

JANUARY 2019

# NATURAL ENVIRONMENT



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# 1 Introduction

- 1.1 To help explain the Greater Manchester Spatial Strategy (GMSF), a series of topic papers has been prepared. This is to explain the reasons for the policies in the draft GMSF.
- 1.2 Each topic paper summarises and cross-references the relevant evidence and explains how this has informed the draft GMSF. Each topic paper summarises the previous consultation comments that are relevant to the topic. The topic papers explain how the draft GMSF policies and allocations have been derived based on the evidence, consultation comments and Integrated Assessment.
- 1.3 The Greater Manchester Combined Authority (GMCA) has chosen to prepare topic papers to be transparent in how the GMSF has been prepared and to provide a more understandable summary of the background technical information.
- 1.4 This topic paper is about the natural environment, which includes: green infrastructure, including the strategic habitat types across Greater Manchester; landscape character; accessible natural greenspace; biodiversity and geodiversity conservation, soil resources; river valleys; flood risk and water management; and canals.
- 1.5 The GMSF is a joint plan of all ten local authorities in Greater Manchester, providing a spatial interpretation of the Greater Manchester Strategy which will set out how Greater Manchester should develop over the next two decades up to the year 2037. It will:
  - Identify the amount of new development that will come forward across the 10 districts, in terms of housing, offices, and industry and warehousing, and the main areas in which this will be focused.
  - Ensure we have an appropriate supply of land to meet this need.
  - Protect the important environmental assets across the conurbation
  - Allocate sites for employment and housing outside of the urban area.
  - Support the delivery of key infrastructure, such as transport and utilities.
  - Define a new Green Belt boundary for Greater Manchester.

## 2 Policy context

**2.1** This section summarises the key pieces of national policy, legislation, plans and programmes about the natural environment that the Revised Draft GMSF will need to respond to. Many of the policy requirements for plan making come from the revised National Planning Policy Framework (NPPF) published in July 2018 which replaces the previous NPPF published in March 2012.

**2.2** The policy context for the majority of this section is organised by the themes below:

- Green infrastructure
- Landscape character
- Accessible natural greenspace
- Biodiversity and geodiversity conservation
- Soil resources
- River valleys
- Flood risk and water management
- Canal network.

## 25 Year Environment Plan

**2.3** The Government's 25 Year Environment Plan<sup>(1)</sup> sets out the Government's action to deliver its aim to improve the natural environment within a generation so that it is in a better state than when it was inherited. It aims to deliver cleaner air and water in our cities and rural landscapes, protect threatened species and provide richer wildlife habitats. Six key areas of focus have been identified in the table below:

Chapter	Objectives
<b>Chapter 1:</b> Using and managing land sustainably	<ul style="list-style-type: none"> <li>• Embedding an 'environmental net gain' principle</li> <li>• Improving/incentivising land management</li> <li>• Improving soil and protecting peatland</li> </ul>

<sup>1</sup> HM Government (2018), *A Green Future: Our 25 Year Plan to Improve the Environment* – available at [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/693158/25-year-environment-plan.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/693158/25-year-environment-plan.pdf)

Chapter	Objectives
	<ul style="list-style-type: none"> <li>Supporting large scale woodland creation</li> <li>Reducing flood risk (through resilience, natural flood management and wider uptake of sustainable drainage systems)</li> </ul>
<b>Chapter 2:</b> Recovering nature and enhancing the beauty of landscapes	<ul style="list-style-type: none"> <li>Protecting and recovering nature as well as enhancing natural beauty</li> <li>Reforming water abstraction, increasing supply and incentivising efficiency</li> </ul>
<b>Chapter 3:</b> Connecting people with the environment to improve health and wellbeing	<ul style="list-style-type: none"> <li>Helping people improve their health and wellbeing by using green spaces</li> <li>Encouraging children to be close to nature, in and out of school</li> <li>Greening our towns and cities</li> <li>Making 2019 a Year of Action for the environment</li> </ul>
<b>Chapter 4:</b> Increasing resource efficiency, reducing pollution and waste	<ul style="list-style-type: none"> <li>Maximising resource efficiency and minimising environmental impacts at end of life</li> <li>Reducing pollution</li> </ul>
<b>Chapter 5:</b> Securing clean, productive and biologically diverse seas and oceans	<ul style="list-style-type: none"> <li>Introducing a sustainable fisheries policy and achieving good environmental status</li> </ul>
<b>Chapter 6:</b> Protecting and improving the global environment	<ul style="list-style-type: none"> <li>Providing international leadership and leading by example</li> </ul>

Chapter	Objectives
	<ul style="list-style-type: none"> <li>• Helping developing nations protect and improve the environment</li> <li>• Leaving a lighter footprint on the global environment</li> </ul>

Table 1 25 Year Environment Plan objectives

## Urban Pioneer

**2.4** The Department for the Environment, Food and Rural Affairs (DEFRA) has created four pioneer projects to inform the development and implementation of the 25 Year Environment Plan. Greater Manchester was selected as the 'Urban' pioneer and is tasked to test the following objectives and emerging thinking from the 25 Year Environment Plan:

- Applying a natural capital approach to decision making;
- Developing innovative funding opportunities;
- Demonstrate integrated approaches to planning and delivery; and
- Building our understanding of 'what works' in practice.

**2.5** Through the Urban Pioneer, Greater Manchester partners have made a commitment to embed a biodiversity net gain approach to the planning system across Greater Manchester and explore and demonstrate how this will deliver wider natural capital net gains and benefits to people's health, wellbeing, prosperity and growth.

**2.6** A natural capital account<sup>(2)</sup> has been developed for Greater Manchester to measure the benefits provided by the city region's natural assets so we know what we have and they can be monitored over time. The current asset value of the natural capital is estimated to be £24bn over the next 60 years and the annual value of services provided by these is estimated to be in the region of £860m (see Figure 2.1). Managed in the right way these assets can provide sustained benefits to society. Equally where there are deficiencies in these assets (either through condition of provision) that this is recognised in future decision making. Through the Natural Course project (EU Life funded programme) a natural capital investment plan for Greater Manchester is being developed. This will inform the scale of interventions required and the opportunities for viable financial investments to maintain, enhance or create natural assets.

2 <https://naturegreatermanchester.co.uk/resource/urban-pioneer-natural-capital-accounts/>

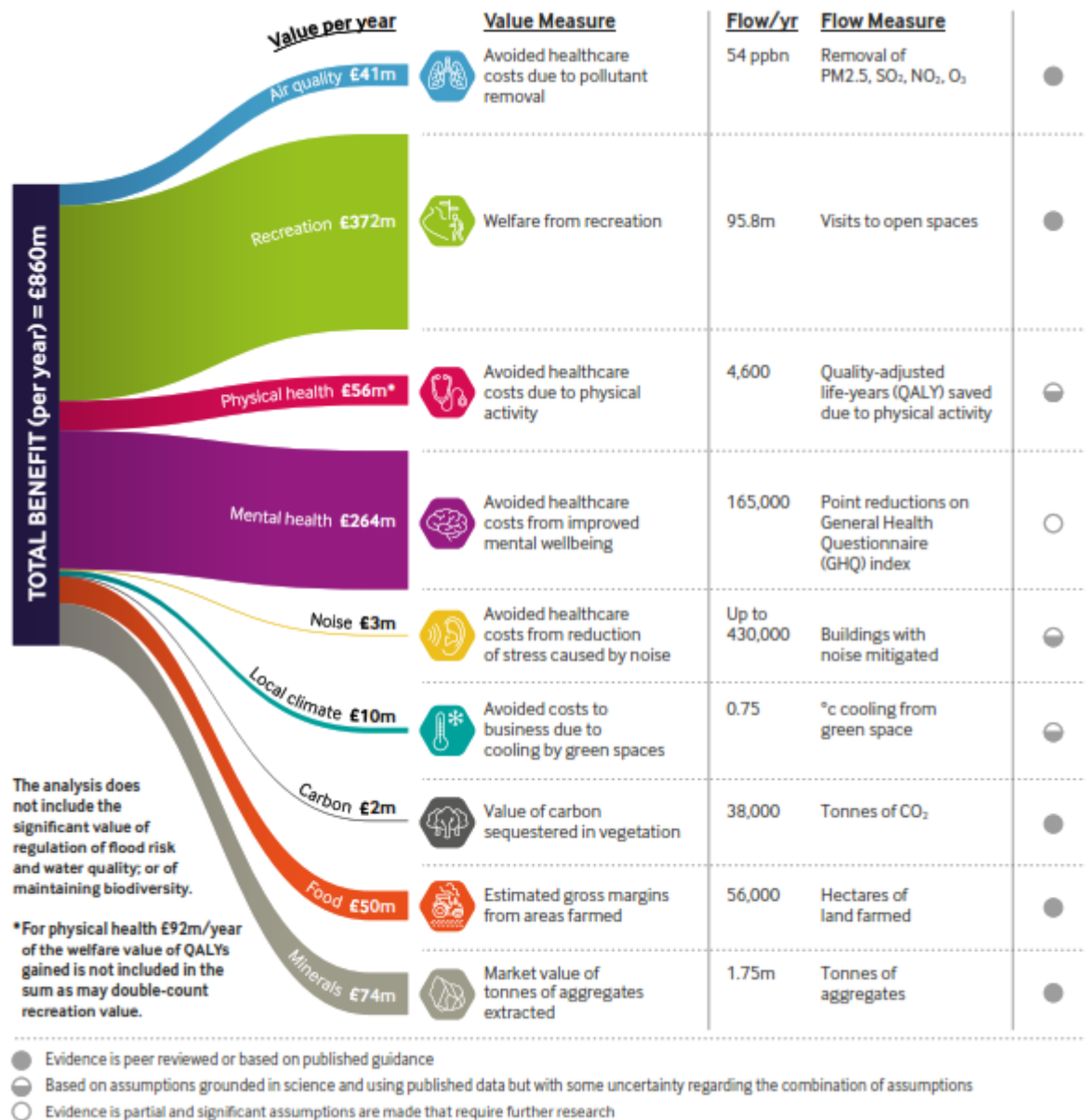


Figure 1 Greater Manchester Natural Capital Account (Eftec 2018) – Estimated benefits of services provided

## Mayoral Green Summit

**2.7** The Green Summit was held by the Mayor of Greater Manchester on 21st March 2018 and attracted over 700 people to the event. The objective of the summit was to set out a new environmental vision for Greater Manchester to become one of Europe's leading green cities. As part of this, the summit set out to consider how Greater Manchester could find new ways to manage and invest in the natural environment, as well as accelerate its activities to reduce carbon emissions and to tackle climate change.



- 2.8** It was recognised at the summit that the ambitions cannot be realised by local government acting alone and it will require concerted effort from national government, business and communities working together.
- 2.9** Following the summit, there were a series of announcements. The announcements that have a natural environment theme and are relevant to the GMSF are:
- Greater Manchester is already designated as Defra's UK Urban Pioneer city, trialling new ways to value, manage and invest in the natural environment;
  - Explore the creation of a Greater Manchester Environment Fund;
  - Greater Manchester will produce a natural capital investment plan by December 2018 which would identify natural assets that could provide strategic benefits to local communities; and
  - Transform cycling and walking by investing up to £50m per year for three years from through the Transforming Cities Fund.
- 2.10** Other announcements were focused on reducing carbon emissions, sustainable energy production and consumption, sustainable transport and reducing plastic waste. They are relevant to other topic papers for the GMSF.

## **Green Infrastructure**

### **National Planning Policy Framework**

- 2.11** On plan making, in Chapter 3, Section (d) of Paragraph 20 states that strategic policies should make sufficient provision for the conservation and enhancement of the natural environment, including green infrastructure to address climate change mitigation and adaption.
- 2.12** Green infrastructure is also referred to in Chapter 15:
- Paragraph 171 states that plans should take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure;
  - Section a) of Paragraph 174 states that to protect and enhance biodiversity and geodiversity, plans should identify and map components of the local ecological networks, including the hierarchy of international, national and locally designated



sites of importance for biodiversity, wildlife corridors and stepping stones that connect them and areas identified by local partnerships for habitat restoration or creation; and

- Section b) of Paragraph 174 states that to protect and enhance biodiversity and geodiversity, plans should promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species and identify and pursue opportunities for securing measurable net gains for biodiversity.

## **Landscape Character**

### **National Planning Policy Framework**

- 2.13** On plan making, Paragraph 20(d) states that landscape should form part of the strategic policies of a plan in relation to the natural environment. This is in addition to climate change mitigation and adaption, conservation and enhancement of the natural, built and historic environment and green infrastructure.
- 2.14** Paragraph 127 (c) states that planning policies and decisions should ensure that developments respond to local character and history, including the surrounding built environment and landscape setting, whilst not preventing or discouraging appropriate innovation or change (such as increased densities).
- 2.15** Paragraph 170 (a) states that planning policies and decisions should contribute and enhance the natural and local environment by protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan).
- 2.16** Paragraph 170 (b) states that planning policies and decisions should contribute and enhance the natural and local environment by recognising the intrinsic character and beauty of the countryside, amongst other considerations cited in the paragraph.

## **Accessible Natural Greenspace**

### **National Planning Policy Framework**

- 2.17** Chapter 8: 'Promoting healthy and safe communities' of the NPPF relates to the provision of accessible natural greenspace because:
- Paragraph 91(c) states that planning policies and decisions should aim to achieve healthy, inclusive and safe places which enable and support healthy lifestyles, especially where this would address identified local health and well-being needs

– for example through the provision of safe and accessible green infrastructure, sports facilities, local shops, access to healthier food, allotments and layouts that encourage walking and cycling.

- Paragraph 92(a) states that to provide the social, recreational and cultural facilities and services the community needs, planning policies and decisions should plan positively for the provision and use of shared spaces, community facilities (such as local shops, meeting places, sports venues, open space, cultural buildings, public houses and places of worship) and other local services to enhance the sustainability of communities and residential environments.
- Paragraph 96 states that access to a network of high quality open spaces and opportunities for sport and physical activity is important for the health and well-being of communities. Planning policies should be based on robust and up-to-date assessments of the need for open space, sport and recreation facilities (including quantitative or qualitative deficits or surpluses) and opportunities for new provision. Information gained from the assessments should be used to determine what open space, sport and recreational provision is needed, which plans should then seek to accommodate.

## **Biodiversity and Geodiversity Conservation**

### **National Planning Policy Framework**

- 2.18** The Government's planning policy on conserving and enhancing the natural environment is contained in Chapter 15. The key plan making considerations from that chapter relating to biodiversity and geodiversity conservation are outlined below.
- 2.19** Paragraph 170 (a) states that planning policies and decisions should contribute to and enhance the natural and local environment by protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan).
- 2.20** Paragraph 170 (b) states that planning policies and decisions should contribute to and enhance the natural and local environment by recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland.
- 2.21** Paragraph 170 (d) states that planning policies and decisions should contribute to and enhance the natural and local environment by minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures.

- 2.22** Paragraph 171 states that plans should: distinguish between the hierarchy of international, national and locally designated sites; allocate land with the least environmental or amenity value, where consistent with other policies the NPPF; take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure; and plan for the enhancement of natural capital at a catchment or landscape scale across local authority boundaries.
- 2.23** Paragraph 174 (a) states that to protect and enhance biodiversity and geodiversity, plans should identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity; wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation.
- 2.24** Paragraph 174 (b) states that to protect and enhance biodiversity and geodiversity, plans should promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.
- 2.25** Elsewhere in NPPF, net gains in biodiversity and net environmental gains are referenced the following paragraphs:
- Paragraph 32 states that a plan's sustainability appraisal should demonstrate how environmental net gains, as well as net gains the economy and society, have been addressed
  - Paragraph 72 (a) implies that there are opportunities for net environmental gains when planning for large housing developments, such as urban extensions and new settlements; and
  - Paragraph 102 (d) stipulates that transport issues should be considered from the earliest stages of plan-making so that environment impacts of transport infrastructure can be considered, including opportunities for environmental net gain.

## Soil Resources

### National Planning Policy Framework

- 2.26** The protection and enhancement of soil resources and agricultural land through plan making are outlined in Chapter 15: 'Conserving and enhancing the natural environment'.
- 2.27** Paragraph 170 (a) and (b) state that planning policies and decisions should contribute to and enhance the natural and local environment by protecting soils and recognising the economic benefits of the best and most versatile agricultural land as a form of ecosystem service.

**2.28** Paragraph 171 states that plans should: distinguish between the hierarchy of international, national and locally designated sites; allocate land with the least environmental or amenity value, where consistent with other policies in this Framework; take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure; and plan for the enhancement of natural capital at a catchment or landscape scale across local authority boundaries.

## River Valleys

### National Planning Policy Framework

**2.29** Paragraph 170 (e) states that the planning system should contribute to and enhance the natural and local environment by preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of water pollution.

**2.30** To prevent such unacceptable risk, Paragraph 180 is clear that planning policies and decisions should ensure new development is appropriate for its location and the effects (including cumulative effects) of pollution on the natural environment or general amenity, and the potential sensitivity of the area or proposed development to adverse effects from pollution, should be taken into account.

**2.31** Paragraph 170 (e) advises that development should, wherever possible, help to improve local environment conditions such as water quality, taking into account relevant information. The paragraph explicitly references River Basin Management Plans (RBMP). For Greater Manchester, the North West RBMP<sup>(3)</sup> is the over-arching strategy which contains information on current water body status and required measures to meet the Water Framework Directive<sup>(4)</sup>. The EU Water Framework Directive applies to surface water and groundwater and requires member states to protect, enhance and restore water bodies to 'good' status.

**2.32** Paragraph 3 of the National Planning Practice Guidance on Water Supply, Wastewater and Water Quality<sup>(5)</sup> references the DEFRA policy framework<sup>(6)</sup> which encourages the wider adoption of an integrated catchment-based approach to improving the quality of the water environment and inform decision making. Paragraph 6 also advises that plan making may need to consider:

- How to help protect and enhance local surface water and groundwater in ways that allow new development to proceed and avoids costly assessment at the planning application stage. For example, can the plan steer potentially polluting development

3 Environment Agency (2016), *Water for life and livelihoods, North West River Basin Management Plan* – available at

<https://www.gov.uk/government/publications/part-2-river-basin-management-planning-overview-and-additional-information>

4 Council Directive of the European Parliament and of the Council on 22 December 2000 establishing a framework for the Community action in the field of water policy – available at <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:32000L0060>

5 <https://www.gov.uk/guidance/water-supply-wastewater-and-water-quality>

6 DEFRA (2013), *Catchment Based Approach: Improving the quality of our water environment* - available at

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/204231/pb13934-water-environment-catchment-based-approach.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/204231/pb13934-water-environment-catchment-based-approach.pdf)

away from the most sensitive areas, particularly those in the vicinity of potable water supplies (designated source protection zones or near surface water drinking water abstractions).

- The type or location of new development where an assessment of the potential impacts on water bodies may be required.
- Where particular types of sustainable drainage systems may not be practicable.

## Flood Risk and Water Management

### The National Planning Policy Framework

**2.33** Paragraph 155 is clear that in appropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk, whether existing or in the future. The paragraph goes on to state that where development is necessary in the highest risk areas, the development should be made safe for its lifetime without increasing flood risk elsewhere.

**2.34** Paragraph 156 states that strategic policies should manage flood risk from all sources, be informed by a Strategic Flood Risk Assessment (SFRA) and should consider cumulative impacts in, or affecting, local areas susceptible to flooding, and take account of advice from the Environment Agency and other relevant flood risk management authorities, such as lead local flood authorities and internal drainage boards.

**2.35** Paragraph 157 states that all plans should apply a sequential, risk-based approach to the location of development – taking into account the current and future impacts of climate change – so as to avoid, where possible, flood risk to people and property. The paragraph goes into state that plans should do this, and manage any residual risk, by:

- Applying the sequential test and then if necessary, the exception test.
- Safeguarding land from development that is required, or likely to be required for current or future flood management.
- Using opportunities offered by new development to reduce the causes and impacts of flooding (where appropriate through the use of natural flood management techniques).
- Where climate change is expected to increase flood risk so that some existing development may not be sustainable in the long-term, seeking opportunities to relocate development, including housing, to more sustainable locations.

## The Sequential Test

**2.36** Paragraph 158 explains the sequential test. The aim of the test is to steer new development to areas with the lowest probability of flooding. Development should not be allocated if there are reasonably available sites appropriate for the proposed development in areas with a lower risk of flooding. The sequential approach should be used in areas known to be at risk now or in the future from any form of flooding.

## The Exception Test

**2.37** Paragraph 159 and 160 explain the exception test. It states If it is not possible for development to be located in zones with a lower risk of flooding (taking into account wider sustainable development objectives), the exception test may have to be applied. The need for the exception test will depend on the potential vulnerability of the site and of the development proposed, in line with the Flood Risk Vulnerability Classification set out in national planning guidance.

**2.38** For the exception test to be passed it should be demonstrated that:

- The development would provide wider sustainability benefits to the community that outweigh the flood risk; and
- The development will be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall.

**2.39** Paragraphs 163 and 165 set out the requirements for development to incorporate sustainable drainage systems (SUDS):

- All new development permitted in areas at risk of flooding, subject to passing the sequential and exception tests, should incorporate sustainable drainage systems unless there is clear evidence that this would be inappropriate; and
- Major development (regardless of its location) should incorporate sustainable drainage systems unless there is clear evidence that it would be inappropriate.

## Canal Network

### National Planning Policy Framework

**2.40** Canals are considered to be within the definition of ‘open space’ within the NPPF. Paragraph 96 advises that access to high quality open space can make an important contribution to the health and well-being of our communities. Paragraph 97 outlines a

presumption against building on open space unless demonstrated to be mitigated or alternative provision is provided. Paragraph 170 makes reference to the benefits from natural capital and ecosystem services, which would include the canal network.

- 2.41** The majority of Greater Manchester's industrial heritage is associated with the canal network. Paragraph 127 (c) states that planning policies and decisions should ensure that developments respond to local character and history, including the surrounding built environment and landscape setting.
- 2.42** Some of the canal network across Greater Manchester is also protected through European Designations (e.g. Rochdale Canal SAC), National (Huddersfield Narrow Canal SSSI) and many are referenced as Sites of Biological Importance (e.g. Bridgewater Canal). Consequently, many of the NPPF plan making considerations to protect and enhance biodiversity, that were outlined previously in the chapter, apply to the canal network.
- 2.43** Canals are also part of the waterbody network that is measured under the requirements of the Water Framework Directive (as referenced in the river valley section in this topic paper).



### 3 Summary of evidence

- 3.1 The GMCA and its partners have commissioned a number studies and reports to provide evidence on which to formulate GMSF planning policies about the natural environment, in order to deliver requirements and objectives of NPPF and other policies and legislation. The studies are summarised below.

#### Green infrastructure

##### Priority Green and Blue Infrastructure Study

- 3.2 The Greater Manchester Ecological Unit (GMEU) identified and mapped a strategic priority green infrastructure network for Greater Manchester. The study has built on a range of existing data and previous studies. The full report is available at <https://www.greatermanchester-ca.gov.uk/gmsf>.
- 3.3 Strategic priority green infrastructure is green infrastructure that delivers the most important ecosystem services. The study considers these to be: surface water and fluvial flood management; carbon storage and sequestration; water quality management; habitat and wildlife conservation; and public recreation and sustainable travel. Although the term 'green infrastructure' is used, it also includes 'blue' infrastructure including rivers, canals, lakes and other waterbodies.
- 3.4 In addition to the priority green infrastructure network mapping, the study also:
- Develops an ecological network in Greater Manchester, as a subset of the wider network of green infrastructure;
  - Identifies strategic opportunity areas and sites to enhance green infrastructure, including habitat enhancement; and
  - Explores how targets and standards to improve green infrastructure in Greater Manchester to deliver net gains in biodiversity and green infrastructure could be set.

##### The Priority Green Infrastructure Network

- 3.5 The priority green infrastructure network is displayed in Figure 3.1, which has been extracted from the study. It comprises of the land designations, habitats and land uses that are connected and are listed in Table 3.1. The majority of the connections between sites are via river and waterway, which highlights their strategic value. The network does not include small isolated sites, however their exclusion does not mean that their green infrastructure value is unimportant at a more local level.

- Blanket Bog Priority Habitat
- Lowland Raised Bog Habitat
- Sites of Biological Importance
- Sites of Special Scientific Interest
- Special Areas of Conservation
- Strategically important parks and countryside for recreation
- Special Protection Areas
- Local Nature Reserves
- Protected species
- Priority species
- Woodlands
- Lowland Wetland habitat
- Main rivers and waterways
- Greenspace in flood zones
- Habitats vulnerable to climate change
- Peat soils

Components of the priority green infrastructure network



Figure 2 Priority green infrastructure network for Greater Manchester

## Development of an ecological network for Greater Manchester

- 3.6** The study has constructed an ecological network for Greater Manchester, based on broad habitat types, which also form part of the priority green infrastructure network, that are considered to be the most important in Greater Manchester. The broad habitats type areas are outlined below.

### Uplands

- 3.7** This area includes the South and West Pennines, part of the Pennine ridge of hills, lying between the Peak District National Park and the Yorkshire Dales National Park. The area contains internationally important mosaics of moorland habitats and peat soils. The priority ecosystem services that the uplands provide are: carbon storage and sequestration; water storage, water quality management; and recreation. The opportunities for ecosystem service enhancement in uplands are: restoration of peat bogs; improvement of upland meadows for wildlife; and improvement of public access and promotion of enjoyment of the landscape.

### River valleys and canals

- 3.8** River valleys and canals form very important corridors of semi-natural habitats and natural greenspace throughout Greater Manchester – with open grassland, woodland and wetland all being closely linked to the water courses – linking urban centres with open countryside. Important river valleys include those of the Mersey, Irwell, Roch, Tame, Etherow, Goyt, Medlock, Irk and Bollin. The Manchester Ship Canal, included in this priority area, follows in places the original routes of the Rivers Mersey and Irwell. The Manchester Ship Canal, the Bridgewater Canal, the Leeds and Liverpool Canal, and the Rochdale Canal are all inter-connected, linking the Manchester conurbation with surrounding areas.
- 3.9** The priority ecosystem services provided by river valleys and canals are: surface water and fluvial flood management; water quality management; public recreation and sustainable travel routes; and wildlife and habitat conservation.
- 3.10** The opportunities for ecosystem service enhancement in the river valleys and canals are: improving water quality; re-naturalising rivers and waterways; improving public access to waterways; and improving opportunities for sustainable travel along waterways.

### Woodlands and trees

- 3.11** The Greater Manchester Tree Audit, which was co-ordinated by Red Rose Forest in 2011, estimated that there are 12 million trees in Greater Manchester covering on average 10 per cent of the land area on average, just above the national average. Woodland provides a valuable wildlife resource, and many important woodlands have been designated for their nature conservation interest.

- 3.12** The priority ecosystem services provided by woodlands are: recreation; carbon storage and sequestration; and flood mitigation. The opportunities for ecosystem services in the woodlands are: new tree planting; positive woodland management; and management of recreational pressures and provision of new opportunities for recreation.

### **Lowland wetlands**

- 3.13** This character area includes the large areas of remnant mossland across areas of Salford and Wigan and the wetlands associated with past industrial activity in Wigan.
- 3.14** The mosslands includes areas of lowland raised bog and areas that were formerly bogs, but which have now been converted to farmland. Undamaged raised bogs support a range of bog mosses (sphagnum), together with cotton grasses, cross-leaved heath, bog rosemary and sundews. They also support a range of invertebrates.
- 3.15** In Wigan in particular, extensive valuable wetland habitats have formed on many former industrial sites where undermining has resulted in the formation of many subsidence flashes and ponds. The Wigan Flashes are particularly significant for their variety and quality of habitats present, including open water, fen, swamp, woodland and grassland.
- 3.16** Much of this 'character area' is within the Greater Manchester Wetland Nature Improvement Area.
- 3.17** The priority ecosystem services provided by the lowland wetlands are: carbon storage and sequestration (the most important); flood mitigation; public recreation and sustainable travel; and habitat and wildlife conservation. The opportunities for ecosystem services are: restoration of lowland raised bog habitats and enhance opportunities for open access.

### **Major parks and greenspaces**

- 3.18** Publicly accessible parks and open greenspaces provide people with the opportunity to be physically active, facilitate social interaction, reduce stress and enhance a sense of well-being and provide opportunities for people to experience biodiversity first-hand. There are formal parks and gardens like Wythenshawe Park, historic parklands like Dunham Massey and large, open upland areas like Dovestones. All are of high value for use by people for active and passive recreation, but they also perform a wide range of other ecosystem services such as flood risk management and provision of wildlife habitats.
- 3.19** The priority ecosystem services provided by major parks and Greenspace are: public recreation and green travel routes (the most important); surface water and fluvial flood management; water quality management; and wildlife and habitat conservation.
- 3.20** The opportunities for ecosystem services enhancement are: investment in improving access for all and investment in management.

## Strategic opportunity areas and sites for green infrastructure enhancement

- 3.21** The study identifies strategic opportunity areas and sites for the creation and improvement of biodiversity habitats. These areas and sites are also locations for green infrastructure improvement, in general, as habitat creation and enhancement inevitable benefits a range of ecosystem services.
- 3.22** The strategic opportunity areas and sites have been chosen because they are of a strategic scale and capable of delivering strategic-scale improvements to the delivery of ecosystem services for large areas of Greater Manchester. The study explains that sites and areas are not (necessarily) constraints on built development, as the development of grey infrastructure and built development within opportunity sites and areas may facilitate the delivery of improvements in some areas.
- 3.23** Figure 3 'Strategic opportunity areas and sites for green infrastructure enhancement', extracted from the study, and Table 2 'List of strategic opportunity areas and sites for green infrastructure enhancement' illustrates the strategic opportunity areas and sites.

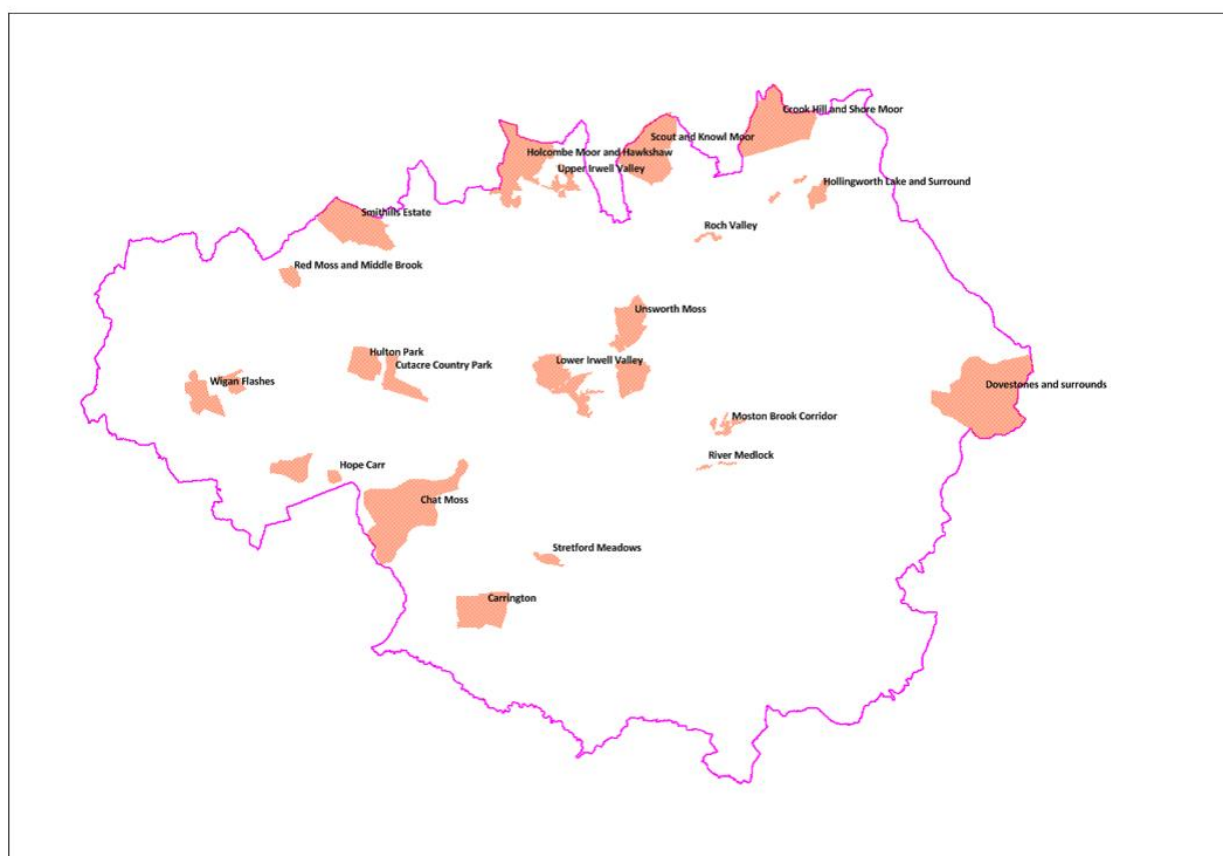


Figure 3 Strategic opportunity areas and sites for green infrastructure enhancement

District(s)	Strategic opportunity areas and sites
Wigan / Salford / Warrington	Great Manchester Wetlands Nature Improvement Area
Wigan	Hope Carr
Salford/Wigan	Chat Moss Heartland
Wigan	Wigan Flashes
Bolton/Salford/Bury	Lower Irwell / City Forest Park
Bury / Salford / Manchester	Lower Irwell Valley, including former Rhodes Farm Waste Water Treatment Works
Wigan	Greenheart
Oldham / Tameside / Rochdale	South Pennine Moors
Rochdale	Crook Moor and Shore Moor
Rochdale	Scout and Knowl Moors
Oldham	Dovestones and Surrounds
Bolton / Bury	West Pennine Moors
Bury	Holcombe Moor and Hawkshaw
Bolton	Smithills Estate
Stockport / Manchester / Trafford	Mersey Valley
Trafford	Stretford Meadows
Manchester / Oldham	Brook Corridor
Manchester	Lower Medlock Valley
Rochdale	Roch Valley
Bolton	Red Moss and Middle Brook Valley
Bury	Unsworth Moss / Whittle Brook potential flood basin
Manchester	Heaton Park
Bolton	Hulton Park



District(s)	Strategic opportunity areas and sites
Bury	Unsworth Moss / Whittle Brook potential flood basin
Manchester	Heaton Park
Bolton	Hulton Park
Trafford	Carrington Mosslands
Salford/Bolton	Cutacre Country Park
Bury	Upper Irwell Valley

Table 2 List of strategic opportunity areas and sites for green infrastructure enhancement

## Targets and Standards

**3.24** The study has identified how targets could be developed for each broad habitat type/ green infrastructure theme, the: uplands, woodlands and trees, river valleys and canals, lowland wetlands and major parks and greenspace. The targets are outlined below, that have been extracted from the study.

### Uplands

Objective	Target	Extent (ha)
Maintain extent	Maintain the existing extent of Greater Manchester upland habitat resource	4,000
Maintaining extent of substrate and abiotic conditions for future restoration	Ensure no further loss of abiotic factors (e.g. peat deposits)	4,000
Achieving favourable condition	Rehabilitate existing raised bog resource to favourable condition	500
Restore	Restore lowland raised bog on suitable areas of peat	500



## Woodlands and Trees

Objective	Target	Extent (ha)
Maintain extent of woodland	Maintain the existing extent of Greater Manchester lowland broadleaved, upland oak and wet woodlands	3,500
Achieve favourable condition	By appropriate management, restore the diversity of structure and species to favourable condition	2,500
Expand Woodland habitat	Through natural regeneration and woodland planting	480
Maintain extent of hedgerow		2,700 km
Plant new hedgerows		20 km
Plant new trees*	By woodland planting and all other tree planting (e.g. street tree planting)	1 million trees

## Rivers and Canals

3.25 Achievement of 'good' condition for all major waterbodies within the lifetime of the Plan.

## Major Parks and Greenspace

Objective	Target	Extent (ha)
Maintain extent of major (priority) Parks and Greenspaces		??, to be calculated
Improve Condition of Major (priority) Parks and Greenspace	By appropriate management, restore and improve the capacity of major parks and greenspaces to deliver ecosystem services	??

## Tree and Woodland Strategy for Greater Manchester

3.26 City of Trees, the ten districts of Greater Manchester, Natural England, the Woodland Trust and the Forestry Commission are developing a tree and woodland strategy for Greater Manchester. The strategy has four objectives which are to:

- Identify priority areas for planting trees as measured against a number of indicators including air quality, flood risk, Index of Multiple Deprivation and existing tree cover.
- Help ensure all trees and woodlands reach their maximum potential in providing benefits for Greater Manchester's communities and businesses.

- provide guidance, best practice and policy for managing existing trees and woodlands, including how best to deal with the threats from tree diseases.
- Present opportunities for pooling operational management resources to achieve efficiencies for tree and woodland management.

**3.27** At the time of writing, the evidence base is being developed for the strategy. Public consultation on the strategy is planned for winter/spring 2019 and sign off of the strategy in May 2019.

## Landscape Character

### Landscape Character and Sensitivity Assessment

**3.28** The GMCA commissioned LUC to complete a landscape character and sensitivity assessment across Greater Manchester. A copy of the assessment can be found at [www.greatermanchester-ca.gov.uk](http://www.greatermanchester-ca.gov.uk). The assessment:

- Provides an evidence base for the landscape character/sensitivity of Greater Manchester which takes account of changes in land use, pressures for change including characterisation of the landscape, identification of sensitive and non-sensitive areas.
- Contributes towards the development of the Greater Manchester Spatial Framework by bridging the Natural England National Character Area profiles, North West Regional Character Framework and character assessments undertaken by individual districts.
- Considers cross boundary matters, in particular views from the Peak District National Park and Natural Improvement Areas and identifies anomalies and discontinuities as well as potential enhancements and improvements.
- Provides guidance and advice to help shape the scope of more detailed area specific assessments where required.

**3.29** The Assessment identifies ten different landscape character types across the conurbation listed below and shown in the map in Figure 3.6 that has been extracted from the Assessment:

- Broad Urban Fringe Valleys
- Historic Parks and Wooded Estate Farmland
- Incised Urban Fringe Valleys
- Mosslands and Lowland Farmland

- Pennine Foothills (West-South Pennines)
- Pennine Foothills (Dark Peak)
- Reclaimed Land / Wetlands
- Unenclosed Uplands and Fringes (West-South Pennines)
- Unenclosed Uplands and Fringes (Dark Peak)
- Urban Fringe Farmland

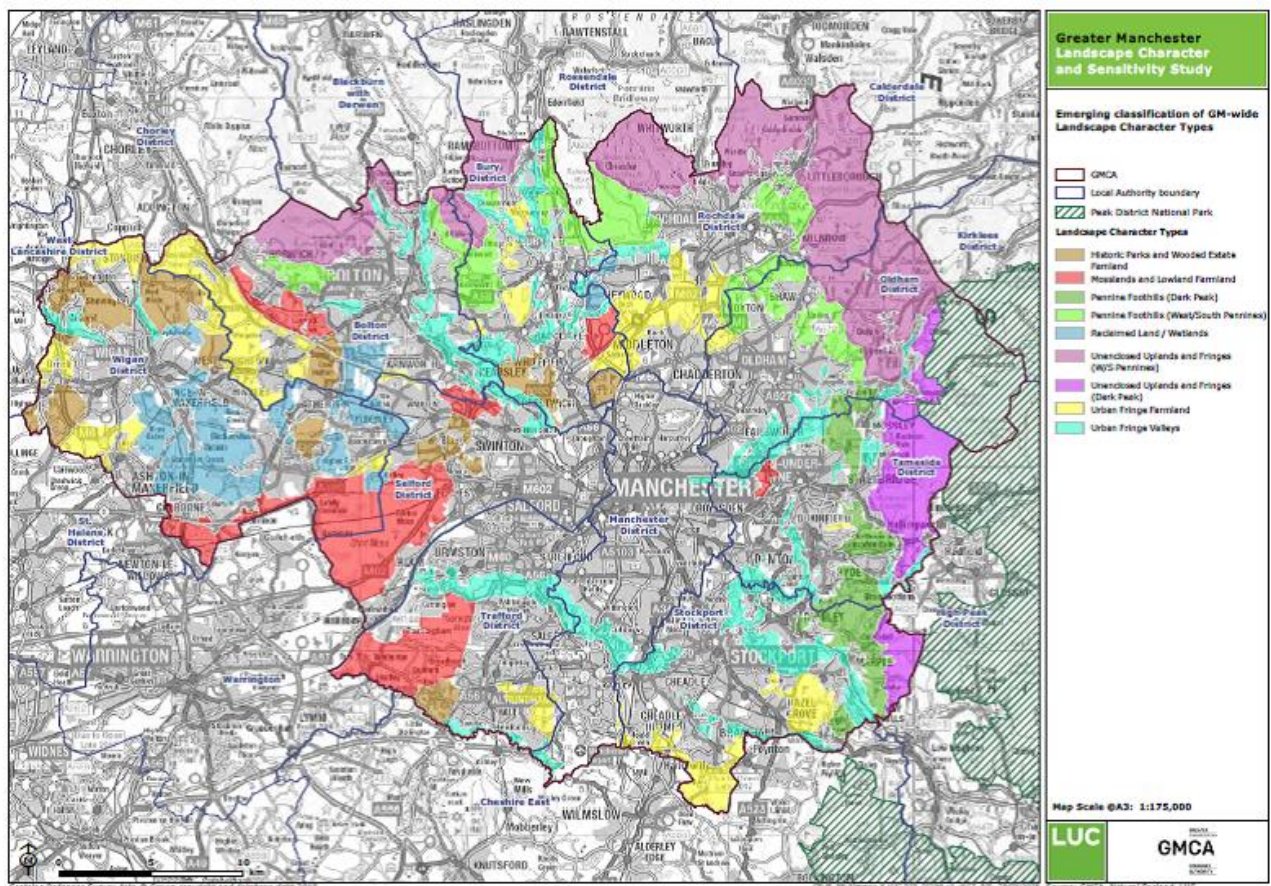


Figure 4 Greater Manchester landscape character types

3.30 For each landscape character type the assessment considers the:

- Key characteristics of the landscape.
- Intactness and condition of the landscape.



- Sensitivity of the landscape to change, including from development, and then based on the findings of the stages above.
- guidance for opportunities for future development and landscape management/enhancement.

## Accessible Natural Greenspace

### Greater Manchester Accessible Natural Greenspace Analysis

**3.31** The GMCA commissioned Natural England, supported by Ordnance Survey, to undertake a Greater Manchester Accessible Natural Greenspace Analysis. The study complements the existing greenspace audits and strategies that have been produced by the ten districts of Greater Manchester to support their own district Local Plans by considering and identifying a consistent evidence base for accessible greenspace. This will enable a strategic overview of greenspace provision in Greater Manchester.

**3.32** The study:

- Identifies deficiencies in accessible natural greenspace using Natural England's Accessible Natural Greenspace Standards.
- Identifies the areas of deficiency in accessible natural greenspace that are located in areas of multiple deprivation, using the Index of Multiple Deprivation.
- Compares the accessibility of natural greenspace to people's homes across Greater Manchester, and by demographic group.
- Compares the quality of accessible natural greenspace in each medium super output area across Greater Manchester.
- Compares the 'greenness' of neighbourhoods including both accessible and inaccessible green infrastructure.

**3.33** From these pieces of work, the study contributes towards delivering the following outcomes:

- More and better quality, better managed and better used accessible greenspace, especially in areas of greenspace deficiency and environmental, social and economic deprivation.
- Improved use of greenspaces leading to increased health and wellbeing, physical activity, walking and cycling, mental wellbeing, and contact with nature.

- Better connected and joined up Greenspace e.g. joined up into green infrastructure / ecological and walking and cycling networks.
- Support for the case for more greenspace and green infrastructure investment.
- Delivery of the Defra 25 Year Environment Plan through the Urban Pioneer pilot in Greater Manchester.

## Study findings

### Accessible Natural Greenspace Standards (ANGST) level: 2 hectares with 300 metres

**3.34** Approximately 44% of residents in Greater Manchester live within 300 metres from an accessible natural greenspace of at least 2 hectares in area.

**3.35** The variation across deciles of Index of Multiple Deprivation does not appear to show any significant correlation between areas of multiple deprivation and low levels of accessible natural greenspace by comparison with areas of least deprivation.

**3.36** However, maps from the study show where there are areas of greenspace deficiency in areas of multiple deprivation and these are areas that are a priority for greenspace enhancement and creation to provide more benefits for local people including health and wellbeing, outdoor learning, children's play, urban cooling, flood risk management and local economic growth.

### ANGST level: 20 hectares with 2 km

**3.37** Approximately 79% of residents in Greater Manchester live within 2 km from an accessible natural greenspace of at least 20 hectares in area.

**3.38** The neighbourhood areas of compliance and non-compliance with the ANGSt standard extend across GM, and the performance of individual boroughs is shown in Figure 2 of the study.

**3.39** The mapping of Index of Multiple Deprivation shows a slight trend towards more households (approximately 85%) in areas of greatest deprivation having access to 20 hectares of greenspace than households in the least deprived (IMD 10), approximately 58%.

### ANGST level: 100 hectares with 5 km

**3.40** Approximately 74% of residents in Greater Manchester live within 5 km from an accessible natural greenspace of at least 100 hectares in area.

**3.41** The areas of compliance and non-compliance with the ANGSt standard extend across GM, and the performance of individual boroughs is shown in Figure 3 in the study.

**3.42** The variation across deciles of Index of Multiple Deprivation does not show any significant correlation between areas of deprivation and lower levels of accessible natural greenspace.

### **ANGST level: 500 hectares within 10 km**

**3.43** Approximately 61% of residents in Greater Manchester live within 10 kilometres from an accessible natural greenspace of at least 100ha in area.

**3.44** The areas of compliance and non-compliance with the ANGSt standard extend to the south and west of Greater Manchester, and the performance of individual boroughs is shown in Figure 4 in the study.

**3.45** The variation across deciles of Index of Multiple Deprivation does not show any significant correlation between areas of deprivation and lower levels of accessible natural greenspace.

### **Greenness Grid**

**3.46** This grid gives a comparison of the amount of vegetation cover in each of the 250 metre square grids across Greater Manchester. When identifying priorities for investment, the lower the proportion of greenness in a grid, the higher the need for greenspace creation and enhancement – for example areas with private gardens will have a higher greenness score.

### **Biodiversity and geodiversity conservation**

**3.47** To understand how biodiversity net gain can be delivered in Greater Manchester, the GMCA has commissioned Natural England to deliver two projects:

- Biodiversity Net Gain Policy Guidance for Greater Manchester; and
- Greater Manchester Net Gain Road Map.

### **Biodiversity Net Gain Policy Guidance for Greater Manchester**

**3.48** The purpose and scope of the project is to set out how biodiversity net gain will operate across Greater Manchester including:

- A description of what biodiversity net gain is and what it means within Greater Manchester.
- The national and local policy context.

- References and links to other relevant local strategies, particularly those that Biodiversity Net Gain will contribute toward.
- Description of the good practice principles (CIRIA 2016) and Guidance (in press).
- Description of the stakeholder engagement recommended when delivering biodiversity net gain.
- A step by step description of the process to deliver biodiversity net gain setting out who takes what roles at each stage.
- The calculation method and metric to be used for assessing biodiversity. This will follow the Defra metric.
- Descriptions of how to apply the metric to different development types and development stages.
- Tables carrying the information on the habitats needed to run the metric.
- A standard method for assessing potential offset sites to ensure they contribute to the objectives of the GMCA's Natural Capital Strategy.
- Descriptions of the options for setting up offsite compensation or offsets.
- Recommendations on setting up a management plan and the monitoring requirements of the areas supporting biodiversity.
- Standards for reporting at a project level, local planning authority level and at a city level.
- Example reporting templates for assessing biodiversity before development, the post development plan and for reporting on delivery.
- Requirements for providing the data in agreed formats on the outputs of the development projects to Greater Manchester and borough.

**3.49** At the time of writing the project is in progress and it is expected to be delivered as part of the Net Gain Road map project, discussed in the next section.



## Greater Manchester Net Gain Road Map

**3.50** The Biodiversity Net Gain Policy Guidance project, as outlined previously, focuses on delivering a planning framework to deliver biodiversity net gain. It is a subset of the larger Net Gain Road Map project which is about how the Greater Manchester Capital Group partners and stakeholders will work together to embed biodiversity net gain in Greater Manchester.

**3.51** The proposed outputs of the project are:

- An agreed standardised method and metric for assessing biodiversity net gain.
- A GM Net Gain Strategy which will set out how net gain will operate across Greater Manchester.
- Developments that have trialled the approach to biodiversity net gain and shared the outputs and the lessons learned.
- Provision for the data and information arising from biodiversity net gain to be held and managed for Greater Manchester.
- Clarity on how areas of land used to support biodiversity are managed, enhanced and maintained.
- Clear mechanisms for the delivery of biodiversity net gain over the medium to long term.
- A planned roll out for development.

**3.52** The project started in January 2018 and is estimated to end in January 2019. Since January 2018 the following progress on the project has been made:

- A task group has been established to oversee the roadmap.
- The scope of the roadmap has been agreed.
- The principles of the approach to biodiversity net gain in Greater Manchester have been agreed.
- The Natural Capital Group has advised the GMCA on how to embed biodiversity net gain in the GMSF.

## Soil Resources

**3.53** The GMCA engaged Natural England for advice on how the GMSF should plan positively for soil resources. Natural England's advice is replicated below.

**3.54** *"The GMSF should give appropriate policy weighting to the important role soils play in providing a wide range of ecosystem services and natural capital benefits in Greater Manchester. The GMSF Soils Policy should seek to safeguard areas of high environmental value that includes deep peaty soils, as well as recognise the natural capital benefits soils provide across a landscape scale. The natural capital benefits of these soils should be valued as a finite multi-functional resource, which underpins Greater Manchester's wellbeing and prosperity. Decisions about development should take full account of the impact on soils, including their intrinsic character and the sustainability of the many ecosystem services they deliver. To summarise, there are **three policy recommendations** for the GMSF Soil's Policy:*

**3.55** *The plan should:*

- **Safeguard the long term capability of Best and Most Versatile (BMV) agricultural land** (Grades 1, 2 and 3a in the Agricultural Land Classification) (i) **as a resource for the future.**
- **Avoid development that would disturb or damage other soils of high environmental value** (Specifically areas of Deep Peaty Soils that contribute towards a functioning ecological network for Greater Manchester's Uplands and Lowlands, which provides natural capital benefits such as carbon sequestration and storage).
- **Ensure soil resources are conserved and managed in a sustainable way** (Soil is a finite resource that fulfils many important functions and services (ecosystem services), as well as proving natural capital benefits; for instance as a growing medium for food, timber and other crops, as a store for carbon and water, as a reservoir of biodiversity and as a buffer against pollution. It is therefore important that the soil resources are protected and used sustainably).

**3.56** *The above policy recommendations are reflected in the NPPF (paragraphs 109 and 112) [now paragraphs 170 and 170 of the revised NPPF published in July 2018) that specifies how the planning system should contribute towards protecting and enhancing soils and advises LPA's to avoid development on high quality agriculture land, as well as encouraging conservation and sustainable management of soils. As a starting point, the NPPF (paragraph 109) provides a robust policy baseline for the GMSF that can be expanded to incorporate the use of the Defra Construction Code<sup>(7)</sup> and advocate the use of soil surveys for any development that will impact on BMV agricultural land and soils of high environmental value.*

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7 The Defra: [Construction Code of Practice for the Sustainable Use of Soils on Construction Sites](#)

- 3.57** *When considering the impacts of development on soils of high environmental quality (Deep Peaty soils particularly in a Greater Manchester context) the permanency of the impact on soils is an important consideration. The impact from development on soils (soil sealing) has a major and usually irreversible adverse impact on soils. Avoiding loss of BMV agricultural land and soils of high environmental quality (i.e. Deep Peaty soil) should be a priority, as mitigation is rarely possible. However, where mitigation is the only option the aim is to minimise soil disturbance and to retain as many ecosystem services as possible through careful soil management during the construction process.*
- 3.58** *The GMSF Soils Policy should take full account of the impacts on land and soil resources and recognise the wide range of vital functions (ecosystem services) and natural capital benefits soils provide. In demonstrating some of the ecosystem services and natural capital benefits soils provide at a Greater Manchester landscape scale, the GMSF Soils Policy should recognise the wider role of soils in providing ecological connectivity. In particular the role of soils of high environmental value, such as Deep Peaty Soils that act as wetland and carbon stores supporting Greater Manchester's Uplands and Lowland Wetland networks.*
- 3.59** *The net gain principle should be a key component of the GMSF Policy on Soils. Paragraph 152 [Paragraph 8] of the NPPF emphasises that LPA's should seek opportunities to achieve all three economic, social and environmental dimensions of sustainable development, with net gains across all three. The GMSF Soils Policy should seek to incorporate the above net gain principle of achieving sustainable development, when considering how to harness the natural capital benefits of soils at a landscape scale and avoiding development that would disturb or damage soils of high environmental value".*

## River Valleys

### North West River Basin Management Plan

- 3.60** The purpose of the Water Framework Directive (WFD), which was transposed into English Law by the Water Environment Regulations (2003), is to deliver improvements across Europe in the management of water quality and water resources through the statutory framework set by the River Basin Management Plans. Greater Manchester is included within the North West RBMP<sup>(8)</sup>.
- 3.61** The Environment Agency (EA) is responsible for monitoring and reporting on the objectives of the WFD on behalf of Government. The second management cycle of the WFD<sup>(9)</sup> has begun and the second RBMPs were completed in 2015, building upon the first set completed in 2009. RBMPs are designed to address the pressures facing the water environment in the RBMP districts and identify the actions to address them. The plans set out required objectives and measures to protect and improve the water

8 <https://www.gov.uk/government/collections/river-basin-management-plans-2015#north-west-river-basin-district-rbmp:-2015>

9 [http://ec.europa.eu/environment/water/water-framework/info/timetable\\_en.htm](http://ec.europa.eu/environment/water/water-framework/info/timetable_en.htm)

environment over the next 20 years and aim to achieve WFD targets from 2015 to 2021. Within the NW RBMP district, the main issues limiting the uses of the water environment and managing it in a sustainable way are identified as:

- Physical modification – affecting 50% of all waterbodies.
- Pollution from wastewater - affecting 24% of all waterbodies.
- Pollution from towns, cities and transport - affecting 13% of all waterbodies.
- Changes to natural flow and level of water - affecting 2% of all waterbodies.
- Negative effects of invasive non-native species - affecting <1% of all waterbodies.

**3.62** The NW RBMP district contains information on each water management catchment. The majority of Greater Manchester drains into the Irwell and Upper Mersey Management catchments but also includes some of the Douglas and Lower Mersey Management Catchment. The North West RBMP Part 1 document<sup>(10)</sup> lists the priorities for these catchment as:

Management Catchment	RBMP Priorities
Irwell	Diffuse urban pollution, physical modification and contamination from sewage treatment
Upper Mersey	Diffuse pollution (urban and rural), pollution from waste water and physical modifications.
Lower Mersey (Mersey Estuary)	Physical modifications, urban diffuse pollution and pollution from waste water.
Douglas	Physical modifications, pollution from rural areas and urban sources, including waste water. Promoting community cohesion

Table 3 North West River Basin Management Plan catchments

**3.63** Within Greater Manchester the majority of main rivers are failing their objectives with most being at 'moderate' or below (see Figure 3.7). Addressing these issues will require a wide range of measures.

10 [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/500468/North\\_West\\_RBD\\_Part\\_1\\_river\\_basin\\_management\\_plan.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/500468/North_West_RBD_Part_1_river_basin_management_plan.pdf)

**3.64** The main responsibility for GMCA is to work with the Environment Agency to develop links between river basin management planning and the development of local authority plans, policies and assessments. In particular, the general programme of actions (measures) within the RBMPs highlight the need for:

- Water Cycle Studies (WCS) to promote water efficiency in new development through regional strategies and local development frameworks.
- SWMP implementation (Greater Manchester Surface Water Management Plan, 2013).
- Consideration of the WFD objectives (achieving good status or potential as appropriate) in the spatial planning process, including Local Development Documents and Sustainable Community Strategies.
- Promoting the wide scale use of sustainable drainage systems in new development.

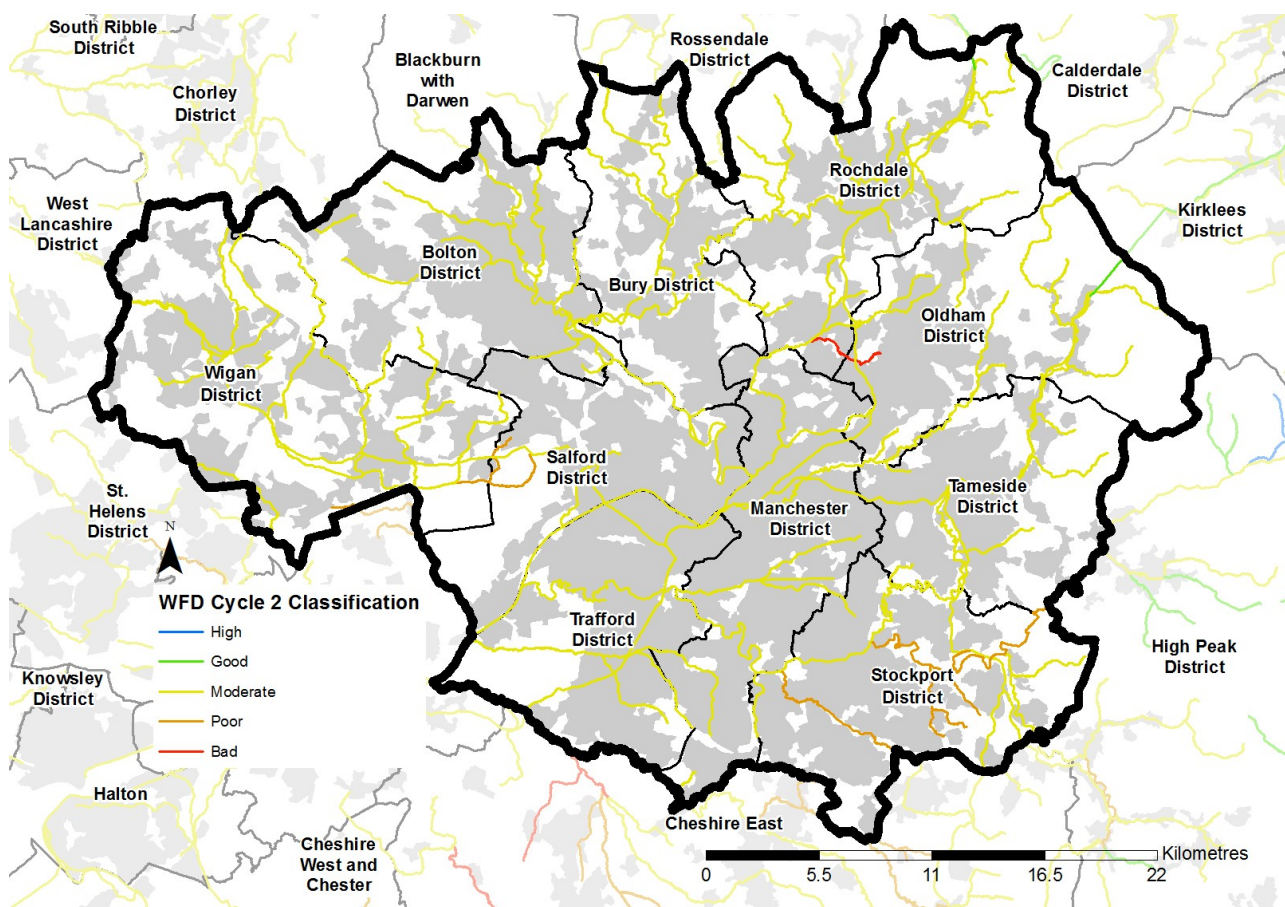


Figure 5 Water Framework Directive Cycle 2 classifications 2016



## Strategic Priority Green Infrastructure Study

**3.65** The Strategic Priority Infrastructure Study undertaken by GMEU was discussed previously, however, rivers and waterways weigh heavily in the analysis of this report as they are considered to form an essential part of a green infrastructure network, playing a crucial role in flood risk mitigation. They also form the most important wildlife corridors across Greater Manchester, and important routes for sustainable travel. The report also advises that the GMSF should seek to embed targets from the Water Framework Directive as the overarching legislation in relation to the quality of our waterbodies.

## Natural Course

**3.66** Natural Course is an EU LIFE Integrated Project aimed at integrated water management through accelerating delivery towards the objectives of the EU Water Framework Directive (WFD) i.e. improved water quality, improved flood risk management and increased biodiversity and habitat value of our watercourses. The project spans the North West England River Basin District, with an early focus on the River Irwell catchment. Natural Course is delivered by a partnership comprising the EA, United Utilities, the GMCA (with Salford City Council acting as lead authority), the Rivers Trust and Natural England.

**3.67** Because of the scale, complexity and in some cases the high cost of WFD delivery, Natural Course focuses on integration; both between the project partners and more widely among organisations and sectors that can contribute to integrated water management. Natural Course promotes an integrated catchment approach, working through the established network of 'catchment partnerships' and employs a 'natural capital' approach to tackling the challenges presented by the WFD and increased flood risk management where possible. Natural Course began in October 2015 and will run for 10 years with budgets and work programmes split into four equal phases of 2.5 years.

**3.68** The initial phases of Natural Course include the development of an integrated water management framework through a series of 'preparatory actions' including:

- A desk top collection and analysis of existing data, or evidence, from the River Irwell catchment and development of a programme of works, or measures to address the challenges presented by the WFD (Irwell Evidence and Measures Report, APEM Ltd 2017).
- Collation and sharing of ecological and environmental information about the River Irwell catchment working with volunteers to conduct surveys aimed at filling gaps in knowledge about the ecology of the catchment.

- Modelling the River Irwell catchment to understand the potential value and impact of Natural Flood Risk Management (NFRM) interventions to contribute to reduced flood risk across the catchment (Irwell Natural Flood Management Mapping, JBA Consulting / Rivers Trust 2017).
- Understanding and mapping the opportunities to restore and re-naturalise “heavily-modified” waterbodies so as to provide maximum ecosystem service benefits across the River Irwell catchment (A Natural Capital Account and Ecosystem Services Opportunities Mapping for the Irwell Management Catchment, TEP / Vivid Economics - finalised April 2018).
- Identifying and understanding the synergies between water management challenges and sources of investment from different sectors and opportunities to align investment to enhance and accelerate delivery of multiple water management benefits for the River Irwell catchment.

**3.69** The development of the GMSF provides an opportunity to set an integrated water management approach in the wider economic, social, growth and infrastructure plans for the conurbation.

**3.70** More recently to help deliver wider objectives for the Urban Pioneer, a natural capital investment plan has been commissioned through the Natural Course project.

## Flood Risk and Water Management

### Greater Manchester Level 1 Strategic Flood Risk Assessment and Strategic Flood Risk Management Framework

**3.71** The GMCA commissioned JBA to undertake a level 1 strategic flood risk assessment (SFRA) for Greater Manchester<sup>(11)</sup>. The SFRA is a requirement of Paragraph 156 of the NPPF which states the strategic plan policies should be informed by an SFRA.

**3.72** The SFRA provides a strategic overview of flood risk from all sources across Greater Manchester, including impacts of climate change. The SFRA is due to be completed in November and will deliver the following activities:

- Undertake the sequential test (as required by Paragraph 157 of the NPPF) by assessing the risk of flooding to the baseline supply of future housing and employment land, the proposed GMSF development allocations and the sites submitted to the GMSF Call for Sites exercise.

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11 See [www.greatermanchester-ca.gov.uk/gmsf](http://www.greatermanchester-ca.gov.uk/gmsf)



- Identify which sites will need to pass the exception test (also outlined in Paragraph 157 of the NPPF) and, consequently, where more detailed flood risk assessments might be required to determine whether a site can pass the exception test, through a Level 2 SFRA.
- Identify 'opportunity areas for critical drainage management' as a first step to refine the existing critical drainage areas in Greater Manchester.
- Update the extent of the functional floodplain (flood zone 3b).
- Consider the cumulative impacts development on flood risk.
- Consider the location of natural opportunities flood management in Greater Manchester.
- Based on the findings of the SFRA, identify planning policy recommendations and recommendations for future work.

**3.73** The Greater Manchester SFRA will also include a Strategic Flood Risk Management Framework. The framework will provide a spatial framework for flood risk management across Greater Manchester, highlighting the key strategic flood risks, including cross-boundary issues within and outside the city region and then recommend key priorities for intervention taking account of previous, existing and planned interventions by key stakeholders. The overall aim of the framework will be to manage current and future flood risk to enable the sustainable development of Greater Manchester by adopting a catchment-based approach and working with natural processes where possible.

## Canal Network

**3.74** A considerable canal network runs through Greater Manchester that is owned and maintained by the Canal & River Trust. The Manchester Ship Canal and the Bridgewater Canal, however, are privately owned by the Peel Group.

**3.75** The Canal and Rivers Trust has developed a short publication *Waterway and Wellbeing, Building the Evidence Base*<sup>(12)</sup> which sets out a broad outcomes measurement framework to measure the broad social, economic and environmental impacts that our waterways and our activities have on the communities they serve. It includes strategic policy objectives which should be considered within spatial planning and overarching principles for policy formulation. In addition, Appendix 1 to the Canal and River Trust's publication *Policy Advice Note: Inland Waterways unlocking the Potential and Securing*

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12 <https://canalrivertrust.org.uk/news-and-views/news/first-outcomes-report-published>

*the future of inland Waterways through the Planning System*<sup>(13)</sup> advises of how spatial development strategies and local plans can incorporate planning policies to protect and enhance the multifunctional benefits of inland waterways.

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13 <https://canalrivertrust.org.uk/media/original/30984-planning-advice-note-inland-waterways.pdf?v=624b8f>

## 4 Summary of consultation

**4.1** The first draft of the GMSF was published for public consultation for 10 weeks in October 2016. A summary of the issues that were raised during the consultation on the natural environment policies is listed below.

### Green Infrastructure (Policy GM7)

**4.2** 105 comments were received. The main issues raised were:

- Support for the policy –especially for more trees, green roofs/walls/driveways/parking and creation of pedestrian and cycle routes;
- Some asking for requirements to be mandatory, with net gain targets and timescales for green infrastructure provision, integration with existing green infrastructure and the creation of networks;
- Existing green infrastructure that should be retained needs to be shown on a map and protected like Green Belt;
- Too much emphasis on creating new green infrastructure (rather than protecting existing);
- Green infrastructure has a dual role for biodiversity and for people which needs reflecting in the policy;
- Disjoint between economic growth policy and green infrastructure.
- Local groups should be involved in drawing up green infrastructure asset lists.
- When reviewing green infrastructure provision over entire plan area focus should be on high quality. Some existing allocated greenspaces offer little to no amenity or recreation value to their local community.

### Nature Conservation (Policy GM8)

**4.3** 69 comments were received. The main issues raised were:

- Much support for policy;
- Requirement for net biodiversity value gains, but concern that gains should not be geographically remote from losses;
- Need for strong implementation, with monitoring and enforcement–concern that policies are just paying lip-service;

- Concern that proposed allocations run counter to Policy GM8 –especially fragmentation/severance/loss of habitats, potential impact on statutory designated sites;
- More imaginative creation and adaptation is required on existing and new buildings;
- Too much emphasis on creating new habitat rather than protecting existing;
- Concern that areas designated for nature conservation could be undermined by inclusion of land of lower ecological/biodiversity value –need to use opportunities for improvement; and
- Need for more information on why wildlife corridors are important.

## **Trees and Woodland (Policy GM9)**

**4.4** 40 comments were received. The main issues raised were:

- General support – especially regarding benefits of trees in terms of pollution, surface water runoff and natural flood management;
- Suggested commitment for all trees removed to be replaced on a 2:1 ratio;
- Offsetting should be allowed for where wider benefits demonstrable;
- Concerns over possible damage/trauma to existing trees arising from development;
- Need to ensure that ecological networks for woodland are maintained, restored, and (re)created without compromising stronger ecological networks for wetland, grassland and other open habitat ecological networks; and
- Need to recognise the benefits of natural regeneration of woodland and explicitly protect ancient woodland.

## **The Uplands (Policy GM10)**

**4.5** 35 comments were received. The main issues raised were:

- General support for the policy and recognition of upland areas;
- Need to recognise economic, social, health and wellbeing benefits arising from uplands as a natural, tourism and recreational asset–concern over development impact on views etc. harming this;

- Need to consider wider socio-economic needs of the area;
- Suggestion that natural capital accounting can help identify full value of areas, helping to identify long term funding solutions to manage and maintain these assets;
- Concern that policy aims could not be achieved alongside the scale of development proposed;
- Need to recognise the heritage value of upland areas;
- Suggested need to recognise a right to roam in upland areas;
- Suggested need to protect upland areas from further windfarm development; and
- Support for aim of significantly restoring and extending areas of blanket bog.

## **The Lowland Wetlands (Policy GM11)**

**4.6** 22 comments were received. The main issues raised were:

- Support for inclusion of a policy on the lowland wetlands;
- Need to strengthen the policy wording with linkages to evidence, cross-references to other related policy areas and specific, measurable targets;
- Need to include mapping to show the area covered by the policy;
- Need to clarify how the policy links to the Great Manchester Nature Improvement Area;
- Need to identify appropriate carbon metrics for carbon transactions in these areas;
- Need to ensure policy adequately protects / enhances national and European designated sites; and
- Need to provide more information on 'hydrological buffer zones': What will they involve? How will they work in practice?

## **River Valleys and Canals (Policy GM12)**

**4.7** 29 comments were received. The main issues raised were:

- Broad support for the policy;

- Need to strengthen policy wording to include an overarching vision, cross-references to other related policy areas (esp. GM8), links to habitat quality and catchment management and recognise presence of European designations;
- Need to include mapping showing river valleys and canals;
- Suggestion that priorities 7 and 10 of the policy could be combined;
- Suggestion that the policy supports catchment wide initiatives;
- Concern that “where possible” may harm ability to implement policy;
- Need for quantitative and qualitative targets to enable monitoring;
- Suggested need to reference the use of rivers and canals for transport and as regeneration catalysts;
- Need to recognise value of river valleys as green transport corridors;
- Concern that policy does not distinguish between canals and rivers –need for separate policies;
- Need to reference the Water Framework Directive and need for impact assessment of proposals; and
- Suggested location specific improvements, including new (reopened) canal routes.

## Recreation (Policy GM14)

4.8 44 comments were received. The main issues raised were:

- Broad support for the policy;
- Need to strengthen policy wording to include targets and standards around greenspace, including GM-wide minimum standards for access to natural greenspace;
- Suggested need for references / further evidence on allotment provision, cycleways/cycle lanes/cycle parking, bridleways and cross boundary recreational routes;
- Suggested need to set out linkages with GM's health plan; and
- Suggested need to reference City Forest Park.



## Flood Risk and Water Quality (Policy GM18)

4.9 65 comments were received. The main issues raised were:

- Recognition that many parts of GM impacted by 2015 Boxing Day floods and other recent flood events;
- Support for GM18 but suggested concern it is contradicted by proposed allocations and their likely impact –and that existing (pre-GMSF) flood risk assessments do not cover proposed allocations;
- Need to strongly apply policies on flood risk;
- Concern that GM18 goes beyond NPPF in terms of requiring achievement of greenfield run-off rates;
- Need for quantitative and qualitative targets to be incorporated into policy;
- Need for clearer linkages / cross-references with other policy areas (esp. uplands and lowlands);
- Need for flood risk to be managed using natural opportunities;
- Concerns over Priority 8 in the policy in that maintaining river/canal channels is contrary to re-naturalising rivers and over use of canals to manage surface water run-off;
- Policy should emphasise making buildings resilient to flooding;
- Support for references to SUDS etc. –suggested additional reference to the role of trees; and
- Concern over impact of contaminated brownfield sites on water quality but recognition of opportunity arising from their redevelopment. Need to reflect the Water Framework Directive.

## 5 Summary of IA

- 5.1** The GMCA commissioned ARUP to complete a Integrated Assessment of the the first draft of the GMSF [www.greatermanchester-ca.gov.uk/gmsf](http://www.greatermanchester-ca.gov.uk/gmsf)
- 5.2** The Integrated Assessment is a key component of the GMSF evidence base, ensuring that sustainability, environmental, equality and health issues are addressed during its preparation. The Integrated Assessment combines the requirements and processes of the Sustainability Appraisal, Strategic Environmental Assessment, Equality Impact Assessment and the Health Impact Assessment into one document (the Habitat Regulation Assessment of the GMSF was completed separately by GMEU). The Integrated Assessment carries out an assessment of the draft GMSF policies by testing the potential impacts, and consideration of alternatives are against the plan's objectives and policies. This ensures that the potential impacts from the plan on the aim of achieving sustainable development are considered, in terms of the impacts, and that adequate mitigation and monitoring mechanisms are implemented.
- 5.3** The outcome of the assessment on the natural environment policies in the Draft GMSF is summarised below, which will need be considered to inform the Revised Draft GMSF.

### Green Infrastructure (Policy GM7)

- Reference urban heat islands, both existing and future, and the potential for green infrastructure to help address risk associated with climate change. Point 7 of the policy could specify green roofs / walls; and
- Reference strongly the health benefits of active travel and recreation, noting the potential tensions between recreation and nature, including those expressed in the HRA.

### Nature Conservation (Policy GM8)

- Reference specific requirements and the application of a hierarchy – avoidance; mitigation; and, as a last resort, compensation;
- Reference an approach that maximises ecosystem services, to help encourage multi-functional sites, whilst also recognising that some sites will have intrinsic value beyond the value for people;
- Reference the multi-functionality of nature conservation sites, including sensitive management to minimise conflicts between different uses – e.g. sensitive habitats and recreation. Large strategic development sites should play a role in in the creation of new multi-functional green infrastructure;

- Reference to air quality, given the potential benefits of new / existing green spaces near to areas of poor air quality; and
- Reference to water / water quality, given the synergistic relationship between this policy, the WFD and other GMSF policies.

### **Trees and Woodland (Policy GM9)**

- Reference clearly the potential benefits / synergies with climate change resilience, particularly flood risk management and the urban heat island effect;
- Reference the carbon sequestration benefits of tree planting, to help mitigate the impacts climate change; and
- Reference the scope for commercial woodlands to provide a sustainable fuel source.

### **The Uplands (Policy GM10)**

- Reference rivers and groundwater and how upland land management may relate to the aims of the WFD; and
- Reference and reinforce guidance on flood risk and green infrastructure, including tree planting in upland areas to reduce the risk of flooding in lowland areas.

### **The Lowland Wetlands (Policy GM11)**

- Reference the potential benefits from linking new and existing developments to the lowland wetlands; sustainable management practices will be important to minimise conflicts between recreation and habitat conservation;
- Reference the potential for wetland vegetation to sequester air pollution, which is particularly important given the areas' proximity to urban areas where air pollution is likely to be more prevalent; and
- Reference the potential susceptibility of wetland areas to air pollution, as mentioned in the Habitats Regulation Assessment.

## River Valleys and Canals (Policy GM12)

- Reference promoting connections between housing and the linear green infrastructure of canals and river valleys, along with sustainable management practices to minimise potential conflicts;
- Reference to the WFD and its aims should be included;
- Reference the positive impacts of rivers and canals on reducing the urban heat island effect, particularly when reinforced by planting, especially of trees (climate change mitigation). This green/blue infrastructure has other benefits, including in terms of air quality, due to its proximity to the urban area and pollution sources and
- Reference to climate change mitigation should be replaced by reference to climate change adaptation, particularly the links between flood risk and climate change.

## Flood Risk and Water Quality (Policy GM18)

- Reference to climate change adaptation, alongside climate change mitigation;
- Reference to effective performance against the WFD as an overarching strategic aim, with a particular focus on the management impacts on rivers and groundwater;
- Reference the need to promote management practices that will protect water features from pollution; and
- Reference the need to promote management practices that will avoid the over consumption of water resources beyond those needed to maintain a healthy environment.

## 6 GMSF Strategy, Policies and Allocations

- 6.1** This section outlines what is needed in a Revised Draft GMSF in relation to the natural environment, taking account of the policies, legislation and guidance in Section 2, the findings of the evidence studies that were commissioned by the GMCA and its partners in Section 3 and issues raised from the public consultation and Integrated Assessment on the Draft GMSF in Sections 3 and 4.

### Landscape Character

- 6.2** The Revised Draft GMSF needs a policy that recognises the special qualities and key sensitivities of Greater Manchester's landscape types and ensures that development should reflect the key landscape characteristics of its location, having specific regard to:

- Topography, geology and drainage;
- Land use and field patterns;
- Semi-natural habitats and woodland cover;
- Archaeological and cultural heritage;
- Settlement, road pattern and rights of way; and
- views and perceptual qualities.

- 6.3** The policy would also need to state that development proposals should respond positively to the sensitivity of the landscape, incorporating appropriate mitigation, management and enhancement measures, with specific regard to:

- Natural character;
- historic landscape character;
- Form, density and setting of existing settlements/ developments;
- Views and visual character including skylines;
- Access and recreation; and
- Perceptual and experiential qualities.

The policy would also need to state that:

- Opportunities to improve the intactness and condition of the landscape should be taken and advise that sensitive treatment of transitional areas around new development and interface of new development with the surrounding countryside/landscape will be particularly important.

## Biodiversity and Geodiversity

**6.4** The Revised Draft GMSF needs a policy that seeks a significant net enhancement of biodiversity and geodiversity in Greater Manchester and sets out how this can be achieved by:

- Increasing the quality, quantity, extent and diversity of habitats, particularly priority habitats identified in national or local biodiversity action plans and those that support priority species
- Improving connections between habitats, to protect and enhance the provision of corridors and stepping stones that enable the movement of species, especially as the climate changes
- Enhancing the management of existing habitats, including through habitat restoration, avoiding habitat fragmentation and combating invasive species
- Protecting sites designated for their nature conservation and/or geological importance, with the highest level of protection given to international and then national designations in accordance with legislation and national policy, but with strong protection for local designations
- Facilitating greater access to nature, particularly within urban areas
- Encouraging the use of native species in habitat creation and landscaping schemes
- Supporting the implementation of the Great Manchester Wetlands Nature Improvement Area as an essential network of wildlife corridors linking biodiversity across the landscape and allowing wetland habitats to thrive and survive, and promoting the establishment of additional nature improvement areas
- District Local Plans may set out specific, local requirements and detail the mechanisms through which the requirements are to be met:
  - Deliver a clear and measurable net gain in biodiversity value within the local area;
  - Follow the mitigation hierarchy of:



- Avoiding harm to biodiversity, particularly where it is irreplaceable, and including consideration of alternative sites where appropriate, then
  - Mitigating (within the local area) any harm to biodiversity, then
  - Compensating (within the local area) for any remaining harm to biodiversity.
- Avoid fragmenting or severing connectivity between habitats.
  - Make appropriate provision for long-term management of habitats and geological features connected to the development.

## Green Infrastructure Network

**6.5** The Revised Draft GMSF would need a policy or policies that:

- Protects and enhances the network of green infrastructure in Greater Manchester and outlines the principles to achieve this, which are:
  - Maximising the size and spread of green infrastructure in a way that is compatible with development needs.
  - Increases the quantity of green infrastructure in dense urban areas.
  - Maximising the connections between different areas of green infrastructure, including outside Greater Manchester.
  - Promoting multiple functions of green infrastructure and its quality to perform those functions.
  - Enabling residents from across Greater Manchester and further afield to benefit from green infrastructure in a way that does not lead to its degradation.
- Identifies the component parts of the priority green infrastructure in Greater Manchester, which deliver the most important eco-system services.
- Identifies the strategic opportunity areas to enhance priority green infrastructure in Greater Manchester and which states that development within and around these areas should be consistent with delivering major green infrastructure improvements within them.

- States that development should protect, enhance and expand the green infrastructure network in accordance with the principles and priorities outlined in the bullet points above.

## River Valleys

**6.6** The GMSF needs a policy that protects and improves river valleys and also waterways because they are important components of Greater Manchester's landscape and green infrastructure network. The policy should outline the priorities that land use decisions and associated activities should seek to deliver to protect and improve river valleys and waterways, which are to:

- Retain the remaining open character of the river valleys, avoiding their fragmentation and prominent development on valley edges.
- Promote public enjoyment of the river valleys, including as key features connecting urban areas to the countryside, and enhance their high recreational value as green fingers through densely populated areas.
- Protect and enhance the mosaic of semi-natural habitats, including: riparian, clough, broadleaved and ancient woodland; wet and semi-natural grassland; meadow; and lakes and ponds.
- Retain existing pockets of relative tranquillity and seclusion, especially within the more tightly enclosed and wooded valleys.
- Reduce flood risk, through careful land management and a catchment-wide approach.
- Improve water quality, including through land decontamination and the management of diffuse pollution from industry and agriculture.
- Return rivers to a more natural state where practicable, including through de-culverting and the re-naturalisation of river banks and flood plains
- Increase the use of canals and watercourses for active travel, with improved and extended rights of way alongside the water providing walking and cycling routes for both recreation and commuting.
- Ensure that development relates positively to nearby rivers and waterways, taking advantage of opportunities to integrate green infrastructure through high quality frontages to the water; and public realm alongside the water for both recreation use and maintenance access.

## Lowland Wetlands and Mosslands

**6.7** The GMSF needs a policy that seeks to protect, enhance and restore the lowland wetlands and mosslands because of their ecological value and for opportunities for recreation and to reconnect local communities with the land. To achieve this, the policy would need to set out the principles that that planning decisions and other associated activities would need to follow, which are to:

- Maintain and enhance the extensive and varied mosaic of semi-natural habitats including brooks, ditches, open water bodies, bog, fen, swamp, flashes, ponds, wet and broadleaved woodland, and grassland.
- Manage and restore the remnant pockets of lowland raised bog, including through restoration from farmland, significantly expanding and connecting the areas of active bog.
- Manage land adjacent to lowland raised bog and other sensitive wetland habitats in a complementary and coordinated manner, ensuring that their hydrology is not adversely affected and the water table is restored.
- Increase features that act as stepping stones for wildlife moving through the area, such as field ponds, hedgerows and trees, and minimise barriers to movement.
- Removal of derelict structures where it is beneficial to green infrastructure provision and there is no historic value in their retention.
- Expand public access across the area considerably, including through the creation of new circular routes, and enhance recreation opportunities.

## Trees and Woodland

**6.8** The GMSF needs a policy that reflects the aims of and objectives of the Greater Manchester Tree and Woodland Strategy, which is to significantly increase tree cover, protect and enhance woodland, and connect people to the trees and woodland around them. The policy should identify the steps to achieve this, which are by:

- Protecting and expanding the mosaic of woodland habitats, linking fragmented areas of woodland, in particular wooded cloughs and pockets of ancient and riverside (riparian) woodland.
- Encourage habitat diversity through conserving and managing existing woodland and trees that are of heritage, cultural and/or aesthetic value, including ancient woodland and veteran trees.

- Aiming to plant a tree for every resident in Greater Manchester over the next 25 years as part of the City of Trees initiative.
- Targeting tree-planting at the areas of greatest need where the green infrastructure benefits can be maximised, whilst avoiding the loss of, or harm to, other priority habitats, including encouraging woodland planting schemes on areas of low grade agricultural land.
- Establishing a new City Forest Park in Salford, Bolton and Bury, which will provide a vast urban forest close to the City Centre.
- Maximising the proportion of residents living within:
  - 500 metres of at least one area of accessible woodland of no less than 2 hectares in size; and
  - 4km of at least one area of accessible woodland of no less than 20 hectares in size.
- Considerably increasing the provision of street trees within urban areas.
- Promoting the provision of community orchards to increase fruit consumption.
- Securing a diversification of broadleaved species, in order to increase biodiversity and disease resilience.
- Improving public access to woodland and trees whilst managing the associated pressures.
- Encouraging the positive management of woodland to bring it into a more productive state, improve habitat diversity, and more effectively contribute to important green infrastructure functions such as flood risk management and carbon storage/sequestration.
- Where development would result in the loss of existing trees, requiring replacement on the basis of two new trees for each tree lost, with a preference for on-site provision.
- Protecting trees and woodland during the construction phase of development.

## Uplands

**6.9** The Revised Draft GMSF needs a policy that seeks to protect and enhance the: wildlife habitats; and components on the priority green infrastructure network, that exist in the upland areas of Greater Manchester. The policy should set out how these objectives for the upland areas can be achieved, which are to:

- Integrate any new development into the landscape by utilising existing tree/woodland cover and dips in the landform, and adopting the unifying gritstone vernacular where possible
- Enhance the full range of upland habitats as part of an ecologically connected network, including heather moorland, blanket bog, meadows, acid grassland, native woods, and healthy watercourses
- Significantly extend the area of active blanket bog, both through the protection of existing sites and the restoration of degraded areas
- Protect and naturally regenerate clough woodland, providing a natural connection between the uplands, foothills and lowlands
- Increase the role of the area in water storage, flood risk management and water quality improvements, as part of a catchment-based approach.

## Accessible Natural Greenspace

**6.10** The Revised Draft GMSF needs a policy that seeks to maximise the proportion of people in Greater Manchester which have access to natural greenspace using Natural England's Accessible Natural Greenspace Standards as a benchmark. The policy should state new development should provide appropriate provision to help achieve the standards and support the positive use of nearby greenspaces.

## Soil Resources

**6.11** The Revised Draft GMSF needs a policy that seeks to:

- Promote activities that tackle soil degradation and erosion, recover soil fertility, and deliver sustainable soil management;
- Restore lowland raised bog, blanket bog and other habitats that will protect peat-based soils;

- Safeguard the long term capability of Best and Most Versatile agricultural land (Grades 1, 2 and 3a in the Agricultural Land Classification) and other soils of high environmental quality, and avoiding their development where appropriate alternatives are available; and
- Require development to safeguard and utilise on-site soil resources where practicable, maximising the retention of their environmental potential in accordance with the Defra code of practice for the sustainable use of soils on construction sites.

## Flood Risk and Water Management

- The Revised Draft GMSF requires a policy that seeks to ensure that an integrated approach to flood risk and water quality is taken in Greater Manchester and then sets out how this will be achieved by: Returning rivers to a more natural state, including through de-culverting and the re-naturalisation of river banks and flood plains.
- Protecting and enhancing habitats that help to slow the speed of water drainage and intercept water pollutants, including tree planting, the restoration of lowland raised bog and blanket bogs, and the buffering of watercourses with grassland, woodland and wetland.
- Securing the remediation of contaminated land and the careful design of developments to minimise the potential for urban diffuse pollution to affect the water environment.
- Locating and designing development so as to minimise the risk and impacts of flooding.
- Requiring developments to manage surface water runoff as close to its source as possible in accordance with the drainage hierarchy, so as to not exceed greenfield run-off rates or any other rates identified by the lead local flood authority.
- Ensuring that sustainable drainage systems:
  - Are designed to provide multifunctional benefits wherever possible, including for water quality, nature conservation and recreation.
  - Avoid adverse impacts on water quality and any possibility of discharging hazardous substances to ground



- Are delivered in a holistic and integrated manner, including on larger sites split into different phases.
  - Are managed and maintained appropriately to ensure their proper functioning over the lifetime of the development.
- 
- Encouraging the retrofitting of flood resilience measures to existing developments and places.
  - Supporting the relocation of vulnerable uses and critical infrastructure from areas at a high risk of flooding.
  - Seeking opportunities for additional flood water storage capacity, including within strategic allocations and in districts upstream of Greater Manchester.
  - Promoting the targeted improvement of flood defences in high risk areas.
  - Securing further investment in wastewater treatment to reduce the frequency of intermittent discharges of storm sewage.