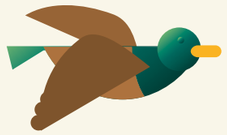
MANCHESTER CITY COUNCIL

MANCHESTER GREEN AND BLUE INFRASTRUCTURE STRATEGY

Implementation Plan Refresh 2021-25



FOREWORD

Manchester is changing. The world's first industrial city has always been dynamic, but this also presents us with inherited challenges – the legacy of an ever-changing post-industrial landscape. The city continues to undergo massive transformation, with a growing population and a diverse economy. Our landscape changes with us. More trees than ever grace our streets and highways, and there are better parks and places for our communities to thrive. These are all safe havens for nature.

Manchester is moving. Connectivity is key. It links people to places through improved green networks, safer routes to school, and creates stepping stones for wildlife. The landscape moves with us and around us. Rivers and brooks shift and become visible again after being hidden for many years. Gardens and green spaces are at the heart of place-making and turning Manchester into the greenest and most welcoming of cites, while moving with the times.

Manchester is adapting. Manchester will always face its challenges head on. It will always adapt, survive and thrive. In unprecedented times, green spaces have come to our aid, helping us cope with and pull through the pandemic.

Our green spaces have a vital role to play in global efforts to mitigate climate change. However, while climate mitigation is vital, *adaptation to climate change is increasingly urgent*. We need progressive resilience. Our landscape continually helps us adapt to the effects of extreme events, reducing flood risk, and cooling our neighbourhoods in times of heat stress.

If we do not adapt to climate change, we will fail to meet the Our Manchester vision. We need deeds – not just words, and that time is now.

Manchester is committed to investing in a greener future:

- Better places for people and nature
- Better routes for travel
- Healthier, happier, prosperous communities
- A greener, more climate-resilient Manchester.

Councillor Tracey Rawlins, Executive Member

1. INTRODUCTION

Manchester's Great Outdoors: A Green Infrastructure Strategy for Manchester (MGO) was approved by Manchester City Council in 2015. The strategy consisted of three documents – an overarching strategic narrative, a detailed technical report providing a baseline assessment and strong body of evidence, and a ten-year Implementation Plan identifying specific headline actions that could and would realise the strategy's objectives.

The strategy responded to commitments made in the city's Local Plan and Climate Change Action Plan, and was seen as a barometer to measure progress against key objectives of the city's Our Manchester Strategy.

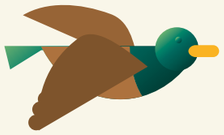
The Implementation Plan was co-developed by a range of stakeholders, including representatives from statutory bodies, academic institutions, environmental charities, registered housing providers, developers, and Manchester City Council departments.

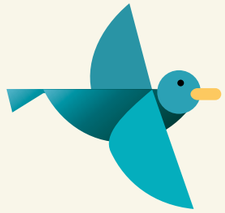
It is important for the action plan to be flexible, adaptable and dynamic. After five years, it was decided to refresh the Implementation Plan. Significant changes, challenges and opportunities have emerged over this time. These are referenced in a bold new Implementation Plan, highlighting strong projects and approaches that reinforce the city's commitment to put Green Infrastructure (GI) and Nature Based Solutions (NBS) at the heart of decision-making and place-making.

The strategy continues to underpin major citywide environmental improvements. Over the next five years it is estimated that **over £150million will be invested in GI-related projects in the city**.

In total, it is estimated that **over £250million will have been invested in GI-related environmental improvements over the lifetime of the strategy and Implementation Plan**, reinforcing the value placed on delivering Nature Based Solutions to help make Manchester a world-class, climate-resilient city.

2. GOVERNANCE





MGO has a strong support network that is delivered collaboratively. The Action Plan is delivered for the city, by the city – both by the Council and a range of partners. Progress against the Council actions is steered within the Council by the G&BI Board, which is currently chaired by the Director of Planning, Building Control and Licensing, and attended by relevant heads of service and other key officers. This provides an opportunity to focus on the strategy objectives and add value to the way G&BI is delivered across the city. Ward members and Council officers are involved with many of the actions needed to deliver the G&BI strategy outlined in the Action Plan. Ward members are often best placed to know their local community groups and understand their communities' needs and opportunities. A range of external stakeholders continue To play an active role in delivering projects that feature in the new Implementation plan.

3. PROGRESS

The strategy and Implementation Plan have made things happen. They have not just captured activity, but have acted as catalysts for some of the most groundbreaking environmental projects the city has ever undertaken.
The strategy has encouraged collaboration, bringing together organisations in order to deliver bold, innovative action that will benefit the city for many years to come.

The strategy is a long-term vision. It is about changing behaviours – not just of citizens in their appreciation and understanding of the value of GI, but of different city departments in recognising that considering and delivering Nature Based Solutions as a response to the distinct challenge our urban environment presents should be a mainstream commitment, because of the multiple cost-effective benefits they provide. We are getting better at recognising this.

In 2018, the strategy was recognised as a national benchmark of excellence, winning the CIEEM Award for best practice in Knowledge Sharing. Appraised by an independent expert peer group, this recognition demonstrates that our approach is more than fit for purpose – it is well regarded as a national flagship in GI strategy development and delivery.

In early 2019, a three-year progress report entitled Green and Getting Greener was published, illustrating some of the significant progress being achieved through the strategy in terms of delivery.

Since the Implementation Plan had been in place, over £80million had been invested in GI-related projects in the city. More than fifty new jobs had been created, and over a million people attended events and activities.

This momentum has been built on and continues apace.

The fundamental direction of travel is positive – but there is still much work to do, and challenges to face.

Challenges

Since 2020, the city has faced the unprecedented challenge of the global COVID-19 pandemic. This has had and continues to have a massive and fundamental effect on the way the city and its communities live and work.

It is estimated that the north west may continue to suffer consequences as long-term COVID-19 conditions increase, deepening health and employment inequalities (Office of National Statistics, 2021).

This, combined with an increase in extreme weather events (flooding, drought, heat stress) as a result of climate change, presents major challenges in how Manchester will adapt and evolve.

Climate and Ecological emergency

"The climate crisis has already been solved. We already have the facts and solutions. All we have to do is wake up and change"

Greta Thunberg

In 2019, Manchester declared a Climate Emergency, putting even more spotlight on the importance of GI in terms of supporting the need for the city to be climate-resilient. The city's climate change action plan emphasises the importance of GI and Nature Based Solutions as key tools in helping us adapt to the challenges of climate change. We need to also take account of the impact a changing climate will have on the functionality of our existing green infrastructure, and to adapt our plans for future environmental improvements.

Manchester's future climate is expected to reflect the broader and longer-term projections for climate change and climate variability across the United Kingdom. Summers are likely to be warmer, with the potential for some exceptionally hot days. There are likely to be increases in short-lived heavy rainfall events. Winters are likely to be wetter. The city will also face medium-term variations in climate patterns.

We will respond to the Ecological Emergence which recognises the direct loss of Biodiversity globally.

Manchester has become the first major City in England to register its concern about Biodiversity loss by signing the Edinburgh Declaration, which encourages Cities globally to support the delivery of a new Global Biodiversity Framework.

Manchester is also committed to delivering a new Biodiversity Strategy, a Nature Recovery Network for the City.

OUR VISION FOR PROGRESSIVE RESILIENCE

Like many cities, Manchester faces a range of future challenges, not least those stemming from the threat of climate change. The pursuit of a progressive resilience agenda across policy and action initiatives will nurture a society, economy, and city better equipped to meet all the challenges that we will encounter in the future.

Our vision for a climate-resilient Manchester will see us enhance the capacity of the entire city – our buildings, infrastructure, green and blue spaces, businesses and people – to adapt to future climate shocks and stresses. Being resilient to climate change will ensure we are better equipped to deal with other current and future risks and uncertainties, both known and unknown. Our pursuit of climate resilience will therefore be aligned with other progressive agendas around sustainable, inclusive and green economic growth and broader aspirations for producing a healthier, happier, and more socially just city.

A set of core principles will underpin this vision for Progressive Resilience, including: To embed and enhance green and blue infrastructure to support climate resilience and adaptation. Manchester's green and blue spaces serve a vital purpose not only in assisting with climate mitigation and adaptation, but in improving the liveability and the health and wellbeing of the city. We must both protect the climate functionality of these existing spaces, and ensure that new spaces that embrace climate resilience are appropriately integrated into the city.

Green space and COVID-19

"People need to get out. Parks and open spaces are absolutely crucial for our country and our society."

Prime Minister Boris Johnson, March 2020

Prior to the pandemic, in late 2019, community consultation was undertaken by the Wildlife Trust, which demonstrated the importance of nature in people's lives. The My Wild City consultation received over 2,000 responses, and provided a significant statement that nature plays a vital role for people in Manchester.

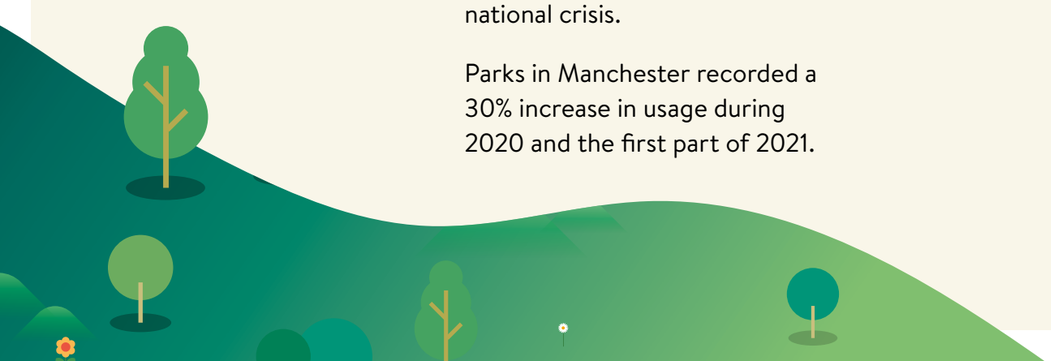
After the pandemic began in earnest in March 2020, the importance of parks and green spaces grew exponentially.

During the first lockdown between April and May 2020, the Wildlife Trust undertook a further survey, Valuing Nature Nearby, in which over 1,000 people took part. The findings reinforced the original study, reporting that people valued parks and green spaces more than ever. It also illustrated that parks, green spaces, gardens and river valleys were literally saving their lives – they had become vital to people's health and wellbeing in a time of extreme uncertainty and national crisis.

Parks in Manchester recorded a 30% increase in usage during 2020 and the first part of 2021.

Green space has become a key part of the city's life-support system during the pandemic, and will continue to play an important part in post-pandemic recovery planning.

Manchester has announced a major park development programme, which will help improve these key green assets even further.



Managing flood risk

Over recent years, it has become apparent that the effects of climate change continue to present more serious challenges to both local and wider society. The recent January 2021 floods again evidenced the importance and need for the acceleration of climate-change prevention measures across Manchester. Accelerating these measures will not only help to offset the damage already caused to the climate and natural environment, but will also help future-proof communities to ensure that the effects of climate change are lessened.

Flooding is one of the main impacts associated with climate change. As the climate begins to warm, higher rainfall intensities and longer storm durations increasingly challenge the flood-prevention infrastructure put in place across the city.

As Manchester continues to grow as a city it is important that new infrastructure is delivered in response to the risks associated with climate change. A proven method is to increase the quantity of NBS and Sustainable Drainage Systems (SuDS) across the city. These techniques assist in reducing peak flow times and help to mimic the natural hydrological cycle.

The pace at which NBS and SuDS are being implemented across Manchester is beginning to quicken. One of the ways in which this is being done is through enforcing a stricter approach (at the planning stage) to the consideration of NBS and SuDS on new large developments. The Council is also beginning to work with developers to discover feasible ways of adopting more SuDS and adding these to the highway drainage network.

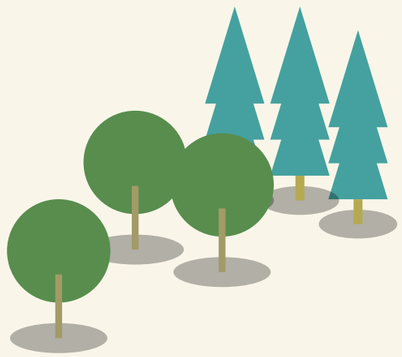
Recently, Manchester has been successful in winning external funding, which will be directed to combat flooding on both a local and wider catchment scale across the city. Currently, the funding is being focused on two main areas: firstly, on clearing out and upgrading the Manchester culverted watercourse network; secondly, on reducing the size of areas that are currently at risk of flooding, by creating areas where controlled flooding can occur safely, away from residential areas.

Manchester also continues to develop close-working relationships with other organisations and risk-management authorities by being involved in large-scale external-led flood-prevention projects, and helping to develop local and national long-term strategies for tackling flooding.

Understanding and addressing environmental inequalities

"People who are deprived may also be more vulnerable to the cumulative effects of environmental inequalities than others. Socioeconomic, physical and demographic factors associated with deprivation (eg. language barriers, ability to earn, old age, and health status) often affect people's ability to respond to other pressures, including those caused by environmental inequalities."

Environment Agency report: SC020061/SR4



We are striving to be a more inclusive, equitable city. We will endeavour to give all Mancunians a fair share of the environmental benefits that GI can bring.

The health, wealth and wellbeing of everyone in society are fundamental indicators of the success and vitality of a city. Manchester is a complex and diverse city composed of many intersecting communities with contrasting characteristics. Communities and individuals will be affected by climate change in different ways, and some people will have greater capacity to respond than others.

Our new evidence gathering helps us to identify priority areas and challenges for intervention, but we need to work directly with citizens in order to make sure that all voices can be heard, and that environmental inequality is understood and acted on.

Positive examples include The Nature of Manchester work, which helps us understand where, down to ward level, the key environmental risks and challenges are in the city.

Practically, Tree Action MCR looks at the areas in most need of localised tree planting based on levels of existing street tree cover, and is prioritising them first in a new citywide £1million tree-planting programme. This will increase Manchester City Council-managed street tree numbers by 10% in around two years, one of the biggest, most focused local authority-driven street tree-planting schemes undertaken in recent years.

4. CHANGES – NEW POLICY DRIVERS

"As we build back greener from the pandemic, it is vital that we address the twin challenges of climate change and biodiversity loss and protect and improve the environment for future generations."

Environment Minister Rebecca Pow

Legislation is the law. Policies are the guidelines and principles set out to deliver the law. Strategies and plans provide the mandate for targeted action in order to deliver the policy.

Acting locally, thinking globally is more important now than ever before.

Key policies to the city include:

The National Planning Policy Framework (NPPF)

The National Planning Policy Framework sets out the Government's planning policies for England and how these should be applied. It provides a framework within which locally prepared plans for housing and other developments must be produced.

Green Infrastructure is seen as a key component of sustainable development and placemaking.

The Environment Act

"...decarbonising in a climate-resilient way, with nature at its heart..." Emma Howard Boyd, Chair, Environment Agency, GM Green Summit 2021

The new Act is genuinely a once-in-a-generation opportunity to protect our environment and set a course for nature recovery in the UK. After Brexit, the Government will be directly responsible for environmental law and policy for the first time in decades. In the face of a climate emergency, it is hoped the new Act will provide a robust framework for improving our natural environment.

The Act (England and Wales) will create a new governance framework for the environment, act as an enabler for priorities set out in Defra's 25 Year Environment Plan, and play a pivotal role in the UK's aim to achieve net zero-carbon emissions by 2050. Key to this will be:

Defra's 25 Year Environment Plan

The plan is the mechanism to deliver the ambitions set out in the Environment Act.

Objective headings include prioritising action supporting:

1. Clean air
2. Clean and plentiful water
3. Thriving plants and wildlife
4. Reducing the risks of harm from environmental hazards
5. Using resources from nature more sustainably and efficiently
6. Enhancing beauty, heritage and engagement within the natural environment
7. Mitigating and adapting to climate change
8. Minimising waste
9. Managing exposure to chemicals
10. Enhancing biosecurity

KEY ASPECTS OF THE ENVIRONMENT ACT

BIODIVERSITY NET GAIN

A key output of the new Act, Biodiversity Net Gain, will provide a legal requirement that any impact on biodiversity resulting from new development, where it cannot be avoided, will not only be compensated, but will have to demonstrate a 10% biodiversity net gain – a legal commitment to improve biodiversity on development initiatives.

Conservation covenants between landowners and responsible bodies (possibly effective environmental managers) will be established to provide sustainable and effective management of the intervention for a minimum of 30 years.

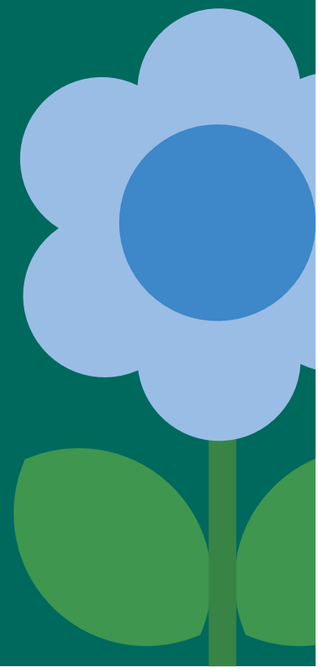
NATURE RECOVERY NETWORKS (NRN)

The NRN will be a national network of wildlife-rich places. The Government's aim is to expand, improve and connect these places across our towns, cities and the countryside.

The NRN is a major commitment in the Government's 25 Year Environment Plan and part of the forthcoming Nature Strategy.

Establishing the NRN will:

- Enhance sites designated for nature conservation and other wildlife-rich places – newly created and restored wildlife-rich habitats, corridors and stepping stones will help wildlife populations to grow and move
- Improve the landscape's resilience to climate change, providing natural solutions to reduce carbon and manage flood risk, and sustaining vital ecosystems such as improved soil, clean water and clean air
- Reinforce the natural and cultural diversity of our landscapes, and protect our historic natural environment
- Enable us to enjoy and connect with nature where we live, work and play – benefiting our health and wellbeing.



Regional policy driver – Places for Everyone

Places for Everyone is a long-term plan of nine Greater Manchester districts (Bolton, Bury, Manchester, Oldham, Rochdale, Salford, Tameside, Trafford and Wigan) for jobs, new homes, and sustainable growth. It has been published by the GMCA on behalf of the nine districts.

The plan is a joint development plan of the nine districts, which will determine the kind of development that takes place in their boroughs, maximising the use of brownfield land and urban spaces while protecting Green Belt land from the risk of unplanned development. It includes policies on Green Infrastructure and Biodiversity within the Greener Places section of the draft plan. The plan is intended to be submitted for examination in early 2022 with an expected adoption of the plan in 2023.

Local policy drivers – The Manchester Local Plan

Our existing local plan (the Core Strategy 2012–27) sets out Manchester's approach to development and is used to guide decisions on planning applications across the city.

Development in Manchester is at record levels: investment here is creating jobs, and new homes are being built. At the same time, we want any future growth to support our ambition to be a zero-carbon city by 2038 or before, and to be a green, climate-resilient city.

The plan also provides an opportunity to embed and strengthen policies around Green Infrastructure.

To make sure it fits our needs and ambitions for the next 15 years, work has begun to look at what a new local plan should cover: an issues consultation in spring 2020 set out the key challenges and policy areas the local plan will address.

The intention is to work up a draft local plan, which will have more detail of how the city will deal with the main issues and challenges it is facing. More consultation will follow in 2022, before a final draft plan (publication version) at the end of 2022/early 2023, which will be submitted for examination in 2023.

Manchester Climate Change Framework 2020–25

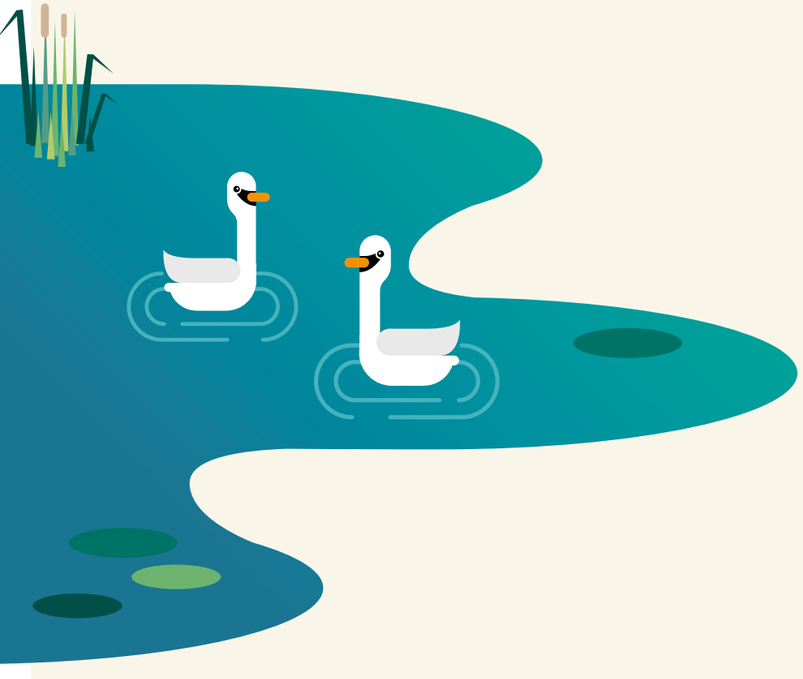
The Manchester Climate Change Framework (MCCF) 2020–25 is the city's high-level strategy for meeting climate change objectives and targets. The Framework has been produced by the Manchester Climate Change Agency, on behalf of the Manchester Climate Change Partnership.

MCCF objectives and targets:

- Staying within carbon budgets – based on recommendations by the Tyndall Centre for Climate Change Research in 2020
- Climate adaptation and resilience
- Health and wellbeing
- Inclusive, zero-carbon and climate-resilient economy.

Eight areas for action have been developed to meet the objectives and targets:

- Buildings (existing and new)
- Renewable
- Energy
- Transport and flying
- Food
- The things we buy and throw away
- Green Infrastructure and Nature Based Solutions
- Supporting and enabling residents and organisations to act.



5. CHANGES – NEW THEMES, NEW FOCUS

Since the strategy was published, we have recognised that there are priorities within the city's GI landscape that need independent and more detailed focus.

For example, in our initial appraisal in 2015, the data analysis at the time looked at all garden space across the city and identified it all as green, whereas we now know that not all the city's garden space is green – over time some is lost to hardstanding.

Bespoke, independent commissions have been developed that look in much more detail at the city's key GI assets – deep dives that assess their extent and usefulness with state-of-the-art approaches to increase our understanding of them.

These key pieces of work are freely available to inform decision-making, and they provide a useful and practical focus on these vital aspects of the city's GI landscape:

Focus on nature: Nature of Manchester (NoM)

This piece of work is designed to help turn GI policy into practical action – an accessible, informative one-stop shop for community leaders and neighbourhood planners alike. It looks in detail at the key environmental challenges faced by the city. These include:

Climate resilience, flood risk, water quality, accessing green space, air quality, noise pollution, biodiversity, economic impact.

The report also evaluates the different types of NBS that can contribute to addressing a particular challenge. These include:

- Public green spaces
- Trees and woodlands
- Gardens
- Rivers, canals and lakes
- Growing spaces, eg. allotments
- Sustainable urban drainage systems, eg. ponds, rain gardens, ditches and swales
- Green roofs and green walls.

NoM builds on the technical report developed in the original GI strategy, but takes things down to neighbourhood level GI assessments – a super tool to help understand where and how GI can play a role in improving our neighbourhoods.

NoM was developed in partnership with the West Country Rivers Trust to do two things:

1. To provide a baseline of natural capital assets and functionality across all wards in the city
2. Help start conversations around delivering NBS that provide multiple benefits for neighbourhoods and communities

The report has also been used to develop a localised neighbourhood plan, the Nature of Hulme, which applies the same principles at a more local level. This is now being picked up through newly appointed climate change officers to start the conversation in other parts of the city.

NoM was delivered as part of the European Union's EnRoute project, and was received favourably by the European Commission:

"Our EnRoute project demonstrates that nature-based solutions and green infrastructure are vital components of growing cities. Manchester's G&BI Strategy has helped us illustrate this and serves as an example for many other European cities in our network."

Joachim Maes, European Commission – International project co-ordinator, EnRoute project.

Focus on networks

GM Nature Recovery Strategy

The importance of wider connectivity, of GI as stepping stones for people and wildlife, is the focus of this piece of work. It re-emphasises the need for Manchester to be a mosaic of GI opportunities at different spatial scales – one of the beauties of the modern city is this dynamic, ever-changing aspect of the landscape.

Greater Manchester is one of five areas selected by the Government to pilot the development of a Local Nature Recovery Strategy.

Local Nature Recovery Strategies will become a statutory requirement when the Environment Bill is passed.

The Local Nature Recovery Strategy in Greater Manchester will be Greater Manchester's Nature Recovery Plan. It is being created through a collaborative process led by Greater Manchester Combined Authority (GMCA) in partnership with Natural England and the Greater Manchester Ecology Unit. It is hoped that its development will start taking shape in 2022.

The plan's outcomes and suggested focus areas will be aligned with the new Biodiversity Strategy for the city.

Focus on biodiversity

My Wild City

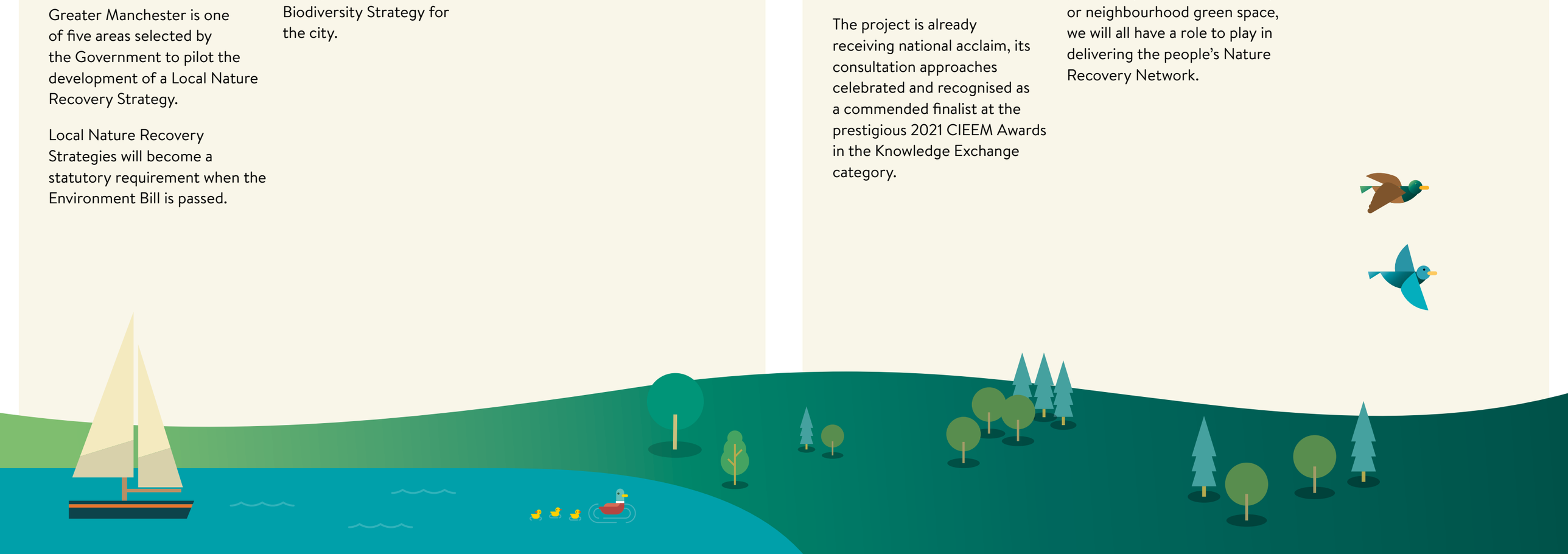
The My Wild City project is a four-year partnership between Manchester City Council and the Wildlife Trust, and aims to develop a strong new mandate for biodiversity in the city.

Extensive and innovative engagement and consultation with a wide range of stakeholders will lead to the delivery of a new Biodiversity Strategy for Manchester.

The project is already receiving national acclaim, its consultation approaches celebrated and recognised as a commended finalist at the prestigious 2021 CIEEM Awards in the Knowledge Exchange category.

The project will bring a citywide focus to the idea of a people's nature recovery network, and includes developing around 75 new species action plans across five broad habitat areas in the city. This expands on the regional GMLNRN work pilot referenced above undertaken by Natural England, and applies the concept at a local level.

Manchester's Nature Recovery Network is, and will be, everywhere. From a window box on a high rise, a tree in a garden, a park, to a river Valley or neighbourhood green space, we will all have a role to play in delivering the people's Nature Recovery Network.



Focus on river valleys

Our Rivers Our City

This piece of work, undertaken by consultants TEP in partnership with the Groundwork Trust and Mersey Rivers Trust, is the most comprehensive reassessment and appraisal of the city's three main river valleys ever undertaken.

It is a bold and ambitious ten-year plan, taking on board and developing further new concepts, such as Sponge City Thinking, where permeability and landscape-led approaches are the norm not the exception.

It has been developed collaboratively; even during the pandemic, the Groundwork Trust endeavoured to engage, involve, inform and survey those interested in the city's river valleys.

It aims to re-energise some of the city's most important natural spaces to make them 21st-century assets, drivers for growth, and places where people and nature can thrive.

As well as an overarching strategy for the city, individual long-term action plans have been co-developed for the River Mersey, River Irk, and the Medlock Valley.

Focus on trees and woodlands

Managing Manchester's Trees

Manchester is leading the way with the level of detail provided in this authoritative look at the way the city's treescape has evolved, how it functions and how it can be improved.

An assessment of the treescape with this level of detail has never been undertaken before in the UK.

Delivered by consultants TEP and City of Trees, in partnership with the Council, there are three elements to the work:

Evolution – an informative 100-year look back at how the city's treescape and its neighbourhoods have evolved over time, referencing population decline and growth, and reflecting the changes, both positive and negative, across the city's landscape.

Function – how do we look after the 1.2million trees we already have, and cater for constant challenges such as pests, disease and climate-resilience, eg. AshDieback. We'll provide options for better and sustainable treescape management.

Opportunity and capacity – using the most detailed data sets on tree cover ever provided, we are able to deliver ward-level insight into tree capacity, identifying where and how tree canopy can be increased effectively, sustainably and appropriately.

This nuanced, exciting vision looks beyond the usual places for planting (parks and green spaces) and encourages us to look at our own spaces, our gardens and road sides to increase the city's canopy cover, not anywhere and everywhere, – but where trees are needed most.

The capacity mapping will also help steer and target Tree Action MCR, the city's £1million tree-planting programme.

Focus on gardens

My Backyard

Undertaken by Manchester Metropolitan University and partners, My Backyard takes a detailed look at this key, yet diminishing, component of the city's landscape – its private and domestic gardens. By gardens, we are talking about all outside space associated with a residential property.

The My Backyard project developed a new understanding of the benefits that gardens provide for residents in Manchester. The research sought to provide evidence on the amount of green space in gardens, how it is spatially distributed across the city, and how this affects the associated benefits that green space provides.

Domestic gardens cover a significant proportion of the total area of Manchester, with around one fifth of Manchester's land area being gardens. The average proportion of domestic gardens to total ward area is 22–26%.

Looking at the stock of gardens, there are over 156,000 gardens in Manchester.

Many of these are very small plots. We find that of the total area of gardens of 24km^2, only half is green and blue space – around 12km^2.

An action plan was then co-developed with partner organisations, with the aim to increase green space and enhance wildlife in gardens across Manchester.

Focus on health

GHIA project

Nature and Ageing Well in Towns and Cities: why the natural environment matters for healthy ageing

GHIA was a three-year research project that aimed to understand the benefits and values of urban green infrastructure to older people and how green infrastructure attributes and interventions can best support healthy ageing in urban areas. The project was conducted in Greater Manchester and run as a partnership between a range of researchers, organisations, practitioners and community groups.

The project demonstrates:

- How and why the natural environment matters for healthy ageing in urban areas
- Why urban nature and natural green and blue spaces are integral to what makes an urban area age-friendly
- Why multiple perspectives are needed to understand what actions are required in a range of sectors of policy and practice.

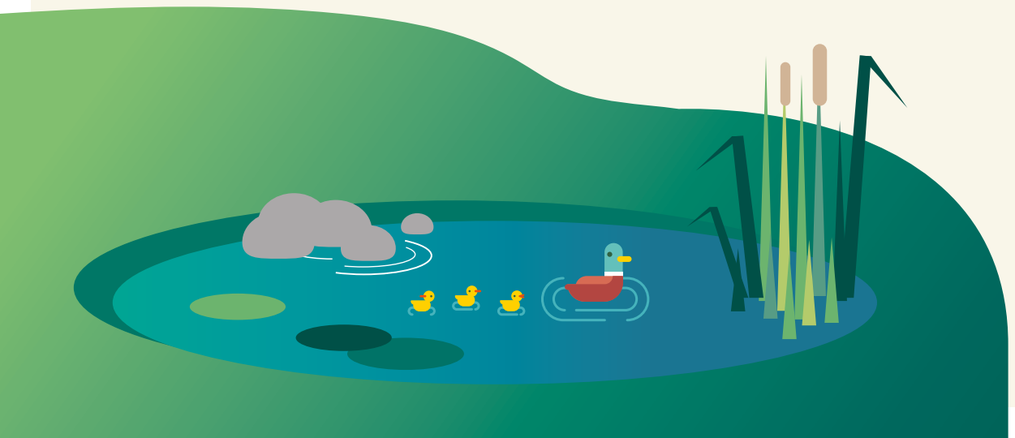
6. CHANGES – BETTER EVIDENCE SHARED LEARNING

Better evidence means more informed decision-making, engaging with experts, learning from best-practice approaches, developing new partnerships, breaking down barriers and making connections.

We also need to evaluate how form and function of GI will itself alter given climate change and how the use of public and green space will alter as people use it to cope in challenging weather conditions.

Strong evidence makes the case for deploying NBS all the more compelling. If we want the consideration of NBS to be the norm not the exception, then we have to back this up.

You have to learn in order to change and adapt – and the new GI Implementation Plan is informed by some of the most exciting and groundbreaking GI research and demonstration projects in the world:



GM Natural Capital User Guide

Developed by GMCA to showcase the extensive array of natural capital-assessment tools and guidance, this guide helps users to understand and use the award-winning Natural Capital tools that have been specially developed for Greater Manchester.

There are lots of tools and resources out there that can sometimes be overwhelming and confusing. This guide helps interested parties to understand and use the tools, and provides further reading materials as well as case studies of how the tools are being used by partners, land managers and community groups.

"This user guide demonstrates that providing a better understanding of the significant monetary value of Ecosystem Services can help direct investment to areas that need it most. The innovative methodology is wholly replicable and could be used across different landscapes and varying scales. The project sets a precedent whereby stakeholders in Greater Manchester have a robust evidence base that can be interrogated on the MappingGM website so that the legacy of the project continues.

Landscape Institute Award Judging Panel 2019

GM IGNITION project

This project, backed by €4.5million from the EU's Urban Innovation Actions (UIA) initiative, brings together 12 partners from local government, universities, NGOs and business. The aim is to develop the first model of its kind that enables major investment in large-scale environmental projects that can increase climate-resilience.

The project has already delivered cutting-edge research that will shape Manchester's own GI landscape:

Evidence base
This IGNITION evidence base acts as a comprehensive and central evidence repository of existing and emerging GI information, appraising over 1,000 pieces of literature and reports – so we don't have to. This work is invaluable for anyone contemplating or considering NBS interventions. The evidence base currently provides accessible, useful information around the multiple benefits of:

- Green walls
- Street trees
- Urban green space
- Green roofs
- Sustainable drainage systems (SuDS).

A new GI baseline for Manchester

Work on understanding and measuring GI across the city has been undertaken by The University of Manchester to unprecedented levels of detail. It is the most comprehensive analysis of the city's GI landscape ever undertaken.

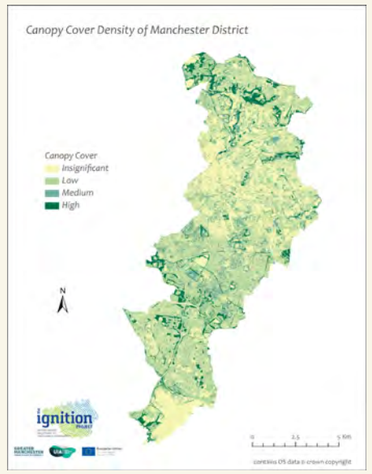
The IGNITION GI baseline for Greater Manchester is an innovative output. It builds on, and in some cases enhances, the best available spatial data, and enables us to provide the most accurate quantification of Manchester's GI to date. Crucially, for the first time, it presents a two-dimensional GI baseline incorporating surface and tree canopy cover data.

In summary, the key headlines from the IGNITION Manchester GI baseline are:

- 53% of Manchester consists of green and blue space; nearly 61km² in total.
- 38% of Manchester's green space consists of private gardens. Although they are included as an element of Manchester's green space, we recognise that private gardens incorporate grey space such as buildings, drives and patios. This means that the city's GI cover will actually be less than 53%, and research is ongoing to develop a better understanding of this.
- 20% of Manchester is covered by tree canopy. Although much of this is over green and blue spaces, there is notable tree canopy covering grey spaces (eg. paths, roads, car parks, man-made surfaces) almost 4km². in total. This means that over 7% of Manchester's grey spaces have tree canopy cover. This tree canopy offers many of the functions associated with GI, including intercepting rainwater, providing shading and cooling, and offering space for biodiversity. However, this canopy cover would not be reported as GI under other baselines that capture only surface GI cover (eg. the OS MasterMap Greenspace Layer). This demonstrates how the new IGNITION GI baseline enables a more accurate and representative understanding of Manchester's GI resources to be provided.

With the IGNITION GI baseline, we now have a better understanding about what we have, in terms of the extent and make-up of the city's landscape and GI resource. The Greater Manchester GI Explorer (a new planning support system) allows us to interrogate this GI data and provides us with guidance on where we can potentially change, improve and add value to the city's GI.

A more detailed appraisal of the Ignition baseline can be found in the Appendix



Planning support system – the Greater Manchester GI Explorer

This interactive tool will enable planners and officers to interrogate GI data intuitively, providing easy-to-access datasets. The Greater Manchester GI Explorer is a user-friendly software system that allows practitioners to visualise and analyse Greater Manchester's GI baseline data. The GI Explorer will support planning processes and decision-making linked to GI in Manchester, and will help to progress a spatially informed and strategic approach to identifying potential locations for GI conservation and enhancement.

Living Lab

Seeing is believing. Developed as part of the IGNITION project, The Living Lab at Salford University is a purpose-built £1million state-of-the-art space to demonstrate to all the true value of NBS.

The Living Lab has ready-made installations with built-in monitoring to prove the effectiveness of NBS in real-life situations, such as green walls, green roofs, rain gardens and SuDS-enabled street trees.

GrowGreen project

GrowGreen is a five-year €15million European Commission-funded project that aims to create climate and water-resilient, healthy and liveable cities by investing in nature-based solutions (NBS). Making nature part of the urban living environment improves the quality of life for all citizens and will help business to prosper.

By embedding NBS in long-term city planning, development and management, accessible green and blue spaces are a permanent feature of all urban areas around the world, creating harmony between people, economies and the environment for the benefit of all.

The GrowGreen project involves 22 partners from cities all over Europe and Wuhan in China. It involves local government, environmental experts, practitioners and academics in order to deliver not just practical projects but key policy drivers, such as new GI/NBS strategies, consistently and effectively.

The GrowGreen project is all about shared learning and collaboration.

GrowGreen has been a major driver in influencing and supporting the development of the new Implementation Plan for Manchester and has been a major catalyst for change and for doing things better.

GrowGreen has provided the city with vital support, guidance and promotion, helping us to commission bespoke, necessary evidence such as the Our River Our City work (outlined above) and the following key elements:

Green City Framework

A road map to a GI Strategy, the Green Cities Framework helps provide a template for cities starting on the journey of GI Strategy Development. This work has allowed us to sense-check our processes, acting as a useful guide to make sure our new action plan takes into account the relevant elements and suggested processes of the GCF.

West Gorton Sponge Park

"Worth every penny..."
Heather Rangzab, local resident, Gorton

This award-winning park is the first of its kind in Manchester – a £1million co-designed bespoke response to the challenges of climate change. It's a park that quite literally drinks and utilises water from extreme events and uses surface water run-off for irrigation.

Located in the neighbourhood of West Gorton, the park was opened in June 2020, in the middle of the global pandemic – a testament to the city's commitment and determination around the climate change agenda and the culmination of a ten-year regeneration programme for this area.
The park includes meadow, woodland and community areas, and has been designed with local residents. The NBS design features in the park include bioretention tree pits, swales, rain gardens, permeable paving, and an irrigation rill or drainage channel.

The park is also a Living Lab, with extensive monitoring of a range of themes across the site, including water run-off rates, filtration effectiveness, biodiversity, and health and wellbeing – all reporting on the park's functionality and usefulness for many years to come.

Sponge City thinking

The concept of Sponge City thinking was developed in 2013 to address urban water management challenges in China and rebuild a harmonious relationship between people, water and cities.

The Sponge City concept refers to a way of urban water management that allows cities to resolve urban waterlogging, improve water storage and discharge capacity, enhance water quality, and alleviate heat island effects through a mix of nature-based solutions and grey solutions, by applying the concept's six technical measures: infiltration, retention, storage, purification, utilisation and discharge.

Wuhan is one of the Sponge pilot cities in China, and a sister city to Manchester.

The target of the Wuhan Sponge City Programme is to try and successfully absorb 60%–85% of annual rainfall by 2030.

So far, the Wuhan Sponge City Programme has achieved great success and showcased the ability of reducing flood risk and the potential of NBS. In the summer of 2020, Wuhan experienced multiple rounds of intense, record-breaking precipitation during the long-lasting rainy season, but no serious waterlogging occurred.

Working with Wuhan and other partners, it is hoped these pioneering concepts will now be applied and implemented citywide as part of the Our Rivers Our City project and in other key infrastructure improvement programmes, including the city's own flood-defence programme.

Adaptation pathways approach

Adaptation pathways, a dynamic adaptive planning approach pioneered in Europe by leading environmental planning experts Tecnalia, aims to support the best and most appropriate decision-making for a particular neighbourhood by providing NBS alternatives in order to change system outcomes in a desired way.

This planning approach is aligned with the already developed Net-Benefit Wheel work developed in the Nature of Manchester work referenced earlier.

The adaptation pathway specifically aims to increase the climate resilience of one key benefit (flood resilience) to support evidence-based decision-making.

The adaptation pathway work had two levels: a strategic view at Manchester city level and a detailed work at district level (West Gorton) and provides:

- A route map on which NBS, including infiltration techniques and adaptation options, can be implemented in West Gorton over time
- A long-term adaptation vision and objectives, based around NBS to reduce surface water flooding
- Help to identify interested parties who could be engaged to maximise adaptation to climate change.

The GrowGreen project provided the opportunity to build an adaptation pathway approach for Manchester, with special focus on West Gorton, the case study area within this EU project, effectively delivering a one-stop shop for assessing NBS interventions locally.

Communications planning

The GrowGreen project has provided us with an abundance of promotion and networking opportunities, giving Manchester and its GI Strategy a global platform to share best practice, to continue collaborating, improving and learning.

Through the GrowGreen programme, exciting collaborations with Wuhan have helped us to understand and embed Sponge City thinking into our strategic approaches (eg. Our Rivers Our City) and practically in the West Gorton Sponge park demonstrator.

Manchester was the first north west city to sign up to the global Cities With Nature Network, a collaboration with cities around the world on NBS and GI delivery.

Through the GrowGreen communication channels and platforms, numerous international events and forums have provided Manchester with the opportunity to showcase its work on GI to a global audience.

Refining the Implementation Plan

The intention of updating and refining the Implementation Plan is not just to build on the success to date, but to recognise changes that will add value and build even more momentum around the GI agenda for many years to come. The original 26 headline actions have been streamlined to 18, integrated to avoid duplication and improve impact. This makes it easier for organisations to see where their commitments can fit in and add value. Many of the headline actions and associated projects are cross-cutting and could occur across several objectives, but all will add to the city's overall climate resilience – progressive resilience.

Objective One:

Improving GI quality and function, focusing on:

River valleys and canals

Parks

Trees and woodlands

Gardens

Other land

Healthier and resilient communities

Protecting and enhancing ecology

Objective Two:

Embedding GI in developments of any scale across the city, including retrofit.

Embedding GI into key plans and policies

Embedding GI into key strategic regeneration and infrastructure projects

Embedding GI in developments of any scale across the city

Embedding GI into city centre development and planning initiatives

Objective Three:

Improving access and connectivity for people and wildlife, focusing on:

Green routes – neighbourhoods and travel routes

Blue routes – canals and river valley routes

Cross-boundary links

Objective Four:

increasing understanding of GI with a focus on:

Improving monitoring

Increased research

Equitable engagement and involvement

Showcasing best practice

Decisive action

We have access to ground-breaking, cutting-edge research and guidance.

We never stop learning – the new action plan will be steered and informed by some of the most exciting new environmental evidence, projects and information, in never-before-seen levels of detail ever produced and delivered in the city.

However, the most exciting thing about an action plan is – well, action.

Tangible, equitable, real benefits that will be seen and felt by us all. A generational shift, a decisive reaction to Climate Emergency that will make a positive difference to all our lives, now and forever.

As a city, Manchester is serious about this commitment and will invest more than £150million over the next five years to deliver major environmental improvements across Manchester. That's on top of some £100million already invested.

In total, nearly a quarter of a billion pounds will be invested into a greener future.

- Better places for people and nature
- Better routes to travel
- A greener, more climate-resilient Manchester.

These are bold, visionary initiatives that will bring to life all the evidence provided – statements of intent that Manchester will become a world leader in landscape-led environmental change.

Highlighted here are some of the key projects and commitments we can all look forward to enjoying over the years to come.

Headlines from the future

Key projects driving environmental change

Park Development Programme: 2021–25

"If you create a city where children can play and where parents want their children to play, then you will create a successful city."

Maria Vassilakou, Vice-mayor and Deputy Governor of Vienna

Launched in 2017, the Manchester Park Strategy set out four key themes.

- **Parks at the Heart of Neighbourhoods** looks at the physical role of parks in neighbourhoods across the city, as well as their size, accessibility and character.
- **Vibrant Parks, Vibrant Communities** considers the activities that take place in parks to ensure they are a focus of community life, providing opportunities for exercise and sport, and a wide variety of events that can generate additional income for the benefit of parks.
- **A Manchester Quality Standard** sets out a good-quality standard for managing and maintaining parks.
- **Productive Parks in Partnership** describes ways to deliver park services in a more collaborative and fruitful manner with communities and local organisations, not just the Council.

In order to support these four themes, an innovative new park investment programme budget has been approved. This £12.5million five-year programme of tailored investment opportunities ranges from small-scale park improvements to larger-scale sustainable and even commercial ventures to improve the quality and function of the city's parks.

The Park Investment Programme will encourage exciting, new collaborative approaches in order to realise its ambition.

Tree Action MCR

“From a Council point of view, I think this is one of the biggest street tree-planting programmes undertaken in recent years by a local authority.

“Consulting on, sourcing and eventually planting 2,000 big trees in around two years – that’s an increase of approximately 10% in the number of street trees that we manage. It’s unprecedented.”

Chaz Farghaly, Operations Head, Manchester City Council

This £1million capital programme will take on board the finding of the Managing Manchester’s Trees (MMT) work already explained, and deliver the most focused programme of street tree-planting undertaken in recent years.

The city’s arboricultural team are aiming to assess all wards in terms of their actual potential for tree-planting on Council-owned green spaces. The neighbourhoods in the city with the fewest street trees will be the first to have some new ones.

It is usual for around 150 new street trees to be planted through the Council’s arboricultural team. These may be replacement trees for trees that have died, or new trees where communities have expressed an interest in them.

TAMCR has planted over 1,000 new trees in 2020/21 – over six times more than usual. By the end of the programme it is expected that the number of Council-managed street trees will have increased by 10%, with more than 2,000 new big street trees being planted.

It is hoped that this programme will continue to evolve over time, with the opportunities provided through MMT guiding new investment to further improve Manchester’s treescape.

Bee Network travel routes

Greater Manchester’s new Bee Network will be the largest joined-up system of walking and cycling routes in the UK, providing easier ways to get in and out of the city by walking or cycling.

Unveiled in 2018 by Cycling and Walking Commissioner Chris Boardman, the Bee Network is a plan to revolutionise travel across the city-region, making active travel the first choice for travelling to work, school and the shops. It intends to make trips by foot or bike a safe and pleasant experience.

The Bee Network also helps utilise GI as an attractive backdrop to enhance the cycling and walking experience.

Almost £30million is committed to Bee Network improvements in Manchester with projects that include:

- Chorlton Cycleway
- Oxford Road Corridor/ Wilmslow Road, Didsbury
- Fallowfield Loop/Yellow Brick Road, Gorton
- North and Eastern Gateway, Ancoats
- Northern Quarter (Piccadilly to Victoria)
- Beswick filtered neighbourhood
- Levenshulme and Burnage Low Traffic Neighbourhoods.

Resilient river valleys

This ambitious two-year, near £1million programme will focus on delivering some key aspects of climate resilience, sustainable management and new employment and training opportunities identified in the Our Rivers Our City strategy.

Orchestrated by Groundwork Greater Manchester, the successful partnership bid will use funds from Defra and Heritage Lottery's Green Recovery Challenge Fund.

In addition to delivering a programme of physical work across a network of sites, it will:

- Create a number of new jobs within delivery teams and for young people recruited through DWP Kickstart and NCS Youth Corps initiatives (nine new roles, six urban forestry assistants at City of Trees, and 32 roles for young people)
- Deliver a programme of community engagement work to connect people with nature-based activity within the river valleys, and increase involvement in volunteering and maintenance of urban green space
- Develop and deliver new training modules relating to NBS for staff, people on employment programmes, and community members, as well as specific training courses and activities relating to managing green infrastructure for community and 'Friends of' groups.

Also included is a legacy role to focus on building a pipeline of work in river valleys, to undertake site surveys, to establish land ownership, and to develop work plans for priority sites identified by partners and within the Our Rivers Our City action plans.

Castlefield Viaduct

The National Trust is in the early stages of a project to bring this Grade II-listed viaduct back into use, transforming it into a green oasis created by and for the benefit of local people.

Built in 1892 and constructed by Heenan and Froude (the engineers who worked on the iconic Blackpool Tower), the viaduct was used to carry heavy rail traffic in and out of Manchester Central railway station (now the Manchester Central Convention Complex). It stayed in use until 5 May 1969, when Central Station closed.

The vision is to transform Castlefield Viaduct into a free-to-access park and meeting place for people and nature. It will be a space that respects the listed structure, celebrates the nature, beauty and history of the viaduct, and fits in with existing plans for the city.

As well as bringing people closer to nature in the city, it will be a stepping stone to other Manchester green spaces and attractions on foot or bike. The viaduct will take its place in this vibrant area for cultural and heritage, sitting alongside iconic Manchester venues, including the Science and Industry Museum and The Factory.

A £2million, two-year pilot project will undertake extensive analysis, viability assessments and consultation, with visitors being able to access the structure safely for the first time in many years.

Mayfield

"Forgotten no longer, Mayfield is about to become a remarkable part of the city – a place that celebrates its past and marches into the future with a swagger."

Mayfield Design Team

The Mayfield project aims to regenerate 23 acres of underused land around the historic depot across the road from Piccadilly railway station. The long-term plan for Mayfield is to create a £1billion mixed-use community over the next ten years,

At the heart of this £23million landscape-led transformation is not just a new park, but the revitalising of over 400 metres of culverted river, hidden for nearly 100 years, and approximately 13 acres of new public realm.

Open space, trees, the natural meander of the Medlock, and increased biodiversity: Manchester will have a new green heart in Mayfield.

Spanning 6.5 acres, Mayfield's sequence of spaces will invite you on a journey of discovery, from the informal, through to the more natural and wild. It will be an urban square with a buzz of activities: open greens for lawn sport and informal play, adventure play areas, floodable meadows and biodiverse ecological areas beside the river, as well as quieter spaces for escape and contemplation. Sheltered structures and areas will make sure it's a park for all types of weather and seasons.

The most ambitious new park creation scheme in the city centre ever undertaken in recent years will be opened in 2022.

Victoria North

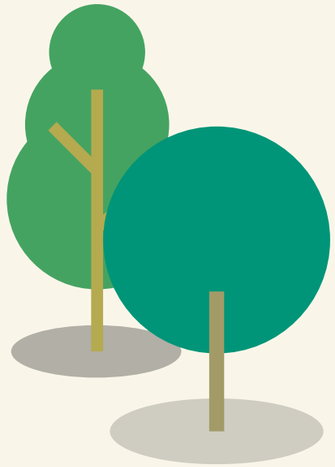
This is the North of England's biggest urban regeneration project, and the biggest renewal project Manchester has ever seen.

This landscape-led vision, jointly developed and funded by FEC and Manchester City Council, is set to create 15,000 new homes across 155 hectares and seven neighbourhoods over the next 20 years.

The redevelopment project will create better-connected public spaces, new and improved transport links, and more homes, parks and retail spaces for the city's growing population.

At the heart of Victoria North will be City River Park, which will cover 46 hectares of new and improved parkland. The park will vary in character, providing a diverse and active new recreational corridor for the community, including parks and smaller amenity spaces.

City River Park will enhance existing habitats and create new ones for wildlife. It will be guided by climate-positive design to create results that are as carbon-neutral as possible. Connectivity and accessibility will be key, ensuring high-quality pedestrian and cycle movement within the green spaces for active lifestyles and better wellbeing.



7. IMPLEMENTATION PLAN

Vision and objectives

The overarching vision for the strategy and its four key objectives remain the same:

"By 2025, climate-resilient well-maintained green and blue spaces remains an integral part of all neighbourhoods. The city's communities will be living healthy, fulfilled lives, enjoying access to parks and green spaces, and safe green routes for walking, cycling and exercise throughout the city. Green and blue infrastructure will be supporting Manchester's growth."

The key objectives are to:

1. Improve the quality and function of existing green and blue infrastructure
2. Use appropriate green and blue infrastructure as a key component of new developments to help create successful neighbourhoods and support the city's growth
3. Improve connectivity and accessibility to green and blue infrastructure within the city and beyond
4. Improve and promote a wider understanding and awareness of the benefits that green and blue infrastructure provides for residents, the economy and the local environment

MONITORING AND REVIEW:

We will continue to be transparent in our reporting, with regular annual updates to the relevant Council committees as appropriate, under the governance of both the Council's GI Board and the Manchester Green Infrastructure Group.

We are constantly looking for appropriate and measurable key performance indicators, and will capture activity accordingly, both qualitative and quantitative.

These indicators and updates are not exhaustive, but aim to show that the direction of travel is both collaborative and positive in relation to achieving the Strategic Vision.

In relation to each relevant objective, we will endeavour to report on:

OBJECTIVE ONE:

Outcome – improved quality and functionality of GI

- The number of relevant known projects delivered or in delivery
- Amount invested
- Number of trees planted
- Percentage of SBIs in active Conservation Management
- Number of Local Nature Reserves declared
- Number of jobs created.

OBJECTIVE TWO:

Outcome – increased integration of GI and NBS into development and regeneration

- The number of relevant known projects delivered or in delivery
- Amount invested
- Number of jobs created.

OBJECTIVE THREE:

Outcome – better connected GI

- The number of relevant known projects delivered or in delivery
- Hectares of land or kilometres of green and blue access routes improved
- Increased species recorded as part of Nature Recovery Network
- Increase in people recording nature as part of Nature Recovery Network
- Amount invested
- Number of jobs created.

OBJECTIVE FOUR:

Outcome – increased understanding and awareness-raising

- The number of relevant known projects delivered or in delivery
- Number of events delivered
- Number of people engaged
- Number of volunteer hours delivered
- Number of partners involved
- Percentage of population valuing green spaces
- Percentage of people satisfied with green space management and survey.

8. FUNDING AND DELIVERY

Once again we intend to provide a clear and robust set of tangible headline actions and supporting projects demonstrating strong and sustainable progress over the next five years, building on the progress to date.

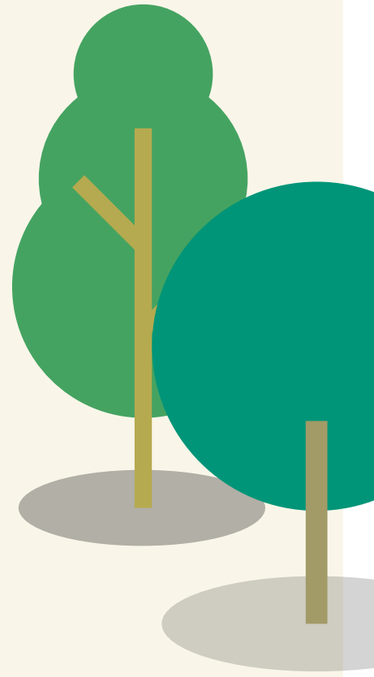
These are challenging times for all local authorities. There is not a war chest of ring-fenced funding available for GI investment. We need to look at new ways to fund and look after our green and blue spaces. The opportunity lies in mainstreaming the GI agenda, tying into the city's other priority themes, not competing against other priorities. It will make the consideration and delivery of Nature Based Solutions to be the norm – not the exception.

For example, Climate Emergency has acted as the catalyst for investment in new tree-planting. Sustainable travel investment has provided us with significant Bee Network investment. Area-based regeneration has provided us with the landscape-led opportunities outlined in Mayfield and Victoria North.

The strategy provides the hooks and opportunities within the objectives and headline actions for partnerships and projects to evolve, building confidence that this is the direction Manchester is heading. It's a clearer route for diverse and varied investment in green and blue infrastructure.

The new Implementation Plan proves the point that investment into GI is tangible, secure and desirable. From major investor and landscape-led approaches such as Mayfield and Victoria North, to Government-driven campaigns like the Green Recovery Challenge fund, the action plan gives us the confidence to develop strong project bids and take advantage of these opportunities.

Deeds not words. The following pages aim to capture the pioneering spirit of green and blue infrastructure activity in Manchester in the years ahead.



OBJECTIVE 1: IMPROVING THE QUALITY AND FUNCTION OF GBI

	Headline actions	Existing practical GI commitments	Key project pipeline	Lead Manchester City Council teams	Key partners
1	River valleys and canals: we will continue to invest in the river valleys and canals to provide attractive settings for communities, leisure and recreation, health, and biodiversity.	There is an active commitment to managing land across the city's three main river valleys: the Irk, Medlock and Mersey. The **Our Rivers Our City** strategy adds an additional focus to priorities across these three catchments.	**Delivery of Our Rivers City Strategy and action plans** 2021–23 GW Resilient River Valleys: £950,000 2020–24 Restoration of Ordinary Watercourses: £893,000 2022–23 Restoration of Trash Screens Phase 2: £150,000 City centre canals 2021–23: £150,000	Parks FRM	Catchment partnerships Environment Agency Canal and River Trust The Natural Course
2	Parks: we will enhance existing parks to maximise their potential in making Manchester a world-class city.	There is significant ongoing investment across the city's extensive 160-site portfolio of parks and green spaces, plus the new Park Investment Programme. Consideration of opportunities for appropriate GI (new and retrofit) during negotiations on all relevant planning applications	Large-scale capital Park Investment Programme: 2021–25 £12.5million	Parks	charities community groups
3	Trees and woodlands: we will provide effective and appropriate tree and woodland management and planting.	The city has a Tree and Woodland action plan with an aim to improve management and sustainably enhance tree canopy cover over time.	Delivery of the Tree and Woodland Action Plan including: Tree Action Mcr Programme 2020–23: £1million Delivery of Managing Manchester's Trees Report Integration of Greater Manchester All Our Trees Strategy	Arbor Parks	City of Trees Woodland Trust Wildlife Trust Groundwork Trust
4	Gardens: we will protect, promote and enhance private gardens to support climate resilience.	The city has extensive garden coverage. The total area of domestic garden green space in Manchester is 12km² (My Back Yard: MMU 2018).	Delivery of garden projects as part of new Biodiversity Strategy, including My Wild Garden Campaign and ongoing support of RHS In Bloom campaign	Neighbourhood teams	RHPs RHS Wildlife trusts Groundwork Trust Hubbub
5	Other land: we will improve existing and introduce new GI/NBS within large estates and land holdings, eg. registered housing providers, cemeteries, hospitals, universities, car parks.	Ongoing GI commitments through existing land management contracts of major landowners, eg. housing providers.	Relaunch of the Housing Providers GI Group 2021 Delivery of New Castlefield HighLIne project 2021/22 Delivery of new city centre green space at Mayfield 2020–22: £23million	Planning Housing Cemeteries	RHPs Southways Lead universities National Trust
6	We will develop healthy and climate resilient communities by delivering focused neighbourhood greening projects.	Numerous growing projects are undertaken across the city, with hubs in Hulme, Wythenshawe and Heaton Park. There are also 41 allotment sites across the city.	Delivery of Parks for People programme 2021–25: £12.5million Delivery of Zero-Carbon Community Programme 2021/22 Continued delivery of Real Food Wythenshawe project 2021–23 Continued delivery of outdoor activity programme 2021–24	Neighbourhood teams Parks	MCCA Hubbub Amity Tyndall Centre Commonplace MCRactive
7	We will protect and enhance the city's key ecological assets, including Sites of Biological Importance (SBI). We will increase the number of SBI in active management to conserve, protect and enhance biodiversity. Local Nature Reserves: Increase the coverage of LNRs in line with national guidance to one hectare of LNR per 1,000 residents.	Manchester has 37 SBI, with over 60% in active conservation management. Manchester has eight LNRS covering 392 hectares.	Delivery of new Biodiversity Strategy 2021–30 Twelve new Parks SBI Action Plans to be delivered 2020–22 New Woodland SBI project bids being developed by CoT 2021–23 New programme of LNR declarations to be developed 2022–25	Parks EPI	GMEU Wildlife Trusts City of Trees RSPB

OBJECTIVE 2: USE APPROPRIATE GREEN AND BLUE INFRASTRUCTURE AS A KEY COMPONENT OF NEW DEVELOPMENTS TO HELP CREATE SUCCESSFUL NEIGHBOURHOODS AND SUPPORT THE CITY'S GROWTH					
	Headline actions	**Existing practical GI commitments**	**Key project pipeline**	**Lead Manchester City Council teams**	**Key partners**
1	Embed G&BI into key plans and policies.-	There is a commitment to: review all related Local Plan Policies in 2021 Produce a new biodiversity strategy in 2022 Develop a new Tree and Woodland Action Plan in 2022.	Local Plan refresh due to be completed 2023. Places for Everyone (nine Greater Manchester authorities) Climate Change Framework 2.0Embedding GI into partner plans, eg. registered providers, health etcIntegrate GI into local/ neighbourhood-level regeneration frameworks.	EPI	Developers
2	Embed GI into citywide strategic regeneration and infrastructure schemes.	Key demonstrators will include GrowGreen West Gorton, Community Parks and Mayfield.	Victoria North 2021–25 Eastern Gateway 2021–25 HS2 2021–25 Hospital infrastructure improvements – north/south 2021/25	Planning Strategic Development	Developers National Trust
3	Embed GI in developments of any scale across the city.	Consideration of opportunities for appropriate GI (new and retrofit) during negotiations on all relevant planning applications	Development of appropriate policy approaches in the Local Plan	Planning Strategic Development	RHPs Private landowners
4	Embed GI into city centre development and planning initiatives.	Major GI/NBS improvements through projects listed.	Mayfield 2021/22 Victoria North 2021–25 Glade of Light 2021/22 Deansgate 2021–25 Medieval Quarter 2021–25 Factory 2021–23 Lincoln Square 2021/22 Piccadilly Gardens 2021–25 Deansgate 2021–24 Castlefield Viaduct Study 2021/22	Planning Strategic Development	Developers National Trust

OBJECTIVE 3: IMPROVING ACCESS AND CONNECTIVITY FOR PEOPLE AND WILDLIFE					
	Headline actions	**Existing practical GI commitments**	**Key project pipeline**	**Lead Manchester City Council teams**	**Key partners**
1	Improving green routes: greening transport routes (eg. tramlines, footpaths, cycle routes, roads, rail corridors including disused) to encourage walking and cycling, reduce flood risk and provide corridors for wildlife.	Ongoing commitments to manage sustainable transport corridors, such as Oxford Road Corridor, Chorlton Cycleway.	Bee Network capital programme 2021–25, including: £4.9million Fallowfield Loop route, North and Eastern Gateway, Ancoats development of new Local Nature Recovery Network. Pilots will be developed in North, Central and South Areas 2021–23	Highways Parks EPI	TfGM Wildlife trusts Sustrans
2	Improving blue routes: river valleys and canals; enhance river valleys and canal tow paths to improve accessibility and use as active travel routes and wildlife corridors.	There is an active commitment to managing land across the city's three main river valleys, the Irk, Medlock and Mersey, which includes improvements to access where appropriate. The Canal and River Trust is actively trying to improve Ashton and Rochdale Canal towpaths and waterways.	Delivery of Our Rivers Our City Strategy and Action Plans Delivery of access improvement programme, including: Resilient River Valleys access improvements 2021–23	Highways Parks EPI	Groundwork River Trust Canal and River Trust TfGM
3	Cross-boundary working to improve access and connectivity.	Manchester is committed to cross-boundary partnership working, and is a key partner of both GMCA and TfGM. Key initiatives will include the integration of Manchester City Council projects into the wider Bee Network, and the integration of the Manchester Biodiversity Strategy into the new Greater Manchester Local Nature Recovery Network.	Integration of new GMLNRN Delivery and promotion of the Bee Network capital investment 2020–24 Continued delivery of outdoor activity programme 2021–24: £30million Delivery of the My Wild City Biodiversity Strategy 2021–30	Highways Parks EPI	Natural England GMCA Wildlife trusts Ramblers TfGM GMEU MCRactive

OBJECTIVE 4: INCREASED G&BI UNDERSTANDING AND AWARENESS-RAISING

Headline actions		Existing practical GI commitments	Key project pipeline	Lead Manchester City Council teams	Key partners
1	Monitor existing G&BI within the city.	There is some autonomous monitoring of G&BI within the city through parks, tree management systems etc and independently, ie. through the Greater Manchester Ecology Unit and universities. Partners are encouraged to capture, share and monitor GI-related activity.	Greater Manchester Ignition project will help establish a new GI baseline and Planning Support System (GM Explorer), Tree Opportunity Mapping and manage Manchester's trees. Ongoing monitoring of West Gorton Sponge Park via Grow Green and The University of Manchester	City Policy and EPI	GMCA The University of Manchester MMU EA GMEU MNC
2	Develop research into the benefits of G&BI to provide the basis for new policy, projects, programmes and investment mechanisms.	Key supporting evidence has been commissioned and projects developed, including: Our Rivers, Our City My Wild City Managing Manchester's Trees My Backyard Garden Survey GHIA (importance of GI to an ageing population) IGNITION project, looking at investment opportunities in GI.	New evidence and guidance to support decision-making around key themes: Nature of Manchester natural capital assessment IGNITION GI baseline Evidence base Planning support system River valleys: Our Rivers Our City Trees: Managing Manchester's Trees Biodiversity: My Wild City Biodiversity Strategy Health: GHIA (importance of GI to an ageing population) Gardens: My Backyard NBS in Neighbourhoods: Adaptation Pathways approach	EPI	The University of Manchester MMU GMCA TEP City of Trees GrowGreen National Trust MNC
3	Raise awareness of the benefits of G&BI through public engagement and involvement, promotion, communication, education and training.	Manchester has an ongoing commitment to engage and raise awareness of the importance and value G&BI brings to the city through numerous campaigns and projects.	Neighbourhood Climate Action Plans 2021–23 My Wild City Programme 2021/22 North Manchester Nature Recovery Network 2021/22 In Our Nature environmental campaign 2021/22 Tree Action Mcr Planting programme 2021–23 Britain in Bloom Campaign 2021–25 Our Rivers Our City Training and Skills programme 2021–23	Comms, supported by EPI, parks, neighbourhoods, policy and partnerships, city centre growth and infrastructure	Wildlife Trust MCCA Hubbub City of Trees RHS Groundwork National Trust Rivers Trust Community groups MNC
4	Showcase local best practice and seek recognition for delivered projects.	CIEEM 2018 Award winner MGO for Knowledge Exchange Continued development of a portfolio of GI-related case studies (70 at present).	CIEEM Awards 2021 commended finalist – My Wild City Britain in Bloom Awards	Neighbourhoods	CIEEM RHS National Trust Groundwork Trust Wildlife Trust Rivers Trust MNC

9. APPENDIX

Appendix 1. Introducing the IGNITION GI baseline

IGNITION GI baseline summary for Manchester City Council

The European Union-funded IGNITION Project is developing funding and delivery mechanisms to increase and enhance Green Infrastructure (GI) and Nature Based Solutions (NBS) across Greater Manchester in response to the risks posed by a rapidly changing climate. Within the project, a new GI baseline has been developed for Greater Manchester, to better understand the existing types and distribution of GI. This baseline offers new data and insights into Manchester's GI.

Other representations of Manchester's GI already exist, such as the classification produced within The University of Manchester's GHIA project (Green Infrastructure to Promote Health and Wellbeing in an Ageing Population).

Manchester City Council also has a Green Infrastructure Typology developed to inform its Green and Blue Infrastructure Strategy (BDP, Eftec and Countryscape 2015). However, these resources did not meet the needs of the IGNITION Project related to quantifying GI and providing a basis for spatially targeting future GI interventions. Therefore, a new GI baseline was developed.

The IGNTION GI baseline for Greater Manchester is an innovative output. It builds on, and in some cases enhances, the best available spatial data, and enables us to provide the most accurate quantification of Manchester's GI to date. Crucially, for the first time, it presents a two-dimensional GI baseline incorporating surface and tree canopy cover data.

What is Manchester's current GI baseline?

Manchester's GI has been quantified using the IGNITION GI baseline. The results are presented in Table 1 (and discussed on p.31 above).

Table 1: Details of Manchester's land cover and tree canopy cover

LAND COVER TYPE	LAND COVER AREA (KM²)	LAND COVER % TO MANCHESTER AREA	TREE CANOPY COVER (KM²)	TREE CANOPY COVER % TO TOTAL LAND COVER AREA
Blue space	1.262	1.088	0.235	18.583
Green space	60.757	52.36	19.029	31.319
Grey space	53.120	45.774	3.956	7.447
Land use changing	0.878	0.76	0.105	11.997
Other natural	0.023	0.023	0.003	13.460
Unknown	0.007	0.007	0.001	16.178
All land cover types	116.047	100	23.329	20.103

The IGNITION GI baseline also enables a better understanding of the spatial distribution of Manchester's GI. Figure 1 draws on the GI baseline to show tree canopy cover density across the city. This demonstrates that wards including Chorlton and Higher Blackley have higher density of canopy cover, whereas Deansgate and Woodhouse Park (which houses the airport) densities are lower. Figure 2 provides a more detailed view of canopy cover within the Chorlton Park ward. This figure shows canopy cover density over distinct parcels of land that are representative of

the urban form within the ward, and offers a clear indication of which areas have higher and lower canopy cover densities.

In addition to tree canopy cover, the IGNITION GI baseline also provides data and enables visualisations on Manchester's surface cover. 149 surface cover forms, classified into 7 broad categories as displayed on the map of the Manchester district (Figure 3), are incorporated within the GI baseline. The map of the Gorton and Abbey Hey ward (Figure 4) visualises a larger number of surface cover forms at a finer scale. 39 surface cover functions, including public parks, schools, agricultural land and rail lines for example, are also represented within the GI baseline. This GI baseline land cover data, and the tree canopy cover data, will be easily accessible to non-GIS users, via the Greater Manchester GI Explorer. This data will be accessible at district, ward and local neighbourhood scales to inform strategic and local GI and land use planning.

The GI baseline data presented in Table 1, and Figures 1-4, was developed using the OS MasterMap Greenspace Layer, the OS MasterMap Topography Layer and the ESRI image layer service. Data derived from the City of Trees tree canopy and tree-line layers enabled tree canopy cover data to be included as part of the baseline.

Figure 1. Canopy cover density across the Manchester district

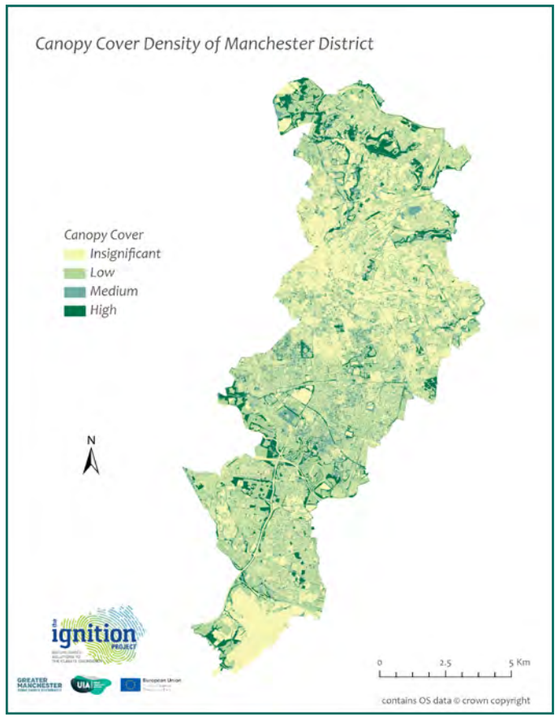


Figure 2: Canopy cover density across the Chorlton Park ward

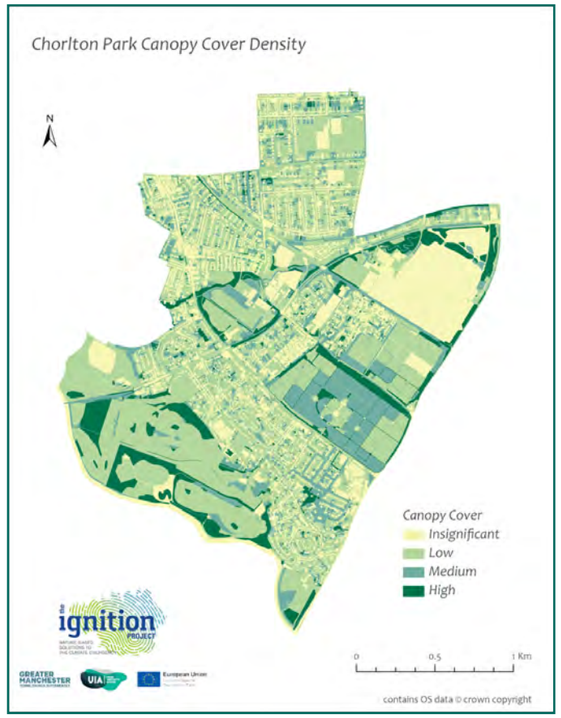


Figure 3: Land cover types for the Manchester district

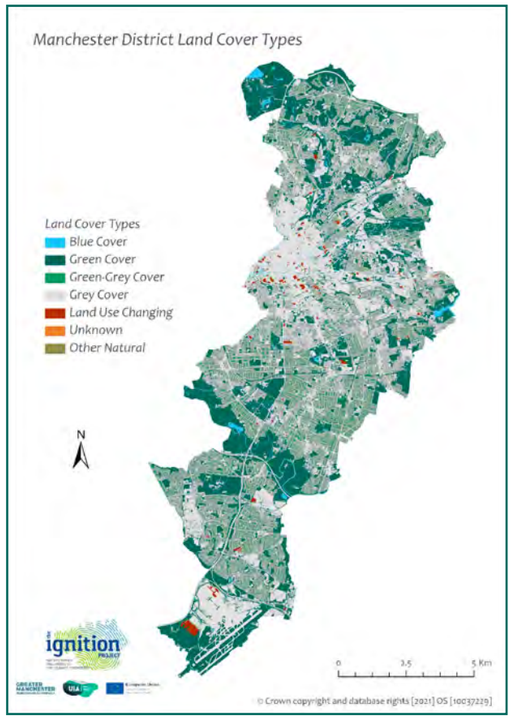
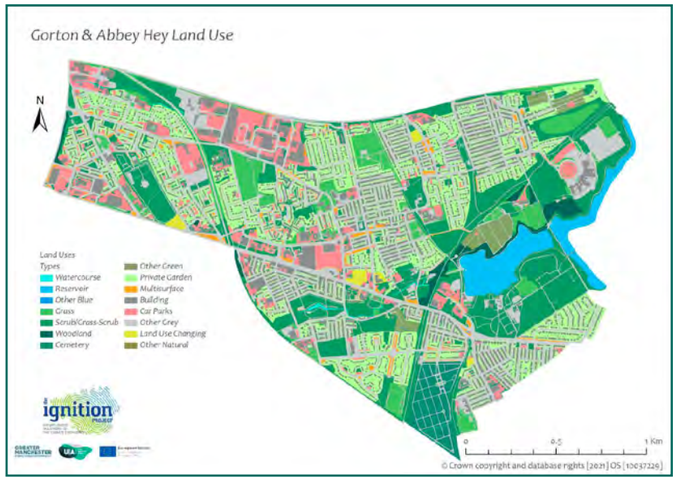


Figure 4: Gorton and Abbey Hey land uses



How can the IGNITION GI baseline be used? Introducing the Greater Manchester GI Explorer

In addition to the GI baseline, the IGNITION Project has also developed the Greater Manchester GI Explorer, a user-friendly software system that allows practitioners without GIS skills or capacity to visualise and analyse Greater Manchester's GI baseline data including surface cover and canopy cover. The GI Explorer will support planning processes and decision-making linked to GI in Manchester, and will help to progress a spatially informed and strategic approach to identifying potential locations for GI conservation and enhancement.

The Greater Manchester GI Explorer provides the capability to analyse data linked to Manchester's GI to support end-user-driven priorities and objectives connected to conserving, enhancing and expanding GI. It enables GI surface and canopy data to be generated for specific blocks and parcels of land that closely match urban form patterns, and also at larger scales, including the district and its wards. It can inform activities, including the development of business cases for GI investment, spatially prioritising available resources for GI investment and intervention, supporting local plan preparation and policy implementation, and assisting development-planning decision-making. Details of the Greater Manchester GI Explorer will be available via the IGNITION project webpage.

10. CONTRIBUTORS

Arboricultural Team, MCC	Arbor
Chartered Institute for Ecology and Environmental Management	CIEEM
City of Trees	CoT
Environment Agency	EA
Environment, Planning and Infrastructure Team, MCC	EPI
Flood Risk Management Team, MCC	FRM
Green Infrastructure and Health and Wellbeing Influences on an Ageing Population	GHIA
Greater Manchester Combined Authority	GMCA
Greater Manchester Ecology Unit	GMEU
Groundwork Trust	GW
The Wildlife Trust For Lancashire, Manchester and North Merseyside	LWT
Manchester Climate Change Agency	MCCA
Manchester City Council	MCC
Manchester Metropolitan University	MMU
Nature of Manchester	NoM
Manchester Nature Consortium	MNC
Natural England	NE
Ordnance Survey	OS
Registered Housing Providers	RHPs
Royal Horticultural Society	RHS
Royal Society for the Protection of Birds	RSPB
The Environment Partnership	TEP
Transport for Greater Manchester	TfGM

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