



JORNADAS

“EL URBANISMO COMO HERRAMIENTA PARA LA ACCIÓN CLIMÁTICA”

GMICC-CANARIAS

**Using Ecosystem Services
Opportunity Mapping for
Decision Making Processes**

Krista Patrick - GMCA
Mike Hodgkinson - TEP

OCTUBRE 2024



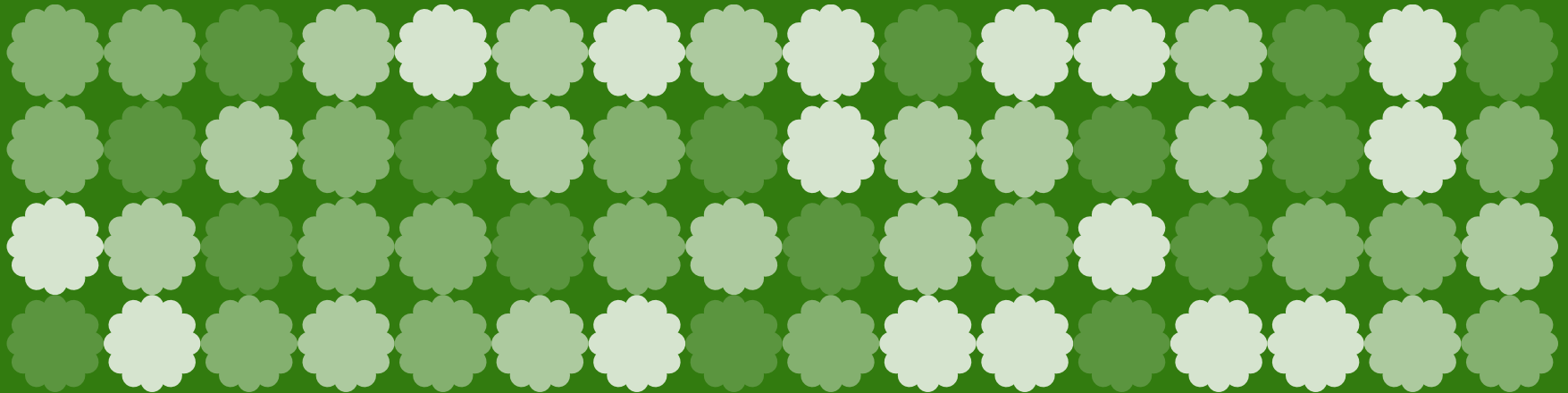
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THE
ENVIRONMENT
PARTNERSHIP



Greater Manchester – where are we?



Environmental Challenges & Ambitions



GM's 5-Year Environment Plan (5YEP) sets out an ambitious vision for a “clean, carbon-neutral, climate resilient city region with a thriving natural environment”, and demands urgent action to achieve this.

Threats facing GM's natural environment...

Land	Unsustainable land management; GM accounts for 3.6% of the UK's annual CO ₂ emissions
Water	Over 90% of GM's waterbodies fail to meet quality standards; over 50,000 properties at risk of flooding
Biodiversity	Biodiversity net gain approach not yet adopted across districts; lack of green space and ecological networks
Investment	Insufficient funding available to protect nature; lack of business models to attract alternative sources
Environment engagement	Lack of public recognition of the wide range of benefits that nature delivers for the economy and society

...5YEP ambitions

Plant 1m trees by 2024, 3m by 2035 Restore 50-75% of GM's peatlands by 2040 Carbon neutral city region by 2038
Improve GM waterbodies to achieve standards by 2027; shift to more nature-based solutions for flood alleviation schemes
Embed biodiversity net gain for developments and accelerate the delivery of a GM Nature Recovery Network
Develop GMEF to broaden the range of funding sources; deliver investment readiness support and proof-of-concepts
Widen engagement via volunteering and employment opportunities; build on evidence base to promote benefits

The Covid-19 pandemic has increased the importance of delivering on these ambitions to boost the local economy, create jobs, increase climate resilience and enhance the wellbeing of GM's residents.



GM Strategy

“Greener, fairer, more prosperous city-region”

GM Environment Plan

“Protect, maintain and enhance, and take steps to achieve environmental net gain”

Places for Everyone

“Achieving a measurable net gain in biodiversity of no less than 10%”

Greater Manchester Local Nature Recovery Strategy

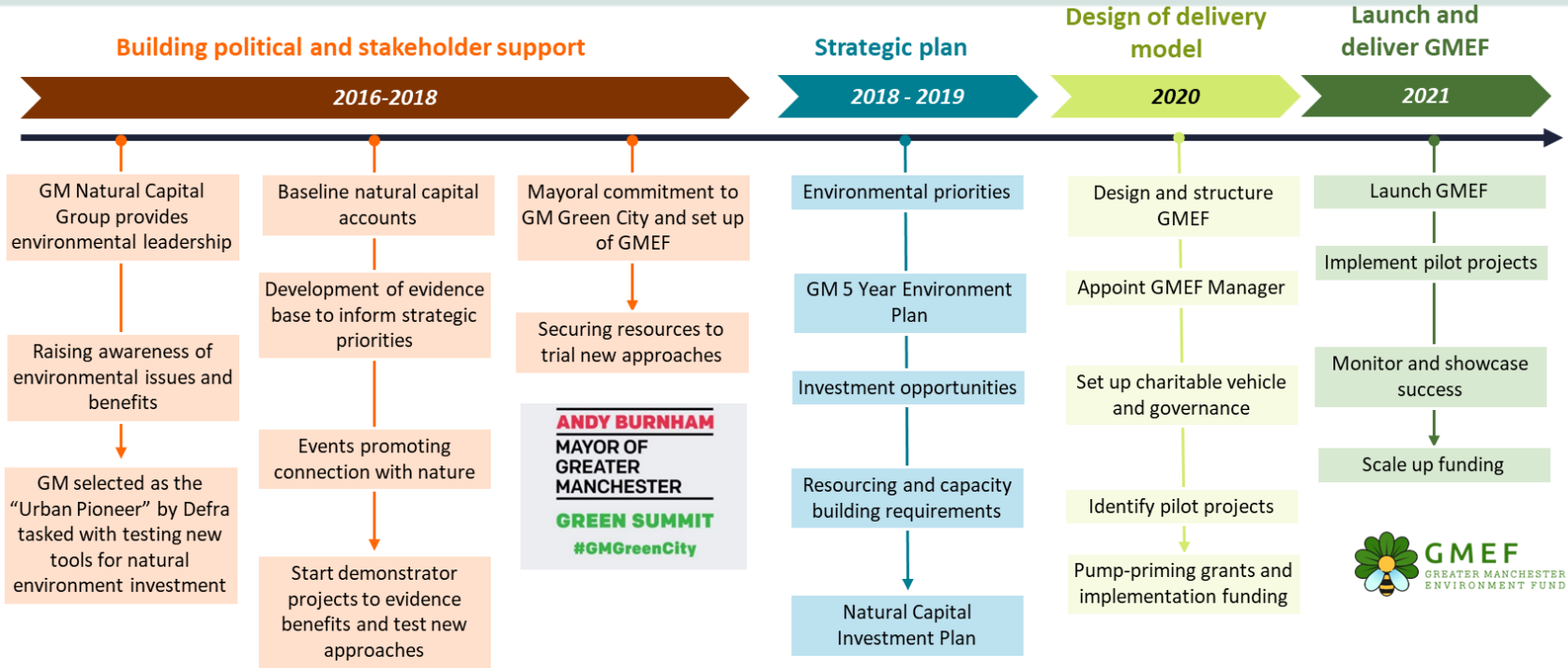
“Supporting nature recovery across Greater Manchester”

Local Plans

There are 10 districts in Greater Manchester each producing their own local plan



Our Natural Capital Journey



To build a structure of this scale, pump priming grants are required to bring in much needed development capacity to launch GMEF, implement pilot projects and showcase the benefits that GMEF has to offer.

Testing a Natural Capital Approach



Develop and test new ways to communicate & engage to influence local and national policy and decision making



Develop Moorlands Junior School as a demonstrator project showing the benefit of a Natural Capital approach
Create a Natural Capital Investment Plan to mobilise existing and new sources of funding in Greater Manchester



Develop a Biodiversity Net Gain approach to development that leaves biodiversity in a better state than before.



Developing the natural capital evidence base and the application of natural capital approaches and information

TOTAL BENEFITS

£1bn the 'conservative' estimate of the value that Greater Manchester receives from its natural capital each year from the services valued



£28bn the total asset value of natural capital to Greater Manchester over the next 60 years

URBAN PIONEER

£1bn - total annual benefit

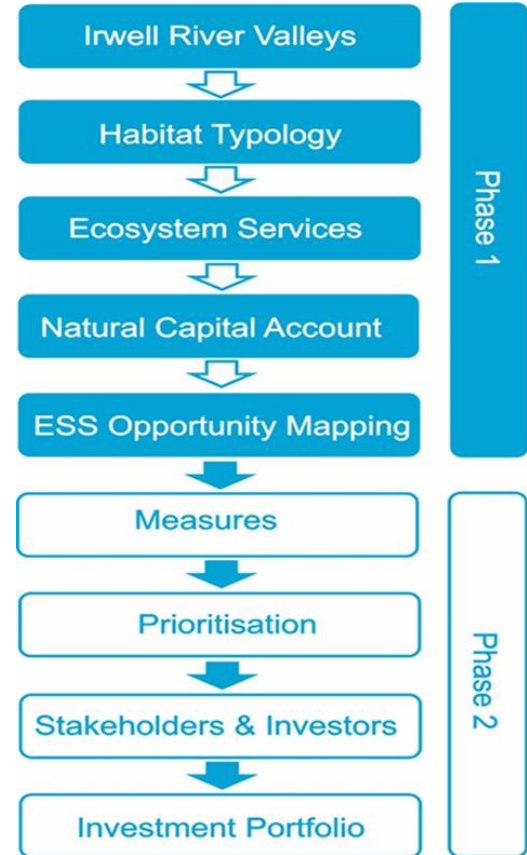


£9bn – total value of **avoided healthcare costs** (over 60 yrs)

-  Preventing **370** hospital admissions, avoiding **1,200** life year's lost
-  Approx. **44,000** buildings receive noise mitigation

Opportunity Mapping Tool – The Challenge

- Build on previous studies and learning.
- Adopt a consistent assessment across Greater Manchester.
- Individually score 7 million land parcels.
- Assess 7 ecosystem services individually.
- Embrace data and technology
- Useability and functionality.
- Replicate and repeatable.



Opportunity Mapping Tool



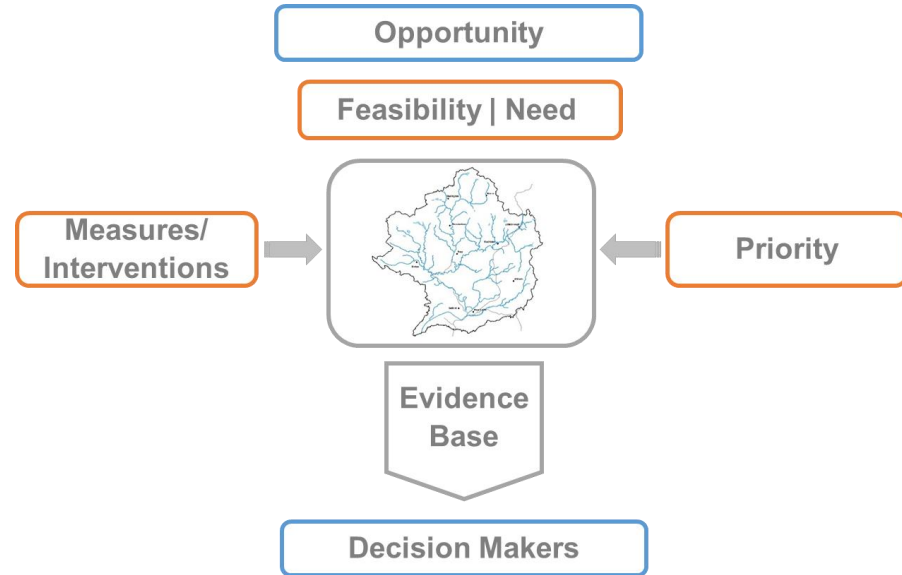
An Ecosystem Service (ESS) opportunity arises on land which, given its physical, social, economic, geographical and cultural characteristics, offers potential to intervene and improve ESS functioning and thus uplift Natural Capital.

Feasibility:

Some land uses are unlikely to be capable of significant change to improve ecological functioning e.g. road surfaces, cemeteries, private residences. These are ruled out of opportunity assessment.

Need:

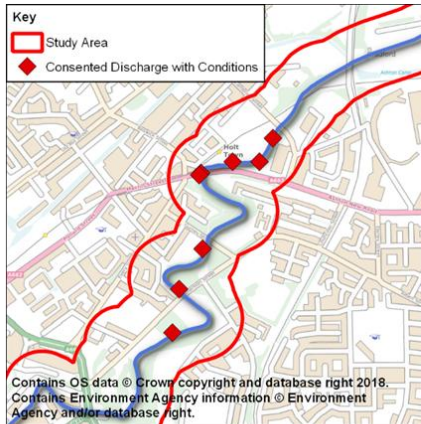
Some land uses are already in optimal ecological condition for the ESS in question e.g. woodlands cannot be bettered in respect of ESS such as carbon sequestration.



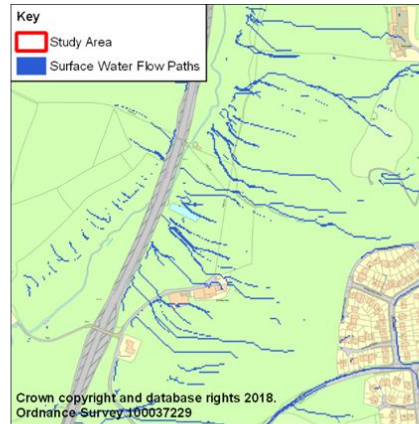
Ecosystem Services Opportunity Assessment



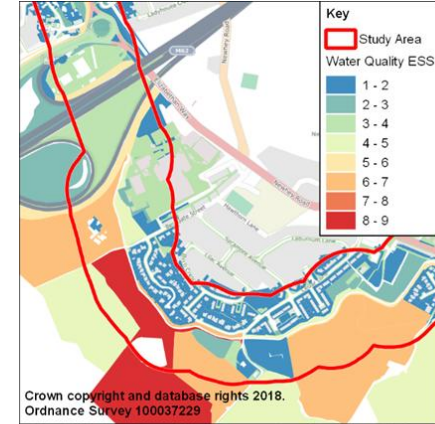
The opportunity assessment for each ESS is based on 'Attributes' which analyse different aspects of each service. For example, Water Quality ESS is made up of an assessment of Attributes including: Land Connectivity, Hydrological Connectivity, Slope, Soil Characteristics, Land Use and Consented Discharge Locations. The combination of the scores from the ESS attributes provides the overall score for the service.



Map showing Consented Discharge Locations. Land parcels with a consented discharge point receive a score of 1 and there may be opportunity to intervene to remodel the discharge point or install filter beds of natural vegetation.

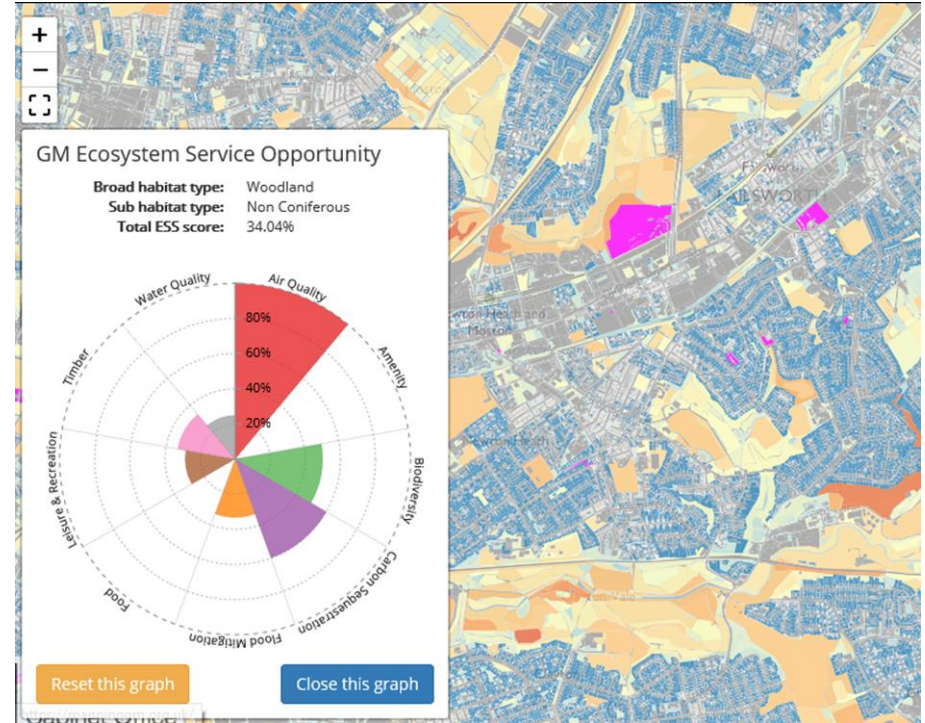


Map showing Flowpaths. Land parcels with surface water flowpaths receive a score of 1. Flowpaths and areas where water might 'pool' offer opportunities for wetland creation and establishment of wet woodland and reedbeds to capture and filter sediment and pollution.



The Water Quality Opportunity Heat Map combines all the attribute scores for Water Quality, which includes consented discharge locations and flowpaths. Land parcels with the highest opportunities for water quality are shown in red and those with less opportunities are shown in blue.

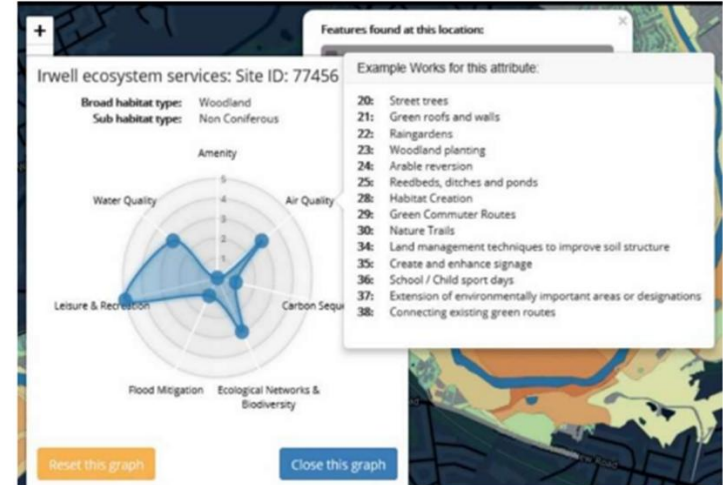
- Water Quality
- Flood Mitigation
- Recreation, Physical and Mental Health
- Amenity
- Carbon Sequestration
- Biodiversity and Ecological Networks
- Air Quality



Opportunity Mapping Tool



- The Ecosystem Services Map identifies, for each land parcel in the study area, the opportunities that changes in land use or management could bring in terms of improved Ecosystem Services.
- Over 30 individual aspects of the environment have been assessed using spatial analysis to identify Ecosystem Service opportunities.
- Geo spatial analysis, informed by current best practice has identified multiple opportunities across every district and waterbody within the study area.



Opportunity Mapping Tool

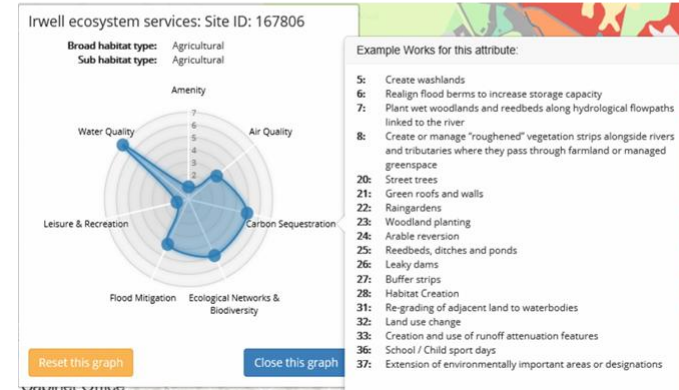
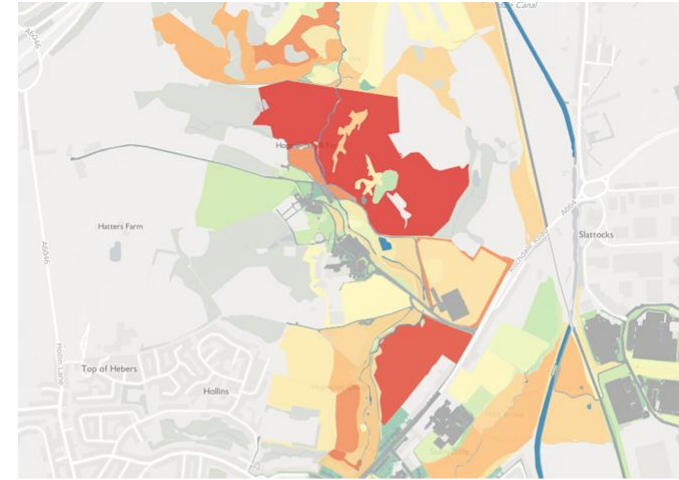


What it is?

- Feasibility + Need = **Opportunity**.
- Scored *Qualitatively*.
- OS MasterMap parcel based.
- 40+ data sources, 30+ individual scoring methods.
- Balanced in approach.
- Suited for Strategic applications.

What it is not?

- Assessment of land quality.
- Replacement for local knowledge.
- Definitive. ~ Aid decision making, not drive it.
- Standalone. ~ Supplements existing studies & flows.
- Perfect or Complete.



➤ Documentation and Resources

- Video Guides and Tutorials
- Links to other evaluation tools.

➤ Workshops

- Dissemination events.
- Industry Awards.
- One to One Sessions.

➤ Pilot Projects

- Applying the learning.
- Feedback into Tool development

The **Natural Capital** User Guide for Greater Manchester

This guide will help you understand and use the award-winning Natural Capital tools that have been specially developed for Greater Manchester. We know there are lots of tools and resources out there that can sometimes be overwhelming and confusing. This guide helps you 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.

Natural Capital is about how we can have a better natural environment for people and wildlife, ensuring it is accessible for everyone to connect with and benefit from. Natural Capital is a way of describing the natural world as assets that provide us with benefits, such as clean air, water and food – all of which underpin our life, our health and our society. These natural assets provide a flow of services that sustain the economy, referred to as Ecosystem Services.

Why Use the Tools?

- Deepen your knowledge about the value of Greater Manchester's Natural Capital;
- Understand and explain the wide range of Ecosystem Services that the natural environment provides;
- Develop environmental programmes, projects and policies;
- Examine how developments can deliver biodiversity and environmental "net gain";
- Provide evidence for your Council's Local Planning process.

“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 the 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 which can be interrogated on the MappingGM website so that the legacy of the project continues.”

Landscape Institute Award Judging Panel 2019

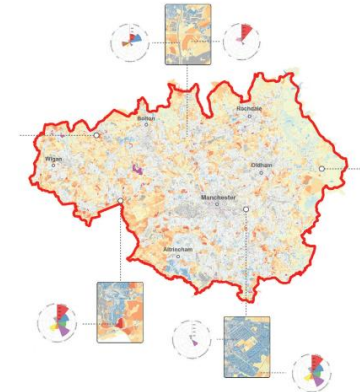
All the tools and guidance material are "open source" and Greater Manchester's work has received industry recognition, winning the 2019 Landscape Institute award for Transformation through Management and Science.

What
How
Who
Resources



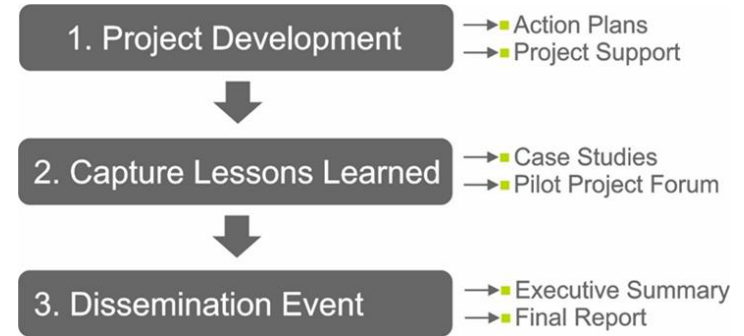
Roisin O'Riordan @Roisin_OR · 4 Jul
Nice work from @patrickkrista2 & @TEP_Ltd on #EcosystemServices in Greater Manchester- interesting to see opportunities for #carbon sequestration from #greenspace #soils #UrbanSoil

Jess Davies @DrJessDavies · 3 Jul
Nice output: #EcosystemServices opportunity mapping for Greater Manchester available online: mappinggm.org.uk/gmodin/#cs_map...
Interesting for us working on urban soil ecosystem services @SoilInf @Roisin_OR & urban food @RurbanRev @laelie
[Show this thread](#)



4 pilots selected for consultancy support:

- Bradshaw Brook Masterplan, Bolton
- Northern Gateway, Manchester
- Croal/Irwell Confluence Community Partnership, Bolton
- Redvales and Radcliffe Natural Flood Management, Bury



Project Development:

The first step was understanding the character of each pilot, and developing a series of tailored, bespoke support options which were suitable for each pilot. Once discussed, an action plan of support tasks was agreed for each pilot project.

Capture Lessons Learned:

A fundamental aspect of the project is providing legacy and capacity building. For each pilot a case study was written up to document how the tools were used, ensuring future projects can benefit and follow a similar process.

Dissemination Event:

The dissemination event presented to a wide group of key stakeholders and Natural Course beneficiaries, providing key messages and knowledge gathered during the project. An executive summary and final report have been produced to supplement the project case studies.

Learning Outcomes



The key learning points gained from the experience of the four pilot projects include:

- Tools for Decision Making
- Project Commencement and Initial Development
- Stakeholder Engagement:
- Understanding Limitations
- Ecosystem Services Opportunities for all Assets
- Funding Resources
- Networking and Collaborative Approaches



Lancashire,
Manchester &
N Merseyside



FARRELLS

ARUP



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Who can use the tool?



Strategic Planner

Identify baseline Natural Capital values. Identify opportunities for environmental improvements that could deliver multiple benefits and can draw in new funding streams.



Land Manager

Use the habitat mapping and the list of practical actions when preparing management plans and biodiversity net gain schemes.



Fundraiser

Use the Natural Capital Accounts to produce headline figures on how environmental investments can boost Natural Capital and thus influence decision-makers.



Local Authority Planner

Produce evidence about which features of a site to protect and enhance in allocations, development frameworks, planning policy and decisions.



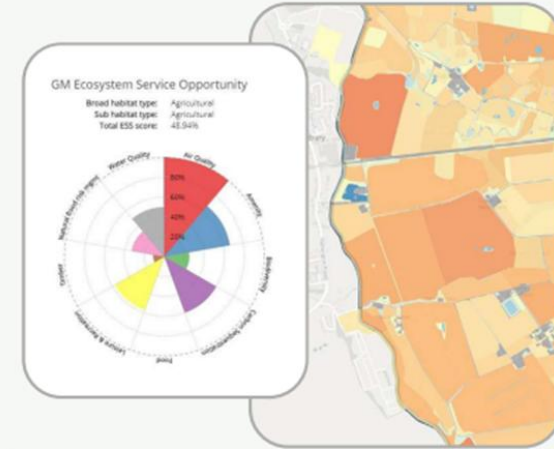
Friends Group

Use the Ecosystem Service Mapping Tool to identify multiple small scale opportunities and help to engage other third parties who would benefit from improving a specific Ecosystem Services.



Developer

Use the Ecosystem Services Mapping Tool to identify opportunities for delivering biodiversity and environmental net gain on site. Use both tools to consider how the development site's Natural Capital can be uplifted to advocate for the benefits of the scheme to the neighbourhood and to incoming residents.



- **Site, Neighbourhood, Region Analysis:**
 - Hot Spot Analysis. Where is the greatest potential opportunity?,
 - Where is *this* Opportunity?,
 - Preservation of highly utilised sites. Where should *we protect* or maintain?
- **5 Steps of Natural Capital:**
 - Evidence and engagement.
- **Baselining and Evidence Building**
 - Valuable data and analysis for understand place and space.
- **Strategy and Policy:**
 - Incorporation into vision documentation and policy.
- **Stakeholder Engagement**
 - Collaboration and interested parties.
- **Delivering Nature's Recovery**
 - Practical tool in project development.

Oldham Development Frameworks and Local Plan

The Ecosystem Services Maps helped formulate the site-specific allocation policy; requiring the developer to assess and uplift Ecosystem Services.

The Ecosystem Services Maps demonstrate types of activities and interventions which will be most beneficial, making it easier for the Council to focus its environmental investment requirements.

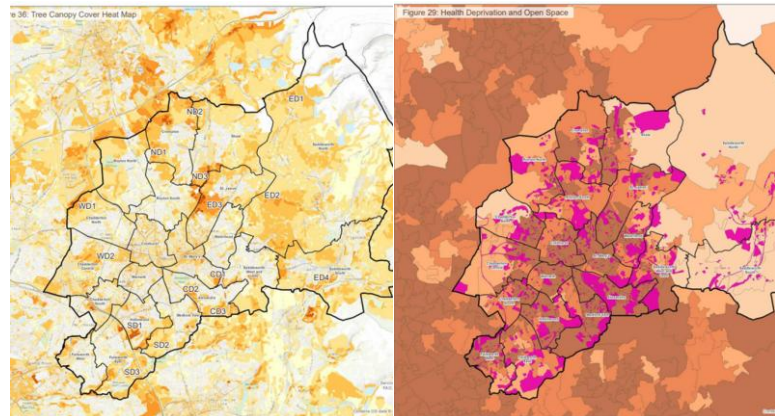
The Council intends to use the Ecosystem Services Maps to inform other development frameworks, open space contribution policy and the emerging Green Infrastructure Strategy.

Across the whole city the philosophy of Ecosystem Services uplift is helping planners to explore policies for urban greening. The city's Grow Green project has developed sponge city thinking through West Gorton Park – the “park that drinks water”.

Source: Oldham Council



Oldham, Greater Manchester
Open Space Study



Our Rivers Our City & Sponge City Thinking

Manchester City Council is developing a river valley strategy to guide development and investment in the Mersey, Medlock and Irk valleys to 2030, and recognise the high value of the Natural Capital that flows from the city's rivers.

Manchester is experiencing rapid population growth with a great need to tackle climate change and public health inequalities. The Our Rivers Our City Strategy is using Ecosystem Services Opportunity Mapping to direct investment in delivering opportunities in river valleys and greenspaces. The MP for Wythenshawe East and Sale, Mike Kane, has blogged about how river access helps in the fight against climate change.

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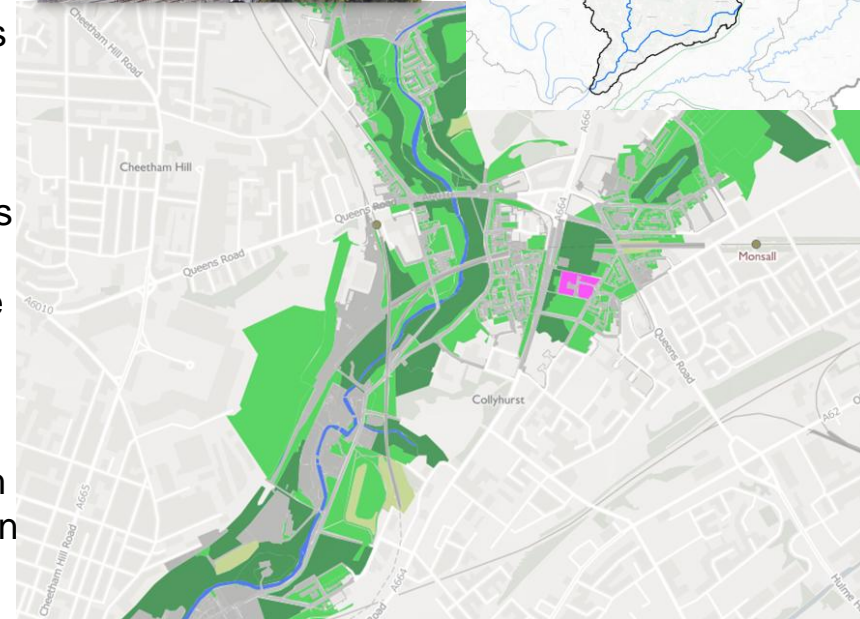
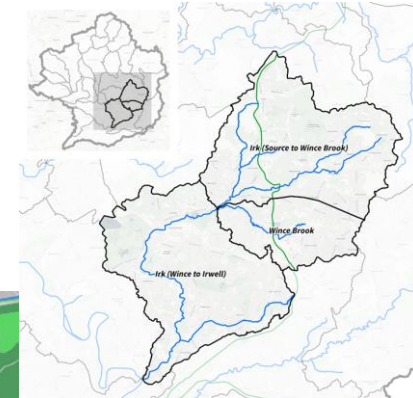
Irk Vision

This is a restoration project seeking to transform the Irk into a vibrant river corridor and mitigate the legacy of poor water quality resulting from the industrial revolution.

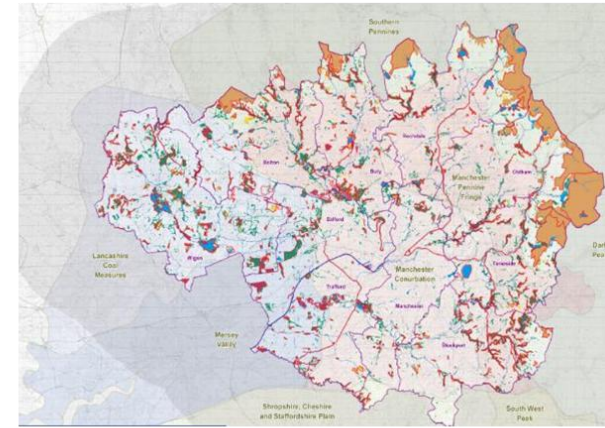
The Natural Capital Accounts were used in the early stages of project development to produce headline figures and to assist in developing business cases for project funding.

The Ecosystem Services Opportunity Mapping was used as part of the Natural Course catchment approach, combining the results with additional datasets to better understand the complexities of the river valley.

Both tools have been used by partners and consultants to assist the Bringing the River Irk to Life (BRIL) Project which is currently developing Action Plans for improvements within the Irk Valley in Rochdale and North Manchester.



Delivering Nature's Recovery



GM Nature Recovery Network

Local Nature Recovery Strategy

Planning policy

Collaboration

Funding models



GREATER MANCHESTER
DOING THINGS DIFFERENTLY

New or improved habitat that is connected and promotes the movement of biodiversity

What are the key priorities for, where they could be delivered and how?

Mechanisms for the delivery of nature recovery

Further Information



- <https://www.greatermanchester-ca.gov.uk/what-we-do/environment/natural-environment/natural-course/>
- <https://www.greatermanchester-ca.gov.uk/what-we-do/environment/natural-environment/biodiversity-net-gain/>
- <https://www.greatermanchester-ca.gov.uk/what-we-do/environment/natural-environment/our-plan-for-nature-recovery/>
- <https://www.greatermanchester-ca.gov.uk/what-we-do/environment/natural-environment/natural-capital/>
- <https://www.greatermanchester-ca.gov.uk/what-we-do/environment/natural-environment/ignition/>

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