

Greater Manchester Natural Capital Investment Plan – Baseline Review Annexes

Natural Course, GMCA / September 2018

Annex 1: Baseline review sources and evidence

This annex provides a list of evidence and sources included within the baseline review, as well as information summarised for each.

Table A1.1: Baseline review log of sources and evidence

Document	Reason for inclusion in baseline review
Greater Manchester Strategy	NCIP must support overall GM strategy
Local Industrial Strategy	Must support industrial strategy
Northern Powerhouse Strategy	Establish linkages – used as best proxy for local industrial strategy
UK Clean Growth Strategy	NCIP must support this
25 Year Environment plan	NCIP must support this
Urban Pioneer Strategic Plan	Sets natural capital priorities and objectives for the city region
GM Environment Charter & Summit outcomes	Can provide context, highlight how/where NCIP fits
GM Population Health Plan	Establish health priority links to natural capital outcomes
National Planning Policy Framework	To align with this framework, can help to identify priorities for development
GM Resilience Plan	Establish links of the NCIP to the Resilience Plan
'Taking charge of our health and social care in GM'	Establish health priority links to natural capital outcomes
Health and Harmony: Defra consultation on farming post Brexit	The future for food, farming and the environment in a Green Brexit – to consider future opportunities & risks
Greater Manchester Infrastructure Strategy Framework	Establish linkages to natural capital priorities, sets context
GM Spatial framework	Forthcoming – early draft reviewed, vital to align NCIP with priorities and opportunities identified in the GMSF
GM Strategic opportunity areas for Green & Blue Infrastructure	Those identified by GMEU for GMSF – to feed investment pipeline
Climate Change and Low Emission Implementation Plan	Identify links and potential NCIP contributions to targets
SCATTER	Outline pathways for GHG reduction, highlight where NCIP supports targets
Northern Forest	Use to identify priority areas for woodland, explore set up of investment
Manchester Tree Action Plan 2016-20	Use to identify priority areas for woodland, explore set up of investment

Document	Reason for inclusion in baseline review
Evidence Base and Potential Projects	
Urban Pioneer Natural Capital Accounts	Evidence for extent of natural capital assets and scale of benefits
The Natural Environment – Priority Green & Blue Infrastructure (Oct 2016)	Evidence for priority areas of investment
GMEU Natural Environment Targets Net Gain and Opportunity Areas (2018)	Evidence for priority areas of investment
Environment Agency Priorities for GM	Evidence for priority areas of investment
Irwell Natural Capital Account	Evidence for priority areas of investment, natural capital extent and condition
Natural Course ESS opportunity mapping	Evidence for priority areas of investment, natural capital extent and condition
GM Strategic Flood Risk Management Framework	Context for flood risk priorities
River Basin Management Plan	Context for water quality priorities
Irwell Strategic NFM Modelling Study May 2017	Includes flood risk priorities, nature-based solutions, natural capital projects
ANGSt data	Priority areas for recreational greenspace
MappingGM	Spatial mapping of social, environmental, economic metrics and priority areas
Sustainability Snapshot	Context of current situation also map of major projects
Defra innovative projects	List of potential projects for investment pipeline
Natural Capital Workshop (Nov 2017) Outcomes	List of projects in GM area
GM Environment Fund	Potential funding prospects, vital to develop plan with a mind to support the fund
GM Wetlands and Carbon Landscape	NIA project (Lancs WT)
City of Trees projects	GM-level natural capital initiative, map of urban tree planting opportunities,
Moors for the Future	Context of projects for uplands, can explore set up of investment
River valley restoration	Context of projects for river valleys, can explore set up of investment
UU AMP 6 & AMP7 (PR19)	Water investments, potential information on financing opportunities
EA Flood investment plans	Large natural capital investment implications, links to natural capital extent and condition
Grow Green and My Back Yard	Including opportunities/ to improve private gardens and public realm green space
HS2 Investment	Large investment, potential for opportunities around natural capital

Document	Reason for inclusion in baseline review
Low carbon investment fund	Potential for green infrastructure investments, example of fund development
Made to Move	GM-level initiative, large amount of funding, green infrastructure and physical activity links

Annex 2: Detailed literature review

This annex presents more detail regarding the key strategies, policies, and themes that emerged from the baseline review.

Greater Manchester Strategy

The NCIP should support the overall GM strategy, and in particular, make a major contribution to the following elements of the strategic vision:

- 'make Greater Manchester one of the best places in the world to grow up, get on and grow old'
- 'A place where people live healthy lives....'
- 'A place at the forefront of action on climate change, with clean air and a flourishing natural environment'
- 'A place of ideas and invention, with a modern and productive economy that draws in investment, visitors and talent'

The above elements are also reflected in the following three priorities selected from the full list of ten strategic priorities outlined in the GM Strategy:

- A thriving and productive economy in all parts of Greater Manchester. (Priority 4)
- A green city region and a high-quality culture and leisure offer for all. (Priority 7)
- Healthy lives with quality care available for those that need it. (Priority 9)

In the area of a productive economy, the NCIP should utilise opportunities for natural capital to increase the attractiveness of the region for inward investment, to demonstrate the value of investments in resilience to protecting the local economy, and to promote the benefits of a healthy and productive workforce to sustaining a thriving economy. In addition, investments in natural capital can also contribute to quality employment growth within GM.

The potential NCIP contributions to a green city region, are more obvious and include; delivering an outstanding natural environment, contributing to climate regulation via urban cooling and carbon sequestration, increasing opportunities for outdoor recreation, improving air and water quality, and enhancing biodiversity.

Finally, the role of natural capital in improving health outcomes and mental well-being is a key link to fulfilling this strategy, and is an opportunity to attract funding, mainly by avoiding future health costs.

Greater Manchester Spatial Framework

The Greater Manchester Spatial Framework is still in development and is due for forthcoming consultation. The project team has incorporated consideration of identified priority green and blue infrastructure and opportunity areas within the baseline review. It has also been noted that likely key features of the framework may include a focus on net gain policies and the setting of priority areas for green and blue infrastructure.

Industrial Strategy

Greater Manchester is at the heart of the Northern Powerhouse strategy, which in turn is closely aligned with the UK Industrial Strategy and UK Clean Growth Strategy. The national strategy is based around the 'five foundations of productivity'; Ideas, People, Infrastructure, Business Environment, and Places. The role of natural capital (perhaps) plays most strongly into 'infrastructure' and 'places'. For infrastructure at a national level, the National Productivity Investment Fund has been set at £31bn (to 2022/3), with priorities being housing and transport.

Similarly, under the foundation of 'places', the government has set aside a new Transforming Cities fund (£1.7bn) aimed at improving productivity through improving transport connections within city regions. A key challenge for the NCIP is to demonstrate how natural capital investments can support these drivers of productivity.

The national strategy also sees the main opportunities for future growth in four areas: AI & data economy, clean growth, the future of mobility and an aging society. The UK Clean Growth Strategy focuses around investments in the Low Carbon Environmental Goods and Services (LCEGS) Sector and includes; a Green Finance Taskforce (charged with delivery of the public and private investment we need to meet UK carbon budgets and maximise the UK's share of the global green finance market) and a policy area to enhance the value and benefits of natural resources. The latter includes specific commitments on the creation of a new network of forests, a £10m fund for peatland restoration, and a £99m agri-tech fund to explore innovative farming methods and a drive to improve future agricultural support to target better environmental outcomes.

The Northern Powerhouse Strategy is focused on joining up the major cities of the North to capitalise on their strengths and overcome specific barriers to productivity. These barriers include connectivity, skills, innovation and trade/investment. Major investments identified by this plan include £13bn in transport over five years and £3.3bn to the Local Enterprise Partnerships (LEPs).

The local industrial strategy for Greater Manchester is still work in progress, but the key challenge for the NCIP is to demonstrate to industrial thinkers the importance and value of natural capital to local industry.

Key linkages between natural capital and industrial strategies are the extent to which natural capital:

- boosts the health and productivity of the workforce,
- delivers on UK carbon targets and other improvements to natural resources
- acts as a boost to inward investment through making places more attractive to live and work, and
- supports resilience of the economy and infrastructure, for example through natural flood risk management and adaptation to climate change.

Health

There is a strong level of understanding of the link between the provision of green space and public health and well-being. For example, the GM Population Health Plan recognises the ‘Economics of Prevention’. Safe and accessible recreational space provides benefits of avoided physical and mental health costs and boosts productivity as well as enhancing well-being and bolstering a sense of community. This also has the potential to support the social equality agenda by highlighting areas of; higher deprivation, lower activity rates, poorer health and low levels of greens space provision. As per the GM Population Health Plan (p4): “Deeply embedded health inequalities, often between communities little more than a stone’s throw apart, have blighted individual lives and acted as a drag on our economy.”

GM Made to Move¹ is an important £1.5bn initiative in this area, in addition to GM Moving² which has just been awarded £10m in Lottery Funding. Both are aimed at linking mobility and health, in which green infrastructure will play an important role.

The key challenge for the NCIP is the extent to which investment in green space provides a value for money return in terms of lower health costs. It also highlights priority areas for improving health. Another important consideration is the opportunity provided by the devolvement of health budgets and the degree to which (in future) funds could be invested in natural capital as a prevention measure.

In the UK, there have been some limited examples of health budgets being used to provide recreation as a cost saving measure (such as allocation of public health budget to parks management in Newcastle³), but work in this area is growing. The Department of Health has also released details of a series of initiatives being funded under a £100m Health and Social Care Transformation Fund⁴. A portion of this funding has been set aside for ‘innovation funding’ which may have the potential to link to natural capital-based health outcomes and innovative mechanisms including the potential to further link to the GM Health and Social Care Partnerships’ social prescribing initiatives⁵.

¹ GMCA (2017) *Made to Move*

² <https://www.greatersport.co.uk/get-active/greater-manchester-moving>

³ As reported in the *Times* (2017). *Newcastle uses public health case to save city parks.*

⁴ Department of Health (DOH) (2018). *Health and social care transformation funding announced.*

⁵ GM Health and Social Care Partnership (2018). *GM Embraces prescribing for the person to improve mental health and wellbeing.*

Wider links to natural capital

Investing in natural capital will be crucial to meeting over half of the United Nations' Sustainable Development Goals (SDGs) which the UK is committed to. It will also be necessary to delivering the 25 Year Environment Plan⁶, Defra urban pioneer⁷ and the reform of agricultural policy post Brexit⁸. Locally relevant policies that include targets are the GM Green Summit⁹, the aspirations of the Mayor and the Greater Manchester Urban Natural Capital Pioneer, GM Resilience Plan¹⁰, the Greater Manchester Setting City and Area Targets and Trajectories for Emission Reduction (SCATTER)¹¹, and the Climate Change and Low Emissions Strategy (CCLES)¹² Implementation Plan, and the Northern Forest¹³ and local emerging tree strategy and plans¹⁴.

Clearly, developing a NCIP is part of the urban pioneer's commitment to supporting the 25 Year Plan, and demonstrates how GM can be an exemplar in managing the urban environment.

The GM Low Carbon Hub's CCLES 2020 vision sets out the priority for natural capital very clearly; "By 2020, our natural environment, and the ecosystem services it provides, still need to be both protected and (where possible) enhanced in light of increasing pressures from people, the economy and a changing climate. Our natural capital must also be embedded into the decision-making for sustainable economic growth investments, enhancing their success and resilience."
(CCLES Implementation Plan 2015-20)

This highlights the need to understand the link between natural capital and the sustainability of investment decisions. To maximise the success of the NCIP, the investment pipeline should aim to highlight how investments support economic growth and the resilience of the local economy.

Infrastructure

There are numerous sources of investment in infrastructure, but the key connections for developing the NCIP are the degree to which some of this investment can be utilised for the provision or enhancement of natural capital. Opportunities for investment in natural capital identified within the Greater Manchester Infrastructure Strategy include:

- Green and blue infrastructure financing and funding;
 - Including sustainable transport (where natural capital is enhanced, rather than exploited), habitat enhancement and biodiversity, resilience;

⁶ HM Government (2018) [A Green Future: Our 25 Year Plan to Improve the Environment](#)

⁷ EA & GMCA (2018). [Defra Urban Pioneer Strategic Plan](#)

⁸ DEFRA (2018). [Health and Harmony: the future for food, farming and the environment in a Green Brexit](#)

⁹ [GM Green Summit](#)

¹⁰ [GMCA \(2017\). 100 Resilient Cities - Greater Manchester Agenda-Setting Workshop - Summary Report](#)

¹¹ [Tyndall Centre \(2018\). Quantifying the implications of the Paris Agreement for Greater Manchester - Setting City and Area Targets and Trajectories for Emission Reduction \(SCATTER\).](#)

¹² [GM Low Carbon Hub \(2016\). Climate Change and Low Emission Strategies' Whole Place Implementation Plan for Greater Manchester \(2016-2020\)](#)

¹³ [The Woodland Trust – Northern Forest](#)

¹⁴ [Manchester City Council \(2017\) Manchester Tree Action Plan \(2016-20\)](#)

- Natural solutions that provide better returns than conventional engineering solutions – e.g. Sustainable Drainage Systems (SuDS), catchment management to improve water quality;
- Investment to enhance the local environment and thereby improve the attractiveness for investors and buyers – e.g. gateway developments; and
- Compensation for development – e.g. biodiversity offsets for developers and transport projects (particularly where offsetting is within Greater Manchester boundary).

Key investment areas are transport (airport development, HS2, local road/rail, cycleways and footpaths to improve connectivity), development/housing (especially green infrastructure to support larger developments, such as the Manchester Housing Providers Partnership holdings), water quality (especially investment plans of United Utilities) and flood resilience. The project has made limited contact with the housing association sector, but in the next phase of the project this potential for infrastructure investment will be explored further, along with schools and other public service providers.

Key national policy is the National Planning Policy Framework (NPPF) which sets national priorities and approaches. Locally, the GM spatial plan. is important for understanding the spatially priorities and opportunities for the city region.

Annex 3: Spatial analysis – sources and method

This annex presents the methodology used to assess the spatial data reviewed to explore the natural capital priorities and opportunities within Greater Manchester. Table includes detail regarding the data layers assessed as well as the method and rationale developed for scoring and weighting of each.

Table A3.1: Spatial analysis data layers and method

	Attribute	Data Layer	Methodology				
			Method	Score		Weighting	Notes
Assets	Priority green and blue infrastructure	Priority Green and Blue Infrastructure Areas. GMEU	Higher score given to natural capital / spatial areas that align with identified priority GI & BI for GM, lower score given to those that do not	0	An area does not align with priority GI and/or BI	3	Weighting based on evidence base supporting these data layers - the GM Spatial Framework (forthcoming publication) that identifies priority GI & BI by combining data including (not exhaustive): • European protected sites (Special Protection Areas and Special Areas of Conservation) • Nationally protected sites (Sites of Special Scientific interest and National Nature Reserves) • Local Wildlife Sites, including Sites of Biological importance and Local Nature Reserves • Excludes private gardens
				1	An area aligns with priority GI and/or BI		
	Green and blue infrastructure opportunity areas	GM Strategic Opportunity Areas for Improvement of Green and Blue Infrastructure. GMEU.	Higher score given to natural capital / spatial areas that align with identified GI & BI opportunity areas for GM, lower score given to those that do not	0	An area does not align with opportunity areas	3	
				1	An area aligns with opportunity areas		
Quality	Air quality management areas	Air Quality Management Areas (AQMAS). Defra.	Higher score given to natural capital / spatial areas within air quality management areas, lower score given to those that are not	0	An area is not within an air quality management area	2	Weighting as evidenced by the results from GM's Natural Capital Account - air quality benefits large (£41m/yr) and represent avoided human health costs.
				1	An area is within an air quality management area		

	Attribute	Data Layer	Methodology				
			Method	Score		Weighting	Notes
	WFD Status	Water body Classifications. Environment Agency.	Higher score given to natural capital / spatial areas with poor water quality status, lower score given to those with 'good' or 'high' water quality status	Our score	Data category (status overall)	1.5	Weighting as evidenced by Natural Course work and GM Spatial framework identifying water quality management as priority ecosystem services.
				1	Fail		
				1	Poor		
				1	Moderate or less		
				1	Moderate		
				1	Supports good		
				0	Good		
				0	High		
	Agricultural land classification	Provisional Agricultural Land Classification (ALC). Natural England.	Higher score given to natural capital / spatial areas with poorer agricultural land grades, lower score given to those with higher agricultural land grades	Our score	Data category (grade)	1	Weighting as evidenced by the results from GM's Natural Capital Account - value of agricultural production (£50m/yr).
				1	Grade 5 - Very poor		
				0.75	Grade 4 - Poor		
				0.5	Grade 3 - Good to moderate		
				0.25	Grade 2 - Very good		
				0	Grade 1 - Excellent quality		
Social Indicators	Index of Multiple Deprivation (IMD)	Index of Multiple Deprivation (IMD) at Lower Super Output Area (LSOA) level. ONS	Higher score given to natural capital / spatial areas within more deprived areas, lower score given to those with less deprived areas	Our score	Data (where 1 is most deprived 10% of LSOAs)	3	Weighting as evidenced by relative budget - significantly more public funding is devoted to social outcomes (health care, social programmes, etc) than WFD, flood risk etc.
				1	1		
				0.8	2		
				0.7	3		
				0.6	4		
				0.5	5		
				0.4	6		
				0.3	7		
				0.2	8		
				0.1	9		
				0	10		

	Attribute	Data Layer	Methodology				
			Method	Score		Weighting	Notes
	Access to Natural Greenspace (ANGSt)	The ANGSt dataset calculates accessibility of semi-natural greenspace in LSOAs using data created from Ordnance Survey and Open Greenspace and Natural England designation data.	A higher score on the targeting layer is given where there is less access to semi-natural greenspace, calculated for each of the four criteria: 300m from 2ha; 2km from 20ha; 5km from 100ha; and 10km from 500ha	0-1	Mean of the ANGSt score for each of the four criteria, normalised to follow the 0-1 scale	2	
	Activity levels	Active Lives Survey Small Area Estimates at Middle Super Output Area (MSOA) level. Sport England.	Higher score given to natural capital / spatial areas within less active areas, lower scores given to those in more active areas	Our score	Data (% people inactive)	3	Weighting as evidenced by the results from GM's Natural Capital Account - physical activity benefits high (nearly £150m/yr), as well as physical health being a cross-cutting priority identified in various strategies and frameworks (e.g. GM Strategy, GM Spatial Framework, GM Made to Move).
				1	32.55-40.7%		
				0.75	28.8%-32.4%		
				0.5	24.9%-28.7%		
				0.25	21.5%-24.8%		
				0	9.8%-21.4%		
Ecosystem services	Flood risk	Flood Areas (aka flood cells) - areas of land which are hydraulically independent of each other - as defined by Phase 1 of the State of the Nation project. Environment Agency.	Higher score given to natural capital / spatial areas within areas of higher flood risk, lower score given to those in areas of lower flood risk	Our score	Data score (flood risk level)	1.5	Weighting as evidenced by Natural Course work and GM Spatial framework identifying Surface water and fluvial flood management as priority ecosystem services.
				0	1 - Very low		
				0.5	2 – Low		
				0.75	3 – Medium		
				1	4 – High		

	Attribute	Data Layer	Methodology				
			Method	Score		Weighting	Notes
Major development areas	Housing, office and industrial	Strategic Housing and Employment Land Availability Assessment (SHELAA) - interim GIS data supplied to project team July 2018. Development area is the combined total extent of identified development land for housing, offices, and industry. Will be updated when new data is supplied. GMCA.	Higher score given to natural capital / spatial areas that align with significant housing development opportunities, lower score given to those that do not	0	An area does not align with significant housing development opportunities	1.5	Weighting based on development providing opportunity to impact social criteria but also links to infrastructure (and natural capital) investment.
				1	An area aligns with significant housing development opportunities		

Annex 4: Spatial analysis – mapping outputs

This annex presents the maps developed for each data layer used as part of the scoring exercise.

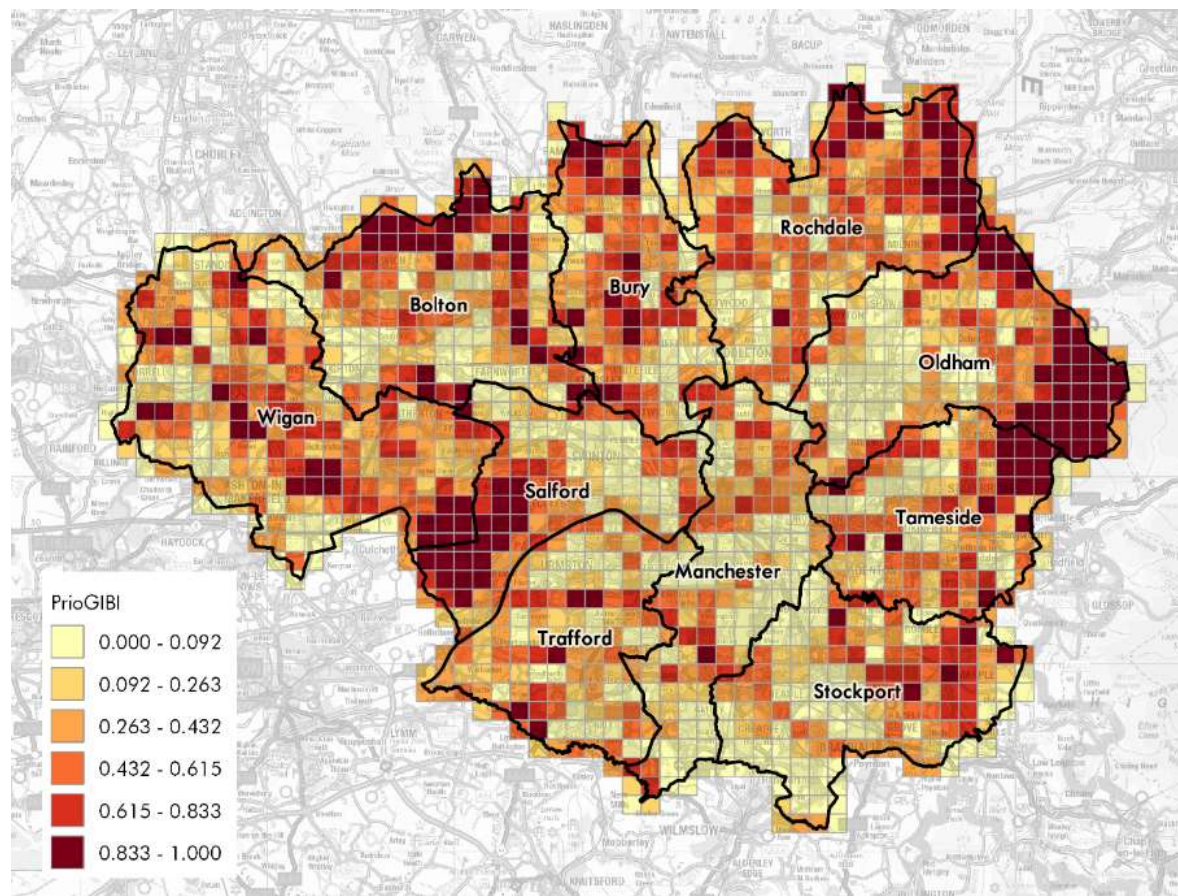


Figure A4.1: Priority green and blue infrastructure (higher score for areas that align with priority green and blue infrastructure)

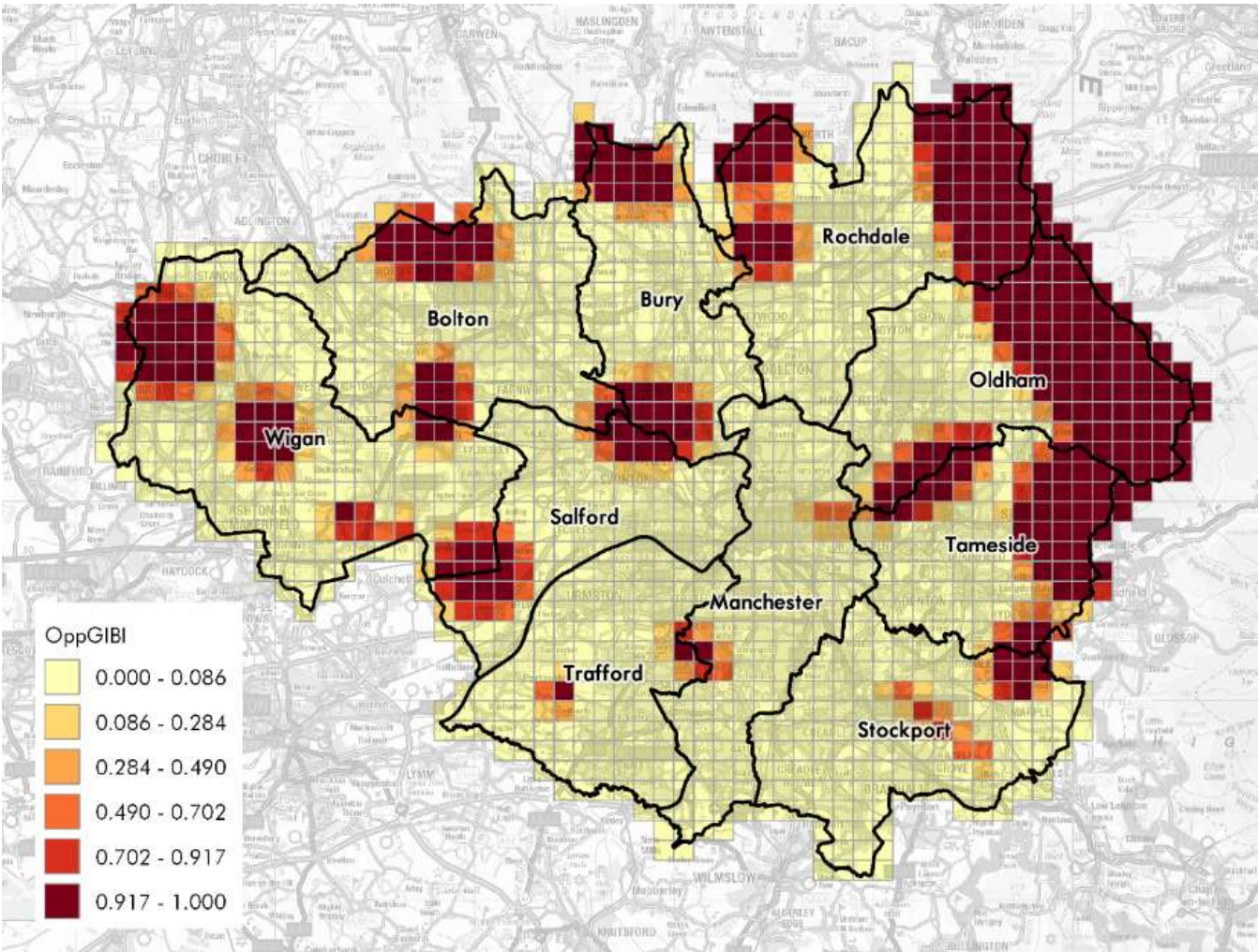


Figure A4.2: Priority green and blue infrastructure - opportunity areas (higher scores for areas that align with opportunity areas identified)

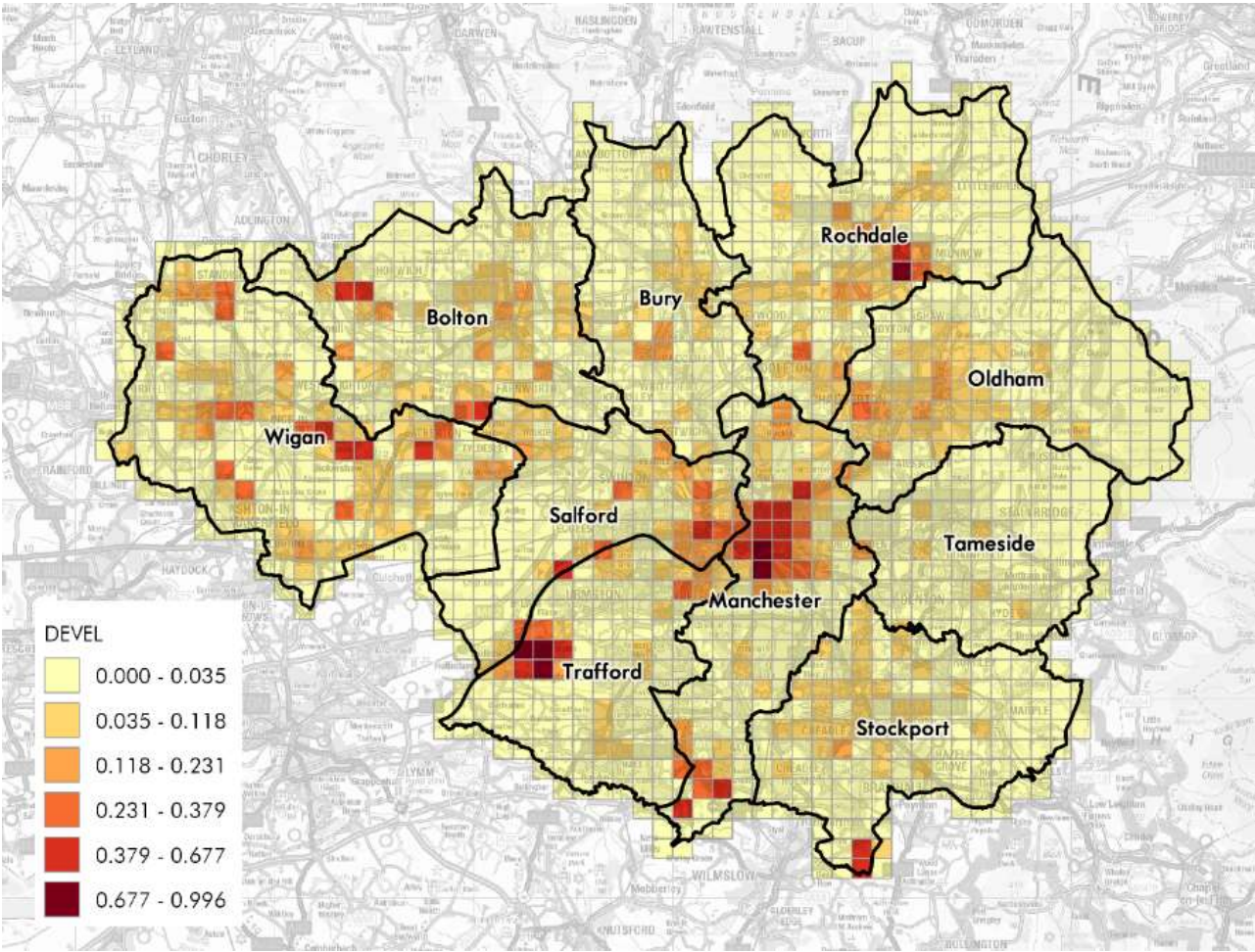


Figure A4.3: Major development areas – housing, commercial, industrial (higher score for areas that align with major development areas – to highlight opportunities for natural capital investment as part of development)

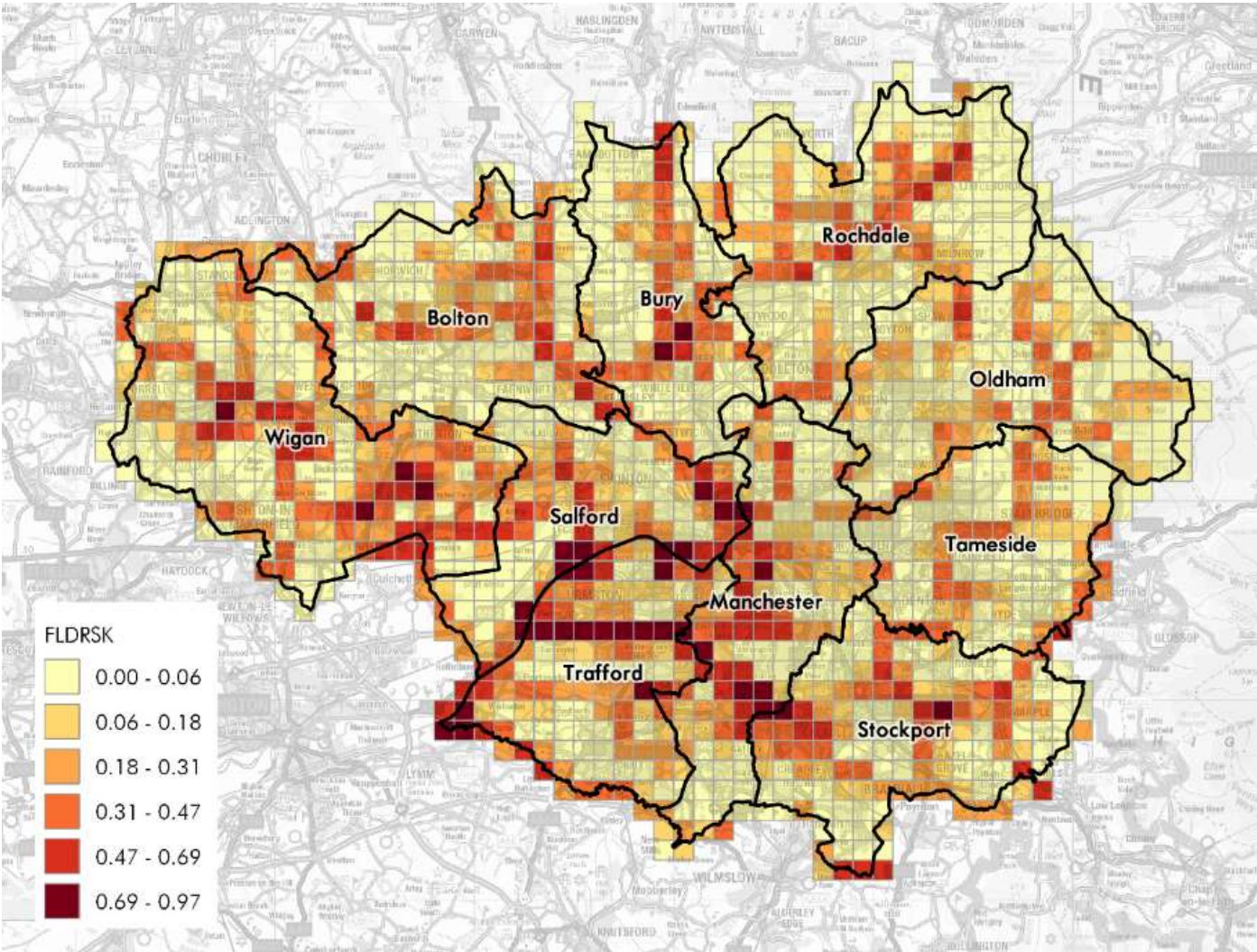


Figure A4.4: Flood risk (higher score for areas with higher flood risk)

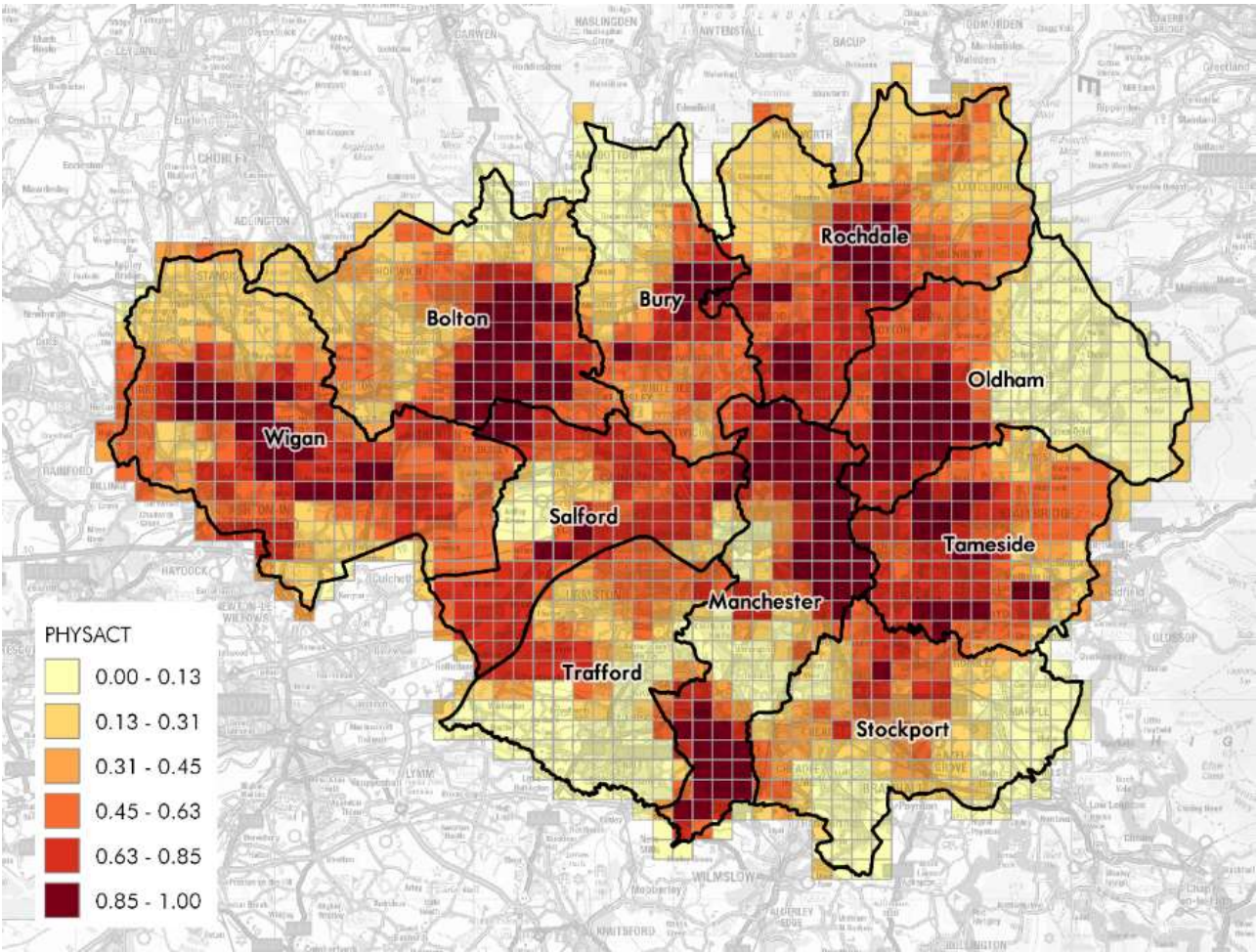


Figure A4.5: Physical activity levels (higher scores for areas with higher levels of inactivity)

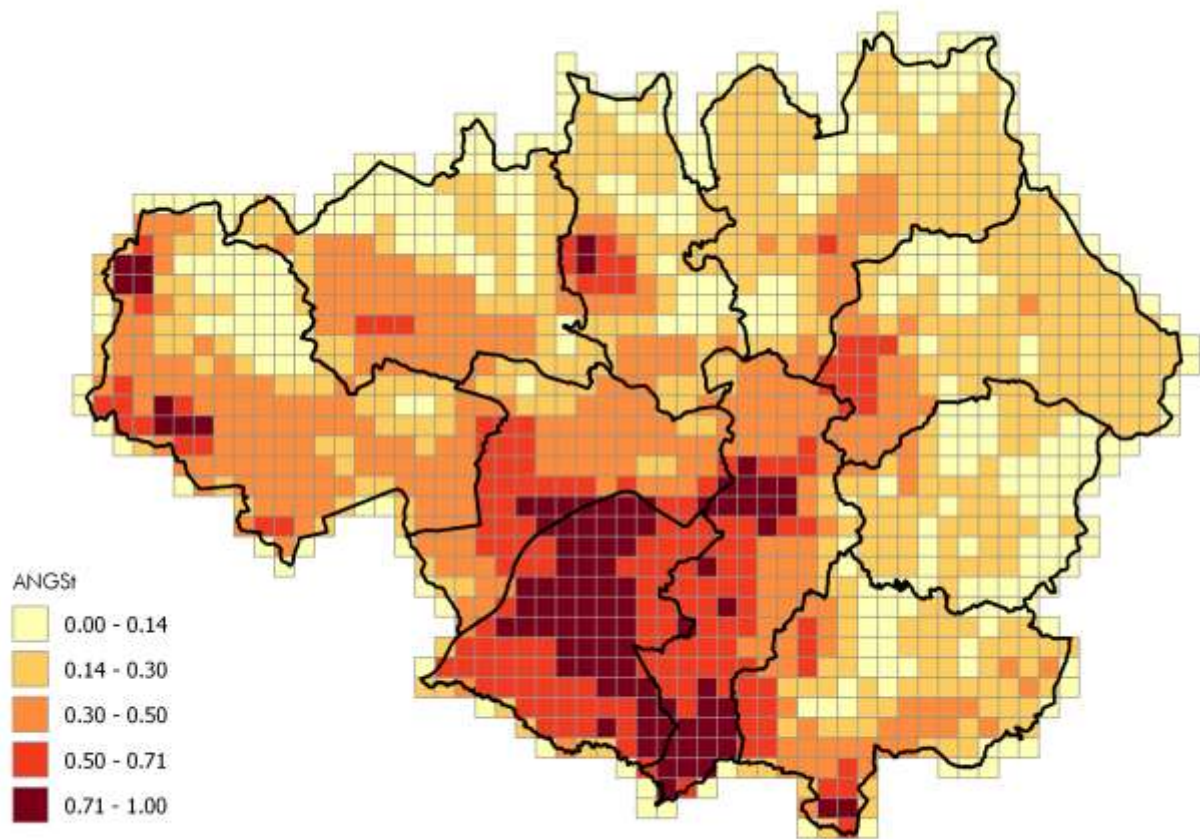


Figure A4.6: Accessible Natural Greenspace (ANGSt)

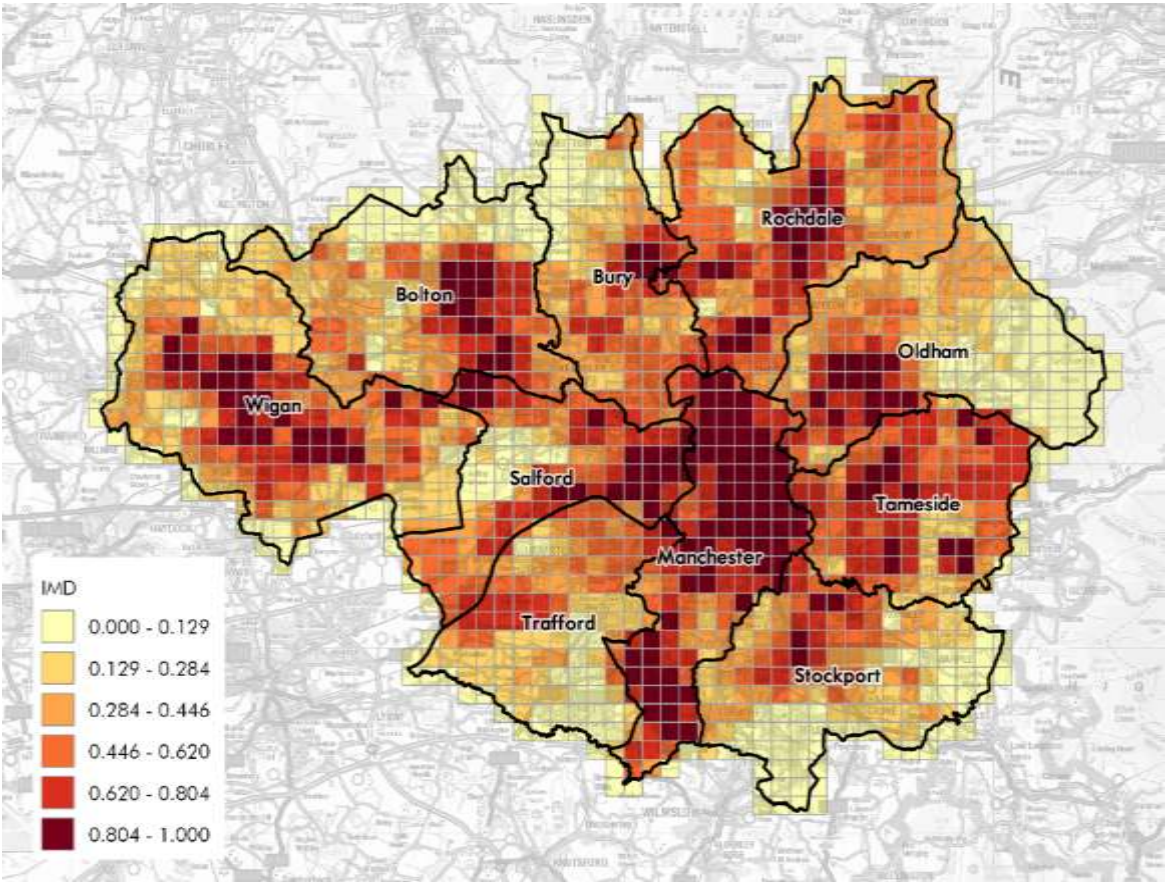


Figure A4.7: Index of multiple deprivation (higher score for most deprived areas)

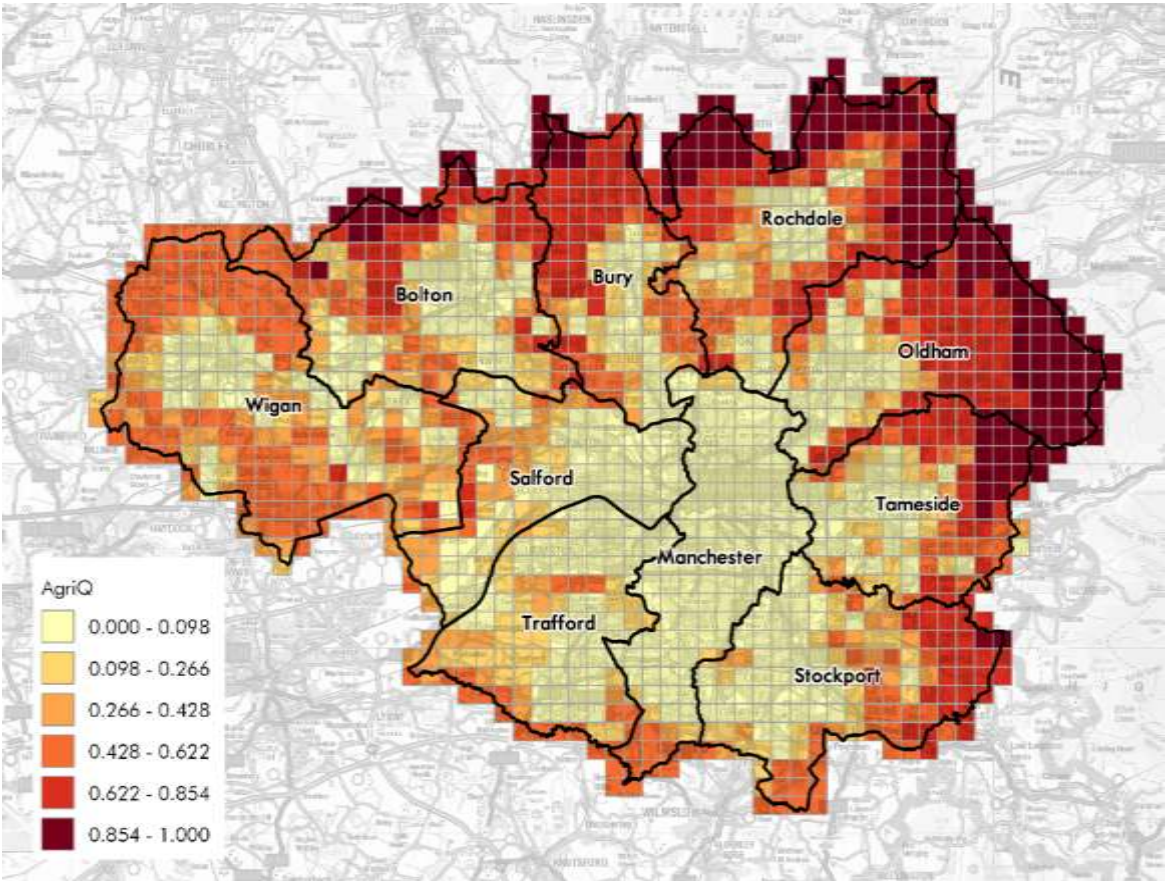


Figure 4.8: Agricultural land classifications (higher score for areas of lower agricultural quality)

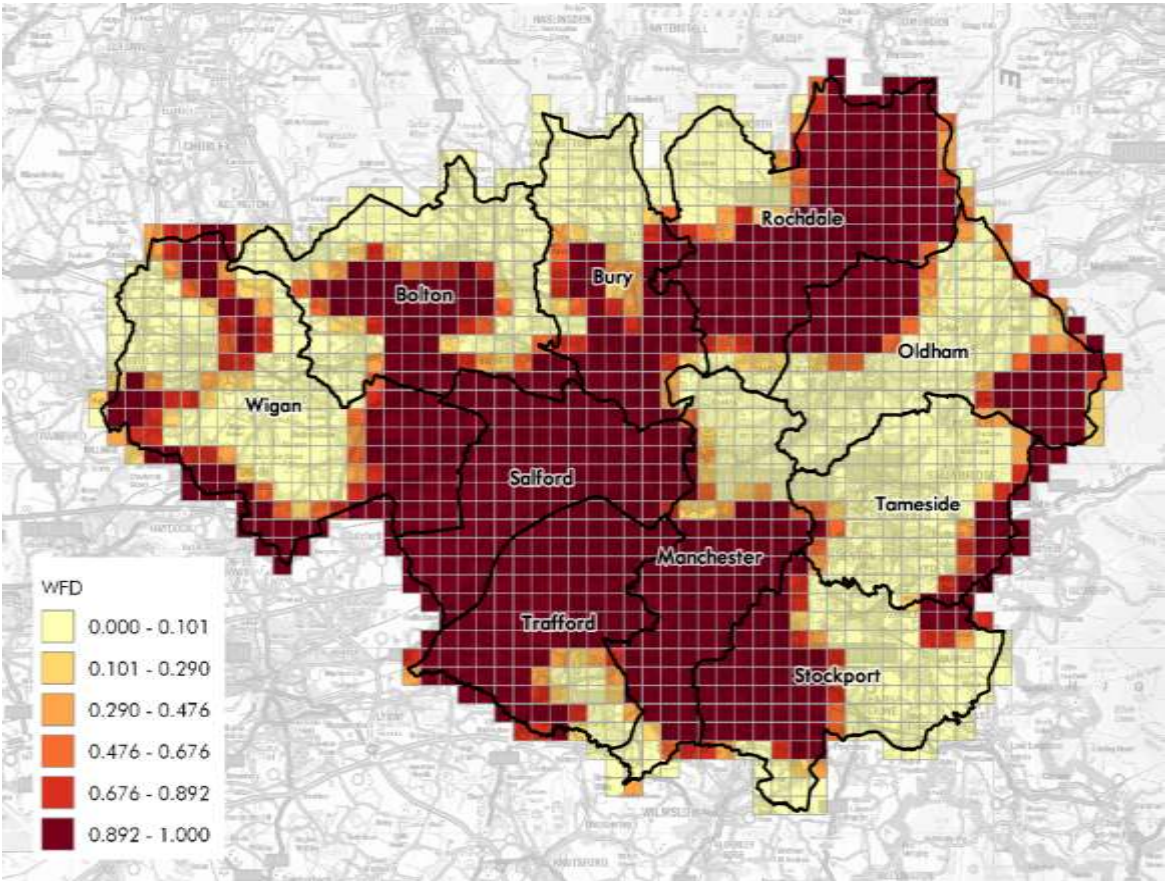


Figure A4.9: Water Framework Directive (WFD) status (higher score for areas with lower water quality)

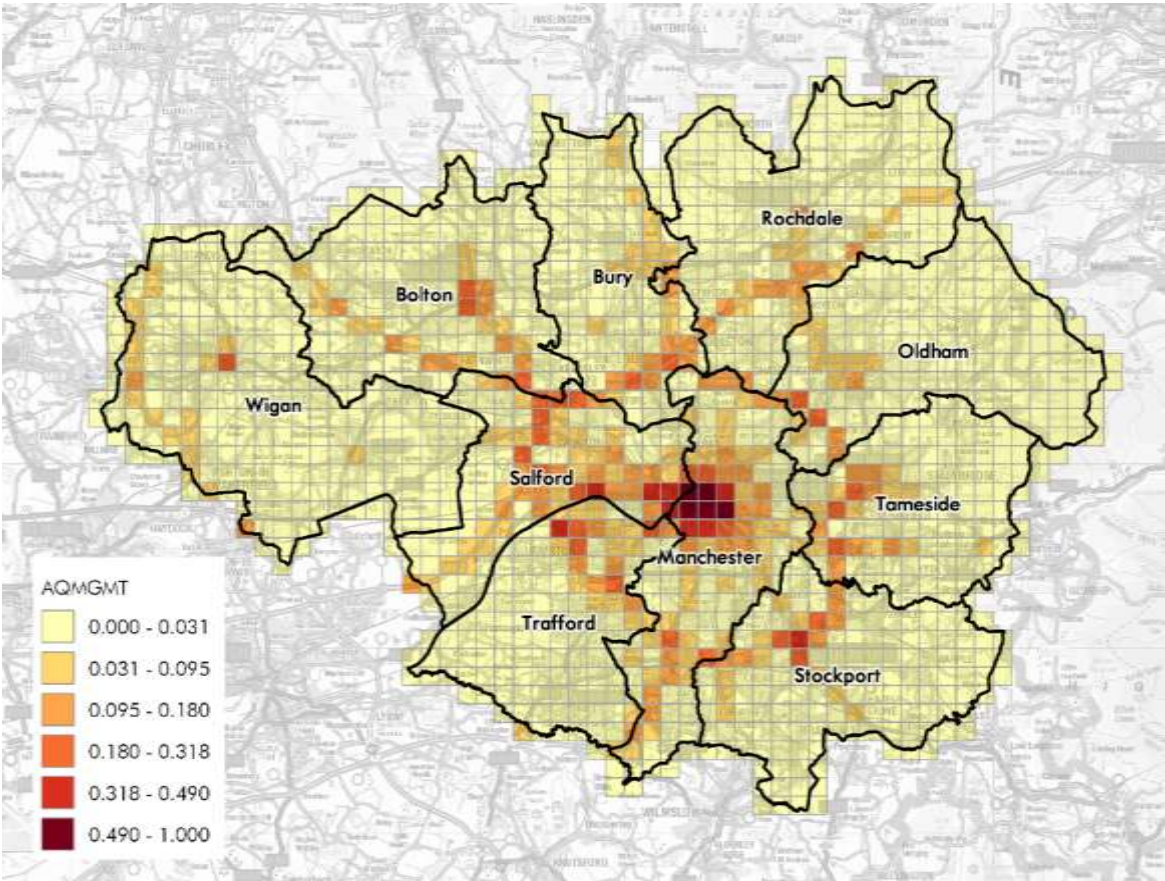


Figure A4.10: Air quality management areas (higher score for areas with lower air quality – i.e. those within management areas)

Annex 5: Project review

This annex presents the information gathered as part of the project review. This list represents an initial review of identified projects, but is not exhaustive. Further projects will be considered throughout following stages of this work, and gaps in information will be used to further refine and focus the stakeholder consultation.

Table A5.1: Overview of information summarised for the project review

Project	Organisation(s)	Asset(s) concerned	Benefit(s) impacted (to whom, where – e.g. health benefit to individual, cost saving to health service, employer, social care system)	What value? (£ or other terms)	Funding level	Revenue mechanism (e.g. is there one? Can one be created e.g. social prescribing?)	Future prospects (including whether a finance solution can be created)
Northern Forest	City of Trees, Community Forest Trust, Woodland Trust and outside GM; The Mersey Forest, White Rose Forest, South Yorkshire Forest, HEYwoods..and many partners inc. Network Rail and Highways England	Woodland creation and woodland management, urban tree planting and SuDS	Climate change mitigation, urban cooling, flood risk mitigation, improved air quality, improved water quality, recreation, physical health and wellbeing, avoided health care costs, avoided water treatment costs	Projected economic value is over £2.2 billion, with wider economic benefits (improved health and wellbeing) estimated over £2.5 billion.	Economic costs is estimated at £500m over the next 25 years.	Could be supported by social prescribing, corporate sponsorship (improving worker productivity, making area more attractive)	Finding investors/funding, possibility to further link social and health care funding for prevention,
City of Trees (Overall)	City of Trees	Woodland, trees, urban GI, SuDS. Numerous projects beyond those listed under City of Trees below.	Amenity, recreation, carbon sequestration, urban cooling, air quality, health and well being, place making, water management, community empowerment	Numerous including avoided health care costs, water treatment/management costs, carbon sequestered	Numerous initiatives seeking funding	Business Improvement District, Carbon credits	GM scale, potential to explore corporate sponsorship, habitat banking/offsetting from large development projects

Greater Manchester Natural Capital Investment Plan

Project	Organisation(s)	Asset(s) concerned	Benefit(s) impacted (to whom, where – e.g. health benefit to individual, cost saving to health service, employer, social care system)	What value? (£ or other terms)	Funding level	Revenue mechanism (e.g. is there one? Can one be created e.g. social prescribing?)	Future prospects (including whether a finance solution can be created)
Green Connections	City of Trees	Trees, cycleways and foot paths	Improved air quality, and connectivity for residents of GM	Avoided health care costs	Estimated cost of £35 million	Potential for corporate sponsorship, or through infrastructure development funding	GM scale, potential to explore corporate sponsorship, habitat banking/offsetting from large development projects
City ReLEAF. Greening the Manchester / Salford City Centre, as well as other centres through Town Centre Challenge	City of Trees, Manchester & Salford city councils, ARUP and development partners	Urban / street trees and SuDS	Urban population in Manchester and Salford City Centres, SuDS, flood mitigation, air quality, mental health, amenity, attracting and retain investment through high quality placemaking	Water treatment cost savings, health cost savings,	Estimated cost of £10 million	Potential for business sponsorship or Green Business District model, but this scale needs a formal funding mechanism	Potential to explore water bill reduction funded retrofit, Payment for Ecosystem Services (PES) scheme, potential to up-scale to GM region through Mayor's Town Centre Challenge (1000 street trees)
Urban Catchment Forestry	City of Trees	Woodlands, urban trees	Flood risk mitigation, improved water quality for residents of Greater Manchester and water company	Avoided water treatment costs	Estimated cost of £3 million	Potential for 'resilience rebates' from insurance industry, offsetting, habitat banking, local authorities as LLFAs	Possibility to upscale project across GM region
City Forest Park	City of Trees, Forestry Commission, UU, SCC, Bury Council	Paths and cycle ways, trees and open space	Recreation and physical health for residents in Salford, Bury and Bolton. Supports wildlife and biodiversity, as well as all the other benefits that green space provide - water management,	Avoided health care costs, economic benefits (attractiveness of area)	Seeking investors	Possible as general intervention or specific mechanism e.g. social prescribing	Possibility to link social and health care funding to green infrastructure for prevention

Greater Manchester Natural Capital Investment Plan

Project	Organisation(s)	Asset(s) concerned	Benefit(s) impacted (to whom, where – e.g. health benefit to individual, cost saving to health service, employer, social care system)	What value? (£ or other terms)	Funding level	Revenue mechanism (e.g. is there one? Can one be created e.g. social prescribing?)	Future prospects (including whether a finance solution can be created)
			place making, CC adaptation and mitigation				
Citizen Forester	City of Trees	Trees, green space, paths and cycleways	Engagement and training of range of groups to develop and maintain GI across GM. Providing health and well-being benefits as well as management of GI	Avoided health care costs and GI management	£1m p.a.	Social prescribing, corporate sponsorship and or engagement	Wide spread mechanism for land management and health and well-being development.
Trees for cleaner air	City of Trees, TfGM and Districts with academic research partners	Trees, hedges	Improved air quality through range of GI interventions targeted at poor air quality hot spots and schools with poor air	Avoided health care costs as well as all the other benefits GI brings	£5m+	Fine avoidance, Public health investment	Increasing need to use GI to help reduce poor air quality
Manchester Tree action plan	Urban greenspace	Trees, hedges	Improved air quality, carbon storage, flood control and biodiversity benefits for Ardwich, Bradford and City Centre wards	Water treatment cost savings, human health cost savings		Potential for corporate sponsorship	Possibility to upscale project to GM region, possibility to link social and health care funding to green infrastructure for prevention
Climate Change and Low Emission Strategies' whole place implementation plan for Greater Manchester	Overall strategy for GM region (GMCA Low Carbon Hub)	Trees and woodland	Carbon Storage		Project requires £15 billion in funding to be aligned with low-carbon goals	Potential for offsetting, habitat banking	
Irwell NFM Modelling Study	GMCA	Catchment system, SuDS	Flood risk mitigation	Water treatment cost savings, human health cost savings		Potential for 'resilience rebates' from insurance industry, offsetting, habitat banking	Possibility to further link social and health care funding for prevention

Greater Manchester Natural Capital Investment Plan

Project	Organisation(s)	Asset(s) concerned	Benefit(s) impacted (to whom, where – e.g. health benefit to individual, cost saving to health service, employer, social care system)	What value? (£ or other terms)	Funding level	Revenue mechanism (e.g. is there one? Can one be created e.g. social prescribing?)	Future prospects (including whether a finance solution can be created)
Environment Agency capital flood programme	Radcliffe and Redvales scheme (Bury). Rochdale and Littleborough Scheme (Rochdale)	SuDS, Green Infrastructure	Up-stream NFM work, Flood risk mitigation	Scheme is expected to deliver £455 million in benefits over its lifetime	£2million pledged by Radcliffe and Redvales council (Bury). £12 million pledged by Defra (£7 million to Bury, £5 million to Rochdale)		Potential to upscale project to other at-risk locations in Greater Manchester.
Natural Course	GMCA, Natural England, United utilities, Rivers Trust, Environment Agency	Land holdings of United Utilities and farmers, Irwell Catchment	WFD, water quality, phosphorus management	Water treatment and flood damage cost savings, also biodiversity and human health and wellbeing	High – €20m (Natural Course as a whole)	Lacking, but potential for UU and other businesses (esp. urban areas) to invest based on water treatment cost savings	Over 10-years will build capacity to protect and improve the North West water environment
Water Resilient Cities	United Utilities. Greater Manchester combined authority, BiTC, Defra	SuDS	Flood risk mitigation, water quality improvement, enhanced biodiversity, improved health and well-being, outdoor learning for 1,300 schools in GM	Estimated benefits valued at £11.9 million plus additional benefits of c£83m.	Estimated cost of £10 million	Potential for business sponsorship based on avoided water treatment costs, or 'resilience' rebate from investment industry	Possibility to upscale project to more schools and include health care centres
Chat Moss	GM Wetlands – LWT and partners	Peat bog	Health and recreation for the population of Salford, nature conservation, carbon storage, outdoor learning opportunities	Avoided health care costs		Potential for offsetting and habitat banking, 'resilience rebate' from insurance sector, company sponsorship due to reduction in water bills	Possibility to upscale project to other priority assets in GM region

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EA Priorities for Greater Manchester	Environment Agency	Bickershaw priority habitat – catchment system	Flood risk mitigation for residents of Wigan, WFD for water companies	£56 million in flood defence grant in aid spend in the next 4 years		Possibility to upscale project to GM region	
Town Centre Challenge	Greater Manchester Investment Fund (GMIF), GMCA	Potentially green infrastructure	Economic growth	Local economic impacts (increased retail and commercial activity)			
Grow Green	Manchester City Council	Green infrastructure in West Gorton	Improved air quality, flood risk mitigation, recreation, physical health, biodiversity	Avoided health care costs, economic benefits (attractiveness of area)	"£1.4 million capital		
Greater Manchester Health and Social Care Devolution	GMCA	Parks, open spaces, leisure and safe cycling routes	Public access, health benefits, population health prevention	€2.3 million revenue"	Possible as general intervention or specific mechanism e.g. social prescribing.	Possibility to upscale project to other priority areas in Greater Manchester	
Carbon Landscape	Lancashire Wildlife Trust and partners	Salford – Irlam and Chat moss	Public access, recreation, physical health	QALY, avoided health care costs	Part of £6 billion health and social care budget	Possible as general intervention or specific mechanism e.g. social prescribing	Possibility to link social and health care funding to green infrastructure for prevention
Wetland of Wigan (The Flashes)	GM Wetlands – LWT and partners	Wetlands	Health and recreation for the population of Wigan, nature conservation, carbon storage, outdoor learning opportunities	Avoided health care costs		Avoided health care costs	Possibility to upscale project to other priority assets in GM region
Mersey Wetlands corridor	GM Wetlands – LWT and partners	Wetlands	Health and recreation for the population of Merseyside, nature conservation, carbon storage, outdoor learning opportunities	Avoided health care costs		Insurance industry could provide revenue streams from avoided costs	Possibility to upscale project to GM region

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Greater Manchester Moving	Greater Sport	Physical activity/ Green infrastructure, mental health	Improved air quality and avoided health care costs for GM population	£26 million in avoided health care costs, £1.2 billion in value added	£10 million funded by Sport England, £2 million funded by Greater Manchester Health and Social Care Partnership	Could be supported by social prescribing, corporate sponsorship (improving worker productivity, making area more attractive)	Possibility to further link social and health care funding for prevention
Made to Move	Mayor of Greater Manchester	Walking and cycling paths/ Green infrastructure	Improved health outcomes, improved air quality, avoided health care costs,	£3.75 billion in avoided cost per annum	A £1.5 billion fund to be ring-fenced for infrastructure (a portion of this will include investments in Green infrastructure)	Could be supported by social prescribing, corporate sponsorship (improving worker productivity, making area more attractive)	Possibility to further link social and health care funding for prevention
Health and Harmony	Defra	Forestry, horticulture and agriculture industries	Habitat creation, biodiversity, flood risk management, air quality improvement, carbon storage			Potential to link to new farming subsidy payments which are linked to environmental outcomes	To inform development of post-Brexit agri policy
Moston Brook Green Corridor	Oldham council	Wrigley Head, Hardman Fold, Broadway, Moston Fairway	Public access, recreation and physical health, avoided health care costs			Potential for offsetting and habitat banking, 'resilience rebate' from insurance sector, company sponsorship due to reduction in water bills	
Carbon reduction and Fuel poverty	Canal and river trust	Manchester canal network	Carbon storage, using canal water for heating and cooling, reduced heating/cooling costs		Estimated cost of £100,000	Potential for business	Potential to link to infrastructure funding, also could

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						sponsorship – pay for reduction in bills	be applied to wider areas
Urban cooling	Cirkadia	Manchester canal network	Urban cooling	Avoided loss of productivity, avoided health care costs	Estimated cost of £20,000	Potential for business sponsorship – linking to worker productivity	Potential to link to infrastructure funding
Health and Natural Capital Integrated Approaches		Green infrastructure	Physical health, mental health, avoided health care costs		Estimated cost of £120,00 over 3 years	Could be supported by social prescribing, corporate sponsorship (improving worker productivity, making area more attractive)	
Access improvement for sustainable commuting	Canal and river trust	Manchester canal network	Carbon storage, improved air quality, physical health, avoided health care costs	Healthy workforce, air quality improvements, local economic impacts (increased connectivity, attractiveness of an area)	Estimated cost of £500,000	Potential for habitat banking, offsetting, business sponsorship (improved attractiveness of area)	Potential to link to infrastructure funding
Transforming Cities Fund	DfT	Green infrastructure	Worker connectivity, improved air quality, physical health, avoided health care costs carbon storage,	Healthy workforce, air quality improvements, local economic impacts (increased connectivity, attractiveness of an area)	Transforming Cities fund (£1.7bn)	Fund to apply for	
HS2, airport expansion	Transport projects, linear networks	Green infrastructure	Worker connectivity, physical health, avoided health care costs carbon storage,	Productivity, local economic impacts (increased connectivity, attractiveness of an area)	High - £bns	Habitat banking and offsetting funds	

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Irk river valley project	Manchester City Council	Green infrastructure	Recreation, physical health	Avoided health care costs, local economic impacts (increased connectivity, attractiveness of an area)		Avoided health care costs support social prescribing	Potential to upscale project to priority areas within the Greater Manchester area
RHS Garden Bridgewater	RHS	Green infrastructure	Recreation, physical recreation	Avoided health care costs, local economic impacts (increased connectivity, attractiveness of area)	£30 million	Avoided health care costs could support social prescribing	
One Public Estate/Housing Package	Greater Manchester Combined Authority, Manchester City Council	Potentially green infrastructure	Potential to provide access and exposure (and all associated benefits) through delivery of green infrastructure		2015/16: £250,000		
Bee Lines (part of Made to Move)	Transport for Greater Manchester	Cycling and walking infrastructure	Improved air quality, physical health	£15 per person spend in Greater Manchester	Combined budget of £500 million, part of the planned £1.5 billion investment	Avoided health care costs could support social prescribing	
My Wild City	Lancashire Wildlife Trust, Manchester City council, City of Trees, Southway Housing Trust	Green infrastructure	support wildlife, improved water and air quality, SuDS, avoided water treatment costs, recreation and physical health, avoided health care costs		c £50k	Potential for offsetting and habitat banking, 'resilience rebate' from insurance sector, company sponsorship due to reduction in water bills	

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Greater Manchester Rivers Volunteer Project	Mersey Basin Rivers Trust, Salford Friendly Anglers	Improving natural capital	Support biodiversity, physical health, avoided health care costs,		Estimated cost of £210,000 over 3 years	Potential for offsetting and habitat banking, 'resilience rebate' from insurance sector, company sponsorship due to reduction in water bills	
Sense of Place and Volunteer Empowerment	Lancashire wildlife trust	Improving natural capital	Carbon mitigation		Estimated cost of £150,000 over 3 years	Potential for offsetting and habitat banking	
River Medlock naturalisation pilot study	Manchester City Council	River Medlock	Urban catchment system, avoided water treatment costs, Improved water quality, biodiversity		Estimated cost of £50,000 over 6-12 months to fund concept development, engagement and intervention pre-feasibility design and engagement.	Potential for streams through reduced bills, habitat banking, offsetting, business sponsorship (improved attractiveness of area)	
MoorLIFE 2020	Peak District National Park, Moors for the future Partnership, National Trust, RSPB, Pennine Prospects	South Pennines Special Area of Conservation	Improved water quality, biodiversity		€16 million project will receive €12 million funding from the EU LIFE programme. It is co-financed by Severn Trent Water, Yorkshire Water and United Utilities.	Continued corporate sponsorship (improved water quality)	

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IRCAMP	EA, Groundwork, LWT, Blue Sky	Delivering operational riparian maintenance and oversight	Biodiversity, flood risk mitigation across all 10 districts		£30,000 per year	Funding scheme with 80% provided by EA, and matched funding by Groundwork	Project expected to continue in perpetuity
NW Quadrant Study	TFN/HE/TfGM	Green infrastructure	Improved air quality, noise reduction	Local economic impacts (increased connectivity, attractiveness of area), Avoided health care costs		Increase in adjacent real estate, avoided health care costs could support social prescribing.	
Atlantic Gateway	Overarching strategy for multiple projects and partners (public & private)	Green infrastructure	Improved air quality, noise reduction, flood risk mitigation		£14bn on various projects across GM and Merseyside	Voluntary levy (Community Environment Fund)	
Mayfield Development	Manchester City Council	Green infrastructure	Recreation, air quality, climate regulation		£850m development	Development contributions	
Bolton Town Centre	Bolton Council	Green infrastructure across five sites	Recreation, air quality, climate regulation, connectivity		£1,000m development	Development contributions	
Northern Gateway (masterplan still to be finalised)	Manchester City Council, Far Eastern Consortium	Green infrastructure (155ha development)	Public access, economic benefits (increased attractiveness to visitors, employees, businesses), recreation and physical health, avoided health care costs		In consultation. High – over £1bn	Potential for economic benefits to area	Potential to greatly improve natural capital as part of development

4 City Road, London EC1Y 2AA



+44 (0) 20 7580 5383



eftec@eftec.co.uk



eftec.co.uk



@eftecUK