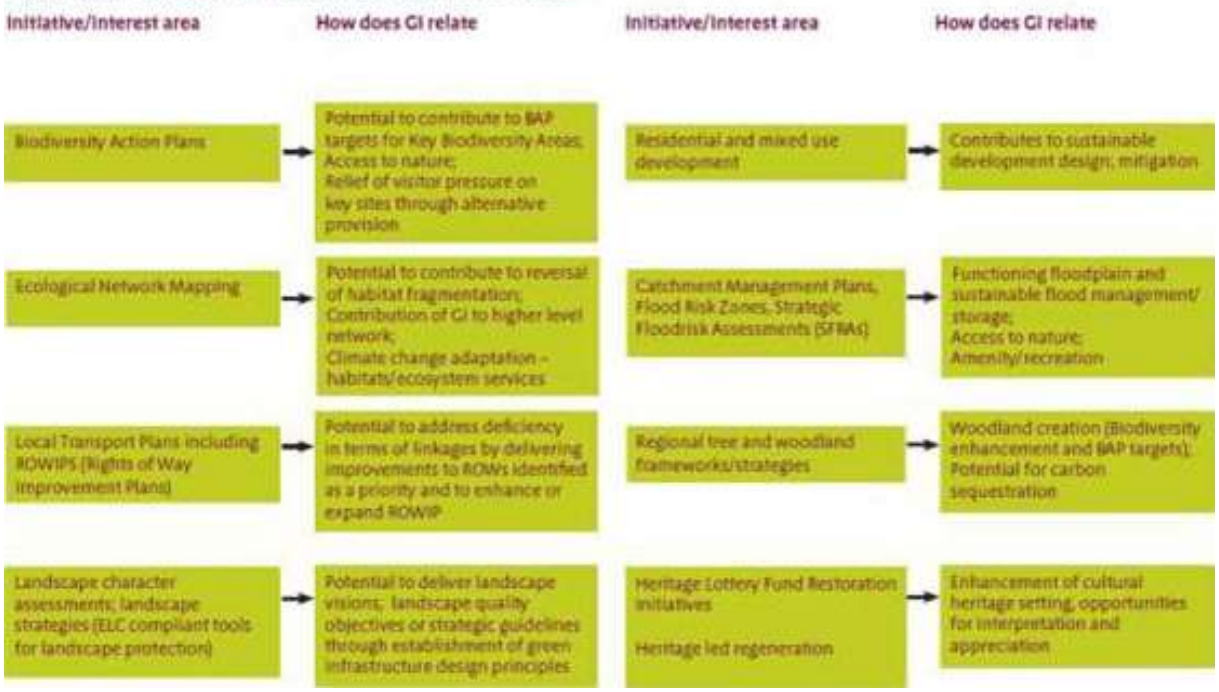
2.4 Green Infrastructure Guides

2.4.1 Natural England GI Guidance

The Natural England (NE) GI guidance assists readers to:

- work with local authority and other partners to explain, promote and support green infrastructure strategic planning and delivery; and,
- understand how green infrastructure relates to Natural England's wide remit and its strategic objectives (Natural England and LUC, 2009).

Fig 4.1: Relationship of green infrastructure to partners' objectives



Natural England recommends that all local authorities prepare a Green Infrastructure Strategy. Strategies can be produced at the sub-regional scale (by a number of local authorities) or at the local authority level. NE recommended that GI strategies are prepared early in the evidence gathering process when making spatial plans. The preparation of a GI

strategy has benefits to stakeholders as it can articulate the GI planning process neatly, bringing all relevant partners and initiatives together under a 'common focus', and enhancing the understanding of green infrastructure assets. They also link strongly to other environmental, social and economic strategies and policies. GI strategies set out a clear vision and framework for green infrastructure, which can be applied across local authority boundaries.

2.4.2 The North East Green Infrastructure Planning Guide

The North East Green Infrastructure Guide (2006) sets out a methodology to be used in the preparation of a GI Strategy using Geographical Information Systems (GIS). It underlines the importance of ensuring that green space is multi-functional and provides for sustainable resource management, biodiversity, recreation, landscape and regional development/promotion.

3.0 Green Infrastructure Mapping Methodology

3.1 Establishing the Baseline

A large amount of social, environmental and economic data with relevance to GI was gathered and assembled in a GIS database. Key themes were identified from the policies contained in NPPG and NPPF, and with reference to Green Infrastructure Guides (e.g. Natural England)). These themes were evaluated against the available data for their suitability to be mapped and scored in GIS software. The resulting suite of thematic maps for economic, social and environmental factors highlight the areas of greatest GI deprivation. Combining these maps into a map of multifunctional need identifies the areas where provision of GI may provide the greatest benefits. The following sections outline the approach/methodology adopted.

3.1.1 Data Collation

The first step was to identify and collate the key baseline datasets relevant to mapping Green Infrastructure in Sunderland and the datasets that relate to the key documents underpinning the study.

3.1.2 Existing Data

Key data sources forming the baseline include the following (a complete schedule of datasets is provided in Appendix A):

- Sunderland Greenspace Audit and Report 2012 (Sunderland CC);
- Sunderland Phase 1 Habitat Survey 2011;
- Designated biodiversity sites (Natural England / Sunderland CC);
- Designated historic sites (Historic England);
- Designated landscapes (Natural England);
- City of Sunderland Landscape Character Assessment 2015 (LUC);
- Public Rights of Way and Cycle Routes (Sunderland CC);
- Flood zone data (Environment Agency) and surface water vulnerability (SCC);
- Planning policy (Sunderland CC);
- Index of Multiple Deprivation (ONS);
- Ordnance Survey base mapping; and,
- Aerial photography.

All datasets were obtained in ESRI Shapefile format for mapping and processing in ArcGIS software. For consistency, all GIS datasets and maps have been stored in a Transverse Mercator projection in Ordnance Survey 1936 British National Grid coordinates.

3.1.3 Green Infrastructure Typology

The 2012 Greenspace Audit for Sunderland employed an adapted version of PPG17's greenspace typologies to "better reflect local circumstances" and applied the following classification:

- Amenity Greenspace;
- Provision for Children and Young People
- Natural and semi-natural greenspace
- Formal Parks and Country Parks;
- Allotments and Community Gardens;
- Outdoor Sports Facilities;
- Green Corridors;
- Cemeteries and church grounds
- Civic Spaces
- Accessible Countryside;
- Coast and Estuary; and,
- School Playing Fields and Grounds.

The Greenspace Audit assigned a primary purpose from one of the above categories to each site, with those sites with multiple uses assigned a 2nd, 3rd, 4th, 5th and 6th purpose where necessary. In addition, the Greenspace Audit evaluated each site against 60 criteria, which were combined and weighted to provide an overall score for each site.

For this study the Greenspace Audit typology has been adopted and supplemented with additional categories to map areas not covered by the Greenspace Audit, including:

- Agricultural land – identified from Phase 1 Habitat Survey;
- Rivers and standing water – identified from Phase 1 Habitat Survey and Environment Agency datasets; and,
- Brownfield land – data provided by Sunderland City Council.

Private gardens have not been included in the mapping and analysis of the green infrastructure resource due to the volume and resolution of associated data and their highly variable nature.

3.2 Defining Mapping 'Themes'

3.2.1 Identifying Green Infrastructure Functions for Analysis

NPPF includes 13 "key themes" for Delivering Sustainable Development as follows:

1. Building a strong, competitive economy;
2. Ensuring the vitality of town centres;
3. Supporting a prosperous rural economy;
4. Promoting sustainable transport;
5. Supporting high quality communications infrastructure;
6. Delivering a wide choice of high quality homes;
7. Requiring good design;
8. Promoting healthy communities;
9. Protecting Green Belt land;
10. Meeting the challenge of climate change, flooding and coastal change;
11. Conserving and enhancing the natural environment; and,
12. Conserving and enhancing the historic environment.

The Natural Environment section of NPPG refers specifically to six of the key themes (1, 6, 7, 8,10, and 11) when discussing how GI can help deliver sustainable development. In addition, following a review of the key themes, we consider key themes 2, 3, 4 and 12 also to have relevance to GI.

Using these key themes as an outline, an initial list of the functions provided by GI was derived, and these were considered in terms of relevance to the study and how they may be mapped in GIS. Several functions support more than one of the NPPF Key Themes. Some functions were excluded because relevant data is not readily available, data coverage is incomplete for the Sunderland area, or the data is only mapped at a local authority or regional scale. The remaining list of GI functions is shown in Table 1 below and categorised as Environmental, Economic or Social Functions. A fourth category of Multi- functionality combines these functions to map the presence of existing multi-functional greenspace and highlight areas of potential uplift where new green infrastructure, links and connections could provide multiple benefits. An expanded version of this table is provided in Appendix B which includes a list of the data used and an outline of the scoring methodology for each of the maps.

Table 1: Green Infrastructure functions considered

Category	Objective / Supporting NPPF Theme	Green Infrastructure Benefit	Map Theme
Economic	Building a strong competitive economy NPPF 1	Green infrastructure can drive economic growth and regeneration, helping to create high quality environments which are attractive to businesses and investors.	Map ECO1: **A Setting for Business and Strategic Investment** Map ECO2: **Economic Gateways**
Economic	Building a strong competitive economy NPPF 1	An attractive workplace can contribute to mental wellbeing and promote exercise, social interaction and outdoor events. Such factors contribute to employee productivity	Map ECO3: **Labour Productivity & Recreation**
Economic	Building a strong competitive economy NPPF 1	Green infrastructure can provide opportunities for learning and training, giving excluded people opportunities to enter the world of work.	Map ECO4: **Unemployment** Map ECO5: **Adult Qualifications**
Economic	Supporting a prosperous rural economy NPPF 3	Green Infrastructure can provide a setting for wider tourism assets and provide connectivity to promote movement between assets	Map ECO6: **A Setting for Tourism** Map ECO7: **Tourism Linkages**
Economic	Delivering a wide choice of high quality homes NPPF 6	Uplift values of existing stock through better surroundings and access to greenspaces	Map ECO8: **House Prices**

Category	Objective / Supporting NPPF Theme	Green Infrastructure Benefit	Map Theme
Social	Delivering a wide choice of high quality homes NPPF 6	Green infrastructure can help deliver quality of life and provide opportunities for recreation, social interaction and play in new and existing neighbourhoods.	Map SOC1: **Housing – Growth Areas & Allocations** Map SOC2: **ANGST – 300m: Population Age & Density**
Social	Promoting healthy communities NPPF 8	Green infrastructure can improve public health and community wellbeing by improving environmental quality, providing opportunities for recreation and exercise and delivering mental and physical health benefits.	Map SOC3: **ANGST (20Ha & 500Ha)** Map SOC4: **Sports Facilities** Map SOC5: **Health Deprivation**
Social	Environmental education NPPF 8	Green Infrastructure can play a part in the National Curriculum for a number of study topics, including arts, science and physical education. It can also contribute to skills development both through school-based and vocational training institutions. Indeed, there is an undisputed link between the design and nature of environments and the attitudes of children who use them	Map SOC6: **Education Deprivation**

Category	Objective / Supporting NPPF Theme	Green Infrastructure Benefit	Map Theme
Environmental	Meeting the challenge of climate change, flooding and coastal change NPPF 10	Green infrastructure can help urban, rural and coastal communities mitigate the risks associated with climate change and adapt to its impacts by storing carbon; improving drainage (including the use of sustainable drainage systems) and managing flooding and water resources; improving water quality; and; where appropriate, supporting adaptive management in coastal areas.	Map ENV1: **Flood Alleviation and Mitigation** Map ENV2: **Water Quality**
Environmental	Reducing air and noise pollution NPPF 8	Green infrastructure also helps reduce air pollution and noise.	Map ENV3: **Air Quality** Map ENV4: **Noise Pollution**
Environmental	Conserving and enhancing the natural environment NPPF 11	High quality networks of multifunctional green infrastructure provide a range of ecosystem services and can make a significant contribution to halting the decline in biodiversity.	Map ENV5: **Biodiversity Sites**
Environmental	Conserving and enhancing the historic environment NPPF 12	Green Infrastructure can provide better opportunities for people to value and enjoy the region's heritage and participate in cultural and recreational activities	Map ENV6: **Cultural Heritage**

Category	Objective / Supporting NPPF Theme	Green Infrastructure Benefit	Map Theme
Environmental	Protecting Green Belt land NPPF 9	Green Infrastructure within the Green Belt can provide important opportunities for outdoor sport and recreation; to retain and enhance landscapes, visual amenity and biodiversity; and to improve damaged and derelict land. Community Forests offer valuable opportunities for improving the environment around towns, by upgrading the landscape and providing for recreation and wildlife.	Map ENV7: **Green Belt**
Multifunctional Analysis	Various	All within and/or across themes	Map ECO9: **Economic Theme Combined** Map SOC7: **Social Theme Combined** Map ENV8: **Environmental Theme Combined** Map MULTI1: **Combined Themes** Map MULTI2: **Combined Themes with Corridors**

3.2.2 Selection of Relevant Data

For each of the functions listed in Table 1 above, existing data was mapped in GIS and considered both for its relevance to the function and as to how the data might be scored. Data was excluded if there were large gaps in the coverage across the Sunderland area, if there was an evident mismatch of scale, or if noticeable discrepancies existed in the associated attribute data. For many of the functions, more than one data source has been combined to map the greenspace resource, such as the Greenspace Audit with extracts of the Phase 1 Habitat Survey, and this in turn has been combined with contextual data such as designated sites, planning policy, landscape character and indices of deprivation. The datasets selected to analyse each function are listed in Appendix B.

3.2.3 Developing a Scoring System

A heat map approach was chosen as the most appropriate method to score and visualise each green infrastructure function and the overall multifunctionality with red areas on the maps scoring highest and blue areas scoring lowest. Each of the green infrastructure functions has been scored on a simple numerical scale of 0 to 5, with 5 representing those areas which may offer opportunities for potential maximum uplift. The scoring criteria for each function is set out in Appendix B, with points awarded for areas which, for example, have below average provision or quality of greenspace, are in the bottom quartiles of the Indices of Multiple Deprivation (IMD) domains, are outside specified catchment distances, or are assessed poorly for criteria such as visual amenity or accessibility amongst other factors.

Each scored function map was converted into raster format in GIS, with each grid cell in the raster representing an area of 5x5 metres. The rasterised maps for the functions for each category were added together using the ArcGIS Spatial Analyst extension to provide an overall score for the Economic, Social and Environmental Themes (Maps ECO9, SOC7 and ENV8).

Further, the three category maps have been added together to provide a multifunctional map (Map MULTI1). To ensure an equal weighting for each category, each of the scored category maps was multiplied by a constant factor to generate scores in the range of 0 to 5 before the three maps were added together.

3.2.4 Gap Analysis

It is worth noting that a large amount of data was made available for this study which allowed the suite maps in Table 1 to be created. However, a number of data gaps were identified, which in some cases resulted in functions being excluded from the analysis, or an alternative method sought to adequately represent the function being analysed. Key data omissions are outlined below.

Private gardens are not included in the Greenspace Audit or Phase 1 Habitat data. Although these areas cannot be considered as contributing to the public greenspace resource, they can provide an important resource for biodiversity, supporting wildlife corridors, and assist in mitigating water runoff.

The analysis of greenspace provision and catchments has not included individual residential properties as location data for these was unavailable. Similarly, detailed location data for businesses and employee numbers has not been included. Future analyses could make use of Ordnance Survey AddressBase products and / or the records from a Local Land and Property Gazeteer. A complete list of tourist sites was also unavailable, so the tourist sites included in the analyses have been primarily sourced from sites promoted on the See It Do It Sunderland website.

An analysis of food production was excluded due to limitations with Agricultural Land Classification (ALC) data. The Provisional 1998 ALC map was drawn at 1:250,000 scale so the boundaries do not necessarily conform to the rural / urban areas and a number of sites have since been developed on former agricultural land. The 1998 data also does not distinguish between Grade 3a and Grade 3b land. The post 1998 data, which does

distinguish between Grades 3a and 3b, is sourced from surveys but the data coverage is only partial.

Water quality data was unavailable for the local watercourses i.e. those which are not managed / surveyed by the Environment Agency; Map 21 does not therefore show all water quality issues in Sunderland.

With regards biodiversity, condition data was not readily available for designated biodiversity sites other than the SSSIs. Boundary data for Durham Wildlife Trust reserves was not available so these have been digitised. Further, habitat and species connectivity mapping has not been included in the analyses. Natural England Priority Habitat data has been excluded from the mapping, because, outside of the designated sites, the confidence in data accuracy is stated as low; checks against the Phase I Survey confirm the inaccuracy of the data e.g. Priority heath habitat is cultivated arable land.

3.3 Notes and Limitations

General notes and limitations relevant to the suite of maps are discussed below. A consideration of the limitations relevant to each map are discussed briefly in the appropriate sections below.

The mapping and analysis of green infrastructure has been undertaken using existing data sources that are available in GIS format. Data gathering in the field was beyond the scope of this study and digitising was only undertaken for a very small number of sites (e.g. Wildlife Trust reserves).

Two of the primary data sources used in the analysis, namely the Greenspace Audit and Phase 1 Habitat Survey are based on surveys carried out in 2010 - 2011. This data is used to identify trends where intervention is most required but the datasets will not include any changes in the pattern or type of greenspace that have occurred since the surveys were undertaken and the scores assigned to each site by the Greenspace Audit reflect the condition, accessibility, use, visual amenity etc. of the site as it was in 2010-2011. More up to date versions of this data (i.e. from 2018) will be available to inform the Delivery and Action Plan to allow any changes to be taken into consideration.

The sites included in the Greenspace Audit can include multiple types and uses e.g. formal parks and gardens which contain sports facilities, areas of natural greenspace, historic features etc. These "contained" areas are mapped to the extent of the site and thus may be shown larger than their actual size.

To adequately represent features that are stored as polylines in GIS (e.g. PROWs and hedgerows) these have been mapped with a small buffer applied, thus ensuring these features are not lost from the function maps when converted to 5m resolution raster grids.

Features outside of the Sunderland City Council boundary are largely excluded from the analyses; this may contribute to low scoring for areas along the boundary particularly with respect to analyses that employ buffer/catchments distances (e.g. outdoor sports provision). Where catchments have been included in the analysis, these have generated based on

straight-line distance from features rather than from an analysis of the actual road/path network.

The Land Registry Prices Paid data was found to include transaction data for business properties (including large employment sites) as well as private house sales. The business properties have been excluded from the data where possible but the analysis shown on Map 10 may still include some business employment transactions.

It is worth noting that not all available data has been included in the analyses; for example; the analysis of historic assets does not include data from the local monuments record due to the sheer number of records involved and their suitability for consideration at a city-wide scale. However, the analyses and scoring have been designed such that detailed data can be added in at a later stage, for example, when analysing green infrastructure requirements at site level, or updated data (e.g. latest Greenspace Audit) can be substituted and the analysis re-run.

4.0 Green Infrastructure Corridors

4.1 Introduction

A series of inter-district and district level GI Corridors have been identified for Sunderland as shown in Map C1, below. These provide a framework for the protection and enhancement of GI through a connected landscape. They further provide a sense of place, setting and context for the built environment of Sunderland's City and townscapes. They provide visual and environmental breaks from urban and sub-urban contexts; opportunities for refuge, tranquillity, open aspects and perspective. They support the form and function of the rural incomes and livelihoods across the city. They provide areas where human activities and anthropogenic influences are reduced; providing a home for wildlife and a landscape of refuge within which species can respond to wider environmental pressures.

4.2 Background to the Corridors

Sunderland's GI corridors stem originally from the 1988 Tyne and Wear Nature Conservation Strategy, where they were initially defined on a wildlife corridor basis to connect and buffer existing nature conservation sites. Originally in Sunderland, 3 strategic corridors and 11 local wildlife corridors were identified, and also included broken arrow lines where improvement to corridor connectivity was needed. These were broadly incorporated into the adopted UDP in 1998. They have since evolved, concurrently with the development of GI into mainstream spatial and planning policy, to include a more holistic view of the functions that GI performs.

4.2.1 Sunderland Green Infrastructure Strategy Framework 2012

The Sunderland Green Infrastructure Strategy Framework was endorsed by the Sunderland Partnership's Attractive and Inclusive City Partnership at its meeting on 17 November 2010 and approved in March 2011.

The following provisional 'vision' for GI was proposed:

"The economic and social development of the city will be enhanced through its setting in surroundings of high quality green infrastructure that will be provided through a network of green spaces and links, including coastal, river and other water features, designed and managed to maximise their multi-functional potential".

The formation of a GI partnership involving SCC, NGOs, nature conservation charities and wider organisations was promoted and a number of GI corridors were defined as priority areas for GI protection and enhancement. These were fundamentally based upon the formation of wildlife corridors to connect existing nature conservation assets within connected greenfield areas, running around and between Sunderland's settlements and employment sites.

4.2.2 Sunderland Draft Green Infrastructure Strategy 2014 (draft for consultation)

The Sunderland Green Infrastructure Strategy 2014 (draft for consultation) clarifies the city's GI priorities and provides a toolkit of policy standards to enable GI to be embedded into corporate policy and area wide needs. The 2014 document sought to achieve the following objectives (in line with the emerging local plan):

- Identify and adopt a strategic network of multi-functional green infrastructure corridors and ensure that most opportunities lead towards maintaining and enhancing this network;
- Address identified shortcomings in the current provision of various types of green space, so that everyone in the city has access to a variety of high quality natural spaces and recreational spaces that can enhance individual health and well-being and support more active lifestyles;
- Preserve and enhance the distinctive landscape character areas of the city and improve major gateway sites, to encourage inward investment and tourism;
- Contribute to the mitigation of climate change;
- Provide opportunities for skills development, voluntary involvement and community events and activities. Increase local community involvement in the planning, adoption and management of green infrastructure; and,
- Bring about schemes which are financially sustainable, having not only capital funding for development but also long-term funding and maintenance structures in place to secure a viable future.

4.3 Corridor Locations

The GI corridors are shown in Map C1 below. The alignments and designations of the District and Inter District corridors have been updated very slightly from the historic locations in the south of the City to reflect the location of existing green assets and priorities (as shown in Map C1 Evidence Base for the Sunderland GI Corridors) and improve their alignment with the Durham Strategic GI Network.

Notable changes include:

- The corridor from Easington westwards along the southern boundary of the city, and the corridor from the city boundary east through Rainton Meadows Nature Reserve to Broom Hill (via the Settlement Breaks) have both been upgraded to Inter District Corridors;
- The Inter District corridor that extends eastwards from the central North-South corridor to the coast at Ryhope has been thickened and aligned along the city boundary; and,
- The Inter District corridor from the James Steel Park westwards along the A195 Northumberland Way is now considered a District Corridor.

Overall, there are six inter-district corridors that aim to build on the existing network, linking the city to the wider region. In this way the framework is cognisant of cross-boundary working and connectivity, with the identification of two north-south corridors; (following the coastline and the Green Belt and open countryside to the west of the A19 and IAMP), three complete east-west corridors (Green Belt along the northern boundary with South Tyneside/Gateshead, along the River Wear/part of the coast to coast and stretching from Rainton Meadows Nature Reserve, through Burdon to Ryhope Dene and the Coast) and a further link along the southernmost boundary of the City with County Durham, (along the Great North Forest trail). The district corridors form further, often thinner, routes through the city in accordance with existing breaks in settlements and assets.

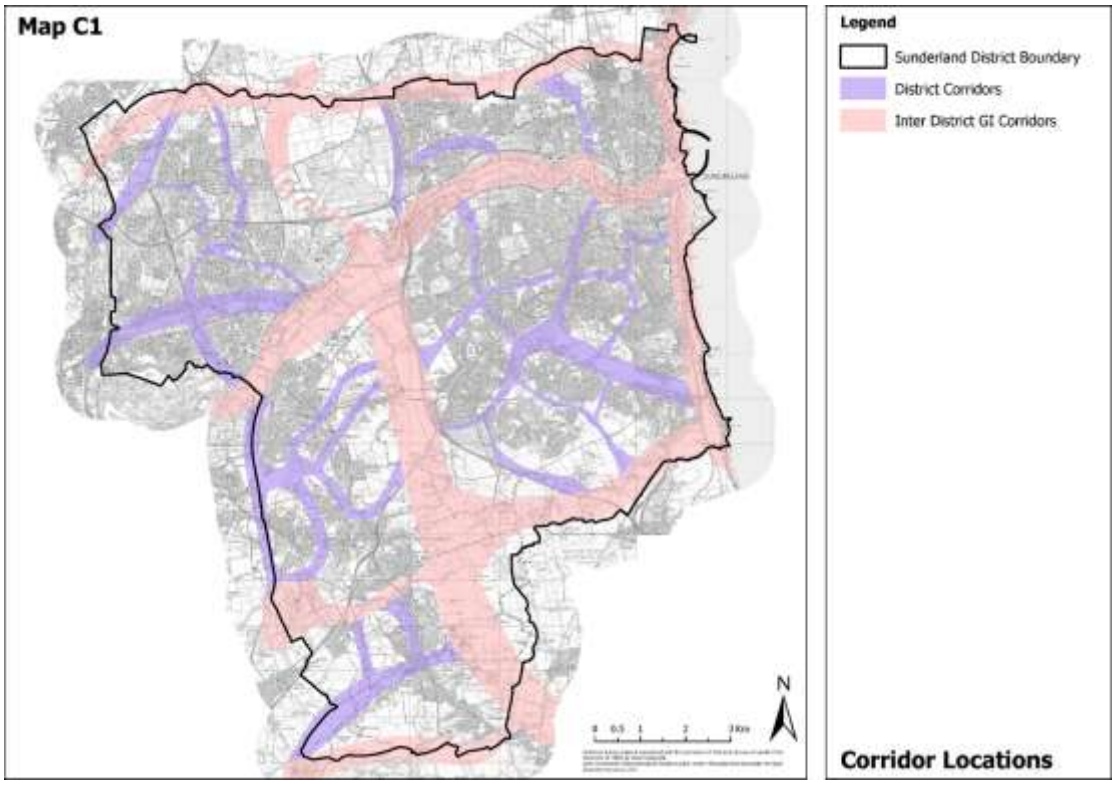


Table 2, below, lists the corridors with reference to Area Regeneration Framework boundaries, adapted from the 2012 Draft Sunderland GI Strategy.

Table 2: List of Corridors by Area Regeneration Framework (Adapted from: Sunderland City Council 2012 Sunderland GI Strategy: Draft for Consultation)

Green infrastructure corridors in the City of Sunderland	
Inter-district corridors CS5 (5)	i. Coastline ii. River Wear iii. Green Belt / open countryside west of A19 iv. Northern boundary Green Belt v. Rainton Meadows and Hetton Bogs to Burdon-Ryhope Dene vi. Southern Boundary (Pittington to Snippersgate)
District corridors North Sunderland CS para 3.58	i. Fulwell Quarries to River Wear ii. A19 Corridor iii. Hylton Dene
District corridors South Sunderland CS para 3.46	i. Barnes Park ii. Stephenson Trail iii. Ryhope–Silksworth iv. Cherry Knowle-Venerable Bede-Mill Hill v. Ashbrooke to the Port vi. Ashbrooke to Tunstall Hills vii. Claxheugh to Silksworth
District corridors Washington CS para 3.76	i. Springwell Village-A194(M) ii. Princess Anne Park and A195 iii. A194(M) to Washington Village and River Wear vii. Part of the Coast to Coast (C2C) cycle route
District corridors Coalfield CS para 3.100	i. Leamside Line (Victoria Viaduct to Rainton Meadows) ii. Central Route (Shiney Row to Rainton Meadows) iii. Herrington Burn (Herrington Country Park to Elba Country Park) iv. Lambton Colliery Railway (Hastings Hill to Elba Park) v. Houghton Colliery Railway (Success to Houghton town centre) vi. Rough Dene Burn (Hetton Bogs to Copt Hill) vii. Hazard Railway (Low Moorsley to Rainton Bridge) viii. Part of the Walney to Wear (W2W) cycle route

4.4 Evidence Base for the Corridor Locations

Map C2 below demonstrates the correlation between the GI corridors and a selection of baseline indicator data around social, environmental and economic assets. The associated baseline data maps are provided at Appendix C. Whilst this is by no means a comprehensive data set, it includes some of the key assets and priorities under each of the agendas to which GI provides a significant contribution, including flooding, tourism, biodiversity, sustainable transport, recreation and heritage. Very few of the corridors do not coincide with these existing assets, the most notable of which lies within the South Sunderland Growth Area, (although this is specifically addressed in the SSGA Masterplan). Additionally, the Springwell village - A194(M) corridor does not appear to coincide with existing assets. This is where further needs and opportunities assessments as undertaken in Section X are useful to identify whether investment in GI enhancement in such areas would provide notable benefits and if so what form such benefits should be targeted towards, or if investments would be better spent elsewhere. Review of the combined function and multi-functionality maps in this area for example, reveal the potential for high returns on environmental grounds but limited need for investments in GI targeted at social or economic uplift.

In addition, the plan illustrates the potential for development of a number of GI 'nodes' or 'hubs', where the corridors intersect. GI Hubs act as an anchor for a variety of natural processes and also provide an origin or destination for wildlife. The interconnection of hubs and corridors is critical in providing both landscape connectivity for ecological functions and for the passage and dispersal of wildlife.

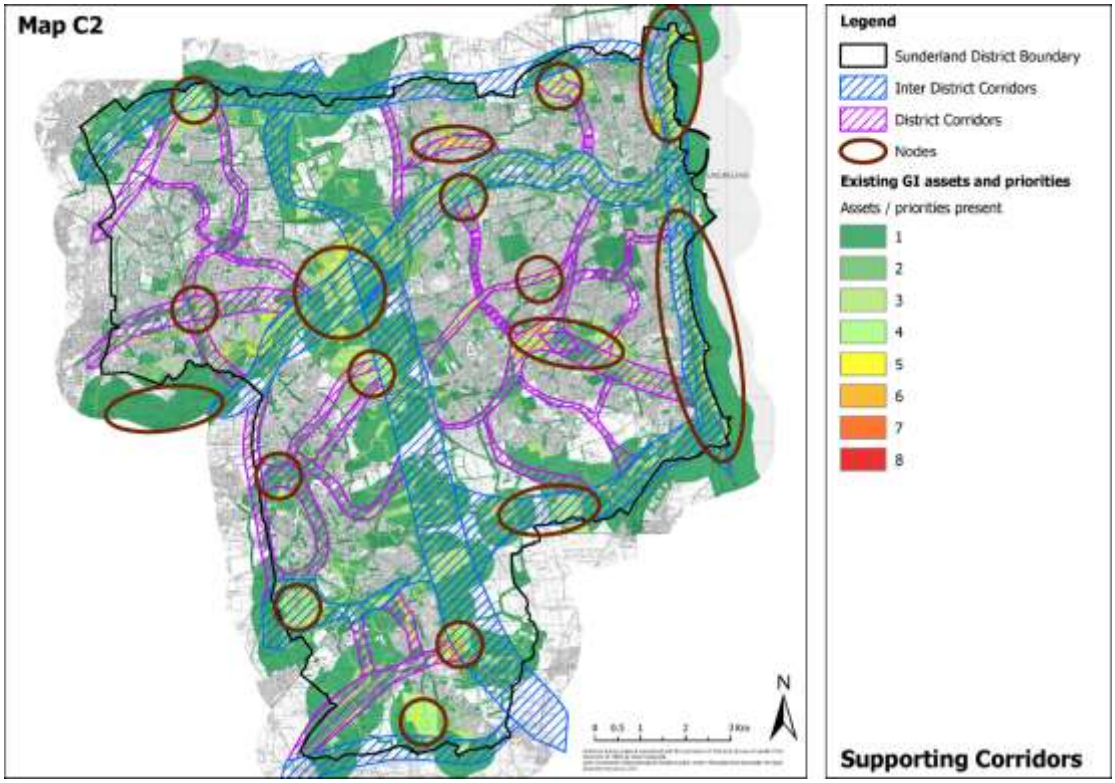
Notable areas include:

- Rainton Meadows Nature Reserve;
- Hetton Lyons Country Park;
- Herrington Country Park
- Elba Park;
- Elemore Golf Course;
- Washinton Wildfowl and Wetland's Trust/James Steel Park/Penshaw Woods;
- George Washington Golf Course/Follingsby/River Don;
- Princess Anne Park;
- Hylton Dene;
- Claxheugh Riverside;
- Fullwell Quarry Nature Reserve;
- Coast from Roker to South Shields;
- Barnes Park (and Extensions);
- Silksworth Sports Complex and Tunstall Hills;
- Burdon/Warden Law;
- Coast from Hendon to Seaham; and

- Other neighbouring hubs, for example, Lambton Estate and Chester-le-Street Riverside in County Durham and Cleadon Hills in South Tyneside.

These demonstrate where many corridors may be served by enhancement of GI at or around these individual locations, which for example, could form 'hubs' of refuge and dispersal centres for wildlife; and retail / visitor centres along sustainable transport and recreation routes promoting green tourism. GI hubs will be considered in line with corridor improvements in the GI Delivery and Action Plan.

Map C2: Evidence Base for the Sunderland GI Corridors



Sunderland's GI corridors therefore define where the presence and connectivity of GI needs to be appropriately accounted for and protected through the landscape in generic terms to provide for sustainable planning for the of the city. The conservation and enhancement of GI within these corridors will contribute towards the generic principles of landscape and habitat connectivity, which is essential to the overall function of GI, which cannot provide the range of Natural Capital benefits required for sustainable communities when present only in isolated and fragmented pockets. The corridors protect existing assets and support the overarching requirements of healthy ecosystems and natural processes.

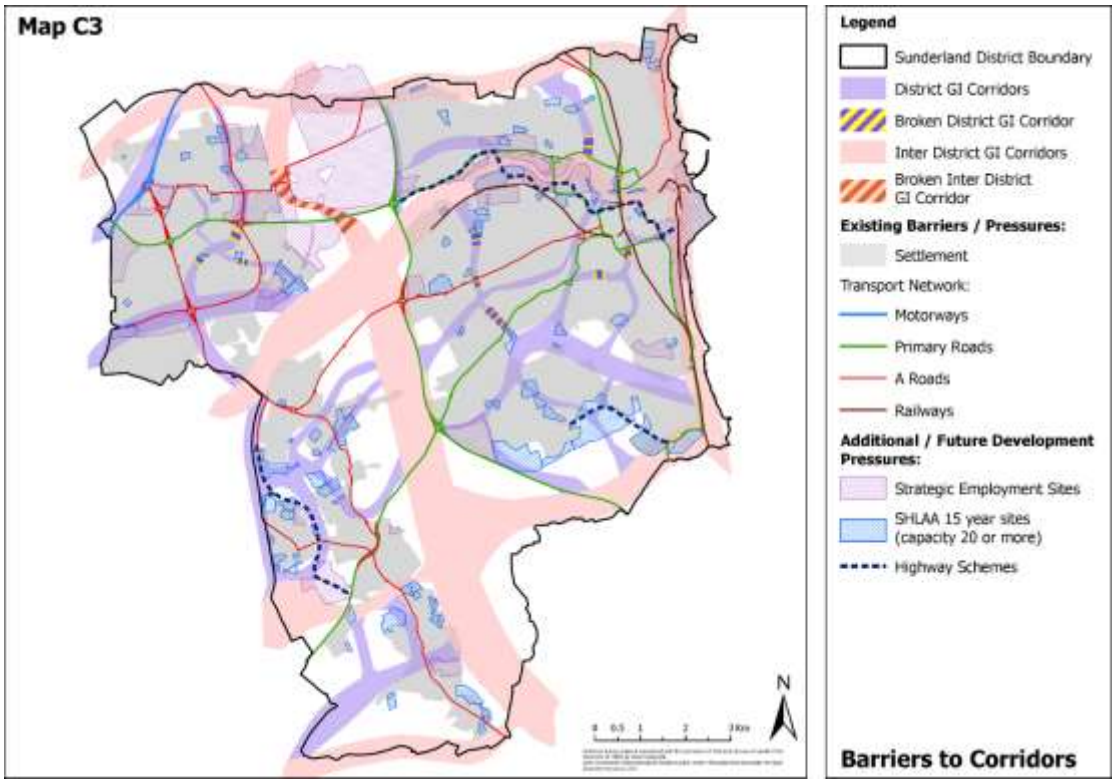
4.5 Barriers to Connectivity

The Sunderland GI Corridors map, as defined in the 2012 Strategy, illustrates 4 main areas where the continuity of the District corridors was considered to be impeded by the presence built environment and infrastructure, as follows:

- Washington Village – areas to the north-east, south-east and southwest;
- North of the Wear - between Monkwearmouth and Fulwell Quarries;
- Ashbrooke and south of Mowbray Park; and
- Silksworth, Grindon and Ford Estate.

A further key barrier is the strategic link at Nissan – identified back in 1998 by Tyne & Wear NCS, as a corridor under considerable pressure. It was considered that, whilst impeded, there was the potential that a basal function of these corridors would continue to function in a 'stepping stones' type form, through the built environment. Continuing development and associated infrastructure have since exacerbated the effective severance of the landscape immediately south of the Nissan plant however (and in some wider corridor break areas). The 'Green Belt and open countryside west of A19 corridor' is arguably also one of the most important GI corridors for the city and wider region, linking Newcastle/Gateshead with Durham in an otherwise continuous settlement break. Retrofitting GI functionality here and insightful forward planning in the delivery of the proposed SHLAA, strategic employment sites and associated infrastructure will be of critical importance for the functionality of GI in Sunderland going forward. Such improvements to corridor connectivity and continuity will be key actions identified in the GI Delivery and Action Plan.

Map C3: Barriers to Corridors, highlights where major transport corridors and further built infrastructure has the potential to present effective barriers to the continuity of the corridors.



4.6 Complementing the Corridors

A GI strategy based only upon a corridor approach, does however have limitations, particularly when considering that GI has only relatively recently been adopted into planning policy and arguably is often still seen as a tertiary level factor when considering direct economic and social agendas. Some more established neighbourhoods and economic/employment centres do not lie within proximity to the GI corridors. Investment in GI within the corridors therefore has limited functionality in effecting positive change and local benefits. For example, the young, elderly or infirm may not be able to readily access high quality greenspace that is over a kilometre away and pockets of unsightly/derelict land can act as a visual detractor, blighting the sense of place and investment potential of communities where outside of the corridors.

The following section therefore provides an area-based needs assessment.

It should be noted here that the delineation of GI corridors and or priority areas for intervention are not intended to preclude development from occurring within these areas. Development both within and out-with these areas can be an important vehicle to resource and deliver uplift in land form and function that otherwise could not be realised. The identification and definition of these GI needs and opportunities should seek to inform insightful decision-making towards the planning of sustainable developments and communities. Proposed Policy NE1 within the Publication Draft Core Strategy as defined in Section 2.3.2 sets out a framework to realise these aims.

5.0 Green Infrastructure Area-Based Needs and Opportunities

5.1 Introduction

The suite of maps provided below aim to demonstrate where there is the greatest potential to realise public benefits from investments in GI across Sunderland. They utilise social, economic and environmental data to identify the areas of greatest GI deprivation, (for example where the quality and/or quality of GI is currently low) and areas where the provision of GI may provide the greatest benefits (for example in flood zones, retail settings and/or densely populated areas). A scoring system has been used, ranging from 1-5 for each map, to reflect the level of need/opportunity for GI provision or enhancement. The higher the score the greater the need/opportunity to derive benefits.

In contrast to the GI corridors maps, the outputs of this mapping approach are site/area based, reflecting the resolution/boundaries of data. They do not aim to relay where the current functionality of GI is high and performing a range of public benefits, (such as valued parks and gardens or designated nature conservation sites in favourable condition). Further, they do not account for the inherent benefits of connectivity that the corridor approach confers, as those are reflected in the corridors themselves. Consequently, whilst there are obvious correlations with the existing Sunderland GI Corridors across some areas/themes, there are also areas outside of the corridors where there is an obvious need for GI investment. For social and/or economic outcomes they may for example highlight deprivation within areas of high population or business densities.

As outlined in the methods section, the assessments are firmly grounded in the principles of sustainable development as outlined the NPPF and the potential contributions to these that GI delivers. They are grouped in terms of benefits to Economic, Social and Environmental agendas, with an overarching map for each, demonstrating where investment has the greatest potential to deliver multiple benefits within each overarching agenda.

A final, combined, GI multi-functionality map is also provided to highlight where investments have the greatest potential to enhance GI provision for sustainable communities across Sunderland. This is further cross referenced with the strategic GI corridors.

5.2 Economic Maps

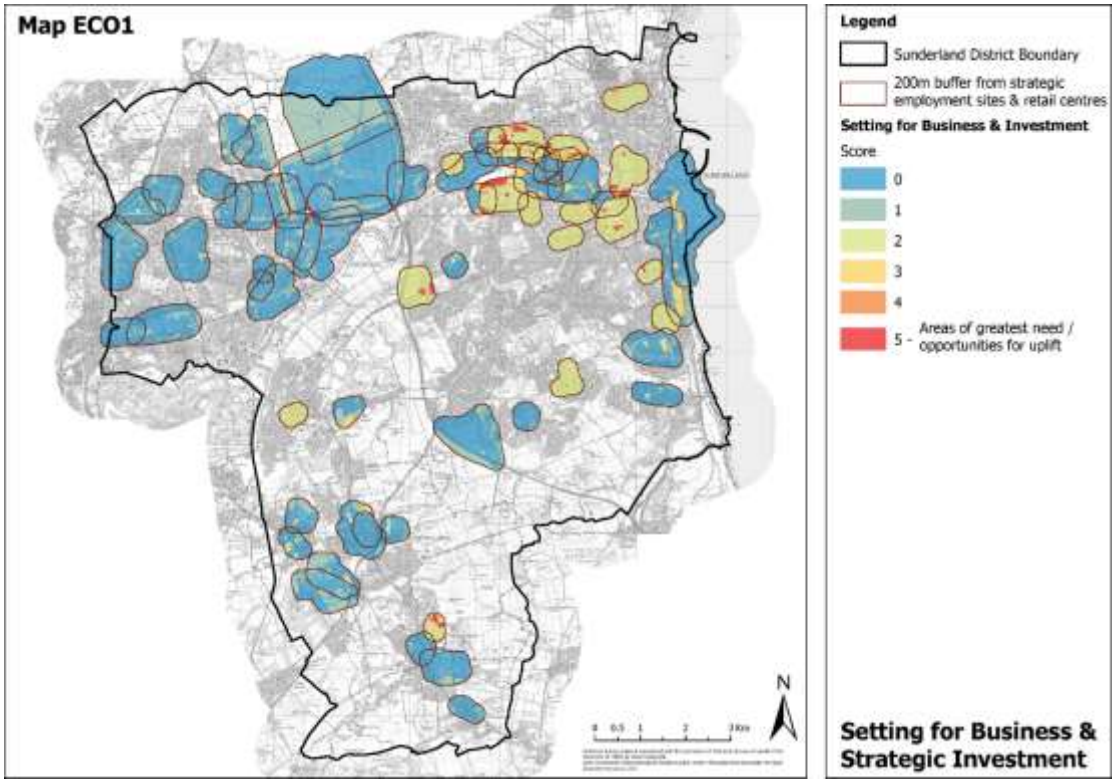
Green infrastructure can drive economic growth and regeneration, helping to create high quality environments which are attractive to businesses and investors.

Map ECO1: Setting for Business and Strategic Investment

Local environmental quality, particularly relating to the physical environment, is critical to people's perception of an area as a place to work and live. It influences investment decisions, particularly in the knowledge-based and technology sectors. In addition, where GI provides an attractive and appealing setting for people to shop and spend leisure time, it can positively affect the prosperity of businesses.

This map shows areas within 200m of strategic employment sites and retail centres. Whilst this does not take into account the actual visual envelope, land contours or buildings/structures, it assumes a generic zone of visual influence and aims to reflect the potential setting/context of these features.

Scores were assigned to those areas with the lowest amount of greenspace within 200m. Additional points were assigned to reflect where the greenspace lacked a positive contribution to the setting, with a maximum number of points where greenspace was considered to present a visual detractor to the area.



The map highlights where investments in greenspace could have a strategic economic function in supporting the sustainability and prosperity of businesses and attracting investment. Many of the highest priority areas are associated with industrial sites around the River Wear corridor including the proposed Urban Core Area and Areas of Change south of the Stadium of Light, near Monkswearmouth Bridge, for example.

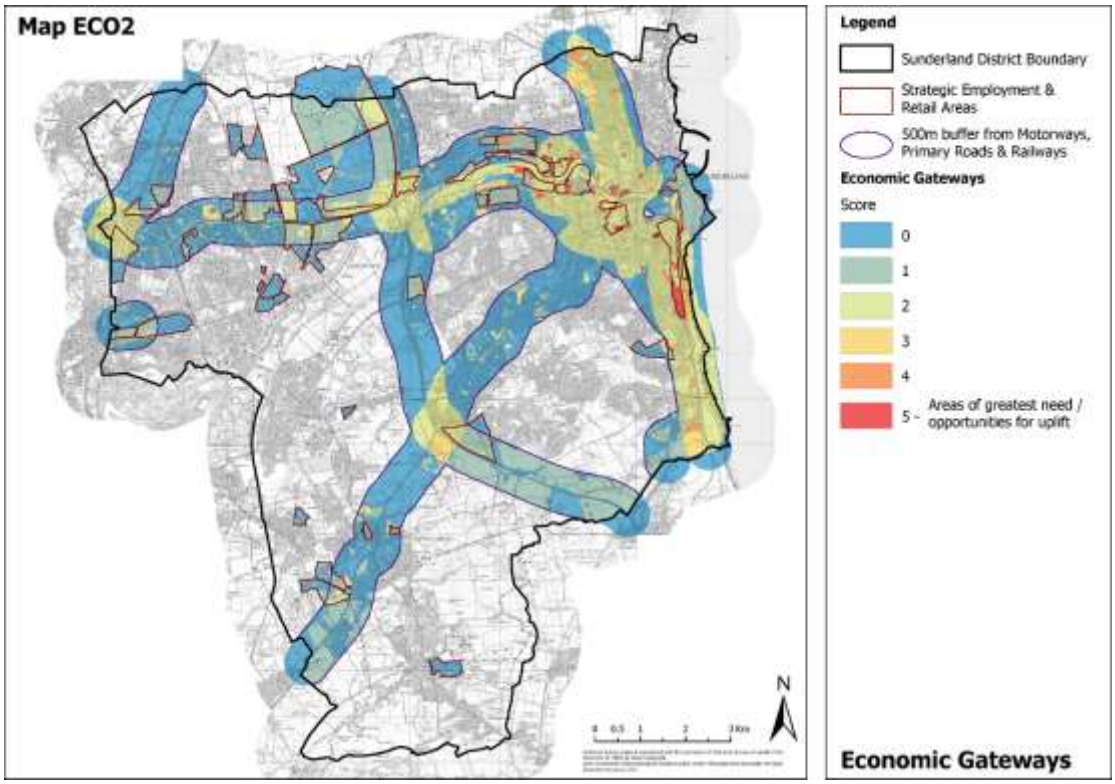
The importance of local contextual knowledge is illustrated well at Hetton-le-Hole, where amenity land and tree-lines around Nicholas Street are highlighted as an equal visual detractor to the adjacent derelict land and allotments off Down`s Pit Lane. The former however, is within direct line of sight of the main business hub at Market Street. In the wider context Eppleton Quarry lies just outside of the 200m buffer and has the potential to effect a larger visual impact upon the setting, but is outside of the corridors of main approach.

Sunniside is a notable example of how GI can be employed to create a sense of setting and character of place, for the prosperity of businesses, supporting regeneration whilst acknowledging the culture and heritage of a location.

Map ECO2: Economic Gateways

A sense of the quality and prosperity of an area is often determined in gateway areas where first impressions occur. Economic gateways often lie at the interface of major transport corridors where these interface with strategic employment/retail sites. Green Infrastructure underpins image and local distinctiveness which affects significantly the potential for economic growth. The visual quality of such areas is likely to be most influential in setting the scene and sense of place; well planned and maintained structural greenspace in such contexts is important.

In order to identify economic gateway areas a 500m buffer from motorways, primary roads and railways was generated and scored where it overlapped with strategic employment and retail areas. Maximum points were assigned where the visual amenity of greenspace within these areas was lowest, including visual detractors such as derelict land.



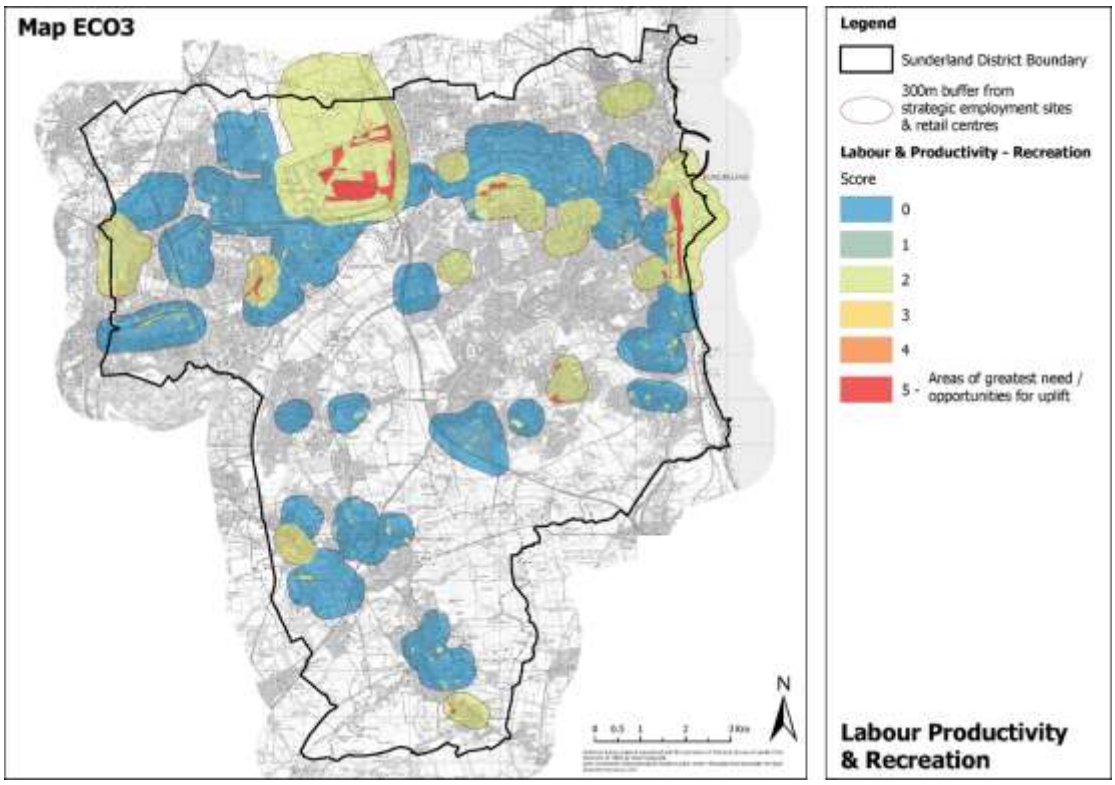
Priority areas identified include Hendon industrial areas along Commercial Road - to Port of Sunderland, to the south of the City Centre, areas around Fullwell, North of Wearmouth Bridge, road junctions along Sunderland Highway and the A19, and in particular a range of sites along the River Wear corridor.

There are limitations to the data again in terms of visual barriers, elevations and local contexts. It may be more difficult to affect visual enhancements in some areas, for example where there are wider ecological interests associated with derelict land (e.g. areas of Port of Sunderland) and/or the primary land-uses are difficult to align (e.g. allotments at Fulwell). However, boundary treatments could improve sites.

Map ECO3: Labour Productivity – Recreation

Greenspace can contribute to business workforce health and stress management through opportunities for recreational activity, social interaction and a space for mental/physical perspective within a more natural environment. In this way GI can support labour productivity by promoting well-being and reducing stress. To increase connections between business workforces and greenspaces, consideration should be given to the effective management and accessibility of greenspaces in close proximity to businesses. The provision of greenways for walking/cycling, open-spaces and parks for informal games/sports and eating outdoors and more strategic sites/reserves also offer opportunities for workforce outings and volunteer sessions.

A 300m buffer has been applied to strategic employment sites and retail areas, to reflect doorstep greenspace that might most readily be accessible/frequently used, consistent with the Accessible Natural Greenspace Targets outlined by Natural England. Points were given for areas with the lowest availability of greenspace with a recreational potential, with further points assigned based upon the accessibility of such greenspace.



A notable area of potential coincides with the Nissan Manufacturing Plant, where greenspaces, including plantation woodland, scores highly – it is assumed due to access restrictions, for example around the operational windfarm. Other opportunity areas include west of Pallion Retail Park, Port of Sunderland and south-west of Washington around Northumberland Way (A195), Silksworth, Fulwell, Pennywell, Millfield and Fencehouses.

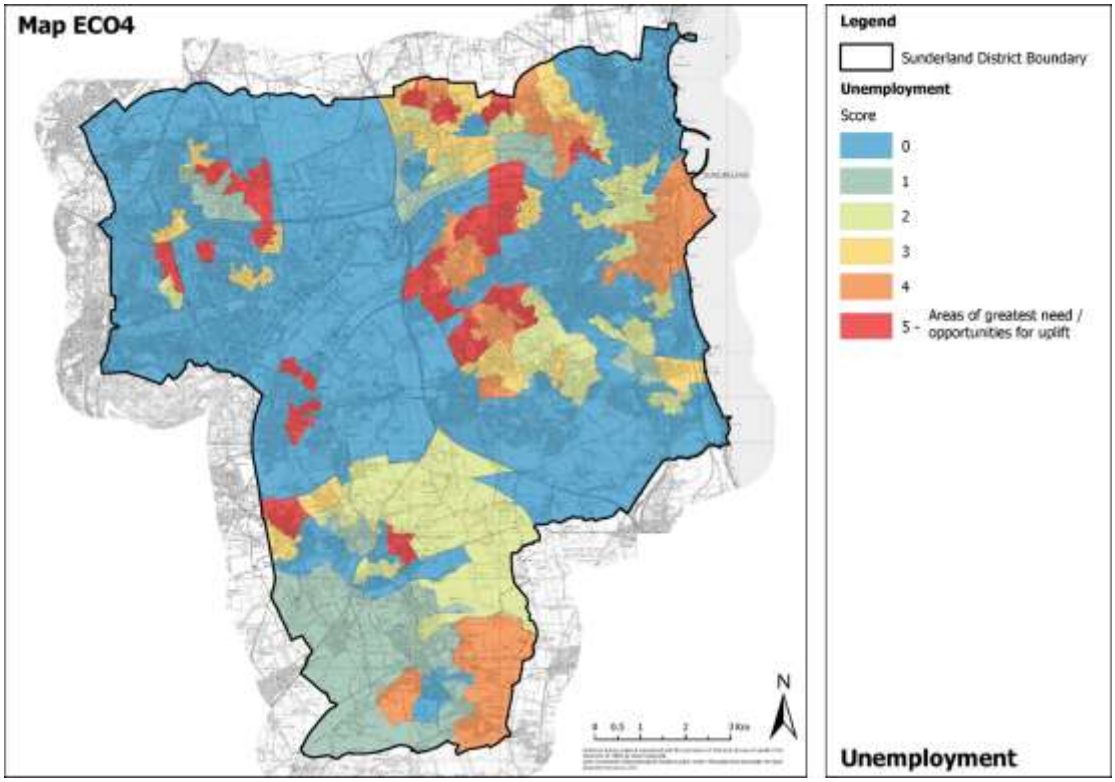
There are limitations to the assessment in that it identifies opportunity sites, but some may be less suitable than others for changes in use/access. For example, allotment sites are identified at High Dubmire and New Silksworth, being greenspaces of a natural essence but with restricted access. Further, the presence of alternative recreational provisions in the locality, for example Kier Hardie Park and St. Matthews Field, respectively, respectively, do not prevent these sites scoring highly. Local knowledge is therefore important in the interpretation of this and wider maps.

Maps ECO4 & ECO5 Unemployment and Adult Education

These maps have been considered here jointly as they are clearly linked. This is demonstrated by the similarities in the assessment findings shown on Maps ECO4 and ECO5.

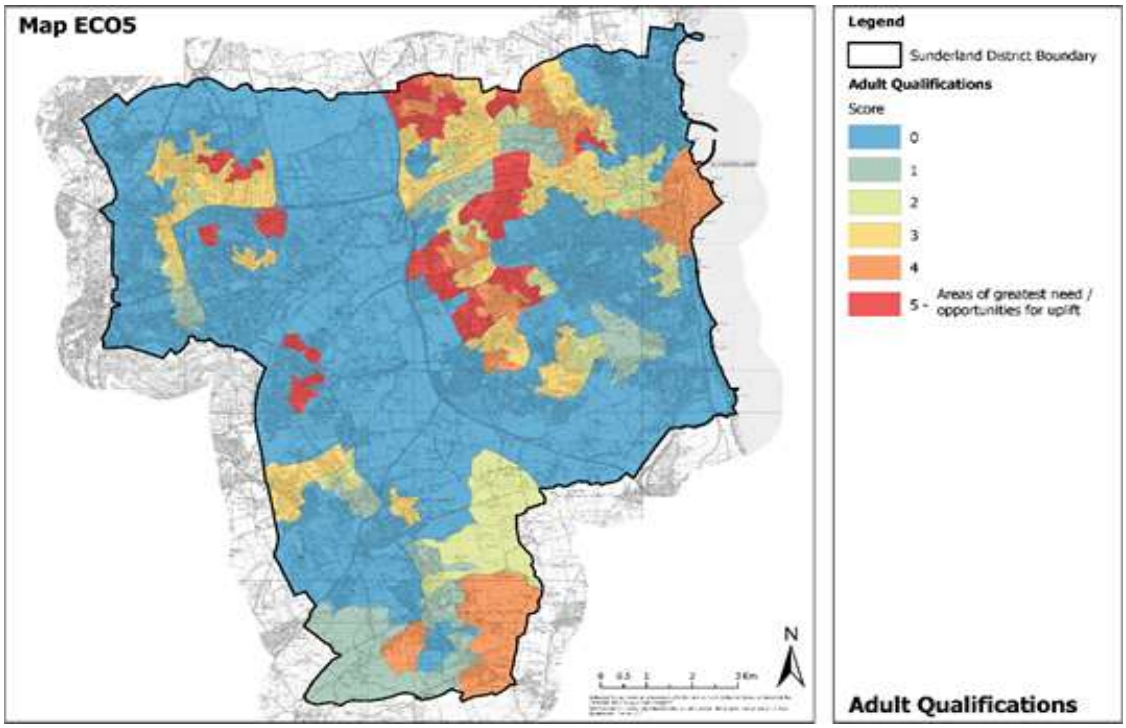
GI can contribute indirectly to employment through the provision of attractive settings for inward investment, particularly higher-value industries. The environmental economy is further a significant employer in the city in its own right including agricultural industries, and environmental sector jobs. It further acts to support visitor numbers to the area through recreation and tourism with associated employment around visitor spending, services and accommodation.

GI provides a setting for life-long learning and can contribute to skills development both through school-based and vocational training institutions. It makes a direct contribution to employment through the provision of settings for schemes that encourage people into the world of work – for example, training opportunities for excluded pupils, ex-prisoners, people with additional needs and returning from difficult personal circumstances.



Map ECO4 highlights local areas (Lower Super Output Areas, as defined by the Office for National Statistics) where statistics indicate that unemployment is the highest within Sunderland, with additional points where the quality and quantity of greenspace is below average.

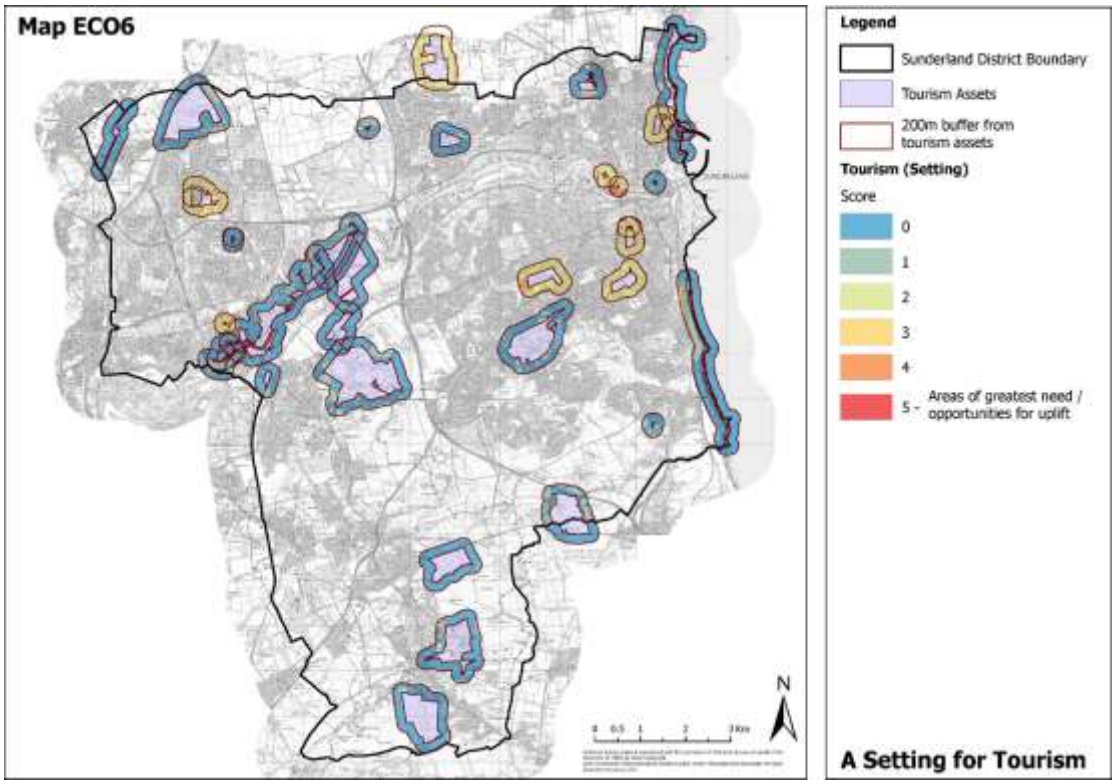
Map ECO5 highlights the areas of lowest adult qualification levels in the city based upon national statistics data. Again the quantity and quality of greenspace provision in the area is used as an additive score to highlight where opportunities for interaction with quality GI is most limited.



A notable trail runs north-south from the River Wear, including Ford, Pennywell, Grindon, Springwell and Thorney Close. Additionally, larger areas include around The East End; north of the Wear around Witherwack and Downhill; Concord, Hertburn and Barmston and Glebe; Penshaw and Shiney Row; Houghton-le-Spring and Fence Houses; Monkwearmouth to Southwick; and Easington Lane and Low Moorsley.

Map ECO6: Tourism Setting

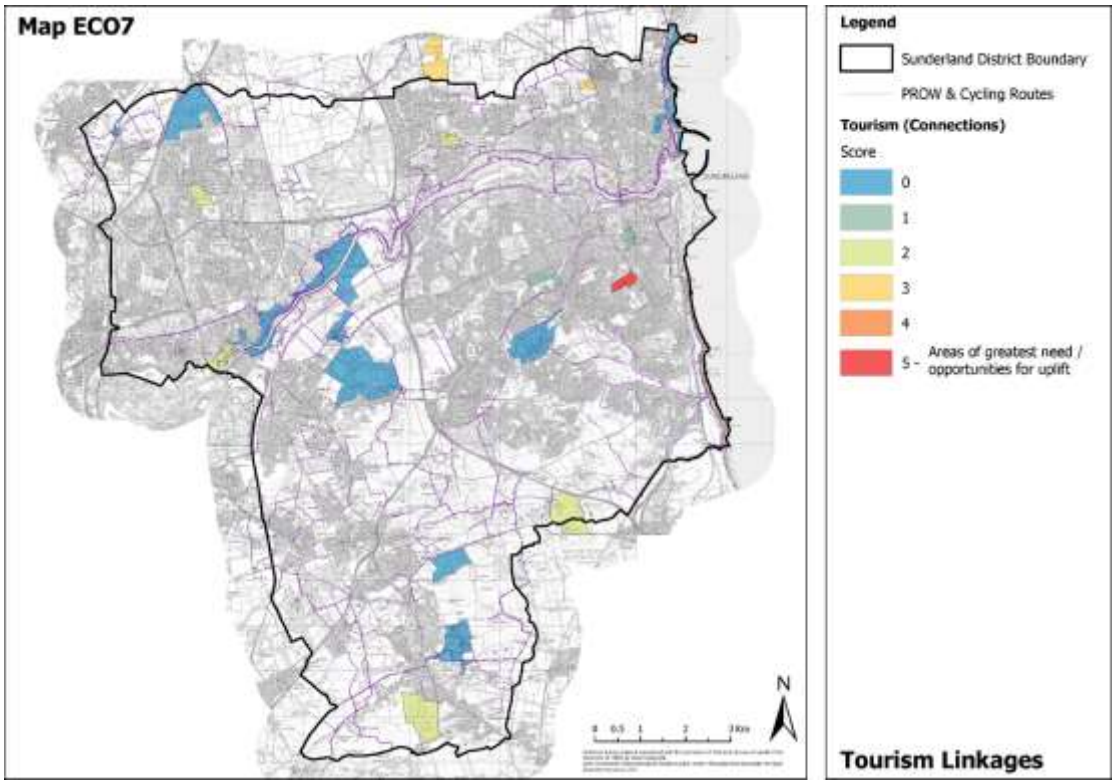
The ability of tourism assets to sustain visitor numbers is key to their financial viability. As noted earlier, such assets can also sustain jobs and businesses. A 200m buffer was created around tourism assets within the city to reflect a zone within which GI plays a supporting role to an environmental business. Points were assigned where the level of greenspace provision within this buffer 'setting' area was lowest. Additional points were assigned where the greenspace was found to add little, or no, value to the character of the area, with maximum points for visual detractors.



In the main, many of the tourism assets in Sunderland appear to be blessed with greenspace that supports the character of their setting. Opportunities for enhancement were however identified around the Stadium of Light and Monkwearmouth Station, particularly in areas to the south, approaching Wearmouth Bridge. Areas of Barnes Park and the adjacent allotments are interestingly noted in the Green Space Audit as not contributory to the local character of the setting. The data is to some degree, limited by its refresh date, noting for example that some of the derelict land shown as a visual detractor on Holmeside, in the setting of Sunderland City Museum and Winter Gardens, has been developed as the new City Campus site – though much of the wider site remains derelict.

Map ECO7 Tourism Linkages

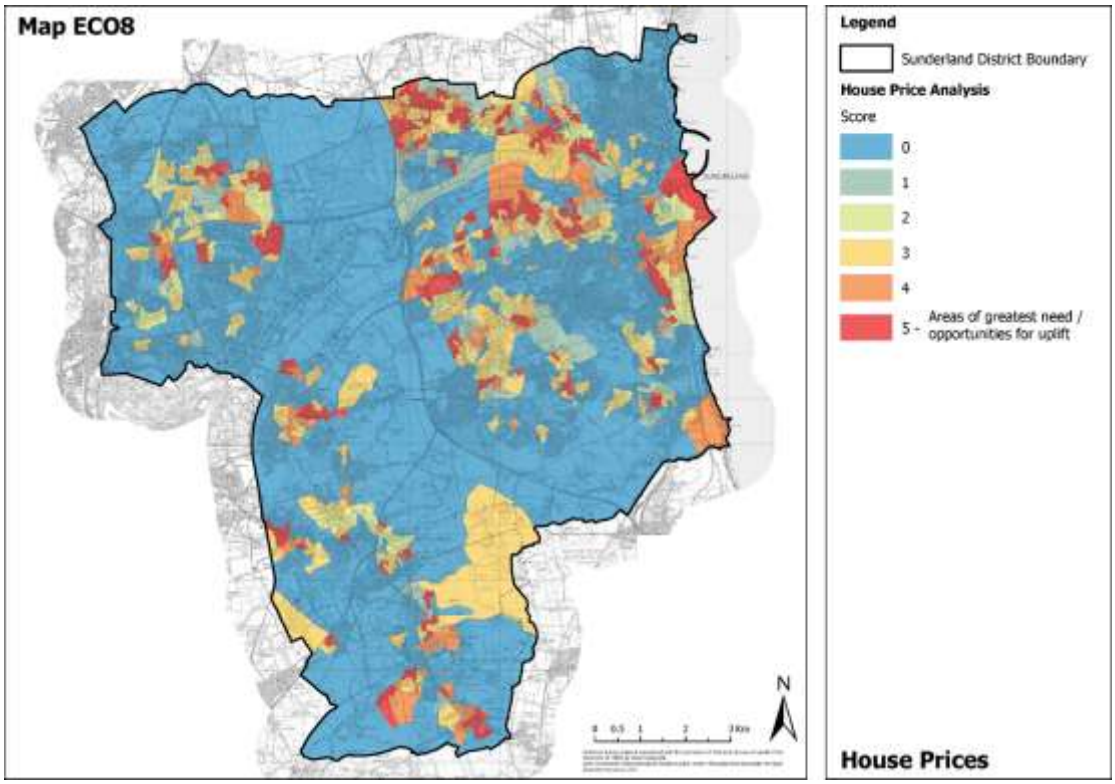
Tourism sites are often a key driver for the location and linkage of national cycle trails and wider sustainable transport routes, promoting healthy, low-carbon recreation, engagement with the natural environment and cultural/educational opportunities around environmental assets that instil a sense of place. Map ECO7 scores tourism assets in relation to their linkage with public rights of way (including bridleways) and cycle routes. Where there is presently no linkage with such sustainable transport routes then a need/opportunity is recognised and where there are links adjacent to within 100-300 metres that may be joined up.



Backhouse Park and Hendon Burn scores the highest with opportunities then recognised at further tourist assets including golf courses, sports facilities and major sports facilities.

Map ECO8: House Prices

Well-structured and maintained greenspaces including high quality local parks and urban spaces can have a real impact upon people's perception of an area. An attractive setting and high-quality environment can improve confidence in the future social and economic viability of a location, attracting house buyers and encouraging those who live and invest in the area to stay there. Such factors can have a direct and positive effect on house prices.

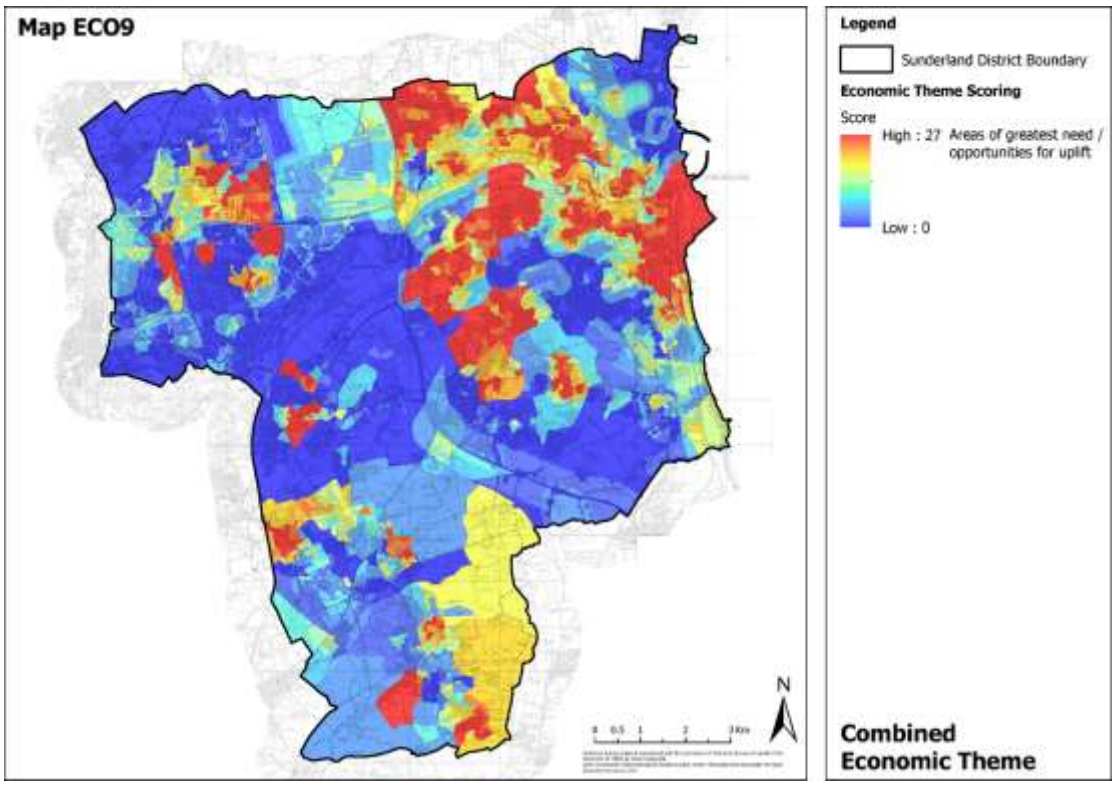


This map shows where the lowest average house prices are in the city and where these combine with a low quantity and quality of greenspaces. The lowest house prices generally occur in high density areas, including social housing areas and areas with an industrial legacy, including Pallion, Millfield, Town End Farm, Witherwack and Millfield, Grindon and Pennywell. The rural fringe areas tend to be more affluent, with some exceptions.

The assessment does not however take into account the many wider factors that interrelate to determine how attractive an area is to homebuyers including transport links, the quality of schools and employment opportunities.

Map ECO9: Economic Theme Combined Map

Scores from each of the economic theme maps were combined to identify the areas of greatest potential for multiple economic benefits arising from greenspace investments.



An obvious immediate priority area stretches from Port of Sunderland at Hendon, through Millfield, Pallion and south Southwick Areas along the course of the River Wear. A more pointed distribution of opportunities also runs north-south, crossing this, stretching from areas of Redhouse, through St. Anne's and Sandhill to New Silksworth.

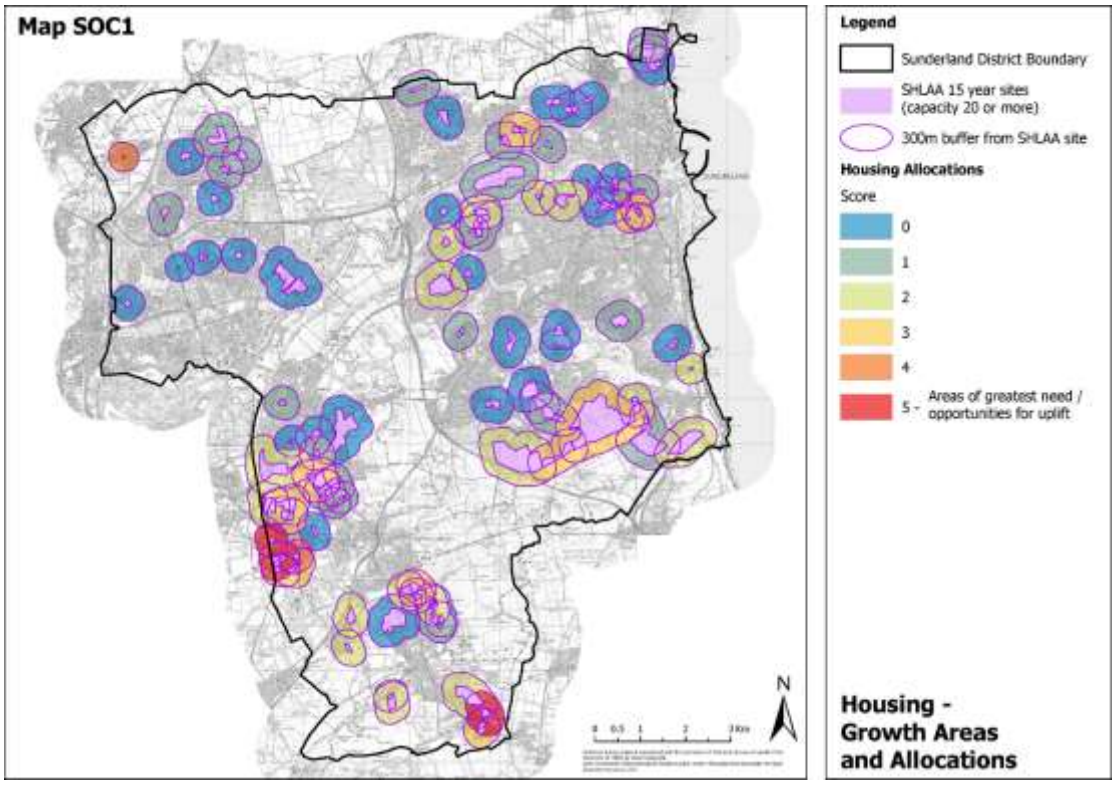
Barmston, Concord and Oxclose also feature in Washington alongside Glebe and Oxclose. Estates in Penshaw and Shiney Row are evident in the Coalfield, together with Easington Lane and Low Moorsley.

5.3 Social Maps

Map SOC1: Growth Areas and Allocations

Growth areas are likely to see a notable increase in population in coming years, which will inevitably place increasing pressures upon their existing greenspaces and GI. Strategic planning is a priority in these areas to ensure that environmental impacts can be absorbed sustainably through environments that support a high quality of life for existing and future communities.

A 300m buffer was generated from Strategic Housing Land Availability Assessment (SHLAA) sites, within which the amount of amenity greenspace was assessed and scoring assigned based on those areas with the least provision. Additional scores were added where the quality of this provision was below average for the city and/or where Natural England's Accessible Natural Green Space standards (ANGSt) requirement of over 2ha of greenspace per 1000 population requirement was not met.

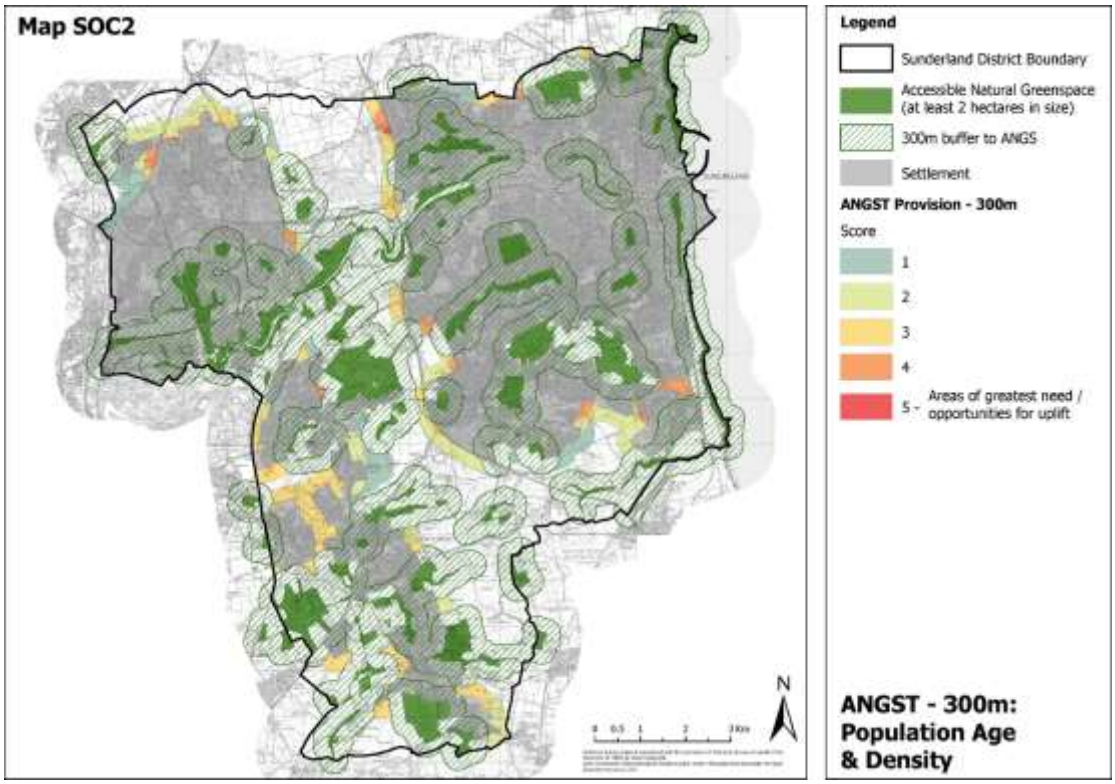


The highest priority areas were found to be in south-west Houghton, in Dubmire, south of Fence Houses; additionally, in Easington Lane. Footpaths and apparent informal public use of greenspace adjacent to Hetton-le-Hole Golf Club/the Flatts fall outside of the ANGSt criteria inclusion area, but should be noted that they provide access to good quality sites nearby.

Map SOC2: ANGST – 300m: Population Age & Density

Young and elderly people often have the lowest degree of mobility to access quality green environments. In areas where a high proportion of the population belongs to either of these age groups the provision of quality 'doorstep greens' is important. Where both young and elderly people constitute a large proportion of the population there may be further benefits from social interaction and community cohesion. GI can provide a range of inspiring venues for sport, recreation, leisure and play - promoting positive life experiences, exercise, education, tranquillity, relaxation, social interaction and connection with the natural environment.

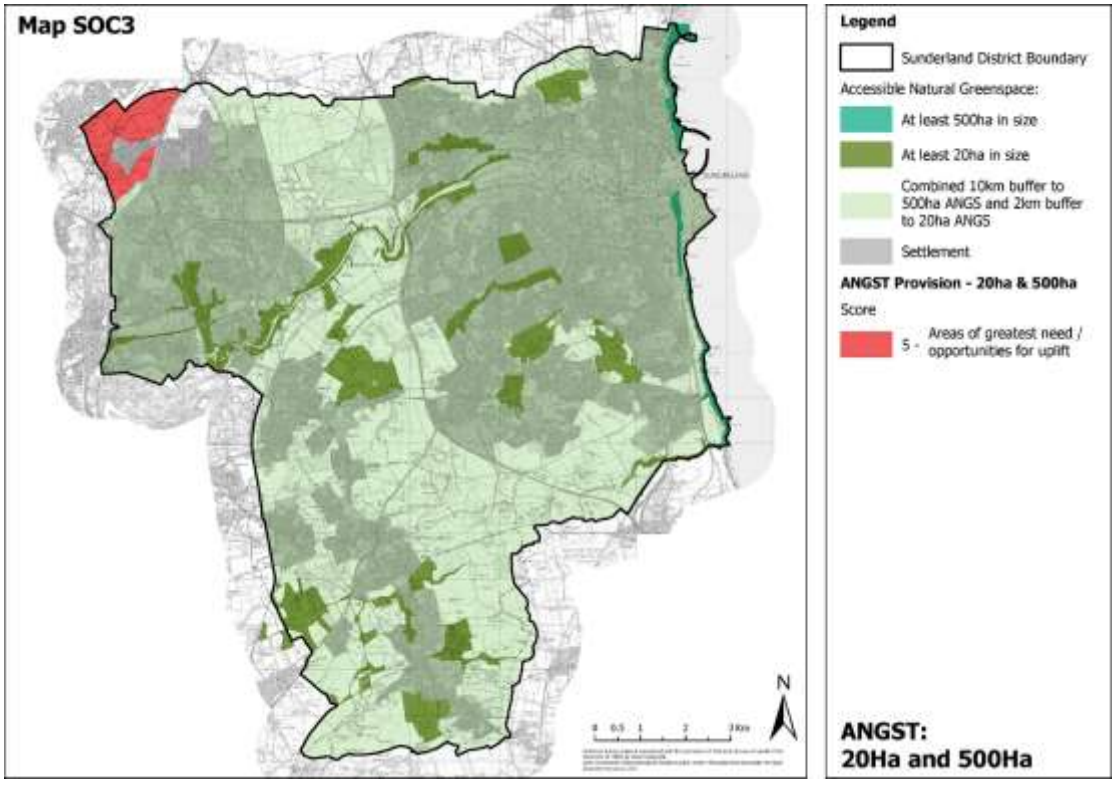
Data relating to the distribution of people over the age of 65 and under the age of 16, was mapped and areas with the highest concentrations of these demographics were identified. Where no accessible natural greenspace was present within 300m of these (defined as doorstep greens within the Natural England Accessible Natural Green Space targets (ANGSt)), points were assigned according to associated population density of the target demographic. Data from the greenspace audit was used to inform this assessment.



Ryhope Colliery and Hollycarrside, Areas around Fence Houses, new development at Clarence Court, west of Town End Farm and east of Springwell are amongst the areas that score highly.

Map SOC3: ANGST 20Ha and 500Ha

Areas of accessible natural greenspace of at least 20ha and 500ha (the coast) provide larger, more strategic GI sites and should ideally be present within 2km and 10km of people, respectively, as defined under Natural England's ANGSt standards. Where the landscape is considered less suitable to engineering change (i.e. golf course), this has been excluded.



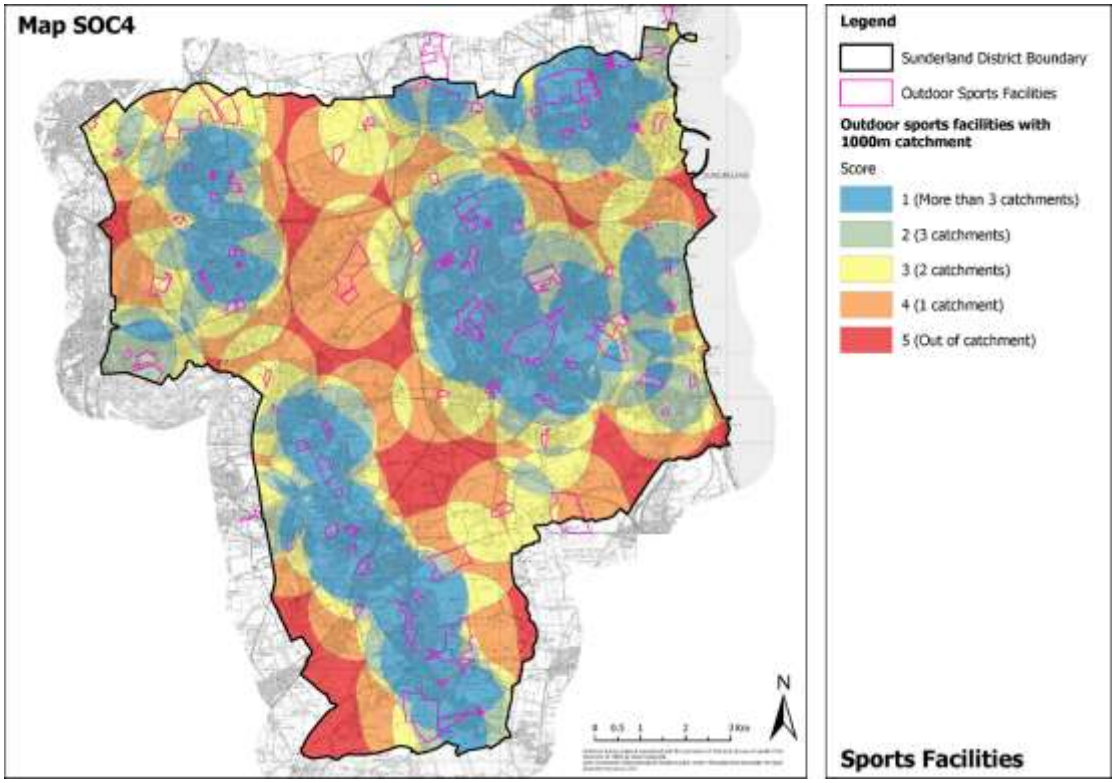
From the above map it is evident that the public of Sunderland are well served by strategic greenspace provision, with the exception of Springwell Village and north of Concord, Washington.

MapSO4: Sports Facilities

Greenspace provides a setting for recreation and amenity, including both formal and informal sport. This provides opportunities for positive experiences involving learning, socialising, competing, conquering personal challenges and improvements in health. Sport can also have a positive effect at the community level on educational achievement, economic growth, community cohesion and crime. GI can support a range of facilities and regenerate interest and participation in sports in areas which lack an adequate range and standard of sports facilities. The natural environment may also lend itself to additional sporting opportunities (e.g. cycling, watersports, rambling etc.).

Greenspace providing outdoor sports facilities were mapped and a 1km catchment area was generated from each. The number of catchment overlaps were then counted to identify where a range of outdoor sporting facilities could readily be accessed. Increased scoring was applied to areas with the lowest number of captures to reflect where a deficit in the range of

accessible outdoor sports facilities occurred, with areas outside of any catchment scoring the highest.

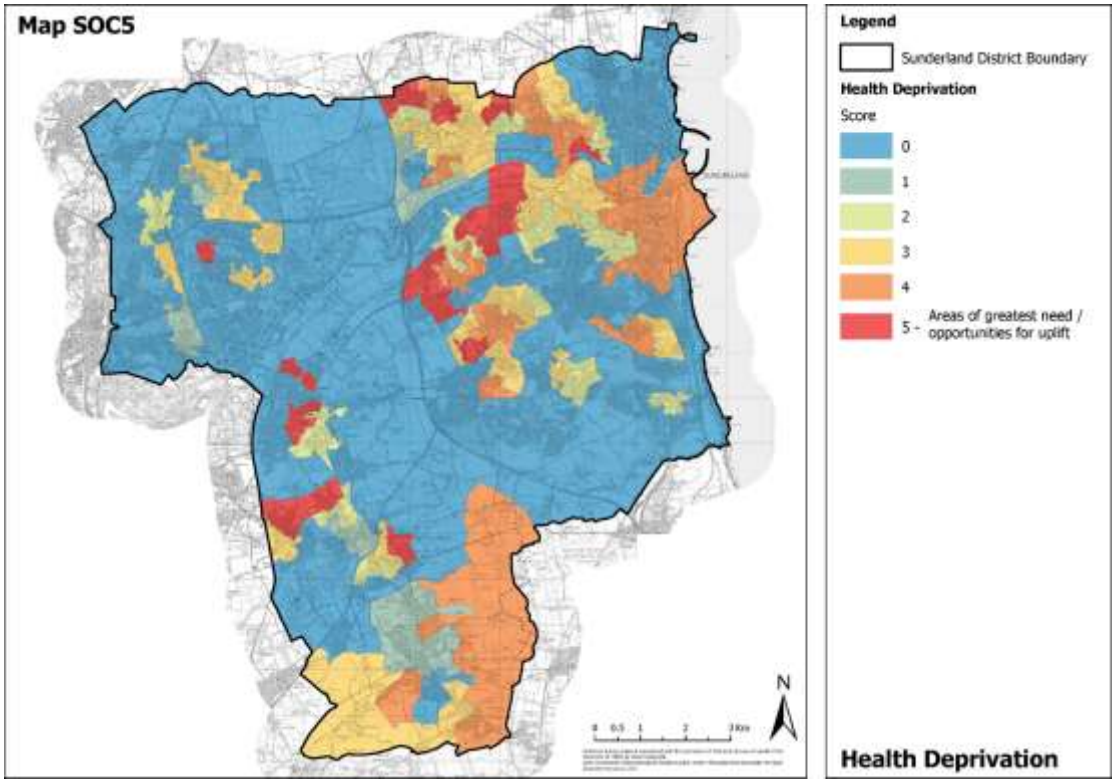


Surprisingly, there is a lack of sports provision associated with areas around the City Centre with high population densities (notably around Pallion and Millfield) and areas associated with workforce and labour particularly following the River Wear corridor and in west Washington. Perhaps more expectedly, the most notable lack of formal recreation provision is in rural areas, however this extends to take in many periphery areas with higher local populations.

Map SOC5: Health Deprivation

Greenspaces offer experiences which are central to both person well-being, both mentally and physically, by creating opportunities and incentives to engage in physical and mental activity. Interaction with the environment and others also helps individuals to develop a sense of place and person.

Map SOC5 ranks health deprivation in local areas (Lower Super Output Areas) using statistics from the Indices of Deprivations: Health Deprivation (2015) and the Sunderland Greenspace Audit (2012). Those areas within the bottom quartile were awarded three points, with one point awarded to the next quartile. Where local areas also ranked in the lowest 50% for below average greenspace quality and/ or below average greenspace provision, additional points were awarded (one point for each).



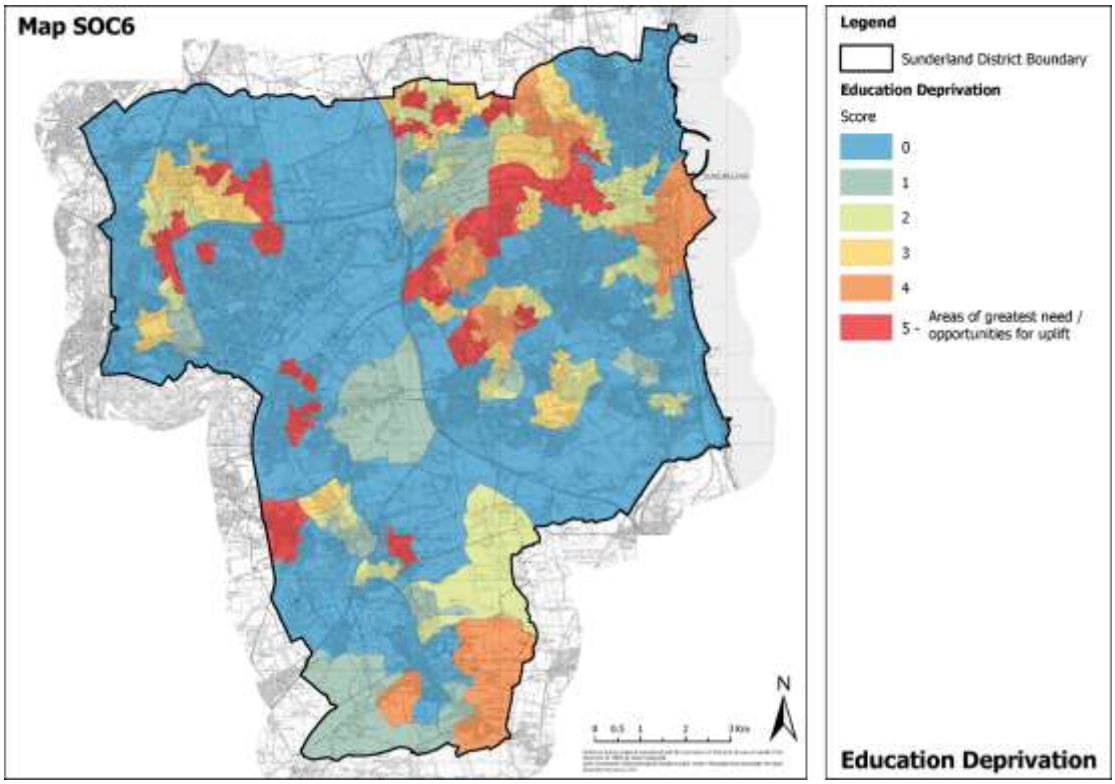
Generally, the north-east of the city was found to have the highest priority areas (including Pallion, St Anne's, Ford, Pennywell, Hylton Redhouse, Sandhill, Castle, Redhill and Hendon), although; Houghton Racecourse, Fence Houses, Hetton, Houghton, Shiney Row and Washington Central are also noted to contain more localised high priority areas, with some larger areas of notable health deprivation along the eastern boundary of the Copt Hill, Hetton wards and east of Hetton-le-Hole.

Map SOC6: Education Deprivation

The Sunderland Greenspace Audit (2012) identifies a variety of typologies which can be incorporated into the national curriculum, as well as settings outside of the national curriculum such as vocational courses/training. These typologies include parks and garden, natural and semi-nature greenspace, green corridors, civic spaces, outdoor sports facilities, amenity greenspace, allotments, accessible countryside in the urban fringe and coastal and estuarine areas. The availability of such "outdoor classrooms" can inspire and influence the attitudes of students towards arts, history, science, geaography, physical education and life skills.

Map SOC6 ranks educational deprivation in local areas (Lower Super Output Areas) using statistics from the Indices of Deprivations: Education Deprivation (2015) and the Sunderland Greenspace Audit (2012). Those areas within the bottom quartile were awarded three points, with one point awarded to the next quartile. Where local areas also ranked in the

lowest 50% for below average greenspace quality and/ or below average greenspace provision, additional points were awarded (one point for each).

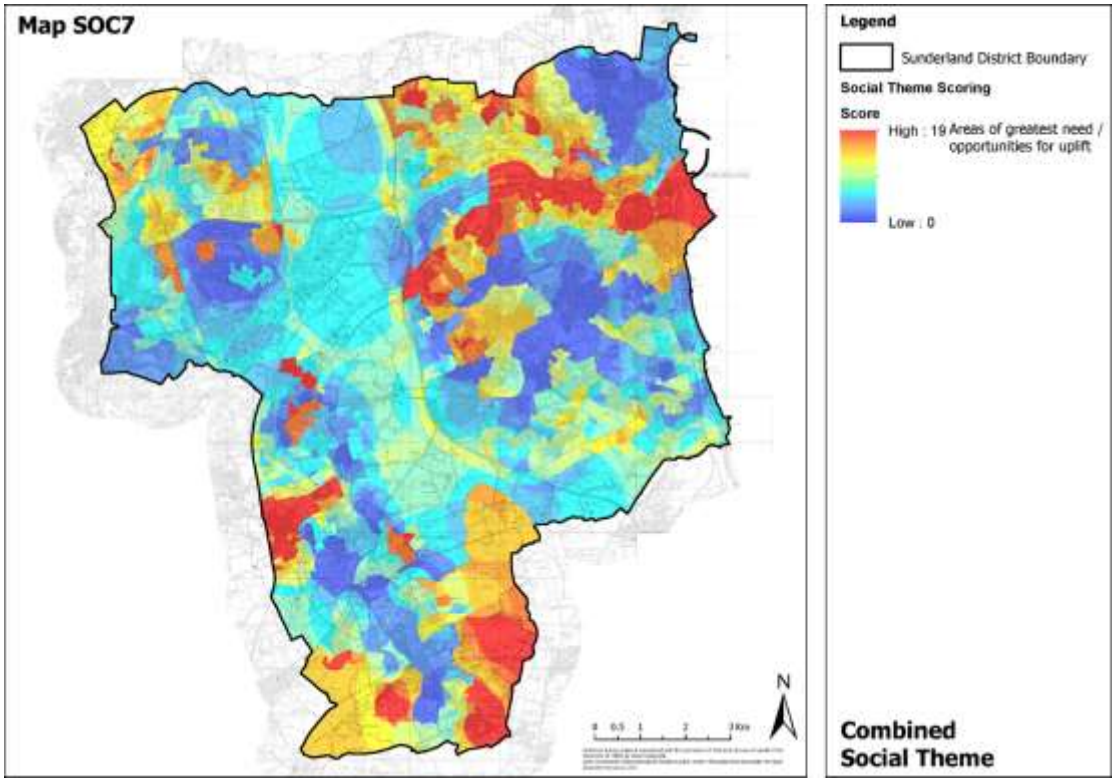


Educational deprivation high priority areas are in a similar locality to the high priority areas displayed in Map SOC5 for health deprivation (Pallion, St Anne's, Sandhill, Castle, Redhill and Hendon), although; Houghton Racecourse, Fence Houses, Hetton, Shiney Row and Washington Central), but with additional sprawl from these areas into other wards such as Millfield, Southwick and the other Washington wards (although Washington North was found to generally score higher than the other wards).

A number of the high priority areas, such as Concord in Washington North, are located near industrial estates / business hubs due to their locations near major transport linked (i.e. A1(M), A194(M), A19 and the River Wear. Other high priority areas generally fall in localities with high density residential housing estates, where GI is lacking.

Map SOC7: Social Theme Combined Map

Scores from each of the Social theme maps were combined to identify the areas of greatest potential for multiple Social benefits arising from greenspace investments.



As one might expect there is a general trend of greatest need and potential for social benefits from GI investment in the most densely populated areas of the city. However, this is not a simple correlation and where some areas have greater amounts of greenspace provision, others have higher quality; and others lack both.

Pallion, for example, is the largest ward area scoring highly in terms of multiple social GI provision deficit. The ward has no Pocket Parks, Local Parks or Green Flag Parks and does not meet any targets for access to these in the wider local area. It has some of the lowest woodland cover and no access to 2ha or greater sized woodland within 500m. Accessible natural greenspace is limited in the main to Bishopwearmouth Cemetery/war memorial, which, whilst tree-lined and green, one might suggest as a context, is more suited to remembrance and reflection than future aspirations. More natural environments associated with the River Wear are blighted by post-industrial/Brownfield land and these potentially effect a less prosperous sense of place upon commuting for example along A1231. Both the quantity and quality of less formal greenspaces that might add to the immediate everyday setting of the built environment were also found to be 'very low' in the Greenspace Audit.

Areas of New Penshaw (around the Academy and Primary School) and Shiney Row display more punctuated need and opportunity. New Penshaw appears to have some access to GI provisions of potential social benefit in the wider local context (such as playing fields, Penshaw Park and Herrington Country Park), and is set within a more rural fringe context. However, whilst the quantity of local greenspace was noted to be 'below average' in the local neighbourhood, the quality of and accessibility to doorstep GI was noted in the greenspace audit to be low/sub-standard. The neighbourhood has a low IMD score for health (and low overall multiple deprivation) and houses high populations of young and/or older residents.

In areas where there are significant numbers of the young and old, coupled with issues of poor general health, there is a particular benefit from doorstep GI of high quality to meet the needs of people who do not enjoy the mobility benefits that come with good health - and potentially, good income. Further interrogation of the results and data is required to understand the effects of the data limitations on these assessments – such as the resolution/definition of neighbourhood boundaries and simplified A-B buffer measurements. In view of the wider GI assets it may be that improvements in public rights of way routing, public transport and local groups could provide opportunities for enhancement.

Notably the South Sunderland Growth Area (SSGA) where the majority of new housing is proposed, currently presents generally low levels of social GI need. The social GI functionality maps and the Greenspace Audit reveal a notable lack of sports provisions, formal parks and gardens, play areas, accessible local (2ha) woodlands and doorstep accessible natural greenspaces in this area. Ensuring that the SSGA is delivered alongside such provisions will be important for social factors in terms of sustainably delivering new communities, reducing impacts upon the local environment, providing opportunities for environmental enjoyment and integrating with existing communities.

In the main, the results echo the findings of the greenspace audit in that deprived areas in Sunderland have the lowest greenspace quality. Overall, Sunderland is well provided for in terms of greenspace provision, but not all residents have access to a range of greenspaces that would encourage healthy and active lifestyles to be realised, and in some cases there are greenspaces that are poorly used due to design and/or location (Sunderland Greenspace Audit 2012).

The establishment and maintenance of Country Parks present a real opportunity to safeguard land at the interface between new and existing communities with ongoing stewardship and maintenance guaranteed and targeted for social and environmental benefits. Management is often led by parks officers or specialist third parties (such the Land Trust), with local interest groups run to help with stewardship and generate a sense of local community ownership, working with individuals and organisations such as groundwork or the Local Wildlife Trust.

Initiatives such as the Community Forests have further shown that landowners can be persuaded to manage their land for public benefit provided that adequate resources are available. The creation of new native woodlands within these would be a key enhancement for the area as tree cover is below average in Tunstall and Burdon. The SSGA presents an

opportunity to increase tree cover more generally through shelter belts and street trees within and around new settlements and associated infrastructure including the proposed new highway scheme. However, there is an obvious need for local knowledge and community values to be considered before formulating an intervention strategy for any particular place.

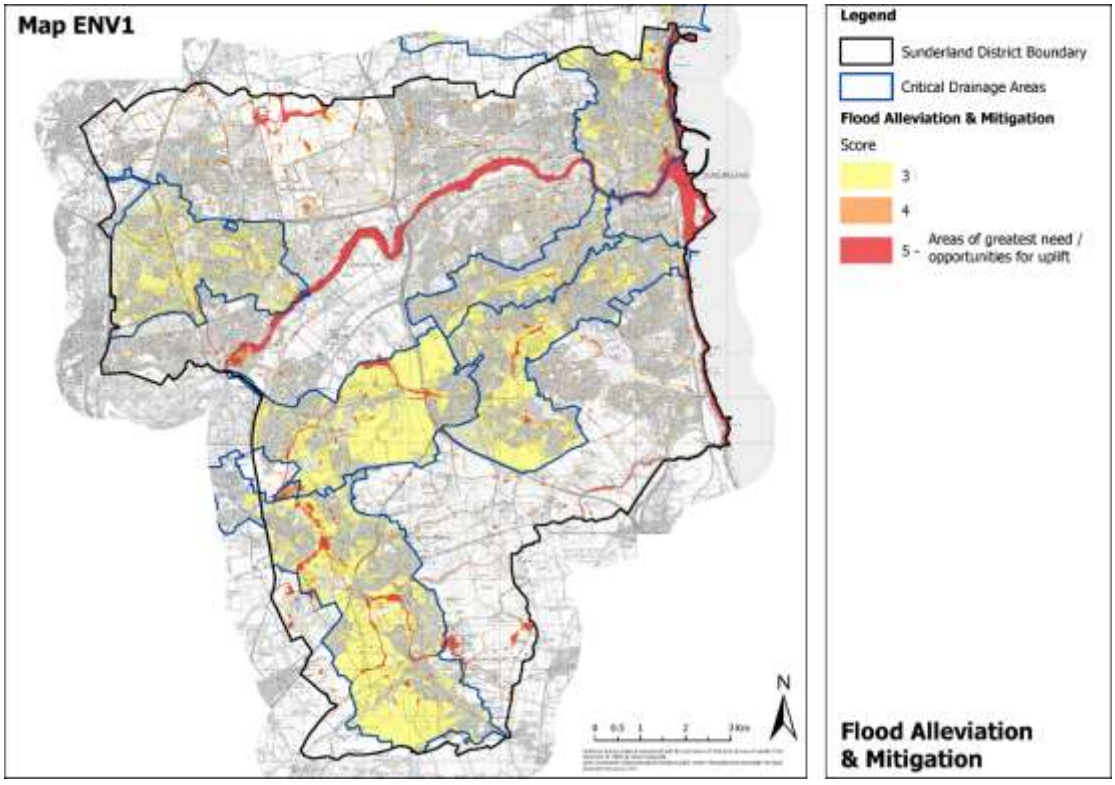
5.4 Environmental Maps

Map ENV1: Flood Alleviation and Amelioration

Green infrastructure, along with land management techniques, can play a vital role in flood mitigation and alleviation. Peak river flows can be reduced by creating natural habitats, such as reedbeds, wetlands and carr woodlands, which can reduce the frequency and intensity of flood events by infiltrating, absorbing and storing water.

Data relating to flood zones, surface water vulnerability, critical drainage areas and details from the Sunderland Greenspace Audit (2012) were combined to create Map 20, with points award for areas falling into the following three categories:

- Flood Zone 3, High Surface Water Vulnerability (five points);
- Flood Zone 2, Medium Surface Water Vulnerability (four points); and,
- Low Surface Water Vulnerability and greenspaces within critical drainage areas (three points)



The high priority areas are primarily associated with the River Wear corridor and the

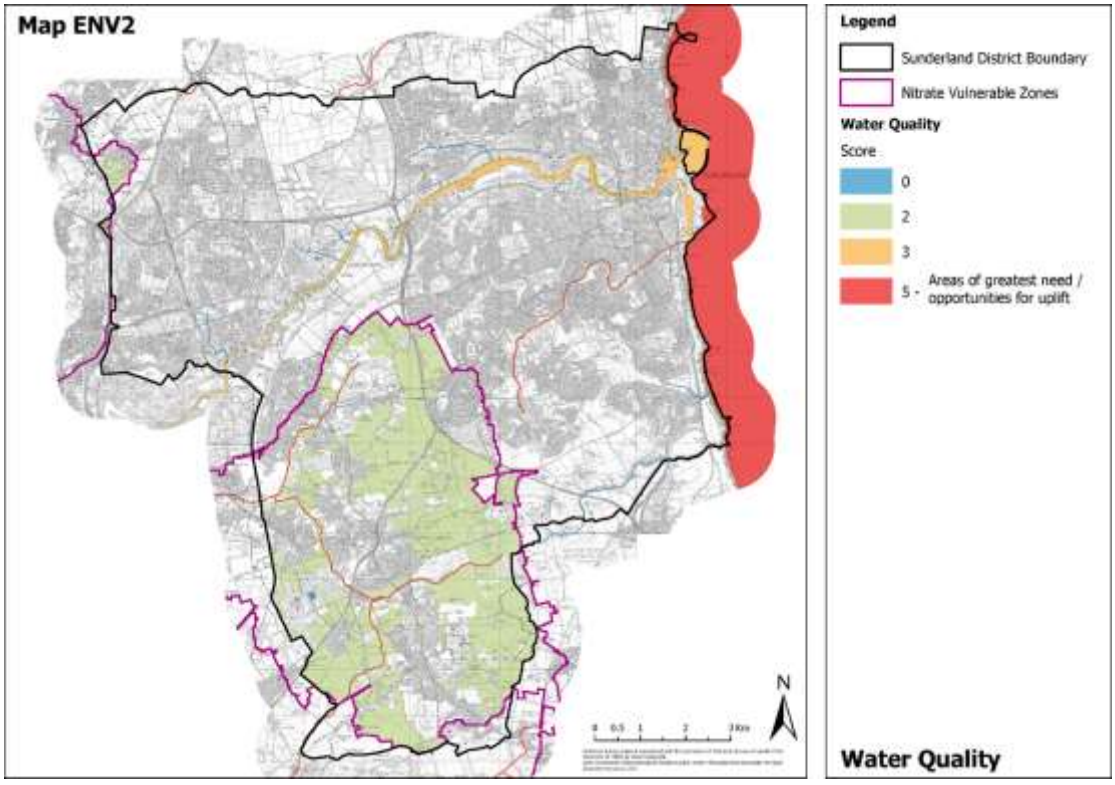
coastline. Further priority areas generally fall within two categories: Areas adjacent to standing water and/or smaller watercourses (such as drains, burns and becks) and urbanised areas such as Blackwood Road and Cranleigh Road near Town End Farm / Hylton Castle.

Map ENV2: Water Quality

Creation and continued management of GI can have positive benefits on water quality with vegetation actively providing phytoremediation and stabilising sediment along watercourse embankments. Additionally, reducing the intensity of farmland management to minimise slurry/fertiliser inputs and subsequent run-offs, managing industrial practices/wastes and creating interceptor habitats that remediate and stem the flow of pollutants and eutrophying elements can benefit provide significant water quality benefits.

Water quality data (WFD, 2015 and Nitrate Vulnerable Zones (NVZ)) were combined with hydrology and agricultural data to produce Map 21. Points were assigned for areas falling into the following three categories:

- Waterbody with >3No. measurements rated poor/bad, or high for chemical content;
- Waterbody with maximum 3No. measurements rated poor/bad, or high for chemical content; and,
- Agricultural land within NVZs & greenspace within 30m of waterbody rated poorly for water quality.



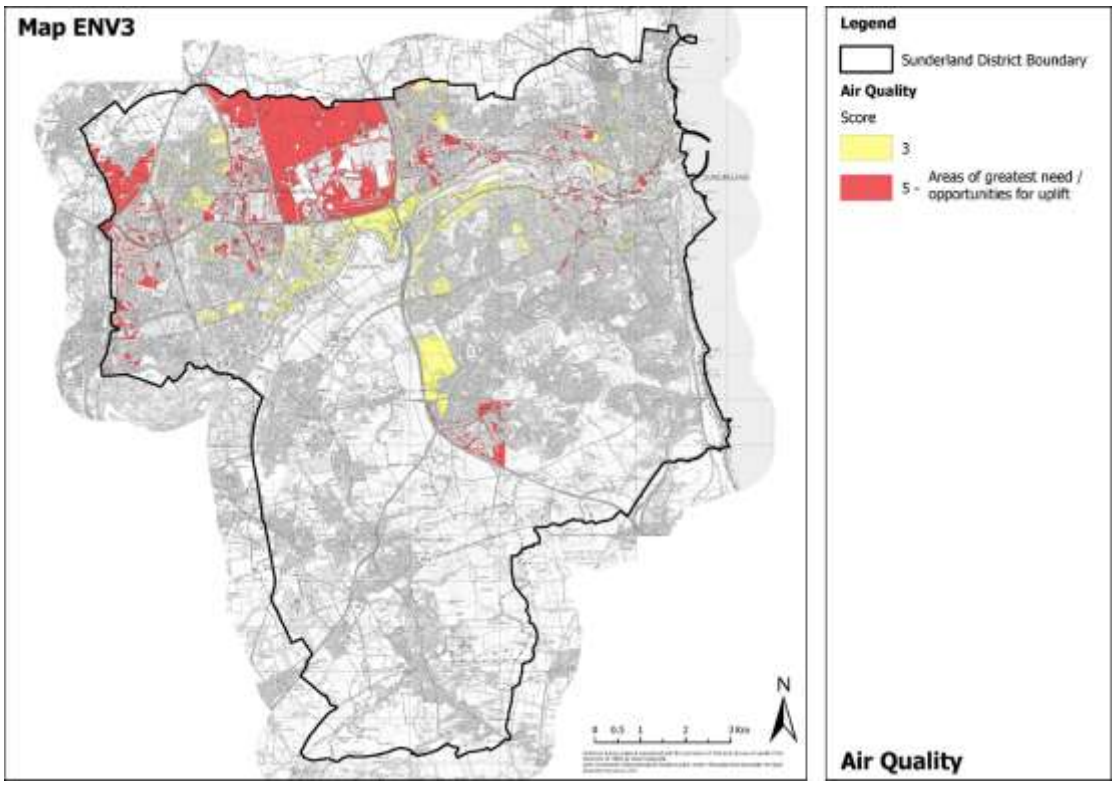
The North Sea, Hendon Burn, Whittle Burn and River Don running along the northern district boundary and a series of burns running through the Coalfield area (Rough Dene Burn,

Hetton Burn, Rainton Burn, Moors Burn and Herrington Burn) were identified as priority areas. The River Wear and estuary is also a notable priority, while farmland within NVZs fall primarily within the Coalfield area.

Map ENV3: Air Quality

Green Infrastructure can play an important role in remediating air quality within urban, industrial and infrastructure environments. Trees absorb pollutants such as ozone, carbon monoxide, sulphur dioxide, nitrogen oxides and particulate matter. Trees and vegetation also absorb carbon dioxide, storing carbon and releasing oxygen, thereby reducing global warming and climate change.

Air quality data (Indices of Deprivation: Air Quality Indicator, 2015) and areas of 'non-wooded' green spaces were used to create Map 22. The greatest points were assigned to areas of non-woody greenspace within local areas ranked in the lowest 20% (within Sunderland) for air quality; with lesser points for areas between 21 – 40%.



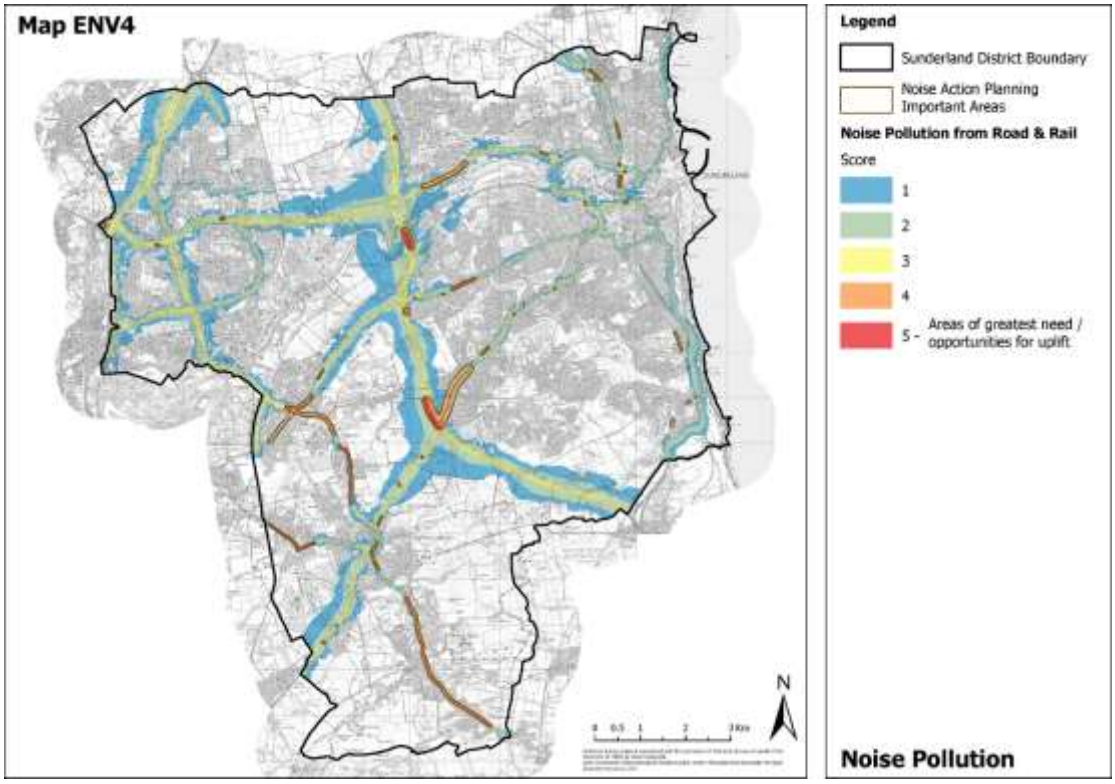
The highest priority areas were generally located in Washington North, around the Nissan Plant and in Washington West. Areas around the River Wear, East Herrington, Hylton Castle/Castletown and parts of South Washington were also highlighted. Interestingly there appears to be little correlation between major roads and the air quality data and further research into data availability/resolution (e.g. NetCen data) may be useful to inform this indicator.

It is worth noting that there are no Air Quality Management Areas in Sunderland.

Map ENV4: Noise Pollution

The spread of noise from roads and industry can be reduced when buffered by shelter belts of dense vegetation or vegetated earth mounds. In more urban areas, certain trees (e.g. aspen Populus tremula) can create noise of their own (i.e. the rustling of leaves in wind) which helps to muffle other less natural noise sources.

Annual average noise from road/rail (between the hours of 0700h and 2300h) was used to create Map 23. Noise levels (dB) were then divided into categories, with the most points assigned to the highest noise category areas.



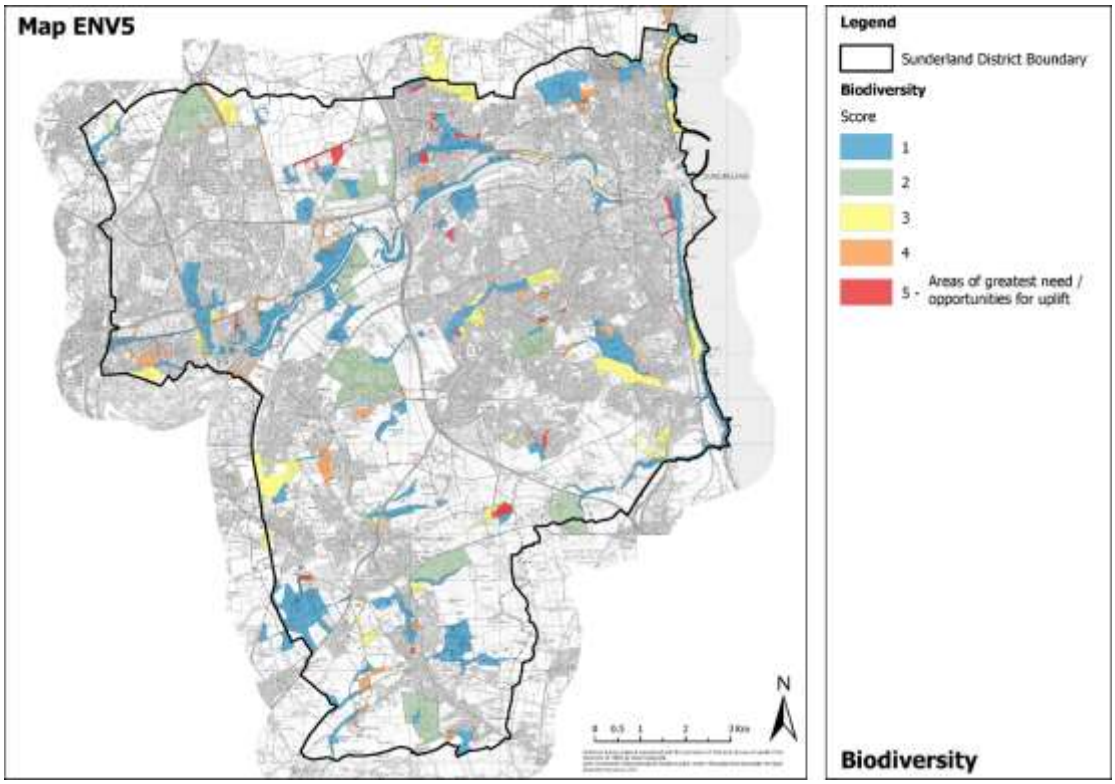
The major road routes (A19, A194(M), A1231, A182, A690, A183 and A1018) are the main sources of noise pollution across the city. More significant noise arises from the larger roads (A194(M) and A19) than smaller routes. The current role of GI (largely tree planting) is evident, for example, where noise spill along the A19 is demonstrably lower north of 'Warden Law' where there is more tree planting, than further south around High Moors, where a lower tree density is present along the road verges.

Map ENV5: Biodiversity

Sunderland supports a rich and varied natural capital of wildlife across its diverse habitats, from the coast, open-water, post-industrial, suburban gardens, open countryside and designated wildlife sites. The protection and enhancement of this biodiversity is important not only for the ecosystem services and natural processes it supports, but also for the sense of public interest and biophilia associated with the natural environment. GI planning goes beyond directly providing refuge, food and shelter for species; it requires future-proofing the landscape to allow for the continued viability of species, enabling individuals, groups and gene-pools to adapt and move through the landscape in response to climate change, extreme weather events, disease and anthropogenic disturbance.

The GI Corridors include for a 300m buffer from designated wildlife sites, to promote landscape-scale wildlife corridors and habitat connectivity. Map ENV5 includes consideration of where more immediate site-based enhancements, offer the potential to enhance, buffer and protect designated sites. Greenspace within 30m of designated sites were identified and categorised in relation to their greenspace audit, combined biodiversity assessment scores which categorises greenspaces according to their likely biodiversity value. For example, mown amenity grassland scored poorly, whereas old meadows with a diversity of grasses and herbs scored highly.

For the purposes of the GI functionality mapping greenspaces adjacent to designated sites with low biodiversity scores were assigned more points to reflect the need an d opportunity to provide biodiversity enhancements through habitat improvements to expand, buffer and connect existing wildlife sites. Whilst this map was intended to also incorporate designated wildlife site condition scores, to identify designated sites in unfavourable and/or declining condition, it was not possible to acquire the data at the time of study.



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Greenspaces along the River Wear riparian corridor tended to have a good biodiversity credentials, contributing to the value and functioning of this as a major wildlife corridor. Similarly, the Country Parks and golf courses form valued biodiversity assets, providing refuges for wildlife within the countryside and open spaces that intersperse some of the settlement breaks.

Opportunities include areas around the Nissan Manufacturing Plant which lie close to the more valued woodland and marshy grassland habitats of Peepy and Hylton Plantation and Severn Houses, which could for example aid populations of priority and protected species.

Amenity spaces around Downhill and Washington Road, (bordering Hylton Dene Local Nature Reserve) and land north of St. John Bosco Roman Catholic School (south of Downhill Meadows Local Wildlife Site) also appear to offer 'easy-wins' in biodiversity terms.

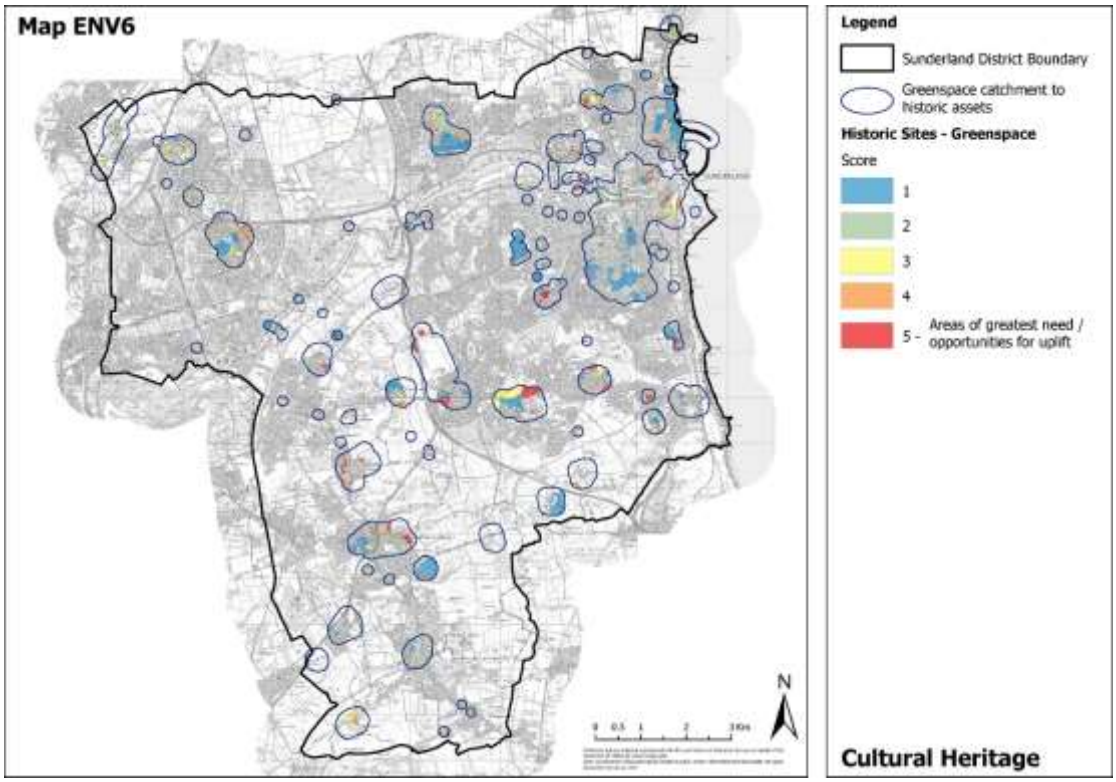
However, local ownership and land-use functions are obvious considerations in the ability to effect change. The Community North Sports Complex adjacent to the above for example, incorporates a network of wooded habitats around its functional sports pitches which provide opportunities to connect and extend Downhill Meadows LWS and Boldon Golf Course.

Similarly, areas around the East End and Port of Sunderland have obvious potential to expand and enhance habitats associated with the open mosaic habitats along the coast; however, marrying this with the Primary Employment Area allocation will be challenging and the sympathetic development of these, less ecologically valuable areas, may present a favourable alternative to development on the adjacent land of existing ecological value.

Map ENV6: Cultural Heritage

The maps also show areas of greenspace which are likely to detract from the setting of cultural heritage features, again focussing on derelict land and other operational land. However, it is appreciated that dereliction is temporary and a knee-jerk reaction to this has, in the past, led to a loss of cultural heritage. As with all other issues where subjective discussions regarding landscape quality are needed, local knowledge must form an important aspect of project evolution and investment decisions.

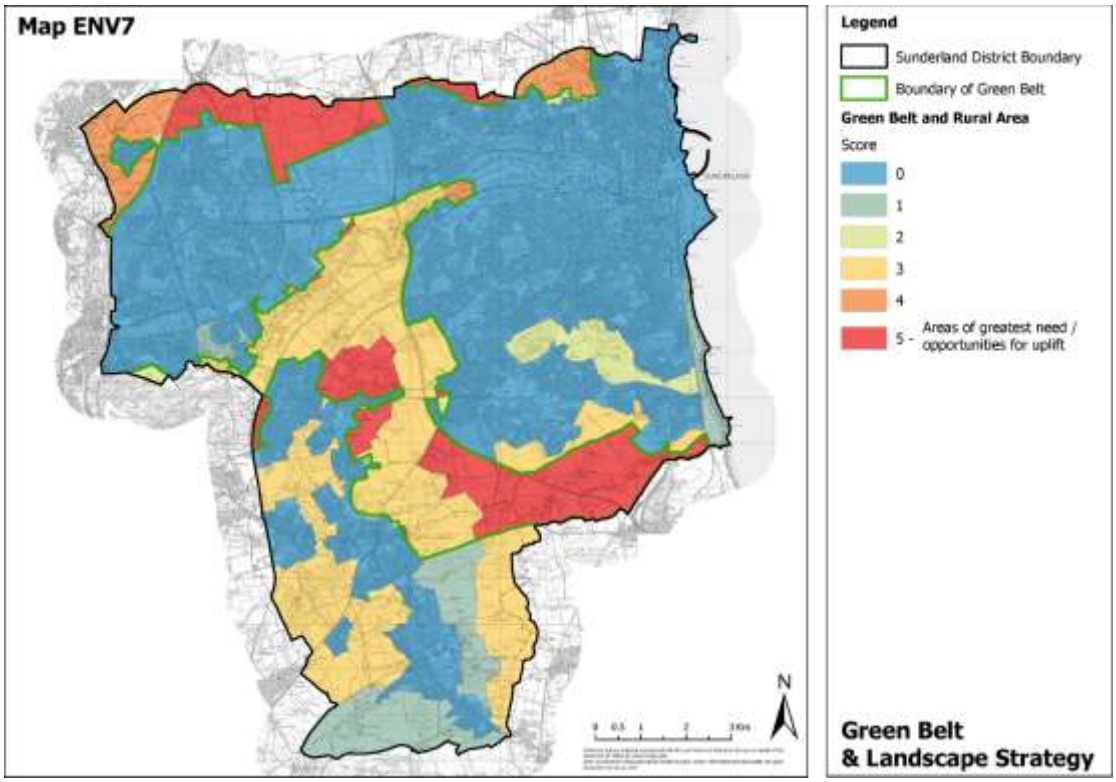
Nonetheless, the Cultural Heritage Map is a useful first step towards identifying those areas where greenspace has an important function. It shows significant disparity between local study areas, recognises the need to protect, enhance and manage the existing environmental assets of the City. Map ENV6 outlines areas within and immediately surrounding the region's main natural, cultural and built environmental assets, where GI management is either integral to the site or may offer protection through buffering and aesthetic contributions to the setting. There is also significant overlap between the datasets used for the tourism mapping and those used for the cultural heritage assessment.



The greenspace typology showing significant potential for additional functions is, perhaps predictably, derelict land, which is included as a detractor on a number of maps and, therefore, scores significantly against cultural heritage, tourism, image and investment and contribution to regeneration.

Map ENV7: Green Belt and Landscape Character

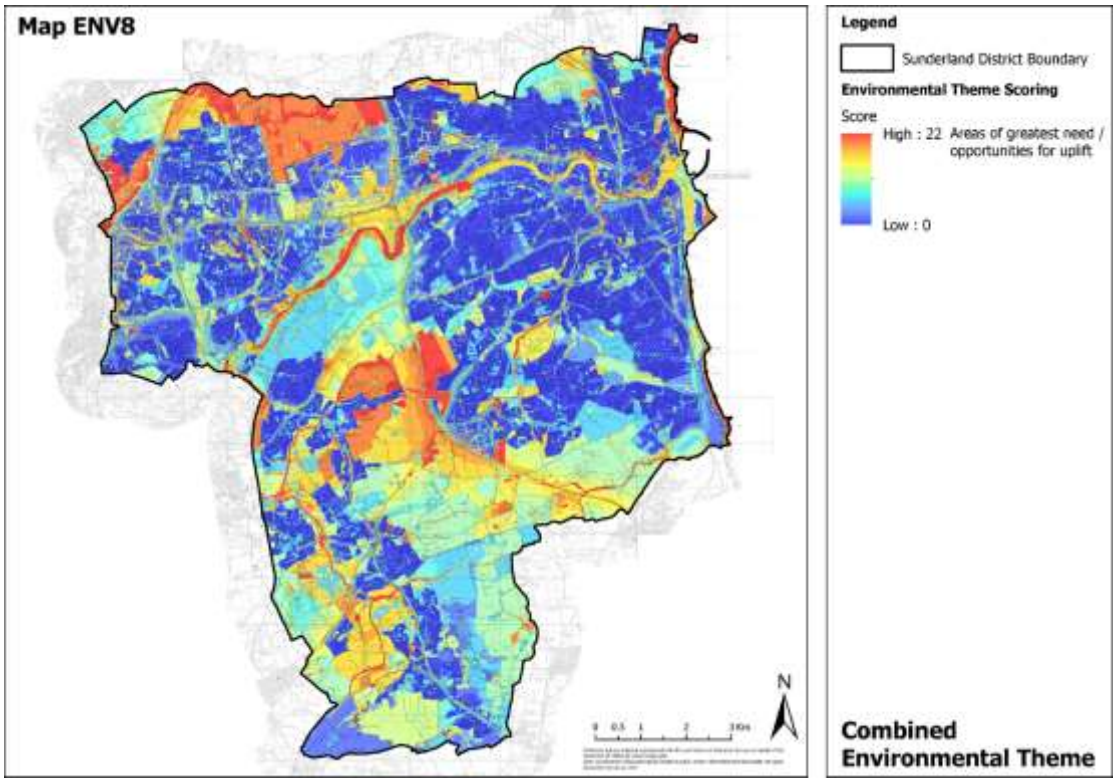
Green Belt is important to preserve the individual characters of settlements, including separating Sunderland from Washington, South Tyneside, Gateshead and the Coalfield. The Landscape Character Assessment also indicates where this is in need of enhancement to maximise the perception of and enjoyment in the natural, cultural and built heritage of the city. Map ENV7 assigns scoring for areas within the Green Belt, to reflect the value of these areas as settlement breaks and corridors of minimal built environment. Additionally, scores were assigned depending upon the Landscape Character Assessment's category for areas in terms of enhance (maximum opportunity/need) or protect and enhance.



Areas to the north of the City within the Green Belt all score highly, including the area within the proposed IAMP. In addition, the Ryhope to Burdon Corridor area scores highly for need/opportunity based upon Green Belt designation and a Landscape Character Assessment category of 'Enhance'. Interestingly, Herrington Country Park scores highly, which perhaps is a result of the 'broad-brush' approach to the Landscape Character Area assessment, and again reflects the need for the application of local knowledge.

Map ENV8 Environmental Theme Combined Map

The combined environmental assessments map highlights where there are opportunities to derive multiple environmental benefits from investments in GI.



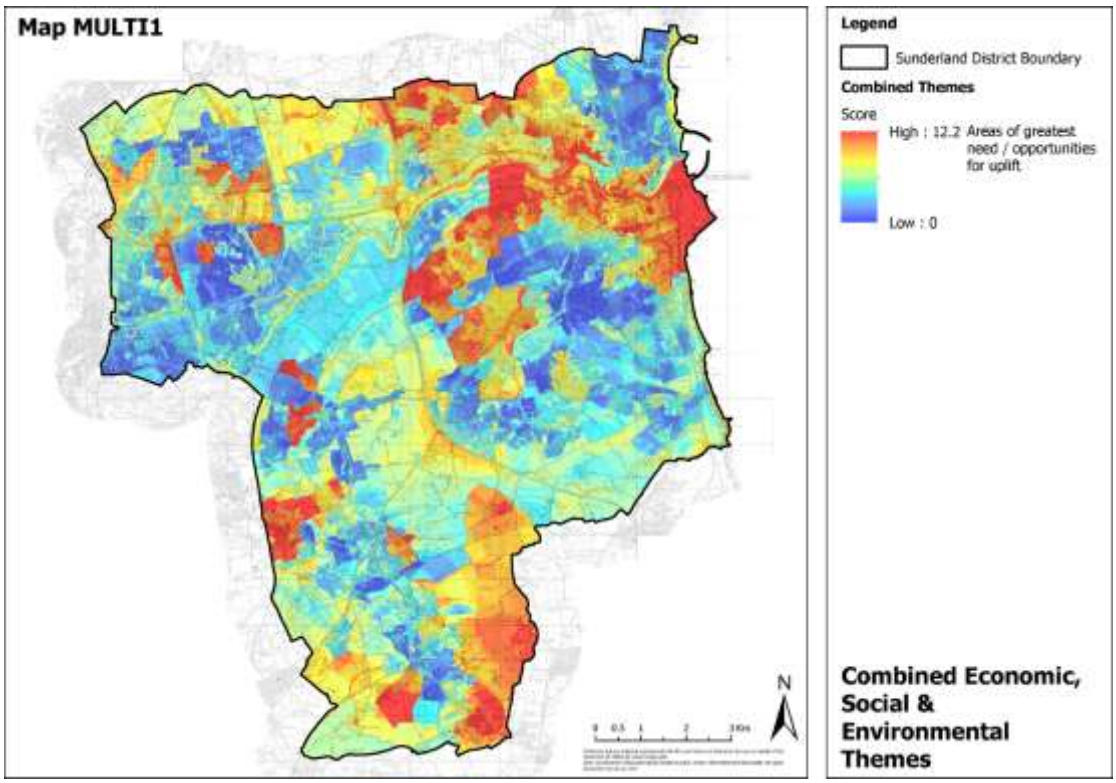
The most notable areas of high potential are:

- **The northern coastline associated with Whitburn Bay, between Whitburn Steel and Roker Rocks.** The area is highlighted for water quality and flooding issues, with buffer zones to biodiversity sites a further notable factor. Whilst the area is within the wider GI coastal corridor and is associated with several of the main long-distance pathways and cycle routes, in view of the form of the landscape here, being mainly beach and rocks, it might be harder to engineer environmental enhancements in this area that would benefit these causes and this may be a limitation of the data/assessment;
- **IAMP, River Don, northern Green Belt and Springwell Village.** Again, there is good correlation here with the GI corridors. As previously discussed, the IAMP presents risks of environmental disturbance and greenfield losses, though a large landscape is proposed as an ELMA to enhance and safeguard land under environmental stewardship to offset this. The map suggests that the River Don may be a notable priority for consideration here. There are already dense tree-lines bordering the playing fields and sports facilities at Usworth and additional benefits to air quality noise and ecology may be difficult to derive along the border of Northumberland Way here. Agricultural land around Springwell may, however, be better suited to facilitate GI uplift, subject to the uptake of environmental stewardship schemes, woodland establishment grants and alike. Such measures may help to improve air and water quality alongside enhancement of landscape character.

- **River Wear, Rainton Burn, Lumley Park Burn and other open-water courses.** Flood mitigation and water quality enhancements may be key in these areas with wider potential benefits or riparian habitats and species.
- **A19 and Herrington.** The potential for improvements in air pollution, noise attenuation and landscape character are evident in West and Middle Herrington. Notably Herrington Country Park, a Green Flag awarded venue already providing a suite of environmental benefits, is identified as an area of opportunity (scoring points for opportunities for flood mitigation, biodiversity enhancement, and as a Green Belt site within an area identified for landscape enhancement). This demonstrates how local knowledge needs to be applied to the mapping outcomes. Junction improvements proposed for the A19 and the housing release sites in the area provide potential opportunities to widen the influence of environmental improvements in the area and realise further benefits and connectivity.

5.5 Combined Multi-Functionality Map

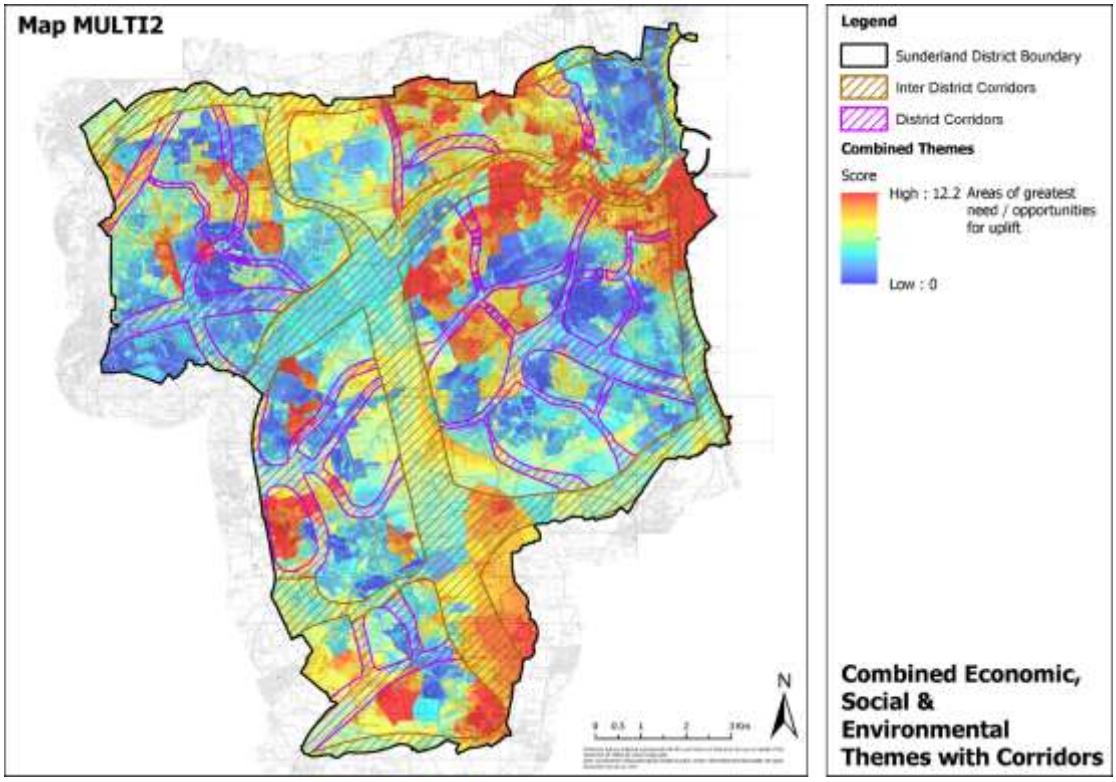
Map MULTI1 below is the result of combining the combined economic, social and environmental theme maps. This illustrates where the greatest needs and opportunities exist to generate cross-theme, multifunctional benefits from investments in GI. It is important to ensure that individual and thematic priorities are not overlooked or diluted in trying to achieve multiple outcomes, as some may be exclusive to others (e.g. public access/recreation may not be appropriate in areas of disturbance sensitive wildlife). As ever, the application of local and contextual knowledge is also important.



The result demonstrates both smaller hotspots and larger landscape areas of priority. Particular focus includes Port of Sunderland, industrial areas along the Wear, residential

areas of Pallion and areas of St. Anne's, Redhill, Fence Houses/Colliery Row, Easington Lane and east of Hetton- le-Hole, Shiney Row, Penshaw, Barmston, Oxclose and areas around Usworth/Concord.

The result of the combined multi-functionality map have been overlaid with the Sunderland GI Corridors, to produce Map MULTI2 below. In some areas, including Port of Sunderland/along the coast, Pallion, Redhouse and around Easington Lane/east of Hetton-le-Hole/Warden Law, there is correlation between the Corridors (where GI uplift may primarily be seen to protect and connect existing assets) and the areas of greatest opportunity/need for the wider public and wildlife benefits of GI. These may well be good priority areas of initial focus for a Delivery and Action Plan and/or the investment of funds, though this will need to be considered alongside deliverability in terms of their potential to achieve uplift (including mechanisms for change such as funding, resources, access, land ownership and wider engineering/land/hydrological/archaeological considerations). Where 'easy-win' opportunities for GI delivery occur outside of the highest priority areas, these should obviously still be supported and assisted to realisation; however, consideration should be given to environmental equality over the whole city and the apportioning of funds/resources where these may be limited. Further to this, sites within the corridors or areas of need/opportunity should not be precluded from development; insightful scheme designs, landscaping and layouts, incorporating local priorities and/or appropriate offsetting and compensation, can be an important GI delivery mechanism.



The maps above, produced as a result of the GI Corridor and area-based needs assessments, have informed a framework of principles and strategies for the future provision of GI outlined in Section 6.0 and recommendations for future works outlined in Section 7.0.

The maps, and future iterations of the maps utilising updated data sets, will ultimately be used to inform the development of a Delivery and Action Plan to translate the GI Strategy vision into a series of projects for delivery and action over the next 15 years.

6.0 Green Infrastructure Vision – Priorities for Delivery

A framework of principles and strategies for the future provision of GI across the city is provided below, informed by the outputs of the GI Corridor and area-based needs assessments outlined in Sections 4 and 5 above.

6.1 Protect, Enhance and Repair the Strategic GI Corridors

The GI corridors form the strategic framework of GI provision across the city. These house some of the best GI assets and provide a context for the continued functionality of natural processes to support the city and wider region through future climate change and population growth. Land-use and development in these areas should:

6.1.1 Ensure that the Integrity of the Network is Safeguarded and Enhanced

Opportunities should be sought to buffer and protect existing assets and increase the quality and connectivity of habitats and green corridors. Whilst the GI corridor status should not act as an outright constraint to development, the preservation of sufficient undeveloped 'green' land to enable these corridors to function is required. For some of the District corridors, which comprise thin 'fingers' of GI running through more urban contexts, there may be little scope for development alongside this goal. For the larger inter-district corridors, uplift in the quality of GI in priority areas may provide corridor enhancement alongside commensurate land-take to facilitate appropriate development in such contexts. New development in the corridors should particularly avoid the severing of landscape connectivity – where this may occur either directly through land-take or other less direct means, e.g. adverse effects on hydrological flows, air/water/light/noise pollution, visual detractors, or similar. In accordance with the NPPF, preserving the Green Belt should be seen as a priority, particularly where this provides a refuge for wildlife away from anthropogenic disturbances and where public access is supported within a context providing opportunities for tranquillity, perspectives and reflection. The corridors provide a context for public rights of way and national cycle trails that are subject to large numbers of tourists/visitors to the city each year, thousands of daily commutes and the recreational pastimes for Sunderland's residents. Investments may be well directed towards the protection and enhancement of landscape character in such areas.

6.1.2 Unblock Existing Barriers to Repair Connectivity

Section 4.3 highlights example areas of the corridors that suffer significant fragmentation or severance due to factors such as major transport corridors, development and employment. The potential of retro-fitting GI should be investigated in these areas to reinstate connectivity and recapitalising on the potential environmental, social and economic benefits. Potential approaches in such contexts could take such forms as installing green walls/roofs, creating over-passes, de-culverting watercourses, structural planting to increase biodiversity and bridge roads/gaps, changing lighting regimes, reducing speed limits, installing wildlife friendly road kerbs/drains, etc.

Spatial and temporal planning should consider the appropriateness of further development around bottleneck areas either in terms of density, layout, location or delivery timings in the local context. It may also be appropriate to view more long-term solutions to unblocking corridors in terms of the lifespan/renewal of existing development/features.

6.2 Address GI deficit in Areas of Greatest Social, Economic and Environmental Need

In addition to top-down, strategic/landscape scale approaches, well planned GI requires bottom-up approaches, focussing on areas / sites with the greatest immediate needs and delivery. The outputs generated from this study, the GI Audit and Sunderland Sustainable Neighbourhoods Study provide an evidence-base, highlighting the need and opportunity for GI investment to deliver both specific and wide-ranging results. Consideration should be given to the application of these to direct time and resource investment and to unlock potential funding streams.

6.2.1 Prioritising GI Investments – Applying the Evidence Base

Uplifting GI in areas of greatest environmental inequalities and deprivation across the city should therefore be a priority. The maps provided in Section 5 identify areas where there is greatest need and opportunity for GI investments to provide outcomes that maximise public and wildlife benefits in relation to specific agendas, for example, mitigating flood risks (Map ENV1), enhancing health (Map SOC5), or improving air quality (Map ENV3). The combined maps under each theme demonstrate where opportunities exist to tackle more overarching agendas such as reversing social deprivation and promoting neighbourhood renewal (Map SOC7), stimulating economic regeneration and investment (Map ECO9) or improving biodiversity, environmental quality and ecosystem services (Map ENV8). These may be used to inform time and resource investment in terms of local and city-wide objectives.

6.2.2 Maximising Multifunctionality and Greatest Returns

Time and resources should be invested in sites with the greatest need and/or opportunities to effect the greatest returns. As guided by the NPPF, GI uplift should be a goal in, and of, itself. The overarching combined cross-theme map (Map MULTI1), highlights opportunities to generate the greatest returns from GI investments in terms of multifunctionality and multiple benefits. This may be relevant, for example, to a centralised funding pot for GI uplift/environmental regeneration, to demonstrate the 'biggest bang for your buck'.

6.2.3 Application to Funding/Resource Opportunities

Areas with good GI that provide an attractive setting for investment and support affluent neighbourhoods may receive proceeds from taxes, land value uplift, built infrastructure projects and alike. This may be invested back into GI creation, uplift and management. In contrast, areas suffering GI deprivation may be less able to generate funds and investment due to their legacy and context. Funding is often tied to specific outcomes or administrative /project boundaries and this has the potential to exacerbate and perpetuate the problem.

Funding streams or requirements to offset/compensate for development often have specific targets relevant to outcomes such as flooding and biodiversity. The evidence base provided here may be used to support applications for the investment of resources to deliver specific outcomes.

Central Government approaches to delivering commitments signed up to under Biodiversity 2020 for example, increasingly recognise that delivering sustainable outcomes within administrative, ownership or project boundaries is not always possible or appropriate. Financial and resource investment/reward to alternative areas that provide Ecosystem Services or Biodiversity Offsetting can sometimes facilitate a more holistic approach to environmental sustainability. The emerging District Level Licences for European Protected Species further shows intent towards this approach. It may be, for example, that the creation of new wetland areas to offset development impacts in a more urbanised location are more appropriately targeted to an area identified in the mapping assessments to have a high potential for biodiversity and flood mitigation benefits, within an adjacent GI corridor, upstream of the site in question. Mechanisms to deal with the associated land ownership, land value and quantifying appropriate compensation/reward/offsetting need further consideration, as discussed in the sections below.

6.3 Future Proofing / Ensuring New Growth is Sustainable

The CSDP spatial strategy outlines where new growth and regeneration is planned over the coming 10-15 years including Housing Release Sites, Primary and Key Employment Areas and specific schemes such the International Advanced Manufacturing Park (IAMP) and the South Sunderland Growth Area (SSGA). Ensuring these are delivered in a way that is cognisant of the importance of GI for social, economic and environmental sustainability will be important.

GI for new communities should, for example, seek to meet Natural England`s Accessible Natural Greenspace standards[12] and the Woodland Trust's Woodland Access Standards[13] for greenspace/woodland provision. However, as outlined above, it will be important to understand the wider existing context of GI and whether more strategic GI planning could serve to provide for existing communities with deficits. This may be through the provision of new parks/greenspaces/sports facilities at the interface between existing and new neighbourhoods, providing more 'doorstep' opportunities for both; the creation of larger sites such as Country Parks, that may serve a wider population catchment; investment in management of existing sites that may serve the aims of 6.2 above; or the creation of green

12 http://webarchive.nationalarchives.gov.uk/20140605111422tf_/http://www.naturalengland.org.uk/regions/east_of_england/ourwork/gi/accessiblenaturalgreenspacestandardangst.aspx

13 http://www.woodlandtrust.org.uk/mediafile/100083906/space-for-people.pdf

routes that may link communities, encourage sustainable transport usage and connect to GI/tourism/heritage assets at a more landscape scale.

Public access and social benefits may not always be priorities or even appropriate for all areas. For example, GI planning for flood mitigation may consider where additional onsite capacity/river restoration works would ameliorate flood risks further downstream, where engineering or land-use/form solutions may be more difficult to deliver/finance. Nature conservation interests may require areas of refuge for disturbance sensitive or vulnerable species with breeding and habitat requirements that are not compliant with public access or more aesthetically pleasing landscapes.

6.4 Identify Key Stakeholders and Promote Partnership Working

Change can occur through central government policies/funding and large organisations/charities (such as the Woodland Trust/Community Forests planned Northern Forest project with aspirations to plant a ribbon of trees, linking Liverpool to Hull supported by Defra's 25 Year Environment Plan) to social/ entrepreneurial enterprises, local interest groups, communities or individuals/volunteers delivering change on the ground. Often change may need no physical interventions and may be as simple as providing access. Alternatively, funding or resources may be readily available but there is a lack of awareness for those who may be applicable.

6.4.1 Establish a Sunderland GI Stakeholder Network

A database of stakeholders and organisations, funders and alike should be generated to comprehensively identify and document who, what and where in terms of those with a vested interest to effect the GI strategy delivery across the city. This may include public bodies, NGOs, landowners, trusts, social enterprises, unions, associations, charities, local interest/volunteer/friends of groups, individuals, professionals, funders, and alike. These may then be analysed and ranked/categorised to help assess priorities for engagement and partnership working. Stakeholder information should further be reviewed alongside the mapping evidence base to identify critical locations. A small landowner, land manager or organisation, with the potential to effect change in such areas (such as GI Corridor bottleneck) may be as much, if not more, of a priority for engagement as a large landowner elsewhere.

Identifying likely GI awareness, gauging support, categorising areas/spheres of influence, etc may all be useful in informing a strategy for engagement and partnership establishment. The 2010 GI Steering Group members outlined in Appendix 4 of the 2014 Sunderland GI strategy document (see Appendix D) form an obvious initial list of stakeholders from whom to draw a list of potential wider local organisations and individuals to engage with. It will be important to engage with local communities, schools and youth groups, businesses, volunteers and interest groups, reserves, charities, health groups and alike to identify potential local delivery mechanisms with wider benefits such as promoting a sense of place or encouraging people in difficult circumstances back into work or recreation.

Once key stakeholders have been identified it may then be useful to hold workshops and establish communication networks between the GI stakeholders to better understand current issues, opportunities and perceived impediments to delivery. As well as identifying potential physical projects and areas for intervention, this may further help to identify where collaborative working offers new opportunities and mechanisms to effect change. Lessons learnt, case studies and feedback could be utilised to assist in project realisation. A toolkit could even be envisaged with appropriate flow-chart style questions and next steps (e.g. is the barrier to delivery perceived to be legal, financial, resource, expertise, administrative, consent, other… etc).

6.4.2 Cross-boundary Working

The inter-district GI corridors are arguably the most significant and important corridors in the city and their potential public and wildlife value extends to the wider region and beyond. In addition, Gateshead/Newcastle, South Tyneside and Durham GI corridors and sites provide immeasurable benefits and services to the people and wildlife of Sunderland. The assessments conducted under this study are limited to a degree by data associated with Sunderland's administrative boundary. Whilst informed by the Greenspace Audit, which accounts for such factors, it may not have accounted for some assets that provide strategic GI services for Sunderland. Similarly, existing and potential opportunities to provide GI benefits to neighbouring authorities are not identified. Establishing a Northeast Regional GI Group to enable greater data sharing, map regional GI corridors, identify opportunities and pool resources/funding and experience could be highly beneficial.

6.5 Identify Delivery Mechanisms and Secure Funding Streams

Whilst GI delivery may be achievable in some contexts without significant financial inputs e.g. through knowledge dissemination (for example the provision of cycling/walking maps online or in print), behavioural changes, volunteers and alike (e.g. litter picking and habitat management), in most instances funding will be a critical factor. Funding is relevant both to capital investments for establishment and to ongoing GI maintenance and sustainability and identifying funding streams will therefore be essential for delivery. Section 6.2 notes the particular importance of utilising the evidence base to help make the case for funding to be directed/prioritised towards areas of greatest need. In addition, the key stakeholder workshops outlined will be pivotal in identifying relevant delivery mechanisms and funding sources and where these have previously been successful. A recent study of potential funding sources was conducted for the Newcastle/Gateshead GI Strategy which is considered relevant to this study and is recommended for review (included at Appendix E) at the stakeholder events.

6.5.1 Planning Applications, Growth and Development

The consideration of the GI Strategy within the making of planning decisions and policies will be crucial to the delivery of the strategy. GI Policies are currently incorporated within the Draft CSPD and these should be reviewed in light of the strategy findings. The adoption of the strategy as a Supplementary Planning Document outlining the GI Corridors and areas of

need/opportunity will enable planners, developers, professionals, consultees and the public to engage with the GI vision.

Where appropriate, planning proposals should incorporate GI in line with local plan policies and site-specific considerations. As a component of sustainable development, green infrastructure should be considered at an early stage of a planning proposal. Depending on individual circumstances, planning obligations, conditions or S106 Agreements may all be potential mechanisms for securing and funding green infrastructure delivery.

Development and growth often requires land-take and introduces further potential pressures on the functioning of GI and health ecosystems. Environmental impact assessments aim to identify the potential for adverse effects and offset these with appropriate mitigation, based upon the hierarchy principles of avoid, minimise, mitigate and compensate (for impacts). Well planned, proportionate and sustainable development, therefore offers opportunities to enhance GI and provide associated public benefits where required to meet planning policy requirements. An example of this would be the NPPFs steer towards achieving "no net loss" in biodiversity and "net gains" where possible.

Defra's Biodiversity Offsetting matrix provides a quantifiable approach to understanding the amount of compensation that may be appropriate to enable "no net loss" of nature conservation interests within the context of development. This has been employed successfully for the IAMP scheme. Under the Area Action Plan Green Belt land in the north of the city has been released to help accommodate 150ha of new advanced manufacturing employment uses. There is a concurrent requirement to provide approximately 110 ha of land safeguarded and managed as a sustainable Ecological and Landscape Mitigation Area (ELMA) within Green Belt adjacent to the plant, for the benefit of habitats and species. GI for the economic setting and workforce is to be focussed within site. The location of ELMA in relation to the central and northern Inter-District GI corridors provides potential opportunities which may be explored.

In addition, there is increasing emphasis on a move from no net loss to achieving 'net gains'. Should the net gain principle be adopted, it may be one means of supporting further GI delivery through development. This may be relevant in the increasing move towards offsite compensation as outlined in section 6.2, above, where net gain may not be achievable simply within the context of a development boundary. The use of this evidence base, alongside policies within the CSDP and wider documents will help to inform where investments might be best targeted. Such linkages should also consider the ongoing maintenance and stewardship of sites and may provide links either through a commuted sum or ongoing service charges.

The development of a similar 'Green Infrastructure Offsetting Matrix' is perhaps also worth investigation to provide similar, quantifiable measures for financial or area based GI offsetting investment and delivery. There has been much advancement in recent years towards quantifying in monetary terms the Natural Capital benefits society derives from GI and the potential costs of replicating ecosystem services. The Green Infrastructure Toolkit,

developed by the Mersey Forest[14] is just example, of a system that enables quantifiable assessments of the value of GI associated with developments, and can further be used to help identify the potential economic returns for society of GI delivery between sites.

6.5.2 Grants

Grants such as the Heritage Lottery Fund and the European Regional Development Fund, have been instrumental in the delivery of environmental regeneration and enhancement projects. Such grants require the submission of bids with supporting evidence regarding need and potential outcomes from investment. The GI functionality assessment maps provide a high-level evidence base that may be used to support such bids, along with more detailed delivering planning. Reassessment and monitoring offer the potential to demonstrate how change has been affected.

6.5.3 A Triage Approach

Whilst new sources of funding for greenspaces are in limited supply, investment can be generated through the re-use of low value greenspaces for development in appropriate contexts. The loss of poor quality, poorly used greenspace sites may provide funds that enable other nearby greenspaces to be improved/maintained, and a local neighbourhood could achieve an overall greenspace 'net gain' in qualitative terms.

6.6 Increase Awareness of Sunderland's GI Value and Benefits

6.6.1 Actively Marketing Sunderland's GI assets

Sunderland is a green city with a wealth of GI assets, including the coast, the River Wear, open countryside and natural environments. These provide opportunities for profile raising to attract tourism and inward investment. The National Cycle Network, cultural heritage sites (e.g. Penshaw Monument/St. Peters church), marina facilities, beaches and Green Flag awarded Country Parks are places where people from a range of backgrounds engage with the city. Investment in, and advertisement of, these can help promote the city as a place of leisure, business and prosperity.

6.6.2 Educating and Advocating GI

GI has increasingly become integrated into planning policy and targets. Its inclusion within the NPPF and NPPG requires its consideration in spatial planning alongside the built environment for public bodies. Over the past decade a number of GI guides have been released by regional and national bodies which have a remit related to the natural environment and biodiversity.

However, there is still a lack of appreciation and willingness to engage with GI particularly at the site level where the provision of GI could result in land-take that might otherwise be seen as developable land. In such contexts, the GI approach can actually assist in land-take

[14] https://www.merseyforest.org.uk/services/gi-val/

minimisation; helping to achieve planning consents through multifunctionality enabling the delivery of multiple policy targets. Examples might include vegetated noise bunds (providing high grade agricultural soil or spoil storage), around sports/play facilities (providing recreation, health and storm water attenuation) with drainage swales and tree-lined green routes (providing low-carbon, sustainable transport corridors and visual amenity with the potential for biodiversity benefits).

The use of green walls and roofs further minimise developable space loss whilst offering the potential to avoid more-costly engineered drainage solutions due to their potential water attenuation value. Such solutions often result in high- quality environments with the sense of place and well-being to support high value technologies and workforce retention.

More traditional retro-fitting of GI within the urban realm and economic environments using street trees, planters and urban landscaping and art can help to generate a sense of place and support prosperity – Sunniside being a high-profile example. Often street trees, hedgerows and greenspaces are excluded from masterplanning due to the ongoing maintenance costs. The whole lifecycle gains of such features and their associated monetary values, in terms of 'natural capital', needs to be evidenced and advocated to gain cross-discipline support.

Outside of the more urban and economic contexts often associated with development and employment, the potential social and environmental benefits of parks, agricultural land, waterways, woodland and open spaces may be more fully realised with increases in GI advocacy. Helping landowners, stakeholders and organisations better understand how changes in land form, access and management can benefit local contexts and wider society; changing perceptions and misconceptions; and making the connections between funding, resources and opportunities for change; further inspiring the ideas and leaders to take projects forward.

Opportunities should be sought to increase the awareness of GI benefits to appropriate audiences with the power to effect change including corporate organisations, developers, planners, NGOs, charities and key individuals/stakeholders. This should be supported by an evidence base that is relevant and appropriate. In particular, the financial returns and savings of GI inclusion both in immediate and whole-life terms may be of high importance in reaching audiences that may be less sympathetic to more intangible social and environmental health outcomes.

Appropriate forums and delivery mechanisms should be also reviewed. Reaching 'new' audiences often requires inclusion in wider themed events and communications. For some audiences it may be appropriate to take the message directly to the target audience and incentives such as accredited presentations that contribute to Continuing Professional Development may appeal to more corporate audiences. Articles in relevant Industry Standard publications provide another approach and more generic publications could include formats such as the West Midlands Green Infrastructure Prospectus - released as physical and online 54-page resource/publication.

7.0 Next Steps - Recommendations and Future Works

7.1 Integration with CSPD and Planning

The findings of this assessment may be reviewed with reference to other policies within the CSPD and wider corporate strategies and Area Plans to understand where it may provide valuable supporting information, conflict and/or contribute to objectives and outcomes. It may help inform Area Committees as to the quantity, quality, accessibility and value of greenspaces in their respective localities, who will be in a position to consider key improvements and interventions. It may further assist the Development Management Team with an up-to-date evidence base, when determining planning applications.

As a component of sustainable development, GI should be considered at an early stage of a planning proposal. Depending on individual circumstances, planning obligations, conditions or S106 Agreements may all be potential mechanisms for securing and funding GI. Where appropriate, planning proposals should incorporate GI in line with local and neighbourhood plan policies and site-specific considerations.

7.2 Future Update of GI Mapping

The mapping methodology has been designed so that it is flexible enough to allow the incorporation of both updated data and additional datasets. It is recommended that the GI mapping and analyses are updated with the latest Greenspace Audit and Phase 1 survey data and information relating to the condition of designated sites, when these become available, as this study makes use of survey data available at the time of assessment. With regards to additional data, the following gaps have been identified and could be included in future updates:

- Location data for businesses with employee numbers;
- Residential property locations;
- Comprehensive list of tourism sites;
- Detailed Agricultural Land Classification;
- Water quality data for locally managed watercourses;
- Condition data for biodiversity sites (excluding SSSIs); and
- Habitat and species connectivity mapping.

7.3 Assigning Roles and Responsibilities

Whilst Sunderland City Council will ultimately be responsible for advocating and delivering the GI Strategy as part of the CSDP, it is acknowledged that the strategy can only be achieved through wider partnership working. This includes working closely with the adjacent authorities, external partners and a range of local/national stakeholders. The proposed establishment of a GI Network to identify and connect these partners (as outlined in the key priorities section above), will be key in the realisation of this. However, it is envisaged the foundation of this may fundamentally comprise the GI Steering Group, as outlined in the 2014 Sunderland GI Strategy Framework. The establishment of a GI Delivery Officer/Advocate for each local authority would assist to in clarifying roles and responsibilities that may further then be aligned through the steering group and wider stakeholders, through agreement/consensus. The Delivery and Action may further inform geographically and thematically, where roles are best assigned to help realise individual projects, that may involve varying factors for example:

- Greenspace creation or management;
- Public Rights of Way routing and land access;
- Influencing/realising Neighbourhood Strategies;
- Volunteer and Friends of Group establishment and management;
- Sports and recreation facilities;
- Woodland creation and access; or
- Education.

Council Officers and external leads in such areas will further be well placed to engage others, disseminate information and generate wider support for delivery.

7.4 Delivery and Action Plan

A Delivery and Action Plan has been commissioned by Sunderland City Council, targeted at realising the key priorities of the strategy. It will be important for this document to translate the GI Strategy vision into a series of projects for delivery and action over the next 15 years. It should set the context for GI delivery in terms of themes and locations across Sunderland and should include a list of recommended projects/actions to deliver the objectives of the GI Strategy – highlighting opportunity areas, easy wins and priorities. These should also be relevant to local-national policy aims and aspirations for regeneration across the city, such as improving health, access, quality of life, biodiversity, responding to climate change, etc. It should identify where responsibilities and priorities lie for providing, funding and managing the proposed GI and set realistic but aspirational delivery objectives and timescales. It should further identify potential mechanisms for delivery (e.g. planning obligations /community levies, biodiversity offsetting credits, Nature Improvement Area awards, etc).

It is envisaged that the projects may be

- locational or thematic, relating to sites, areas or corridors;
- short, medium or long-term;
- development or conservation led;
- relate to land access, management or land-use change, the provision of activities, facilities, participation or awareness; or
- establishing roles, organisations and/or partnerships and increasing communications.

8.0 Summary

This strategy has reviewed the existing Sunderland district and inter-district GI corridors. They have been assessed against baseline spatial data representing environmental, social and economic assets, and amended to confirm their relevance as priority areas for the protection and enhancement of GI functionality, connectivity and continuity in Sunderland. Areas where the corridors are broken and/or experience development pressures and/or physical barriers to their functionality were identified. Several 'nodes' or 'epicentres' of GI were also identified, where the corridors converge and key GI assets are present. These are notable points for protection and investment to improve the existing functionality of the corridors.

Concurrently, a broad range of socio-economic and environmental data for Sunderland has been interrogated and spatially analysed in relation to GI functionality and the key sustainability targets of the NPPF. This has provided an evidence base, to identify the areas of greatest GI need and opportunity across Sunderland where public and wildlife benefits may be most readily achievable through investments and enhancements in GI. Opportunities to deliver multiple benefits through multifunctional spaces are highlighted, though it is equally recognised that local priorities and specific interests/issues take precedent in maximising the benefit that GI contributes in many contexts. It is also recognised that these assessments are subject to the limitations associated with the data and spatial analysis techniques used; and that local knowledge, review and consultation should always be used in its application. Further that GI should not preclude the development of built environments and infrastructure, but that priorities should be considered concurrently towards sustainable economic, environmental and social outcomes.

The outputs of these assessments have been combined and interpreted to inform a series of key priorities for GI delivery in Sunderland and recommendations for next steps to be taken forward. The results have been presented to consultees and feedback incorporated into this SGIS. The strategy is intended to inform a subsequent Delivery and Action Plan which will identify a series of initial projects and actions, to help deliver the strategy and maximise the benefits and contributions that GI can provide for Sunderland's communities and neighbourhoods into the future.

9.0 Appendices

Appendix A. Schedule of Datasets

Heritage:

Conservation Areas

Archaeological Sites

Historic Villages

Listed Buildings

Scheduled Monuments

Landscape:

Durham Heritage Coast

Important Panoramic Views

Tree Preservation Orders

Landscape Character Areas

Geology:

Local Geological Sites

Ecology:

Local Nature Reserves

Local Wildlife Sites

Proposed Local Wildlife Sites

Special Areas of Conservation

Special Protection Areas

SSSIs

Woodland Sites (>2ha)

Local Wildlife Corridors

Regional Wildlife Corridors

Phase 1 Habitat Survey

Open Spaces:

Greenspace Audit 2011

Village Greens

Green Infrastructure Corridors:

District Corridors

Inter District GI Corridors

Planning Policy & Development:

Existing Green Belt

Settlement Breaks

Core Strategy & Development Plan policies

Planning applications

SHLAA sites

Land use:

HSE sites

Inner Blast Zone

Middle Blast Zone

Landfill

Power Lines

Pylons

Safeguarded Mineral Reserves

Sewage Treatment Works

Waste Sites

Water Abstractions

Brownfield Sites

Hydrology:

Critical Drainage Areas

Flood Zones 2 & 3

Ground Water Flooding

Source Protection Zones

Surface Water Flooding Extent

Water Quality:

WFD survey data

Nitrate Vulnerable Zones

Noise Pollution:

Annual average noise from road/rail

Noise Action Planning Important Areas

Sustainable Transport:

Cycle routes

PROWs

Barriers to access

Land ownership:

SCC land ownership

Gentoo land ownership

Sustainable Neighbourhoods:

Sustainable Neighbourhoods

Area Regeneration Frameworks

City Villages

Social & Demographic Data:

Index of Multiple Deprivation

Population statistics

Base mapping:

OS Mastermap

OS Vector Map Local raster

OS 25k raster

Aerial Photography

Appendix B. Mapping Themes Table

Please refer to the draft Mapping Themes table supplied as separate document. This will be included here when approved.

Category	Objective / Supporting NPPF Theme	Green Infrastructure Benefit	Map Theme & Data Used	Scoring
Economic	Building a strong competitive economy NPPF 1	Green infrastructure can drive economic growth and regeneration, helping to create high quality environments which are attractive to businesses and investors.	Map EC01: **A Setting for Business and Strategic Investment** Strategic employment sites & retail centres with a 200m buffer; Greenspace Audit; Agricultural land; Waterbodies; Brownfield sites; Landscape Character Map ECO2: **Economic Gateways** Motorways, Primary Roads, and Railways with 500m buffer; Greenspace Audit; Agricultural land; Waterbodies; Brownfield sites; Landscape Character	Employment sites & retail centres with 200m buffers are ranked with respect to percentage of greenspace in site and buffer. Site and buffer scores 2 points if in bottom 25% for greenspace. Additional points for greenspace that has only a local (1 point) or minimal (2 points) contribution to character with 3 additional points for visual detractors. Scored on intersections of route corridors and strategic sites with 1 point for intersection of 1No. corridor & strategic site, and 2 points for intersection of corridors or overlap of corridor intersection & strategic site. Additional points for greenspace with moderate or poor visual amenity within corridors & sites, up with 3 additional points for visual detractors

Category	Objective / Supporting NPPF Theme	Green Infrastructure Benefit	Map Theme & Data Used	Scoring
Economic	Building a strong competitive economy NPPF 1	An attractive workplace can contribute to mental wellbeing and promote exercise, social interaction and outdoor events. Such factors contribute to employee productivity	Map ECO3: **Labour Productivity & Recreation** Strategic employment sites & retail centres; Greenspace Audit; Agricultural land; Public Rights of Way (including bridleways	Employment sites & retail centres with 300m buffers are ranked with respect to percentage of greenspace with recreational potential in site and buffer. Site and buffer scores 2 points if in bottom 25%. Additional points for greenspaces with limited or restricted access based on access arrangement scores from Greenspace Audit (excluding allotments and public parks).
Economic	Building a strong competitive economy NPPF 1	Green infrastructure can provide opportunities for learning and training, giving excluded people opportunities to enter the world of work.	Map ECO4: **Unemployment** Indices of Deprivation 2015: Employment Deprivation; Greenspace Audit Map ECO5: **Adult Qualifications** Indices of Deprivation 2015: Adult Skills; Greenspace Audit	LSOAs ranked by Employment Deprivation with 3 points for LSOAs in bottom quartile, and 1 point for LSOAs in next quartile Additional points for the lowest ranked 50% LSOAs for below average greenspace quality (1 point) and/or below average greenspace provision (1 point). LSOAs ranked by Adult Skills Deprivation with 3 points for LSOAs in bottom quartile, and 1 point for LSOAs in next quartile Additional points for the lowest ranked 50% LSOAs for below average greenspace quality (1 point) and/or below average greenspace provision (1 point).

Category	Objective / Supporting NPPF Theme	Green Infrastructure Benefit	Map Theme & Data Used	Scoring
Economic	Supporting a prosperous rural economy NPPF 3	Green Infrastructure can provide a setting for wider tourism assets and provide connectivity to promote movement between assets	Map ECO6: **A Setting for Tourism** Sites promoted for tourism with 200m buffer including beaches, museums & art galleries, historic attractions, parks & formal gardens, sports & golf courses, Wildfowl & Wetlands centre; Greenspace Audit; Agricultural land; Waterbodies; Brownfield sites; Landscape Character	Tourism assets with 200m buffers are ranked with respect to percentage of greenspace in the buffer. The buffer scores 2 points if in bottom 25% for greenspace. Additional points for greenspace that has only a local (1 point) or minimal (2 points) contribution to character with 3 additional points for visual detractors
			Map ECO7: **Tourism Linkages** Sites promoted for tourism (as per Map 7); PROW /cycle route networks	Tourism assets scored on connectivity: 0 – Direct connection to PROW & to cycle network; 1– Direct connection to cycle network/direct PROW connection & a cycle route within 100m; 2 – Direct connection to PROW network; 3 - No direct connections; 4 - No PROW or cycle route within 150m; 5 - No PROW or cycle route within 300m

Category	Objective / Supporting NPPF Theme	Green Infrastructure Benefit	Map Theme & Data Used	Scoring
Economic	Delivering a wide choice of high quality homes NPPF 6	Uplift values of existing stock through better surroundings and access to greenspaces	Map ECO8: **House Prices** Land Registry Prices Paid data (2007 – 2017, excluding commercial property) mapped to postcode centroids, and aggregated at Output Area level; Population statistics Greenspace Audit;	Output Areas ranked by average house price paid with 3 points for OAs in bottom quartile, and 1 point for OAs in next quartile Additional points for the lowest ranked 50% OAs for below average greenspace quality (1 point) and/or below average greenspace provision (1 point).
Social	Delivering a wide choice of high quality homes NPPF 6	Green infrastructure can help deliver quality of life and provide opportunities for recreation, social interaction and play in new and existing neighbourhoods.	Map SOC1: **Housing – Growth Areas & Allocations** SHLAA 15 year sites with a capacity of 20 or more units (300m buffer applied); Greenspace Audit	300m buffers from SHLAA 15 year sites are ranked with respect to percentage of amenity greenspace within the buffer. Buffer scores 2 points if in bottom quartile or 1 point for next quartile. Additional points if amenity greenspace in the buffer is below average quality (1 point); if SHLAA site is not within 300m of min. 2ha Accessible Natural Greenspace (1 point); or below average quality and not within 300m of 2ha ANGS (1 extra point)

Category	Objective / Supporting NPPF Theme	Green Infrastructure Benefit	Map Theme & Data Used	Scoring
			Map SOC2: **ANGST – 300m: Population Age & Density** Population statistics (< 16 and >65 yr olds, total residents) mapped by LSOA; Accessible Natural Greenspace 2 hectares and over (sourced from Greenspace Audit) with 300m buffer applied; Settlement boundaries with 300m buffer (outside area only)	300m buffer generated from settlement boundaries with areas excluded which overlap with 300m buffer to min. 2ha Accessible Natural Greenspace. LSOAs ranked by percentage of under 16s / over 65s / density of population and 300m buffer applied to LSOAs in top 25% for both age groups and density. Overlaps with settlement buffer counted and 1 point allocated for 1 overlap with settlement buffer and 2 points allocated for 2 or more overlaps up to a maximum of 4 points. Settlement buffer (excluding 300m ANGS buffer) scores 1 point, giving overall scores in range 1-5.
Social	Promoting healthy communities NPPF 8	Green infrastructure can improve public health and community wellbeing by improving environmental quality, providing opportunities for recreation and exercise and delivering mental and physical health benefits.	Map SOC3: **ANGST (20Ha & 500Ha)** Accessible Natural Greenspace min. 20 hectares and min.500ha (sourced from Greenspace Audit) with 2km and 10k buffers applied respectively; Settlement boundaries	ANGS 2km and 10km buffers combined. From the area outside the combined buffers, the existing settlement, motorway and golf course are removed. The remaining scores 5.

Category	Objective / Supporting NPPF Theme	Green Infrastructure Benefit	Map Theme & Data Used	Scoring
			Map SOC4: **Sports Facilities** Outdoor sports facilities identified by Greenspace Audit (Primary purpose to 6th purpose) with 1000m catchment buffer applied Map SOC5: **Health Deprivation** Indices of Deprivation 2015: Health Deprivation; Greenspace Audit	Scoring based on number of catchments with points as follows: 1 - more than 3 catchments 2 - 3 catchments 3 - 2 catchments 4 - 1 catchment 5 - out of catchment LSOAs ranked by Health Deprivation with 3 points for LSOAs in bottom quartile, and 1 point for LSOAs in next quartile. Additional points for the lowest ranked 50% LSOAs for below average greenspace quality (1 point) and/or below average greenspace provision (1 point).

Category	Objective / Supporting NPPF Theme	Green Infrastructure Benefit	Map Theme & Data Used	Scoring
Social	Environmental education NPPF 8	Green Infrastructure can play a part in the National Curriculum for a number of study topics, including arts, science and physical education. It can also contribute to skills development both through school-based and vocational training institutions. Indeed, there is an undisputed link between the design and nature of environments and the attitudes of children who use them	Map SOC6: **Education Deprivation** Indices of Deprivation 2015: Education Deprivation; Greenspace Audit	LSOAs ranked by Education Deprivation with 3 points for LSOAs in bottom quartile, and 1 point for LSOAs in next quartile. Additional points for the lowest ranked 50% LSOAs for below average greenspace quality (1 point) and/or below average greenspace provision (1 point).
Environmental	Meeting the challenge of climate change, flooding and coastal change NPPF 10	Green infrastructure can help urban, rural and coastal communities mitigate the risks associated with climate change and adapt to its impacts by storing carbon; improving drainage (including the use of sustainable drainage systems) and	Map ENV1: **Flood Alleviation and Mitigation** Flood Zones 2 and 3; Surface Water Vulnerability; Critical Drainage Areas; Greenspace Audit; Agricultural land	Points allocated as follows: 5 - Flood Zone 3, High Surface Water Vulnerability; 4 - Flood Zone 2, Medium Surface Water Vulnerability; 3 - Low Surface Water Vulnerability, green spaces within Critical Drainage Areas

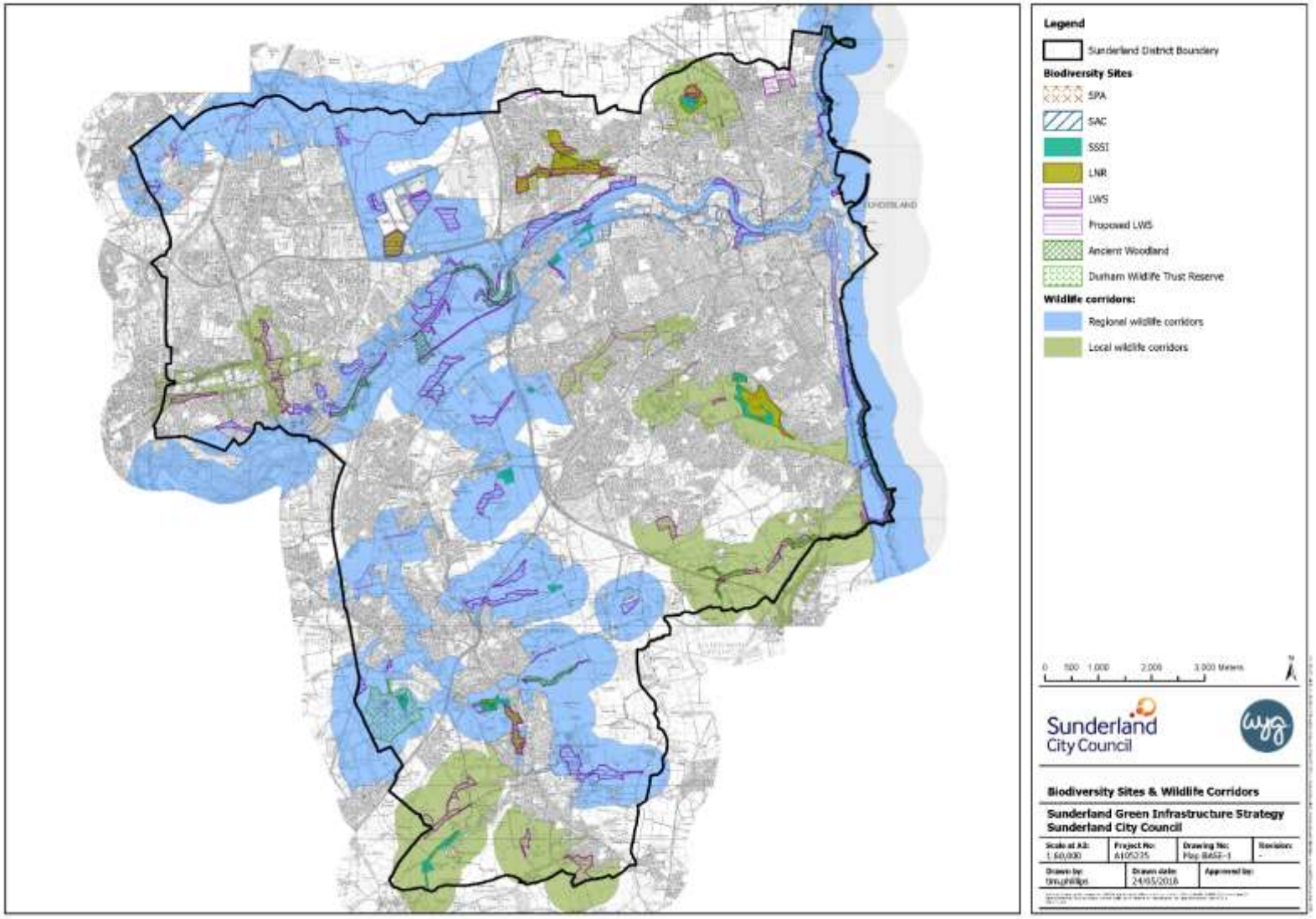
Category	Objective / Supporting NPPF Theme	Green Infrastructure Benefit	Map Theme & Data Used	Scoring
		managing flooding and water resources; improving water quality; and; where appropriate, supporting adaptive management in coastal areas.	Map ENV2: **Water Quality** Waterbodies; WFD water quality survey data 2016; Nitrate Vulnerable Zones; Agricultural land	Points allocated as follows: 5 - Waterbody with >3No measurements rated poor/bad, or high for chemical content; 3 - Waterbody with maximum 3No measurements rated poor/bad, or high for chemical content 2 - Agricultural land within Nitrate Vulnerable Zones, & greenspace within 30m of waterbody rated poorly for water quality
Environmental	Reducing air and noise pollution NPPF 8	Green infrastructure also helps reduce air pollution and noise.	Map ENV3: **Air Quality** Indices of Deprivation 2015: Air Quality Indicator; Non-woody green spaces identified from Phase 1 Survey Map ENV4: **Noise Pollution** Annual average noise from road/rail (16 hour period 0700h – 2300h); Noise Action Planning Important Areas (NAPIAs)	Non-woody green spaces within LSOAs based on Air Quality Indicator: 5 points allocated to non-woody greenspace within bottom 20% LSOAs for Air Quality; 3 points for non- woody greenspace within next 20% of LSOAs for Air Quality Points allocated based on average annual noise levels(dB): 1 - 55.0-59.9 2 - 60.0-69.9 3 - >=70.0 Additional 2 points for areas within NAPIAs

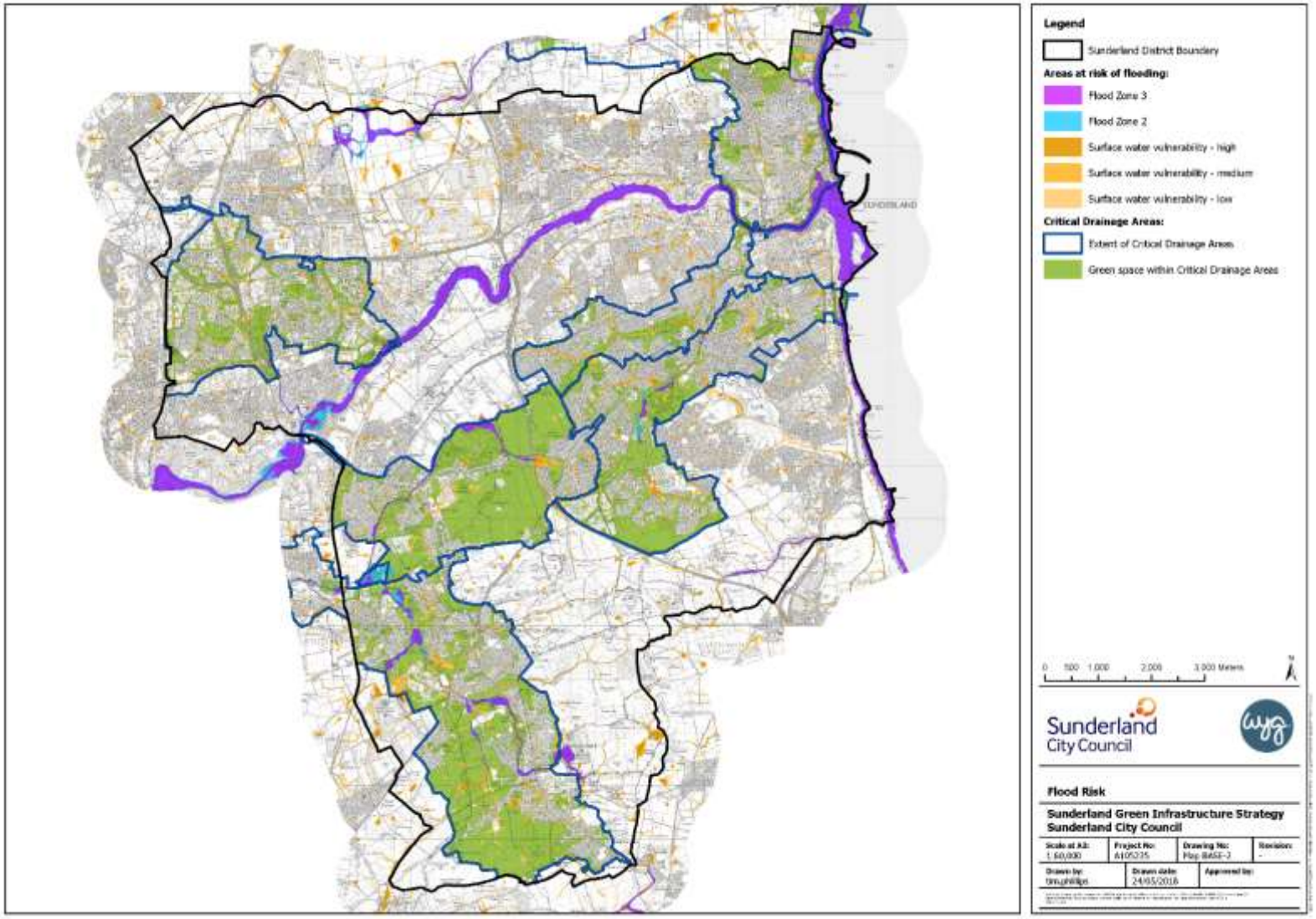
Category	Objective / Supporting NPPF Theme	Green Infrastructure Benefit	Map Theme & Data Used	Scoring
Environmental	Conserving and enhancing the natural environment NPPF 11	High quality networks of multifunctional green infrastructure provide a range of ecosystem services and can make a significant contribution to halting the decline in biodiversity.	Map ENV5: **Biodiversity Sites** Designated sites (SPA, Ramsar, SAC, SSSI, LNR, LWS, Proposed LWS, Wildlife Trust); Greenspace Audit	Greenspace Audit sites within 30m of designated biodiversity sites, scored on combined biodiversity criteria scores (Audit proforma criteria 43-49): 5 – GA score 0 - 3 4 – GA score 4 - 6 3 - GA score 7 - 10 2 - GA score 11 -16 1 - GA score 16 -31; Designated sites are scored 1
Environmental	Conserving and enhancing the historic environment NPPF 12	Green Infrastructure can provide better opportunities for people to value and enjoy the region's heritage and participate in cultural and recreational activities	Map ENV6: **Historic Sites (Greenspace Catchment)** 200m catchment to Scheduled Monuments, Conservation Areas, Registered Historic Parks and Gardens, Historic Villages; 100m catchment to Listed Buildings; Greenspace Audit	Greenspace within historic site and catchment ranked with respect to quality and scored as follows: 1 – Top 20% for quality 2 – 60 to 80% 3 - 40 to 60% 4 - 20 to 40% 5 - Bottom 20% for quality

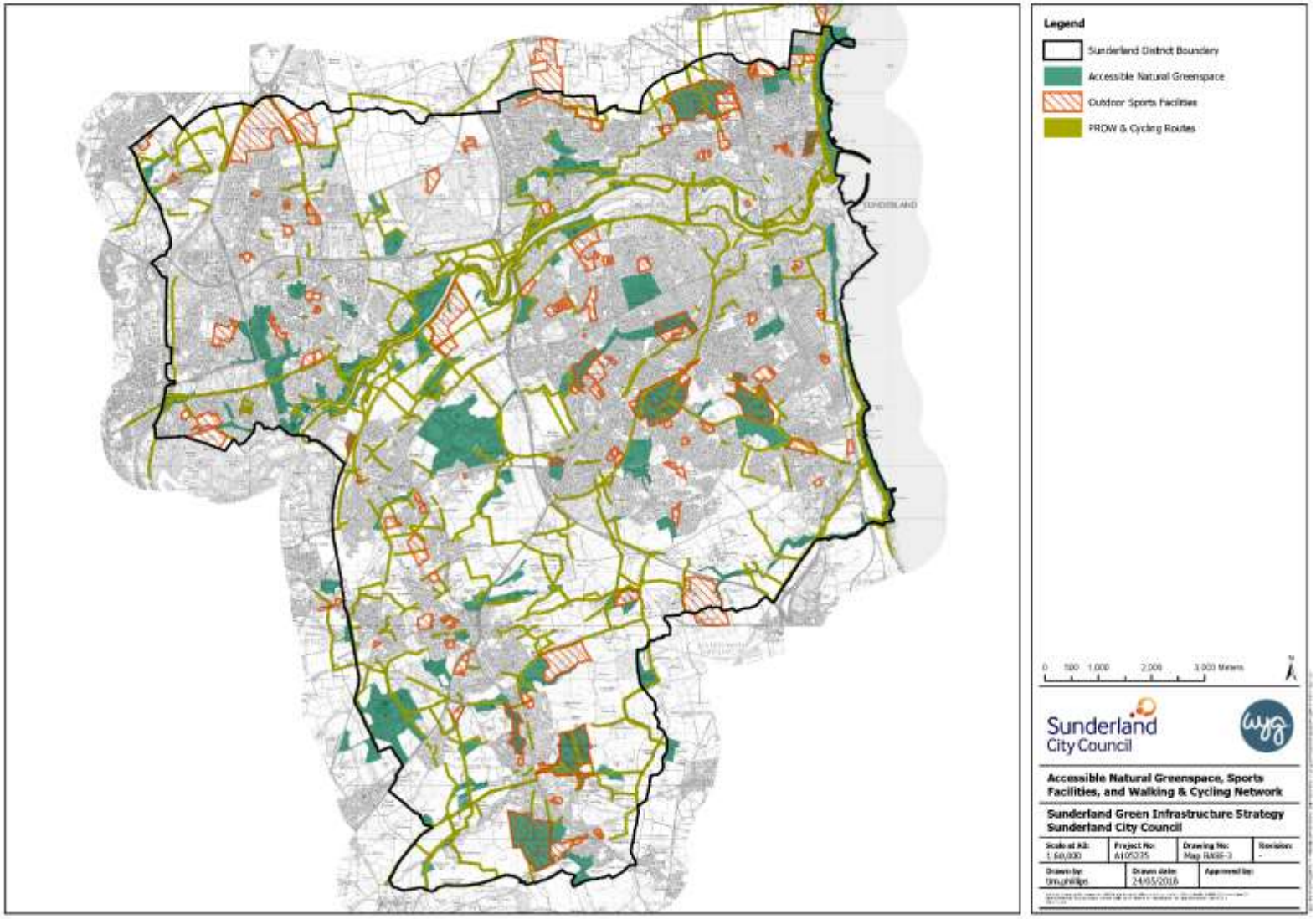
Category	Objective / Supporting NPPF Theme	Green Infrastructure Benefit	Map Theme & Data Used	Scoring
Environmental	Protecting Green Belt land NPPF 9	Green Infrastructure within the Green Belt can provide important opportunities for outdoor sport and recreation; to retain and enhance landscapes, visual amenity and biodiversity; and to improve damaged and derelict land. Community Forests offer valuable opportunities for improving the environment around towns, by upgrading the landscape and providing for recreation and wildlife.	Map ENV7: **Green Belt** Green Belt; Landscape Character	Rural and urban areas identified from Landscape Character Areas with refinements to boundaries. Rural areas are allocated points based on landscape strategy for each LCA: 1 – Landscape protection 2 - Landscape protection and enhancement 3 – Landscape enhancement. Additional 2 points if rural area is within Green Belt. Urban areas are scored 0.

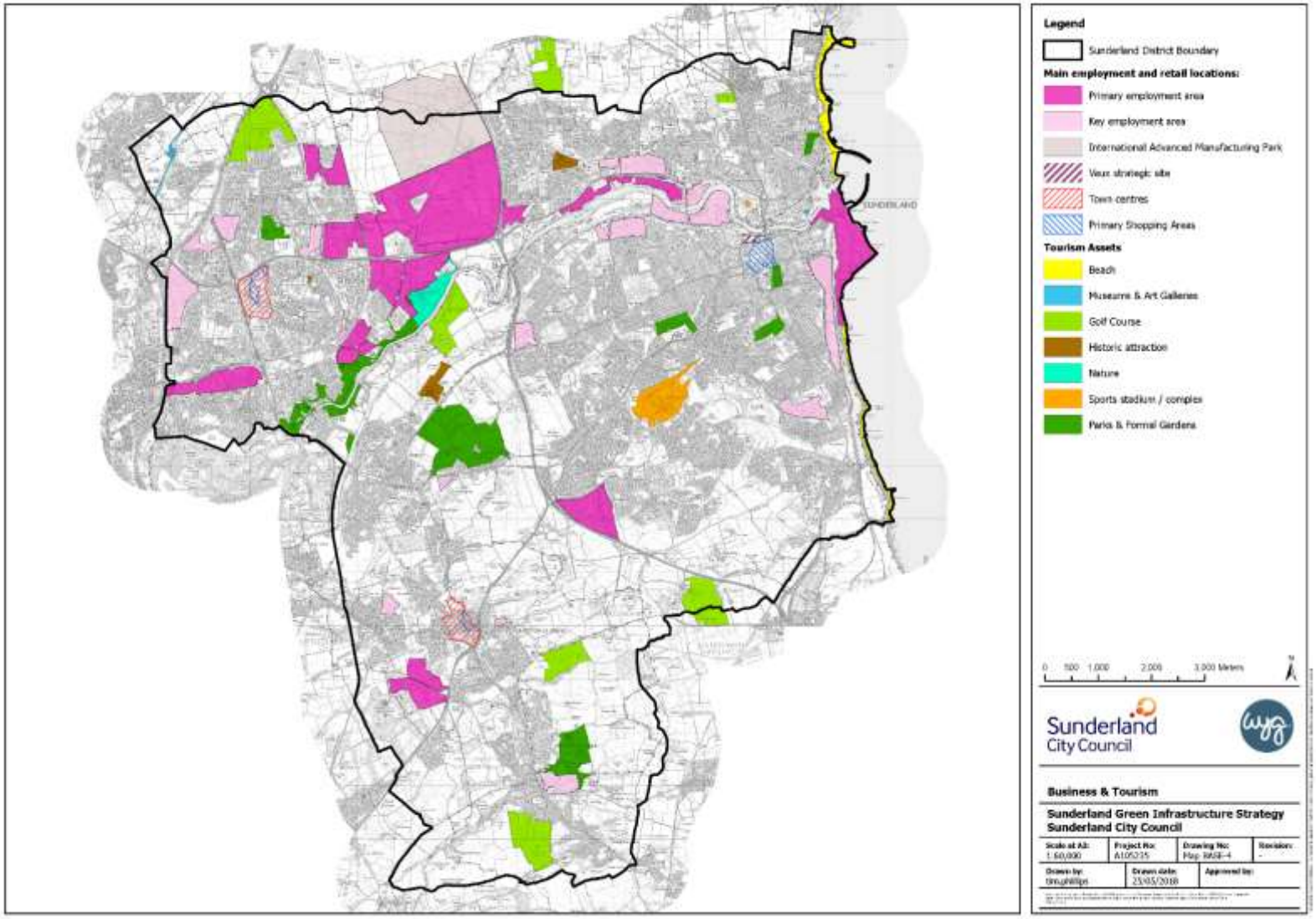
Category	Objective / Supporting NPPF Theme	Green Infrastructure Benefit	Map Theme & Data Used	Scoring
Multifunctional Analysis			Map ECO9: **Economic Theme Combined** Map SOC7: **Social Theme Combined** Map ENV8: **Environmental Theme Combined** Map MULTI1: **Combined Themes** Map MULTI2: **Combined Themes with Corridors**	Each of the scored category maps is multiplied by a constant factor to generate scores in the range of 0 to 5, before the three maps are added together

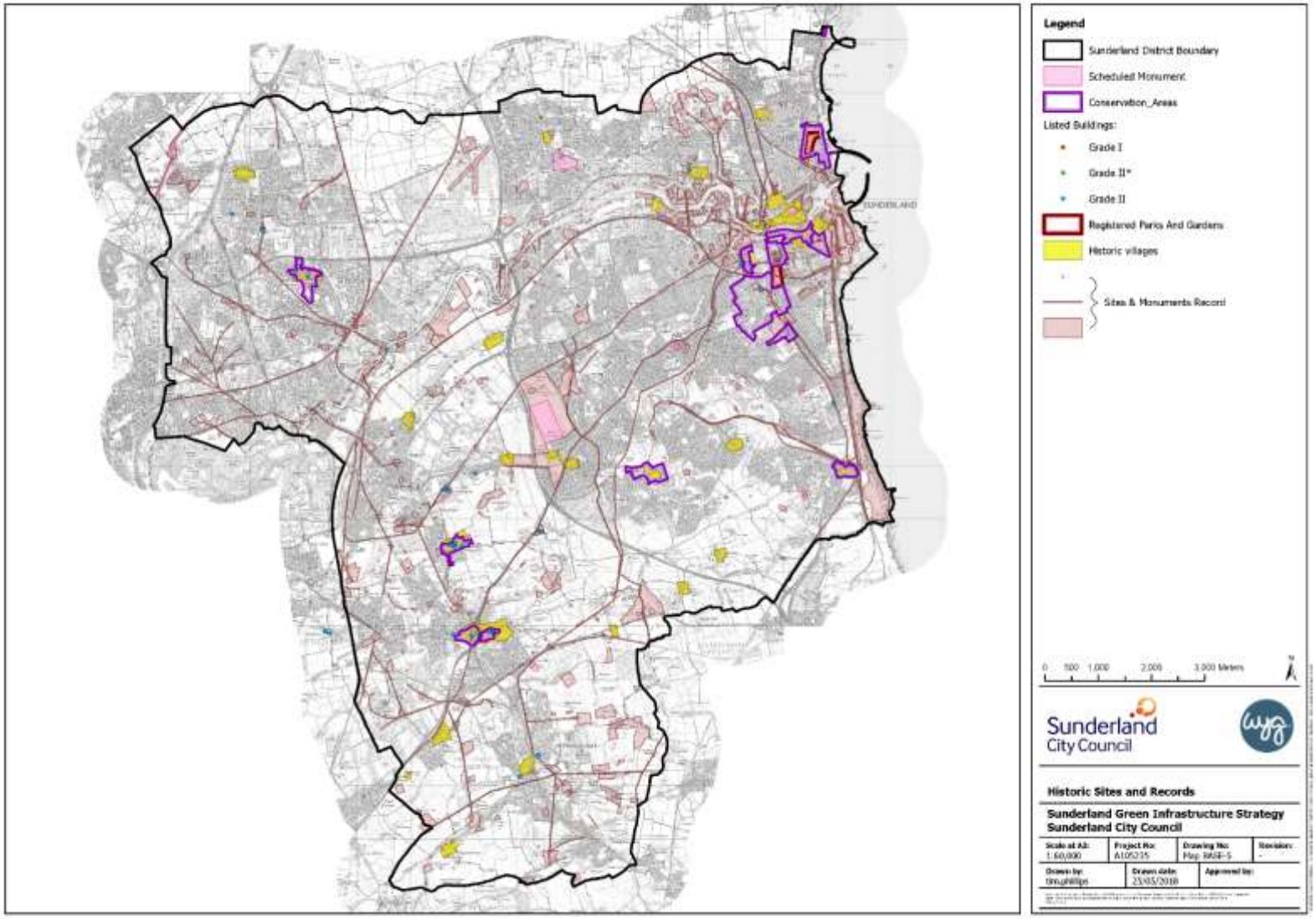
Appendix C Baseline Data Maps

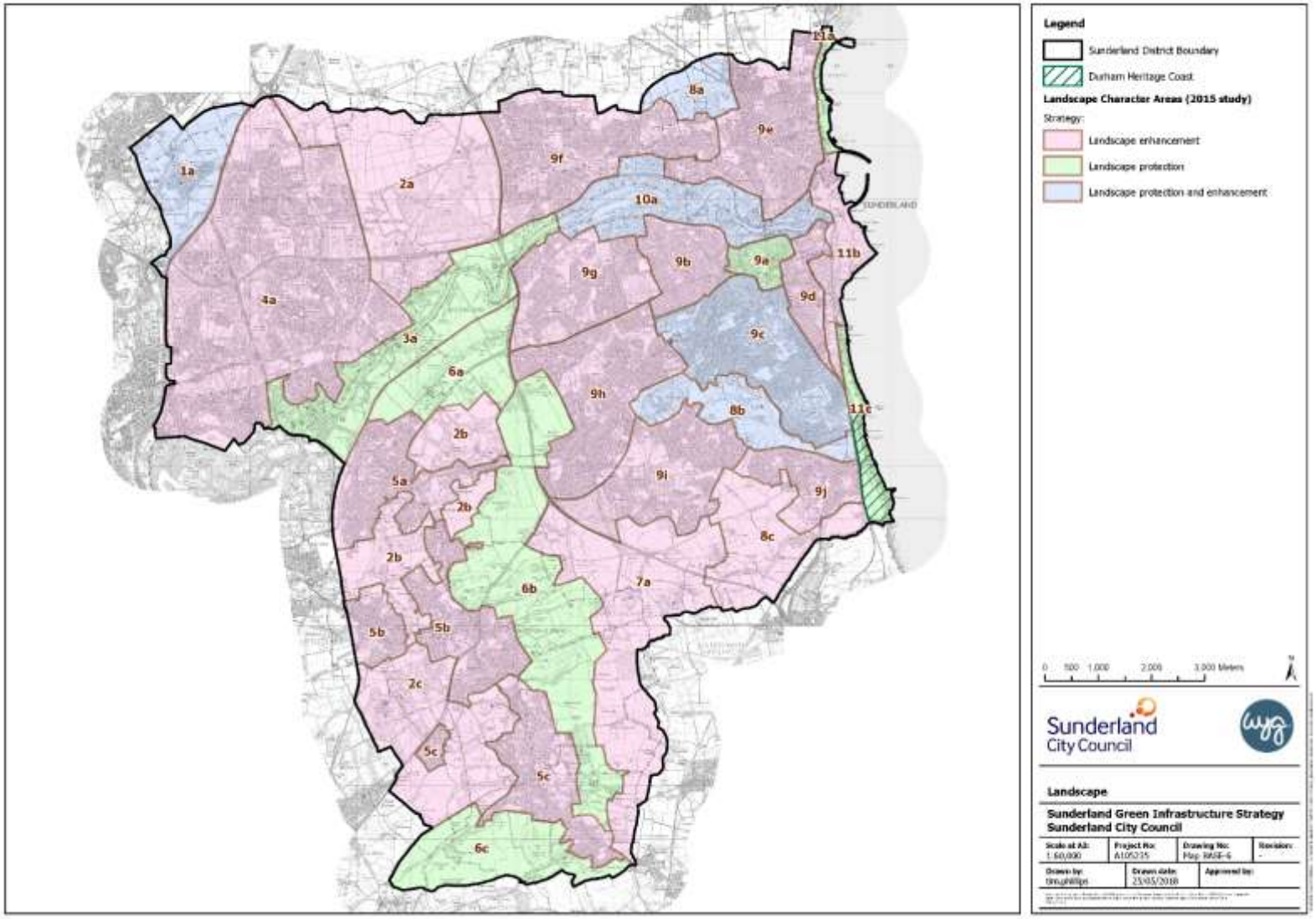

Legend
Sunderland District Boundary
Biodiversity Sites
SPA
SAC
SSSI
LNR
LWS
Proposed LWS
Ancient Woodland
Durham Wildlife Trust Reserve
Wildlife corridors:
Regional wildlife corridors
Local wildlife corridors
0 500 1,000 2,000 3,000 Metres
N
Sunderland City Council
Biodiversity Sites & Wildlife Corridors
Sunderland Green Infrastructure Strategy
Sunderland City Council


Legend
Sunderland District Boundary
Areas at risk of flooding:
Flood Zone 3
Flood Zone 2
Surface water vulnerability - high
Surface water vulnerability - medium
Surface water vulnerability - low
Critical Drainage Areas:
Extent of Critical Drainage Areas
Green space within Critical Drainage Areas
0 500 1,000 2,000 3,000 Metres
Sunderland City Council
Flood Risk
Sunderland Green Infrastructure Strategy
Sunderland City Council


Legend
Sunderland District Boundary
Accessible Natural Greenspace
Outdoor Sports Facilities
PROW & Cycling Routes
0 500 1,000 2,000 3,000 Metres
N
Sunderland City Council
Accessible Natural Greenspace, Sports Facilities, and Walking & Cycling Network
Sunderland Green Infrastructure Strategy
Sunderland City Council
Scale at A3: 1:60,000
Project No: A105235
Drawing No: Map IMAGE-3
Revision: -
Drawn by: tim.phillips
Drawn date: 24/05/2018
Approved by:


Legend
Sunderland District Boundary
Main employment and retail locations:
Primary employment area
Key employment area
International Advanced Manufacturing Park
Vaux strategic site
Town centres
Primary Shopping Areas
Tourism Assets
Beach
Museums & Art Galleries
Golf Course
Historic attraction
Nature
Sports stadium / complex
Parks & Formal Gardens
0 500 1,000 2,000 3,000 Meters
Sunderland City Council
Business & Tourism
Sunderland Green Infrastructure Strategy
Sunderland City Council


Legend
Sunderland District Boundary
Scheduled Monument
Conservation_Areas
Listed Buildings:
Grade I
Grade II*
Grade II
Registered Parks And Gardens
Historic villages
Sites & Monuments Record
0 500 1,000 2,000 3,000 Meters
N
Sunderland City Council
Historic Sites and Records
Sunderland Green Infrastructure Strategy
Sunderland City Council


Legend
Sunderland District Boundary
Durham Heritage Coast
Landscape Character Areas (2015 study)
Strategy:
Landscape enhancement
Landscape protection
Landscape protection and enhancement
1a
2a
4a
3a
6a
2b
5a
5b
2c
5c
6c
6b
7a
8a
8b
8c
9e
9f
10a
9g
9b
9a
9d
9c
9h
9i
9j
11b
11c
Sunderland City Council
Landscape
Sunderland Green Infrastructure Strategy
Sunderland City Council

Appendix D: 2010 GI Steering Group members

[Source: Sunderland Draft Green Infrastructure Strategy (Sunderland City Council 2014)]

Appendix 4: Green infrastructure steering group (at December 2010)

Organisation	Section/ team
City Council	Active Sunderland
	Area Officers
	Chief Exec Policy Team
	Children's Services
	Design and Conservation
	Countryside Team
	Diversity and Inclusion
	Environmental Services
	Healthy Cities
	Housing Strategy
	Landscape and Reclamation
	Parks
	Planning Implementation
	Planning Policy
	Project Service Development
	PROW/Cycling Officer
	Sport and Leisure
	Sunderland Partnership
	Sustainability
	Wellness
Council for the Protection of Rural England	Council for the Protection of Rural England
Durham County Council	Durham County Council
	Heritage Coast Officer
Durham Wildlife Trust	Durham Wildlife Trust
	Durham Biodiversity Partnership
English Heritage	English Heritage
Environment Agency	Environment Agency
Forestry Commission	Forestry Commission
Gateshead Council	Planning Policy
Gentoo	Gentoo Green
	Gentoo
Groundwork	Groundwork North East
Home Builders Federation	Home Builders Federation
Housing and Communities Agency	Housing and Communities Agency
Living Streets	Living Streets
National Farmers' Union	Environment & Land Use
Natural England	Natural England (North East)
NHS	South of Tyne and Wear NHS
Northumbria Water	Northumbria Water
RSPB	RSPB
South Tyneside	Planning Policy
Sport England	Sport England
Sustrans	Sustrans (North East)
Tyne and Wear City Region	Tyne and Wear City Region
Woodland Trust	Woodland Trust
University of Sunderland	University of Sunderland

30 **Sunderland** Green infrastructure strategy framework

Appendix E: Potential GI Funding Sources

[Source: Newcastle City Council and Gateshead Council Green Infrastructure Strategy Report 2011; Appendix H]

Funding Mechanisms

The table below provides information on funding streams available in July 2010, with subsequent deletion of certain schemes which have been abolished. The funding arena is changing considerably in the current political climate and therefore the table will require regular review.

	Source	Details	Funding
EU	**INTERREG IVA/B**	European funding is funding made available by the European Union for cooperation between organisations in other European Member states. Its aims include promoting harmonious economic and social development through the sharing of knowledge and experience. INTERREG funding is currently in its fourth stage. The A Strand funds cooperation between land and sea-based border areas in the European Union. The B Strand funds trans-national cooperation between wider groups of European regions. e.g. MP4 Making Places Profitable - Public and Private open spaces, Sheffield City Council (South Yorkshire Forest Partnership)	Variable
	Rural Development Programme	The Rural Development Programme for England (RDPE) is partly funded through the European Agricultural Fund for Rural Development and through funding provided by Defra. The Programme is jointly delivered by EEDA, The Forestry Commission and Natural England. e.g. Environmental Stewardship Scheme	Variable
	LIFE + (UK)	The aim of the LIFE + is to fund actions that protect and improve the environment. The European Commission has announced that that the third call for proposals under the Life + Programme is now open for applications. The Life + programme is the EU's main fund for supporting environmental projects. Under this call for proposals, the Commission will be supporting projects under the following headings; nature and biodiversity; environment policy and governance; and information and communication. A total of €250 Million is available for this call and the total available to the UK is in excess of €19 million. e.g. The University of Teesside Clean Environment Management Centre	Matched funding. (The maximum co-financing rate can be 75 percent, but is normally 50 percent.)
National Government	**Revenue Support Grants**	Revenue support grants are given by central government to local authorities to support their activities. Through Local Area Agreements green infrastructure can be prioritised to meet a range of objectives. e.g. Newcastle City Council and Gateshead Council	Varies between authorities

	Source	Details	Funding
Lottery and External Funds	**Lottery Funding** 	The lottery funds a number of lottery funds including the following relevant funds: Awards for All Big Lottery Fund Heritage Lottery Fund UK Sport The funds are distributed by various organisations and trusts. Different funds are open for various objectives and for different applicants including: • Not-for-profit organisations or community groups • Profit making organisations/private sector • Schools or further education institutions • Parish/town councils • Local authority/local education authority • Other statutory organisations • Individuals e.g. Sow and Reap Sensory Garden, Blaydon, Gateshead (Awards for All)	
	Big Lottery Fund 	The Big Lottery fund gives out half the money raised by the National Lottery for good causes. There are two programmes of particular relevance: See below: • Parks For People • Changing Spaces	
	New Parks for People programme 	Parks for People offers grants for projects involving urban or rural green spaces designed for informal recreation and enjoyment. Parks for People offers grants for projects involving urban or rural green spaces designed for informal recreation and enjoyment. e.g. Ouseburn Park, Newcastle upon Tyne	£250,000-£5million
	Changing Spaces 	Changing spaces incorporates 5 schemes of relevance: See below: • Community Spaces • Access to Nature • Community Sustainable Energy Programme • Ecominds • Local Food e.g. Teams Adventure Playground and Organic Garden, Gateshead	

	Source	Details	Funding
	Community Spaces	The Community Spaces programme, run by Groundwork UK, opened in 2008. It funds community groups who want to improve local green spaces such as play areas, community gardens, parks, wildlife areas and village greens, kick-about areas and pathway improvements. The following are some examples of projects that Community Spaces will fund: • community gardens and parks • informal sports areas and multi-use games areas • nature reserves • squares and village greens • creation or improvements to churchyard gardens • ponds and projects which improve the local community's access to green space. e.g. The Byker Centre Community Garden, Newcastle upon Tyne	Community groups can apply for Small grants of between: £10,000-£25,000 Medium grants of between: £25,001-£49,999 Large grants of between: £50,000-£100,000 Flagship grants of between: £100,001-£450,000
	Local Food, run by RSWT (Royal Society of Wildlife Trusts)	Local Food, run by RSWT (Royal Society of Wildlife Trusts), opened in 2008. It funds a range of organisations who want to carry out a variety of food related projects to make locally grown food more accessible and affordable to local communities. Grants from £2,000 up to £300,000 are available for not-for-profit groups and organisations in England delivering such projects as growing, processing, marketing and distributing local food; composting and raising awareness of the benefits of such activities. e.g. Food for Though Project, Ashington, Northumberland	£2,000-£300,000
	Community Sustainable Energy (CSEP) programme	The Community Sustainable Energy (CSEP) programme, run by BRE (Building Research Establishment) helps community-based organisations in England reduce their environmental impact through the installation of energy saving measures and microgeneration technologies (producing heat or electricity on a small-scale from a low carbon source) CSEP will only award grants to not-for-profit community based organisations in England. Grants are open to not-for-profit community based organisations in England e.g. Othona Community Wind Turbine and Solar Thermal project for community building, East of England	Organisations can apply for up to £50,000 or 50 per cent of the project cost (whichever is lower) for installing microgeneration technologies and energy efficiency measures.

	Source	Details	Funding
	Ecominds	Ecominds is a grant programme which helps people with experience of mental distress get involved in local environmental projects that improve mental and physical health. Projects include: • Community agricultural projects linking gardeners and producers with local selling opportunities • Wildlife habitat or other site creation or renovation • Clearing open spaces for community use • Graffiti removal projects • Environmental protection (such as rebuilding a flood plain) • Creating or renovating urban green areas • Installing signposts to encourage community environmental awareness e.g. Walking Group, Mind in Gateshead	Small grants - up to £20,000 Medium grants - £20,001-£60,000 Large grants- £60,001 to £150,000
	Heritage Lottery Fund	The Heritage Lottery Fund is the UK's leading funder of diverse heritage – including buildings, museums, natural heritage and the heritage of cultural traditions and language. It help groups and organisations of all sizes with projects that: • conserve the UK's diverse heritage for present and future generations to experience and enjoy; • help more people, and a wider range of people, to take an active part in and make decisions about their heritage; • help people to learn about their own and other people's heritage e.g. Walker Park, Newcastle upon Tyne	
	Landscape Partnerships	The Landscape Partnerships grant programme aims to support schemes of between £250,000 and £2million led by partnerships of local, regional and national interests which aim to conserve areas of distinctive landscape character throughout the United Kingdom. Each scheme is based round a portfolio of smaller projects, which together provide a varied package of benefits to an area, its communities and visitors e.g. Sulworth Connections Landscape Partnership, Dumfries and Galloway	£250,000-£2million
	Your Heritage	Your Heritage provides grants of between £5,000 and £50,000 to support community-focused heritage projects. To qualify for a grant, projects should conserve and enhance our diverse heritage or encourage communities to identify, look after and celebrate their heritage or both. Projects should also ensure that everyone can learn about, have access to, and enjoy their heritage. e.g. Newcastle City Council Parks	£5,000-£50,000
	Heritage Grants	This programme offers grants of £50,000 or more. Projects should conserve and enhance the nation's diverse heritage or encourage more people to be involved in their heritage or both. Projects should also make sure that everyone can learn about, have access to and enjoy their heritage. e.g. Blaydon, Gateshead Council	£50,000 +

	Source	Details	Funding
	UK Sport	Through Sport England National Lottery and Exchequer funding is invested in organisations and projects that will grow and sustain participation in grassroots sport and create opportunities for people to excel at their chosen sport.	See Sport England
National Agencies		In England, funding can be accessed from a range of government agencies. Often this money can be used to fund green spaces. This includes agencies such as the Highways and Environment Agencies, Learning and Skills Partnership, Homes and Communities Agency, Natural England, Department for the Environment, Food and Rural Affairs (Defra), Department of Energy and Climate Change, Environment Agency, Forestry Commission. A number of funds are available often with support from lottery initiatives.	
	Access to Nature Fund-	To encourage people from all backgrounds to understand access and enjoy the natural environment. Funded through the Big Lottery Fund Changing Spaces programme and Countdown 2010. Access to Nature will only award grants to not-for-profit community based organisations in England. e.g. River Routes in Stockton, Groundwork North East	£50,000-£715,000
	Wetland Vision	A new fund for reinstating wetlands. The Wetland Vision is a partnership between the RSPB, the Wildlife Trusts, English Heritage, the Environment Agency and Natural England. Natural England has allocated a further £4,000,000 to the Wetland Vision partnership between 2009 and 2011, in support of landscape-scale wetland projects and the delivery of the targets for priority wetland habitats. e.g. Wicken Fen, East of England	The minimum threshold for project funding is £50,000 for project development, and £100,000 for habitat creation/ restoration work, including land purchase. Natural England will fund up to a maximum of 50% of total project costs.
	Energy Crops Scheme	Natural England's Energy Crops Scheme aims to increase the amount of energy crops grown in England in appropriate locations. It offers grants to farmers in England for the establishment of *Miscanthus* and short rotation coppice.	Coppice (SRC). Payment will be made on the basis of : 40% of Actual costs i.e. suppliers/materials/contractors costs and/or 40% of On-farm costs i.e. use of own labour and machinery, where applicable.

	Source	Details	Funding
	Environmental Stewardship	Environmental Stewardship is an agri-environment scheme that provides funding to farmers and other land managers in England who deliver effective environmental management on their land. Entry Level Stewardship (ELS) provides a straightforward approach to supporting the good stewardship of the countryside. This is done through simple and effective land management that goes beyond the Single Payment Scheme requirement to maintain land in good agricultural and environmental condition. It is open to all farmers and landowners. Organic Entry Level Stewardship (OELS) is the organic strand of ELS. It is geared to organic and organic/conventional mixed farming systems and is open to all farmers not receiving Organic Farming Scheme aid.	Payment rates are £175 per hectare per year for two years for improved land and £600 per hectare per year for three years for established top fruit orchards.
	English Heritage Grants	English Heritage offers grants for: • Historic Buildings, Monuments and Designed Landscapes • War Memorials • Capacity Building for the Voluntary Sector • Local Authorities - Area Partnership Funding • Local Authority Grants to Underwrite Urgent Works Notices • Acquisition Grants for Local Authorities • Local Authority Grants for Conservation Staff • Historic Environment Enabling Programme	
	Historic Buildings, Monuments and Designed Landscapes	Organisations and individuals who have a legal responsibility for the repair of a historic building, scheduled monument or designed landscape have the opportunity to apply for grant funding for urgent repairs or other work required within two years to prevent loss or damage to important architectural, archaeological or landscape features. There is no maximum grant level that organisations or individuals can apply for, however the minimum grant available under this scheme is £10,000. The grant is managed by English Heritage (EH) and applications need to be submitted to EH relevant regional offices. Most grants will be conditional upon an agreement to provide public access.	There is no maximum grant level that organisations or individuals can apply for, however the minimum grant available under this scheme is £10,000.
	Repair Grants for Places of Worship	This scheme is jointly funded by English Heritage and the Heritage Lottery Fund and gives grants for urgent repairs to listed buildings which are in regular use as public places of worship. The day-to-day administration of the scheme will be carried out by English Heritage.	£10,000-£250,000
	Acquisition Grants for Local Authorities	This grant scheme focuses on help to local authorities to underwrite the cost of serving a Repairs Notice under sections 47, 48 and 52 of the Planning (Listed Buildings and Conservation Areas) Act 1990 on historic buildings which have fallen into a serious and dangerous state of decay.	Grant eligible expenditure can include the cost of professional services brought in by an authority to enable it to serve Repairs Notices, as well as the acquisition price.

	Source	Details	Funding
	Aggregates Levy Sustainability Fund 	A levy on aggregate extraction finances the ALSF which can be used to address historic and current local environmental and social costs of aggregate extraction. Grant schemes are normally in the range of 50% - 70% of eligible project costs. The ALSF is distributed on behalf of Defra by English Heritage, Natural England, MIRO, WRAP, BERR, DfT, CLG, selected Local Authorities and CEFAS. This includes a ring-fenced allocation for marine initiatives which is to be distributed by English Heritage and CEFAS. e.g. Teesmouth- The Story of Sand	Not specified
	FC English Woodland Grant Schemes 	The English Woodland Grant Scheme (EWGS) is the Forestry Commission's suite of grants designed to develop the co-ordinated delivery of public benefits from England's woodlands. EWGS is supported via the Rural Development Programme for England. The grants include: • Woodland Planning Grant (WPG) • Woodland Assessment Grant (WAG) • Woodland Regeneration Grant (WRG) • Woodland Improvement Grant (WIG) • Woodland Management Grant (WMG) • Woodland Creation Grant (WCG) e.g. Thames Chase Forest	
	Woodland Planning Grant (WPG) 	Woodland Planning Grant (WPG) contributes to the costs of producing management plans for existing woodlands that meet the planning requirements of the UK Woodland Assurance Standard. e.g. Berry Field Wood, Saltford	£20 per hectare
	Woodland Assessment Grant (WAG) 	The objective is to improve the sustainable management of woodland by ensuring that management decisions are based on good knowledge of the sensitivities and needs of the woodland and the opportunities to derive benefits for the public.	Rate/hectare based on type (£2.80-£5.60/h)
	Woodland Regeneration Grant (WRG) 	Woodland Regeneration Grant (WRG) contributes to the costs of making changes to the composition of woodland within the normal cycle of felling and woodland regeneration. e.g. Mersey and Red Rose Forests	Rate/hectare based on type (£350-£1,750/h)

	Source	Details	Funding
	Woodland Improvement Grant (WIG) 	Woodland Improvement Grant (WIG) funds capital investment in woodlands, over an agreed period, to create, enhance and sustain an increase in the quantity and quality of public benefits delivered. Within the East of England there is a specific Ancient Woodland Restoration WIG. Up to 80% of standard costs can been paid for applications for the protection and restoration of ancient woodlands within targeted parts of the region.	Up to 80% of standard costs can been paid for
	Woodland Management Grant (WMG) 	The objective of WMG is to: contribute to the additional costs of providing public benefits that arise from meeting the UK Forestry Standard for sustainable woodland management protect, increase and maintain the area of woodland under sustainable management and identify and address threats to woodland, prevent decline and increase the capacity for sustainable management. e.g. Birch and Rowdown Woods, Croydon	Not specified
	Woodland Creation Grant (WCG) 	This grant supports the establishment of new woodlands that meet national and regional priorities. The grant is available on a competitive and regional basis, using scoring systems that select applications based on best fit with the public benefit priorities. e.g. Maxey Quarry, Peterborough	£1,800 per hectare, up to £3,800 per ha in priority areas
	Sport England 	Sport England administers a number of funding programmes for sport related initiatives. These are: • Small Grants • Sportsmatch • Innovation Fund • Rural Communities • Sustainable Facilities Fund	
	Small Grants 	The Sport England Small Grants Programme has been set up to support local community sport projects which seek to increase participation, sustain participation or develop opportunities for people to excel at their chosen sport.	£300-£10,000 but the total project cost cannot exceed £50,000
	Sportsmatch 	Sportsmatch is funded by Sport England to support the development of grassroots sport in England. It makes awards to organisations running projects aimed at increasing participation in sports at community level. We do this through matching eligible funding invested in community sport.	£1,000-£100,000.
	Innovation Fund 	The overall aim of this £5 million investment programme is to find and nurture genuine breakthroughs that will transform the way community sport looks and feels in the future	£10,000-£500,000

	Source	Details	Funding
	Rural Communities	The Rural Communities Themed Round aims both to address barriers and create new opportunities for participation in sport in rural communities. The programme is open to applicants from sports clubs, voluntary or community organisations, local authorities and educational establishments (such as schools, colleges and universities) which provide participation opportunities in community sport.	Not specified
	Sustainable Facilities Fund	Applications will need to meet the following criteria to be eligible for this funding: • Benefit all sections of the local community • Be submitted by an organisation entitled to receive lottery funding • Relate to a recognised sporting activity of more than one national governing body • Comprise capital costs only which are eligible for lottery funding • Include partnership funding in cash or in kind. • The sports facility provision elements of the project for which funding is sought must not have started	Not specified
	Low Carbon Buildings Programme	Through the Low Carbon Buildings Programme grants are available to support the costs of renewable energy generation.	Up to £2,500 per property
Trusts	**Esmee Fairbairn Foundation Biodiversity Strand**	The Esmee Fairbairn Foundation is one of the largest independent grant-making foundations in the UK. It offers grants for education and learning, the natural environment and enabling disadvantaged people to participate more fully in society. Funding strands are available for biodiversity, heritage and food production. In relation to biodiversity the fund has a focus on increasing the knowledge base and testing out ideas for the future conservation of the habitats listed below. Applications are considered from research organisations, practical conservation charities and voluntary nature societies. e.g. Sheffield City Council	A range of grants, with a small number of larger grants (£100,000+) complemented by smaller awards.
	Esmee Fairbairn Foundation Food Strand	Funding is increasingly becoming available for food production. The Esmee Fairbairn Foundation supports work which explores the relationship between people and food setting aside £3million over three years from 2008, subject to annual review. A mix of practical projects that have wide significance, and some research and policy based work including the following are supported: • Improving access to appropriate, diverse and sustainable food in areas where availability is limited • Exploring or enhancing understanding of the impact of food on wider well-being • Demonstrating the positive role of food in a social context or how food can contribute to community cohesion • Developing leadership in food policy and/or enabling greater connection among currently diverse food-related interests • Scaling up effective local or regional practice that deserves a wider platform e.g. Community Food Initiatives North East (Aberdeenshire and Moray)	A range of grants, with a small number of larger grants (£100,000+) complemented by smaller awards.

	Source	Details	Funding
	Landfill Tax Communities Fund	The Landfill Tax Communities Fund can provide funding for environmental initiatives managed by environmental bodies for projects located within 10 miles of an active landfill site. A number of trusts have been run by waste companies and independent bodies. • Biffaward • Grantscape • Wren • SITA Trust • CDENT • Veolia Environmental Trust e.g. Caldervale Nature Trail, Wakefield	See below
	SITA Trust	SITA Trust operates under the Landfill Communities Fund distributing funds donated by the recycling and resource management company SITA UK. West Gateshead is within the zone for funding. There are two strands to the fund enriching nature and enhancing communities.	See below
	Enriching Nature	Enriching Nature is the name of SITA Trust's funding programme for biodiversity/conservation projects. This programme supports projects within 10 miles of landfill sites in England. Enriching Nature supports projects with a focus on a species or habitat that has been identified as a priority by the UK Biodiversity Action Planning Process. e.g. Land for Lapwings, Northern Pennines	Grants up to £120,000
	Enhancing Communities	Enhancing Communities - For community improvement projects within three miles of qualifying waste processing sites owned by SITA UK. Not for profit organisations, community groups, parish councils, local authorities and charities can apply. e.g. Reclaiming Our Parks, Coventry	Small Grants below £10,000 Large Grants £10,001-£50,000
	The WREN Small Grant Scheme	The Small Grant Scheme is designed to assist applicants looking for funding on small projects that can make a difference to their local communities. This includes: Recreation Grounds, Nature Reserves, Village Greens, Public Footpaths/Towpaths, Multi-Purpose Sports Clubs, Playgrounds. e.g. Clyde Muirshiel Park, Glasgow	£2,000-£15,000 but the total project cost should be under £50,000.
	The WREN Main Grant Scheme	Funding of between £15,001 and £50,000 is available for the following types of projects: • The provision, maintenance or improvement of a public park or other public amenity in the vicinity of a landfill site. • The delivery of biodiversity conservation for UK species or habitats • The maintenance, repair or restoration of a building or other structure, which is a place of religious worship or of historic or architectural interest. e.g. Anderton Boat Lift, Cheshire	£15,001-£50,000 to projects which fall within WREN policy and the Landfill Communities Fund.

	Source	Details	Funding
	The WREN Biodiversity Action Fund	A project's primary intent must relate to specific improvements to a site to aid the conservation of a priority habitat to help achieve national, regional or local biodiversity targets. Projects which involve research, survey and monitoring work and educational elements may be funded but only where there is a clear intent that this work will lead to actual conservation improvements. Grants for environmental organisations, voluntary groups, charities, not-for-profit organisations, community groups can apply for funding. e.g. Anderby Marsh Habitat Re-Creation, Lincolnshire	£75,000-£250,000 to deliver biodiversity improvement projects.
	Green Energy Trust	Local community groups and not for profit organisations and charities within the UK can apply for grants for the installation of renewable technologies. The funding which is available through the Green Energy Trust will provide grants of up to 25,000 (but most projects receive around £10,000) for up to half the cost of the chosen renewable technology. e.g. Crosscanoby Community Centre, Maryport, Cumbria	Up to 25,000 (but most projects receive around £10,000)
	Community Tree Planting Grant Woodland Trust	The Woodland Trust is offering grants for community tree planting initiatives. Community groups, associations and not for profit organisations such as community action groups, local residents groups, environmental action group, scouts, brownies, etc. can apply for grants of £100 for tree planting projects organised by the local community. The grant covers costs directly related to the tree planting project. This can include purchase of native trees, the purchase of other tree planting materials and publicity costs. e.g. Dalwood Parish Council	£100
	One Planet Living Grant Scheme (UK) B&Q	Through the One Planet Living (OPL) Grant scheme, schools, community groups and charitable organisations can apply to their local B&Q store for funding to support a local community project. Projects must support at least one of the following themes; Environment/Energy Saving; Natural Habitats/Wildlife; and Local Culture/Heritage.	The scheme provides £50 to £500 (at retail cost) of B&Q materials
	Sustainable Energy Fund (England, Scotland and Wales)	The E.ON Sustainable Energy Fund offers grants of up to £20,000 to community groups and not for profit organisations who wish to consider and implement sustainable energy projects in their buildings. Projects that can be considered include; the purchase and installation of one or more renewable energy technologies (e.g. wind, solar thermal, PV, wood etc); the renovation of existing facilities to incorporate micro-generation technology (e.g. the reinstatement of a watermill and the purchase of a turbine to produce hydro-electricity); an energy efficiency makeover for your building that could demonstrate significant energy savings and also behavioural change amongst users; and the use of new or innovative technology to deliver either energy savings or micro-generation capacity. To be eligible organisations must benefit specific community groups namely: Young people; Elderly people; and People in fuel poverty.	Up to £20,000

	Source	Details	Funding
	Its Your Community (UK) Conservation Foundation and O2 O, It's your community	The Conservation Foundation and O2 have come together to operate this award scheme to help people improve their local environment. "Its Your Community" will provide awards of up to £1,000 to local organisations and individuals to support environmental projects such as turning derelict land into an amenity park or wildlife area, tree planting, creating a wildlife pond, renovating neglected river and canal footpaths, providing water butts and recycling facilities in village halls, etc. The fund is open to local amenity groups, parish and village councils, schools, youth clubs, heritage groups, environmental and conservation groups, and individuals who can show that their project will benefit their local environment. e.g. Jesmond Old Cemetery, Newcastle upon Tyne	Up to £1,000
	BP Conservation Programme (UK) bp	The BP Conservation Programme (BPCP) supports and encourages conservation projects that address global conservation priorities at a local level. The Conservation Leadership Programme is offering Future Conservationist Awards of up to £12,500 to high potential teams who aim to develop their skills through practical conservation projects.	Up to £12,500
	J Paul Getty Jr Charitable Trust	The Trust started distributing funds in 1988, and since then it has awarded nearly £38 million to over 3,000 charities across the United Kingdom. The Trust's main aim is to support projects which help to relieve poverty, support disadvantaged people, and effect long-term change where help is not readily available from the public or private purse. The Trust also provides funding for the arts, and towards the conservation of the natural and built environment. The Trust makes grants through two funding streams. Main grants can be between £10,000 and £250,000 over a period of 1 to 3 years. Small grants of up to £5,000 are also available for smaller charities. e.g. Seaton Delaval Hall, Northumberland	Main grants can be between £10,000 and £250,000 over a period of 1 to 3 years. Small grants of up to £5,000 are also available for smaller charities.
Local Initiatives / considerations	**Community Infrastructure Levy (CIL)**	Used to secure developer funded initiatives and ongoing maintenance. Can be used by Local Authorities on adoption of a CIL Development Plan Document within the Council's Local Development Framework (LDF). CIL differs from previous s106 regimes in that it captures a much wider range of development thereby sharing the burden, and will also break the direct link between the obligation and the development, so that infrastructure spending can be managed at a strategic level. The purpose of CIL is to help provide for community infrastructure needs. It enables local authorities to apply a levy to all new developments (residential and commercial) in their area, subject to a low de minimis threshold. Where appropriate the local planning authority can use CIL to supplement a negotiated agreement, which may be required for site specific matters, including affordable housing and open space or play areas to serve an particular site.	Variable
	Planning obligations and section 106 contributions	Used to secure developer funded initiatives relating to their proposals. The funding should be directly related to local authority policies and published standards. Ongoing maintenance should be considered. e.g. Forest of Marston Vale, The Marston Vale Trust	Variable

	Source	Details	Funding
	Private sector funding through property and financial endowments	Provision of income generating funds or assets which will assist with running costs and ongoing maintenance of green infrastructure. Endowments provide long-term funding for urban green spaces from the interest gained on investments in assets such as property or the stock market. e.g. Peterborough Development Corporation - Nene Country Park	Variable
	Business / developer sponsorship	Opportunities for generating revenue income, such as licensing and franchising, sponsorship, entry fees and fines, are ways in which funding from the private sector and users of urban green space can be sourced. e.g. Playground Project in Auchinlea Park, Glasgow, is sponsored by the Body Shop	Variable
	Established area based vehicles and partnerships	Area based partnerships can secure funding from the Homes and Communities Agency in addition to the Growth Fund. The voluntary sector can be engaged through the formation of parks 'friends' groups. e.g. Rossmere Park, Hartlepool, where the community was encouraged to take ownership of the park	Variable
	Funds accessible by various local charities, e.g. Groundwork, BTCV etc	Not-for-profit organisations and voluntary/community groups can contribute time and labour, raise funds and encourage community development and local ownership of urban green space. Charity status can also attract investment from funding bodies which may not have been accessible to the local authority. They can also access funds aimed at social inclusion and community cohesion due to the crosscutting nature of its work. e.g. Finsbury Park Volunteer day	Variable