

**ANDY BURNHAM**  
MAYOR OF  
GREATER  
MANCHESTER  
[#GMGreenCity](#)

# Connecting People with Nature

## Greater Manchester Natural Capital Group Annual Conference

Tuesday 16<sup>th</sup> Jan  
Manchester Museum  
9.30 – 16.00

 Join the  
conversation  
[#GMGreenCity](#)

**GMCA** GREATER  
MANCHESTER  
COMBINED  
AUTHORITY

**NATURAL**  
OUR WATER. OUR FUTURE  
**COURSE**



  
**RESIN**

**MANCHESTER**  
1824  
The University of Manchester

  
**MANCHESTER MUSEUM**

# Natural Capital Group Greater Manchester's Local Nature Partnership

Anne Selby

Chief Executive

Wildlife Trust for Lancashire, Manchester and North Merseyside

BOLTON  
BURY

MANCHESTER  
OLDHAM

ROCHDALE  
SALFORD

STOCKPORT  
TAMESIDE

TRAFFORD  
WIGAN

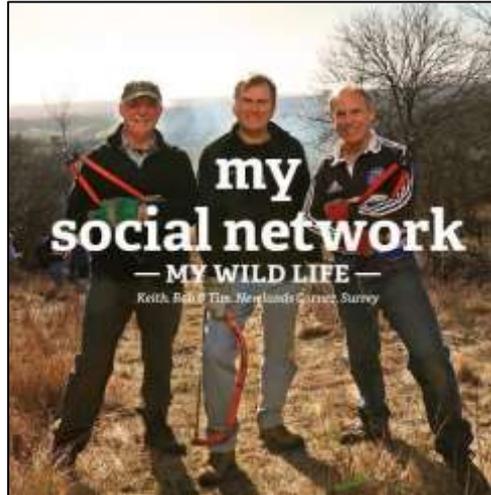
# What's this?



# The Wildlife Trusts want to see...



People close to nature, with land and seas rich in wildlife

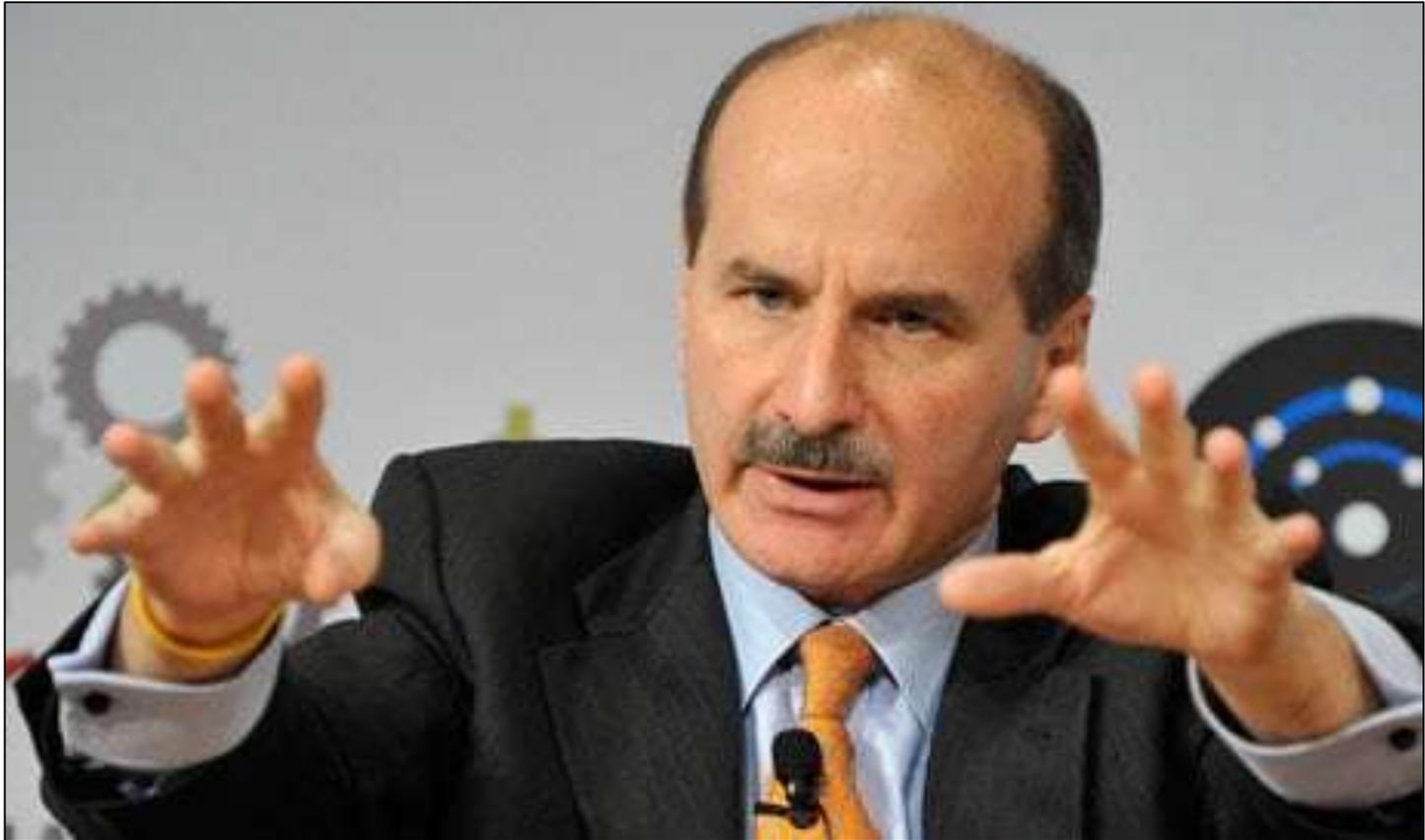


# What do you believe?



# "there's no planet B"

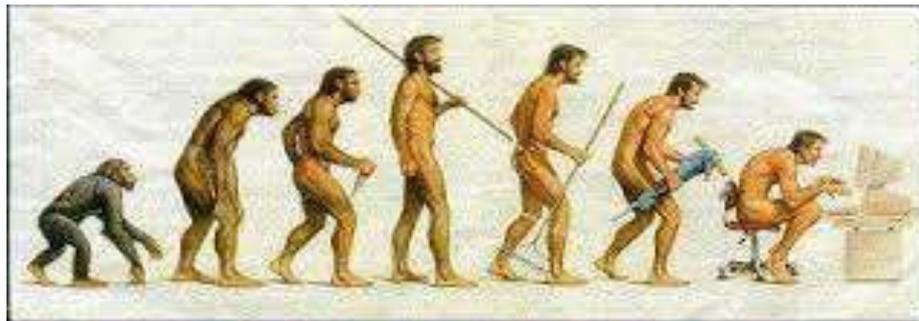
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# What's the need?



# An outdoor species?



Somewhere, something went terribly wrong

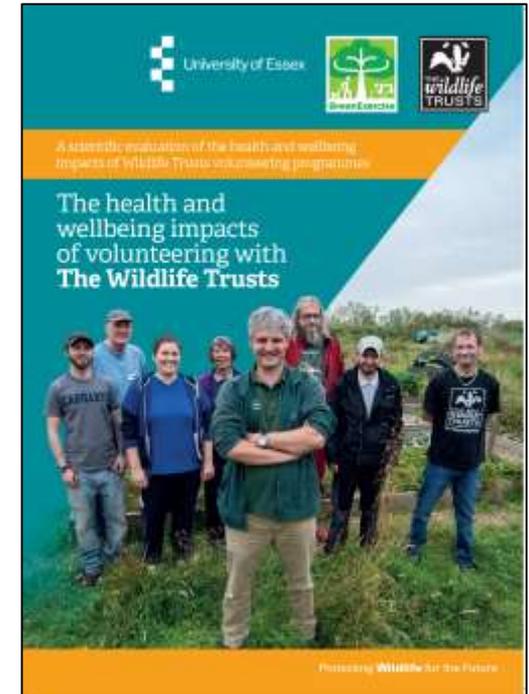


# Report 3: Health & Wellbeing Impacts



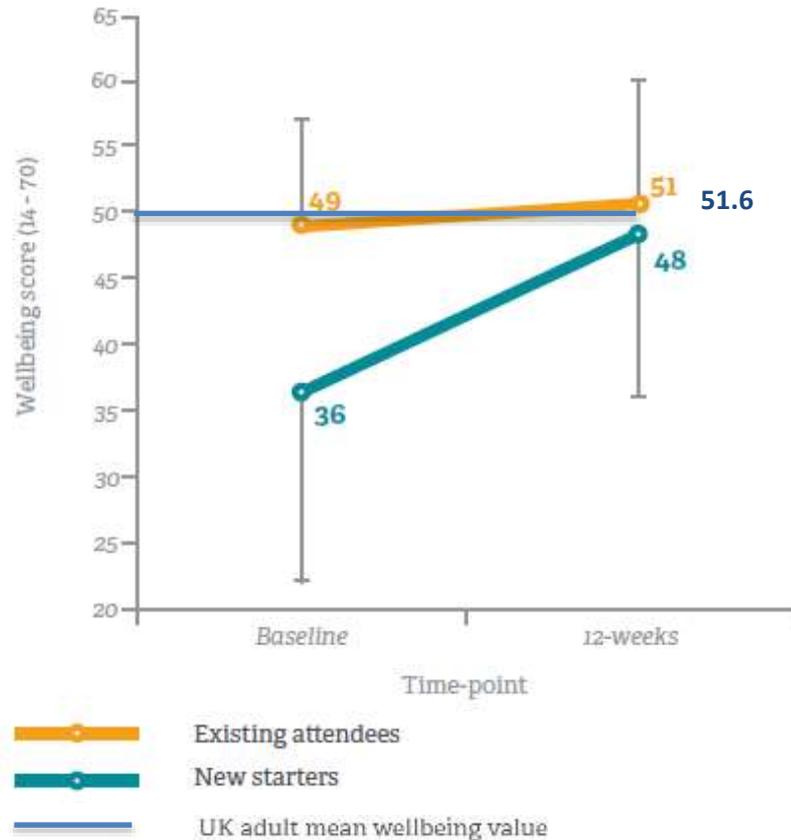
A research project which measured

- mental wellbeing;
- connectedness to nature;
- changes attitudes and behaviours.



# Key Findings – Mental Wellbeing

Figure 7. Mean ( $\pm 1$  SD) baseline and 12-week wellbeing scores by attendance classification

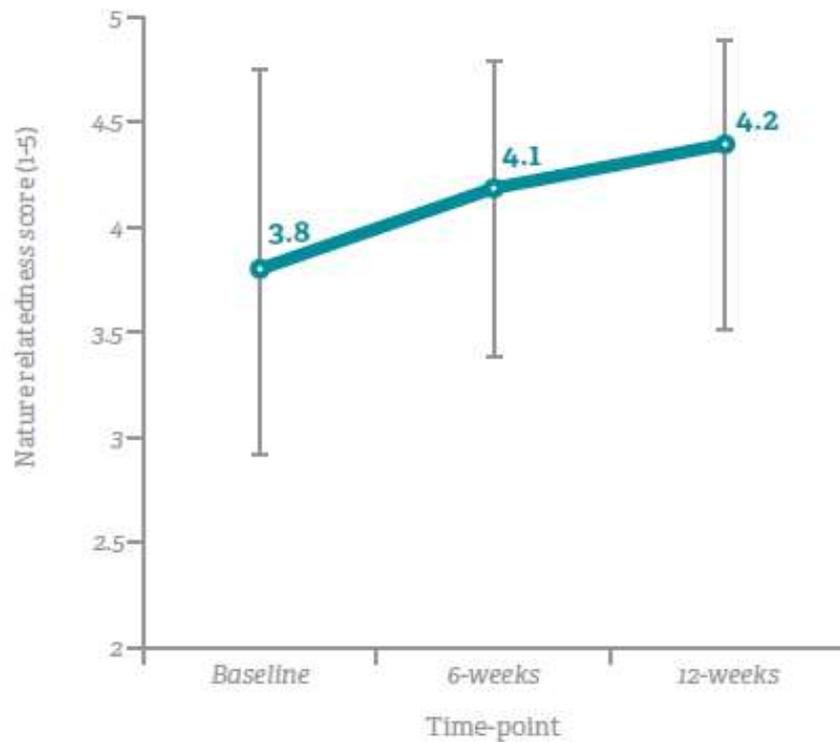


The percentage of participants reporting low wellbeing scores declined from 39% at baseline to only 19% at 12-weeks.



# Key Findings

Figure 12. Mean ( $\pm 1$  SD) nature relatedness scores by time-point; data collected from participants across all three time-points



Levels of nature relatedness increased to a statistically significant extent.



# #30 Days Wild



## Random Act of Wildness

A Random Act of Wildness is a simple action that you can take anywhere that allows you to experience, discover or take action for nature. They can be done anywhere and by anyone, of any background and any age.



# In their own words...

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**"a living space for positive change"**



# In their own words...



**Walking into the woods, my head was quiet for the 1<sup>st</sup> time in 10 years**



# Good evidence



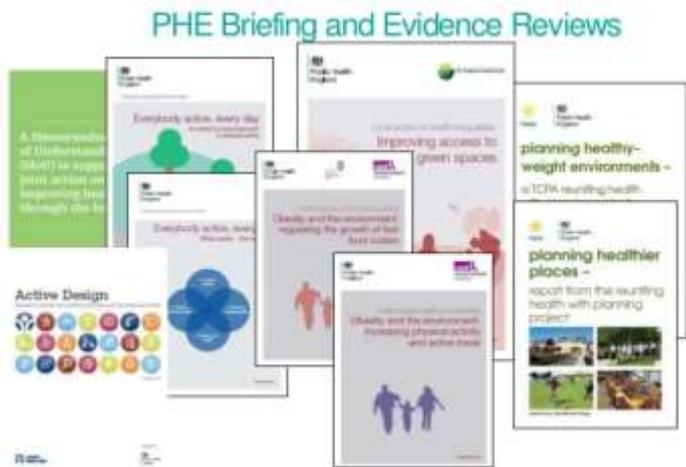
 Department  
for Environment  
Food & Rural Affairs

 European Centre for  
Environment & Human Health  
 UNIVERSITY OF  
EXETER | MEDICAL SCHOOL

**Evidence Statement on the links between natural environments and human health**



# Public Health England – green spaces



1. There is significant and growing evidence on the physical and mental health benefits
2. Access to good quality green space is associated with a range of positive health outcomes
3. Access to green space is not equal across the population of England.
4. Increasing the use of **good quality green space** for all social groups is likely to improve health outcomes and reduce health inequalities.
5. Local authorities play a vital role in protecting, maintaining and improving local green spaces



# Sustainable Transformation



**Professor John Middleton, president of the UK Faculty of Public Health:**  
*“It is a great step forward that this research has now shown some of the benefits. Authorities should look to develop such schemes – it is cheaper than medication and social care, and the improvements to the environment made by volunteers also give us a lasting legacy for the community.”*



# The Next 25 years?

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# Greater Manchester Moving > ^ < v

## The Ambition

Everyone more active, to secure the fastest and greatest improvement to the health, wealth and wellbeing of the 2.8m people of Greater Manchester

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# Why physical activity outdoors?

- ✓ Physical Wellbeing
- ✓ Mental Wellbeing
- ✓ Individual Development
- ✓ Community Development
- ✓ Economic Development



# Why do we need to connect with the natural environment?

A growing body of research suggests that exposure to nature and time outdoors also provides health benefits, particularly for mental health and an improved sense of well-being. A popular explanation is biophilia—the idea that humans have an innate connection and attraction to Nature

Over the last decade, a large amount of research has been carried out into the diverse benefits for children of contact with nature and outdoor experiences. These benefits include positive impacts on education, physical health, emotional wellbeing and personal and social skills, including the development of responsible citizens.

## Nature Deficit Disorder: Causes and Consequences

**'For a new generation, nature is more abstraction than reality. Increasingly, nature is something to watch, to consume, to wear - to ignore.'**

**Richard Louv, *Last Child in the Woods*.<sup>6</sup>**

"Exposure to nature increases people's social wellbeing, even a fleeting look at something natural can make a difference. And yet, today "we are becoming more disconnected from the nature around us, nature that we inherently are a part of, not separate from."

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# Our Inactivity Crisis



Inactivity rises to 33.9% in lowest income groups

## The impact of physical inactivity - Greater Manchester area

### HEALTH COSTS OF PHYSICAL INACTIVITY



1 YEAR

£58,674,621



5 YEARS

£293,373,105

### DISEASE CATEGORY COST BREAKDOWN PER YEAR

BREAST CANCER	CANCER LOWER GI <small>e.g. bowel cancer</small>	CEREBROVASCULAR DISEASE <small>e.g. stroke</small>	DIABETES	CORONARY HEART DISEASE
£3,463,716	£4,134,973	£8,249,278	£11,362,210	£31,464,444

SOURCE: DOWNLOADED FROM SPORT ENGLAND LOCAL SPORT PROFILE ON 15/01/17

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# Evidence Led: What do we know?



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# The Potential: Our People

The people of Greater Manchester have spoken.

Did you know that:



**Greater  
Manchester  
Health and  
Social Care  
Partnership**

## There is huge potential for more people to ride bikes...

-  5% of Greater Manchester residents **usually cycle to and from work**
-  25% of people live within **125m of a cycle route**
-  54% would like to **start riding a bike, or could ride their bike more**
-  27% **think cycling safety is good**

(Sustrans, TfGM, Bike Life 2017)

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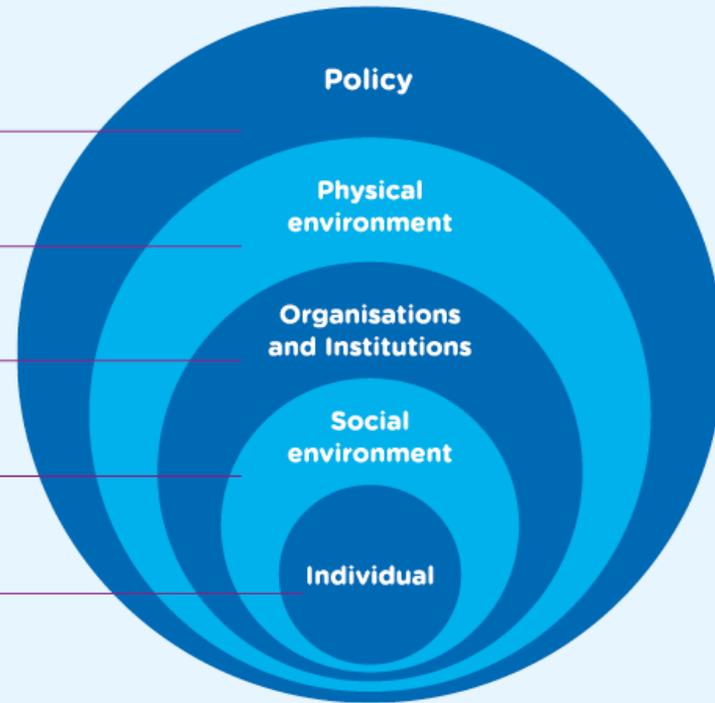
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## Population level change requires 'whole system' approaches

- > International and national guidance and laws, local laws and policies, rules, regulations, codes
- > Built, natural, transport links
- > Schools, health care, businesses, faith organisations, charities, clubs
- > Individual relationships, families, support groups, social networks
- > Individual capabilities, motivations, opportunities, knowledge, needs, behaviours



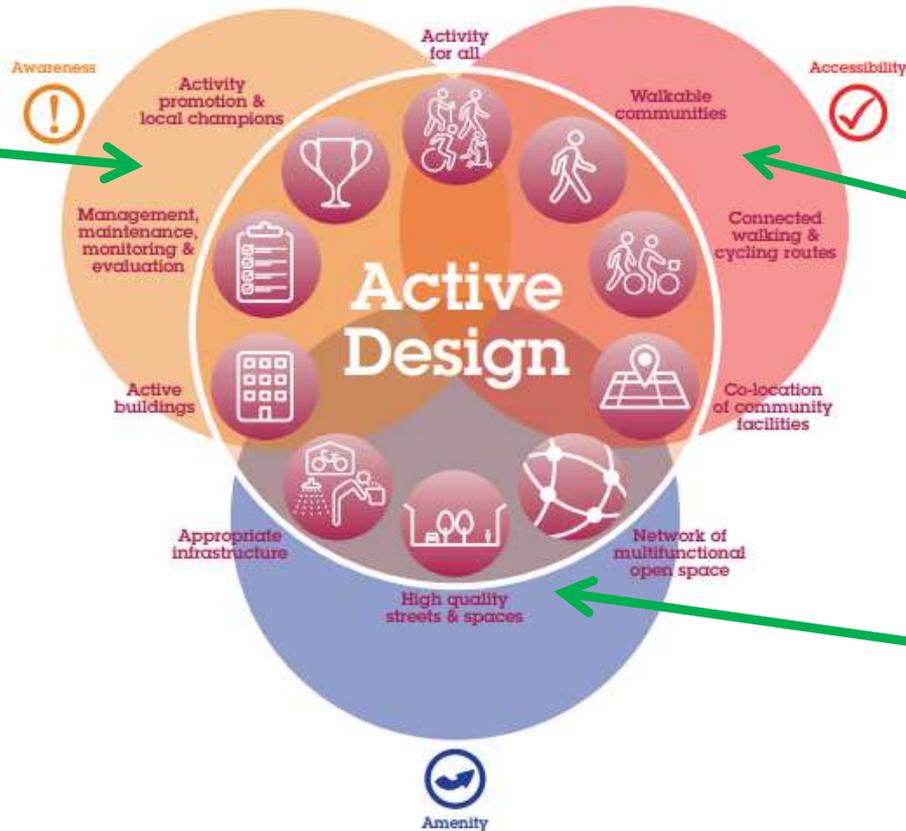
# The Potential: Our Places

Places and spaces for all activities, and all purposes, and the potential for more, and better.



*(Sustrans, TfGM, Bike Life 2017)*

## The Ten Principles of Active Design



- Activity promotion and local champions;
- Maintenance, monitoring and evaluation

- Activity for all
- Walkable communities;
- Connected walking and cycling

- High quality streets and spaces;
- Network of multi-functional open space

# The Potential: Our Partnerships and Commitment

*Increasing the proportion of us who are regularly active will result in better physical and mental health and wellbeing, the strengthening of friendships, family and community relationships.*

*It will help our city region to flourish, with a stronger, more vibrant economy.*

*Improved air quality and reduced congestion, resulting from our growing active travel habits will help us to meet our climate change obligations, ensuring a more sustainable future for everyone. (Andy Burnham, Mayor of Greater Manchester, GM Moving, 2017)*



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# The Potential: Our Partnerships and Commitment



*“Transform Greater Manchester into a world-leading greener, cleaner city region, improving the health and quality of life for millions of people and protecting our green spaces and environment for future generations”*

*“An active life should be the norm, with people of all ages and from all backgrounds walking and cycling as part of their daily routine, supported by our transport infrastructure and attractive open spaces”*

*(Andy Burnham, Mayor of Greater Manchester)*

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## GM Moving Priority 7.3

Maximise the potential of outdoor environments to support and inspire people to live active lives by creating a Greater Manchester Moving Active Outdoors network, in doing so contributing to key environmental outcomes for Greater Manchester such as the Low Emission Strategy and Air Quality Action Plan.

This includes: the development of the Active Forest initiative, creating green connections, utilisation of neighbourhood parks and green spaces for formal and informal recreation

# #GMMoving

## A Call to Action

1. Pledge.
2. Active Outdoors Network/GM Moving Outdoors.
3. Grow the movement.

@gmmoving @LouRobbins  
Louiser@greatersport.co.uk



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# THIS is the Place!



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Greater Manchester Sport Partnership

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# Greater Manchester's green infrastructure – What do the maps tell us?

**Sarah Lindley, Geography, University of Manchester**

Contributors: Matthew Dennis , Philip James , Gina Cavan , Konstantinos Tzoulas , Penny Cook , Phil Wheeler , Anna Gilchrist , Dave Barlow , Jessica Thompson & John Handley

A photograph of a field of yellow flowers, likely rapeseed, with people walking through it. The image is partially obscured by a white banner at the bottom.

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**Connecting People with Nature**  
Greater Manchester Natural Capital Group Annual Conference

# Green infrastructure and the Health and wellbeing Influences on an Ageing population (GHIA)



[www.ghia.org.uk](http://www.ghia.org.uk)



# What do we aim to do?

- To better understand the benefits and values of urban GI to older people and how GI attributes and interventions can best support healthy ageing in urban areas.

Greater Manchester as the case study

Older adults as co-researchers

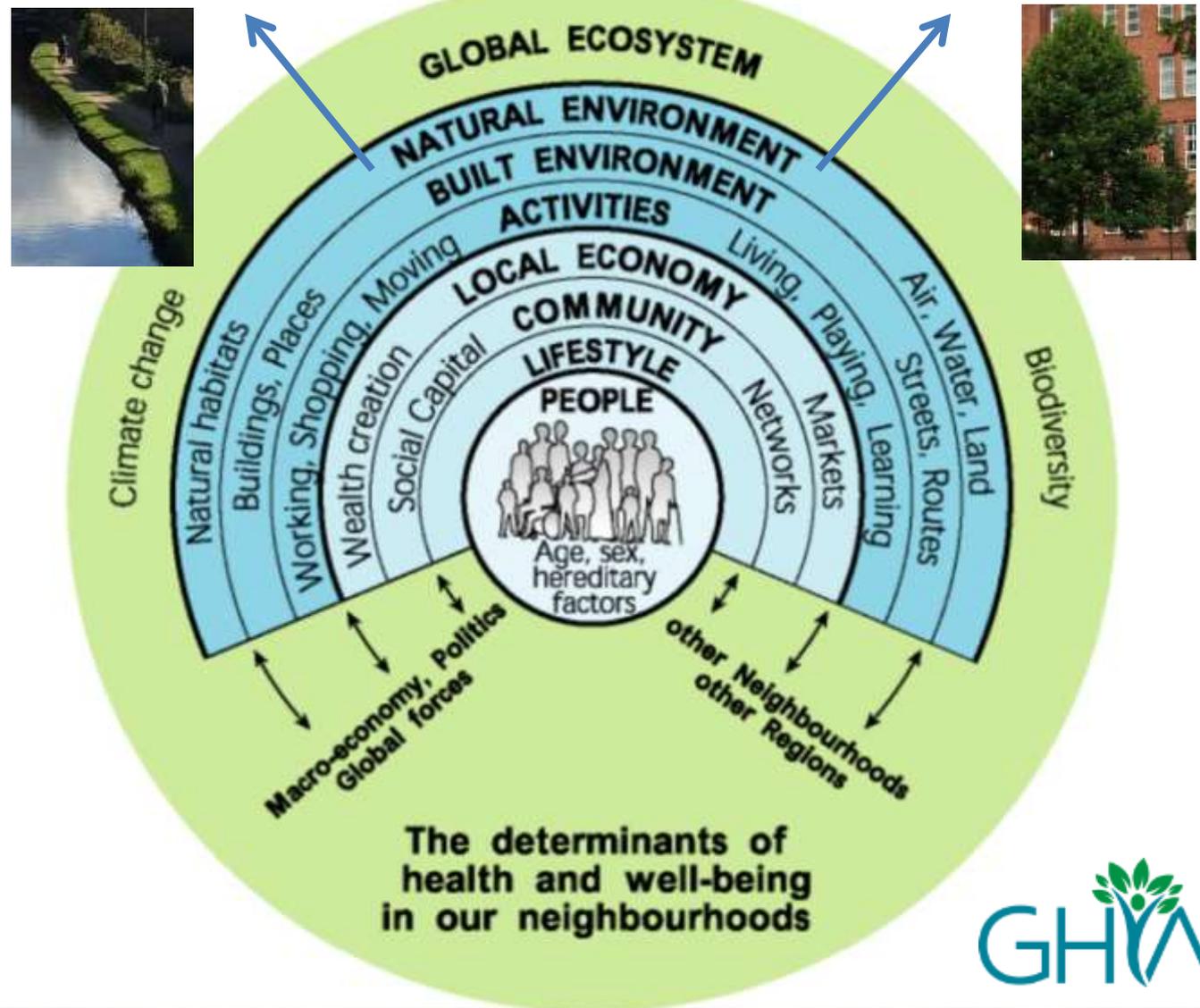
Arts and heritage approach

Multiple perspectives on values

Natural experiments

Biodiversity as a specific attribute of interest

# A health map for the local human habitat



Barton, H. and Grant, M. (2006) A health map for the local human habitat. *The Journal for the Royal Society for the Promotion of Health*, 126 (6).

Based on Dahlgren and Whitehead's (1991) well known rainbow model  
<https://core.ac.uk/download/pdf/6472456.pdf>

POSTNOTE

# Creating Age Friendly Cities



## Overview

- The UK population is ageing and many older people are living in major towns and cities.
- Age-friendly cities aim to support active and healthy living into older age. Twelve cities in the UK are members of a global network of age-friendly cities.
- The physical environment plays a key role in making cities better places for older people.

### Green space

Access to green space is a Sustainable Development Goal and evidence suggests that access to green space (for example parks, woodlands and allotments) is associated with health benefits for the general population, including physical activity, mental health and wellbeing (PN 538).<sup>89</sup> A 2013 systematic review found that green spaces promote physical activity among older people and cross-sectional surveys have linked the quality of open spaces to older people's life satisfaction.<sup>90,91,92</sup> Several studies suggest that green spaces may help to address issues of loneliness and social isolation in older people by promoting social contact.<sup>31,93,94</sup>

Age Friendly  
Cities  
(WHO, 2007)

Communication and  
Information

Community  
Support and  
Health

Civic Participation  
and Employment

Outdoor Space  
and Buildings

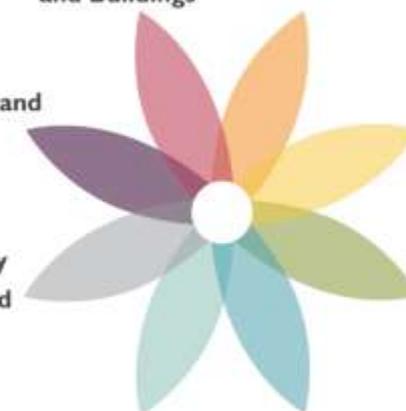
Transport

Housing

Social  
Participation

Respect and Social  
Inclusion

msa.ac.uk



# Understanding the Green Infrastructure of Greater Manchester

## 25 Year Environment Plan

As part of a development of social prescribing across England, specialist social prescribing teams could help to connect patients with environmental support. In support of this work, the Personalised Care Group in NHS England will explore how its own universal model supports people who would benefit from community and environmental programmes.

### Actions we will take include:

- Considering how NHS mental health providers in England could work with environmental voluntary sector organisations to offer mental health therapies.
- Sharing lessons learned from existing social prescribing programmes widely so others can adopt best practice.
- Developing standardised tools for service providers to support the roll-out of social prescribing across England. We will do this by seed-funding a project, led by The Conservation Volunteers and supported by NHS England.

## ii. Promoting health and wellbeing through the natural environment

We will launch a three-year 'Natural Environment for Health and Wellbeing' programme, focused on supporting local authorities, health organisations, health professionals, teachers and planners in promoting the natural environment as a pathway to good health and wellbeing.

*Mental health problems and early interventions will be an initial area of interest, however the programme will be charged with considering other health issues, such as obesity, where children and adults would benefit from better access to nature. To make sure that it reaches as many people as possible, we would welcome the programme being replicated at local level. Ideally, we would like access to the natural environment put at the heart of all local Health and Wellbeing Board strategies.*

### Actions we will take include:

- Establishing a cross-government alliance on environment and health to design and oversee the 'Natural Environment for Health and Wellbeing' programme.
- Supporting the alliance to review evidence, develop tools and support local authorities, commissioners, and professionals.

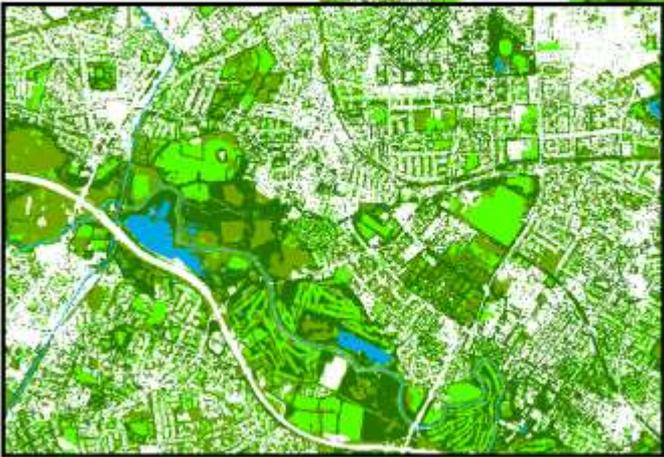


- There is a lot of great mapping for the city
- BUT, to fully appreciate the role of green infrastructure for the contributions it brings for health & wellbeing there are still limitations
- We need a combination of data to create a dataset which
  - Covers the **whole city-region**
  - Considers the **form** that green infrastructure takes (e.g. trees, grasses, water)
  - Accounts for its **function** (e.g. parks, gardens, amenity)

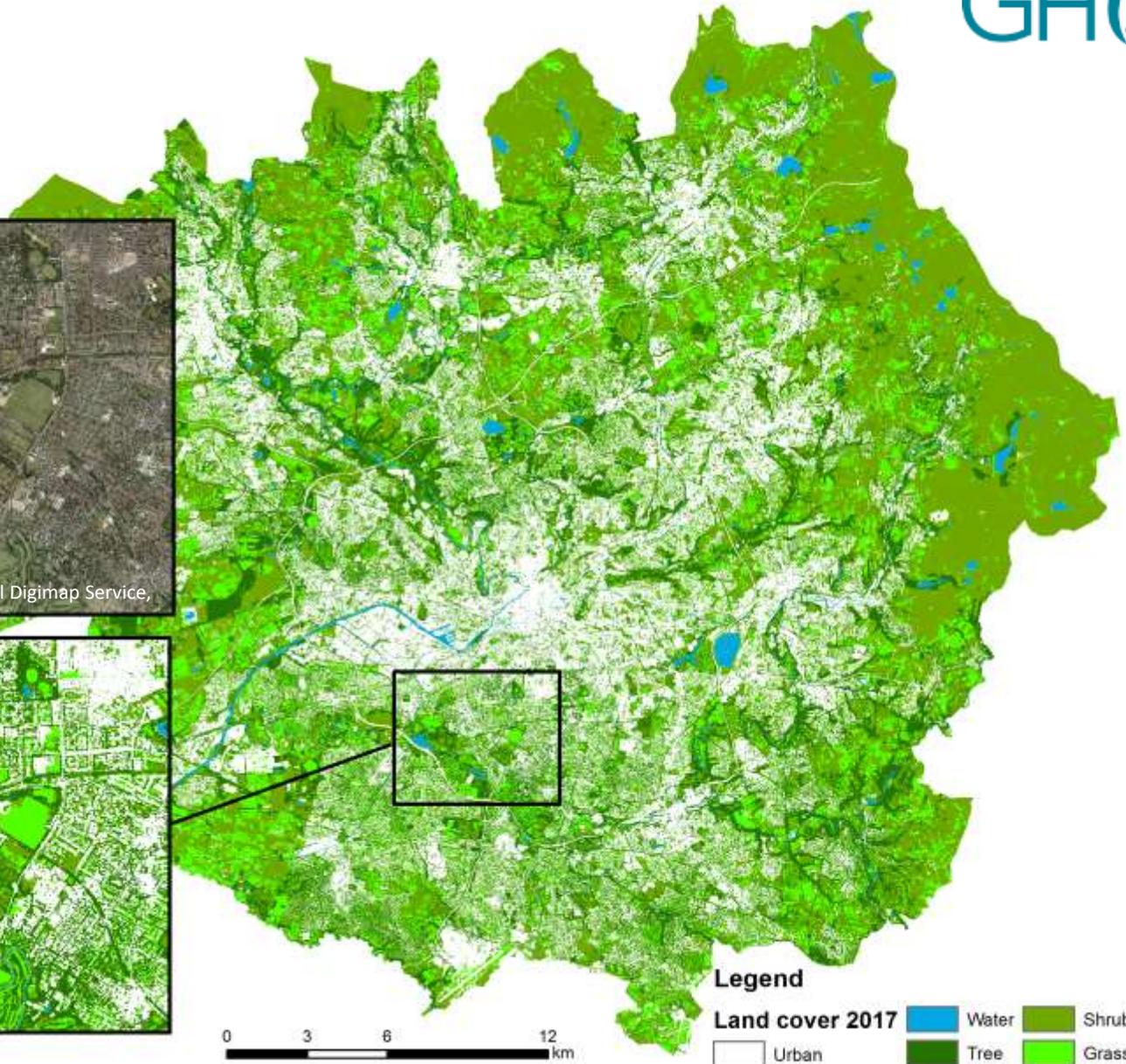




23 Aug 2015, Getmapping, Using: EDINA Aerial Digimap Service,



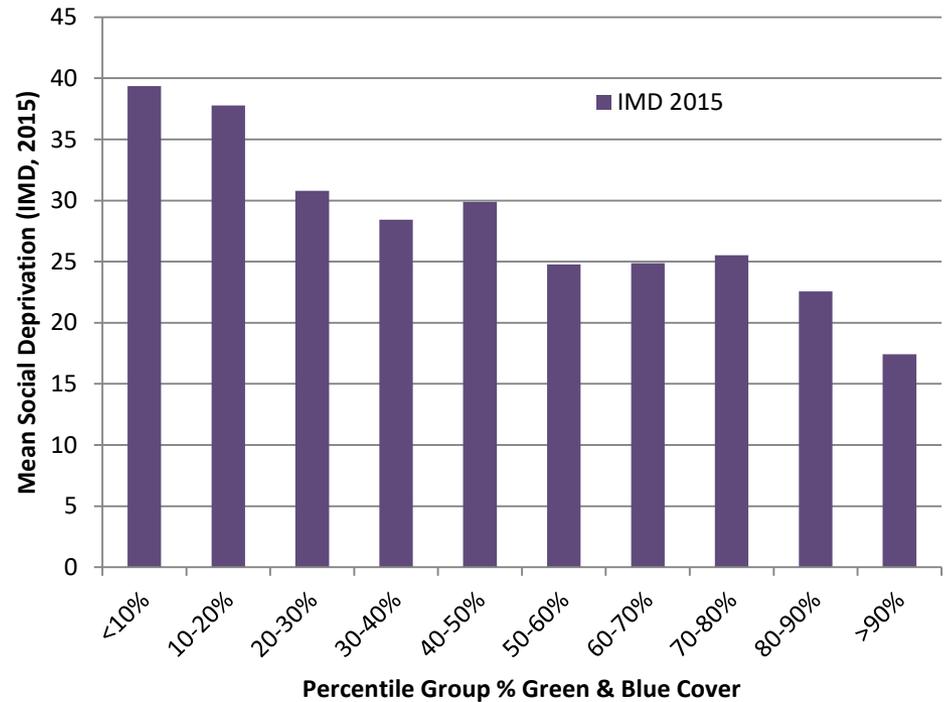
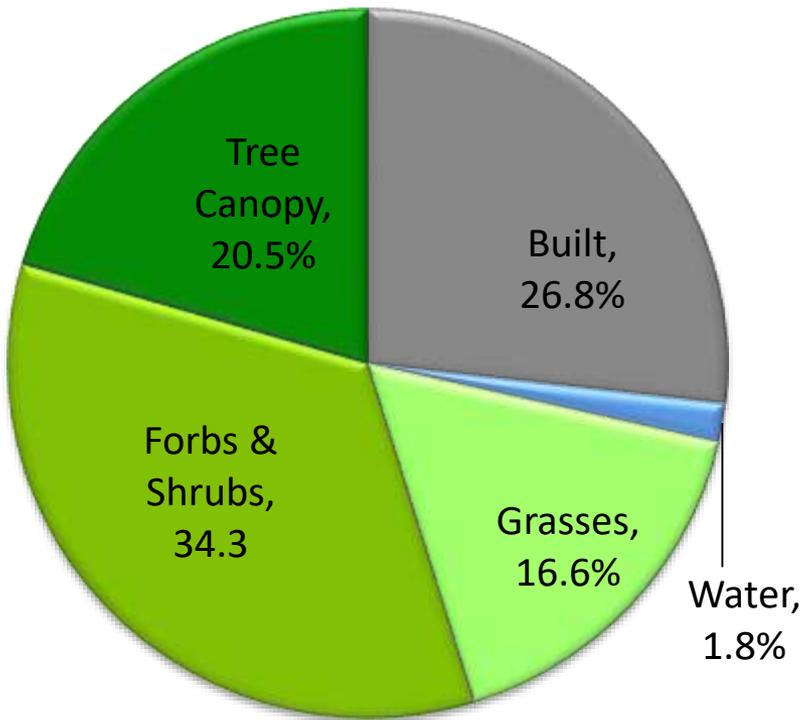
0 0.5 1 2 km



**Legend**

Land cover 2017	
	Urban
	Water
	Tree
	Shrub
	Grass

**Greater Manchester is 73% Green/Blue & 27% Grey**



**Greener Greater Manchester neighbourhoods tend to have lower social deprivation scores**



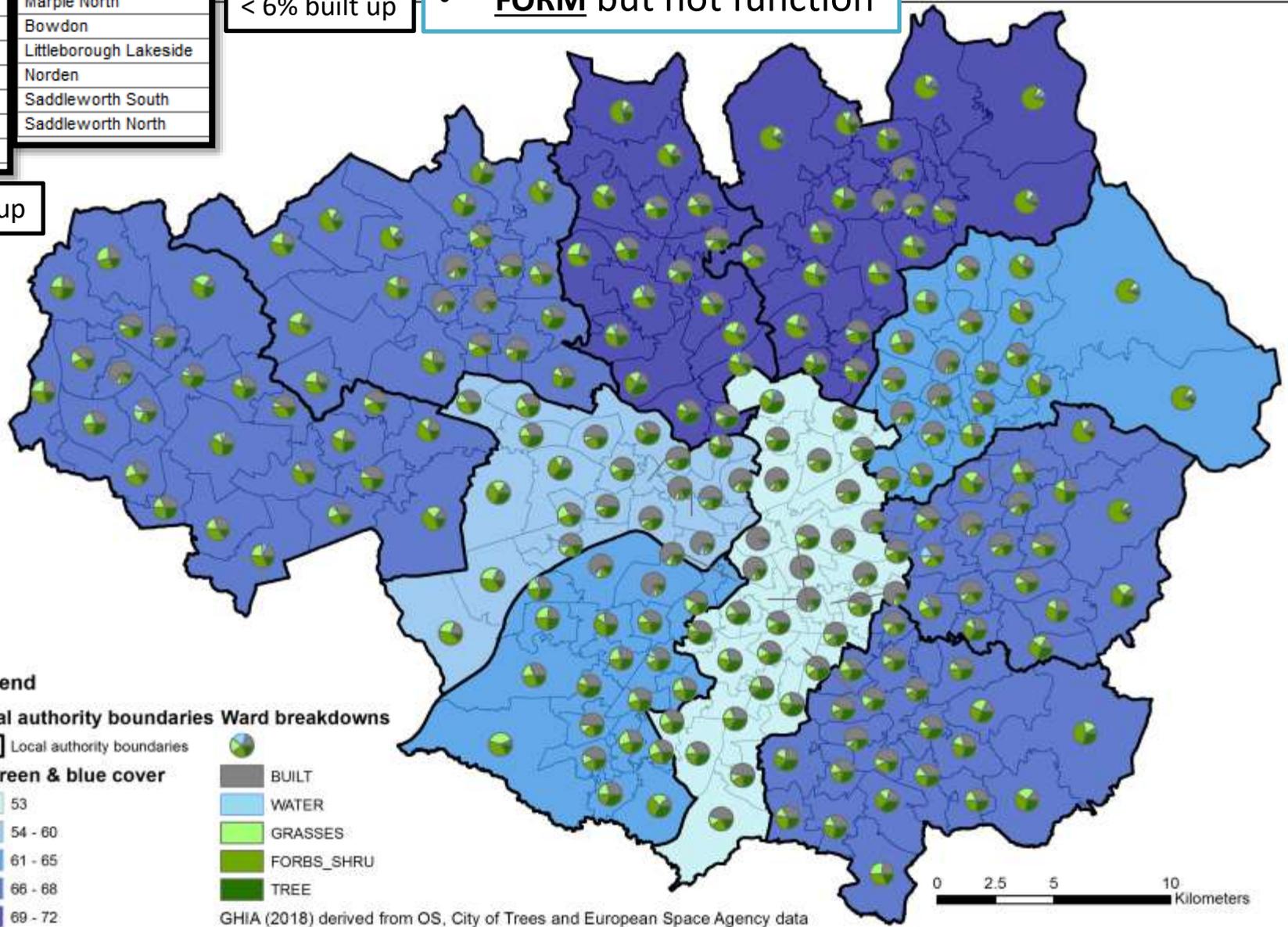


City Centre	Marple North
Ardwick	Bowdon
Moss Side	Littleborough Lakeside
Gorse Hill	Norden
Longsight	Saddleworth South
Coldhurst	Saddleworth North
Ordsall	

< 6% built up

• **FORM** but not function

> 70% built up



**Legend**

Local authority boundaries	Ward breakdowns
<b>% Green &amp; blue cover</b>	BUILT
53	WATER
54 - 60	GRASSES
61 - 65	FORBS_SHRU
66 - 68	TREE
69 - 72	

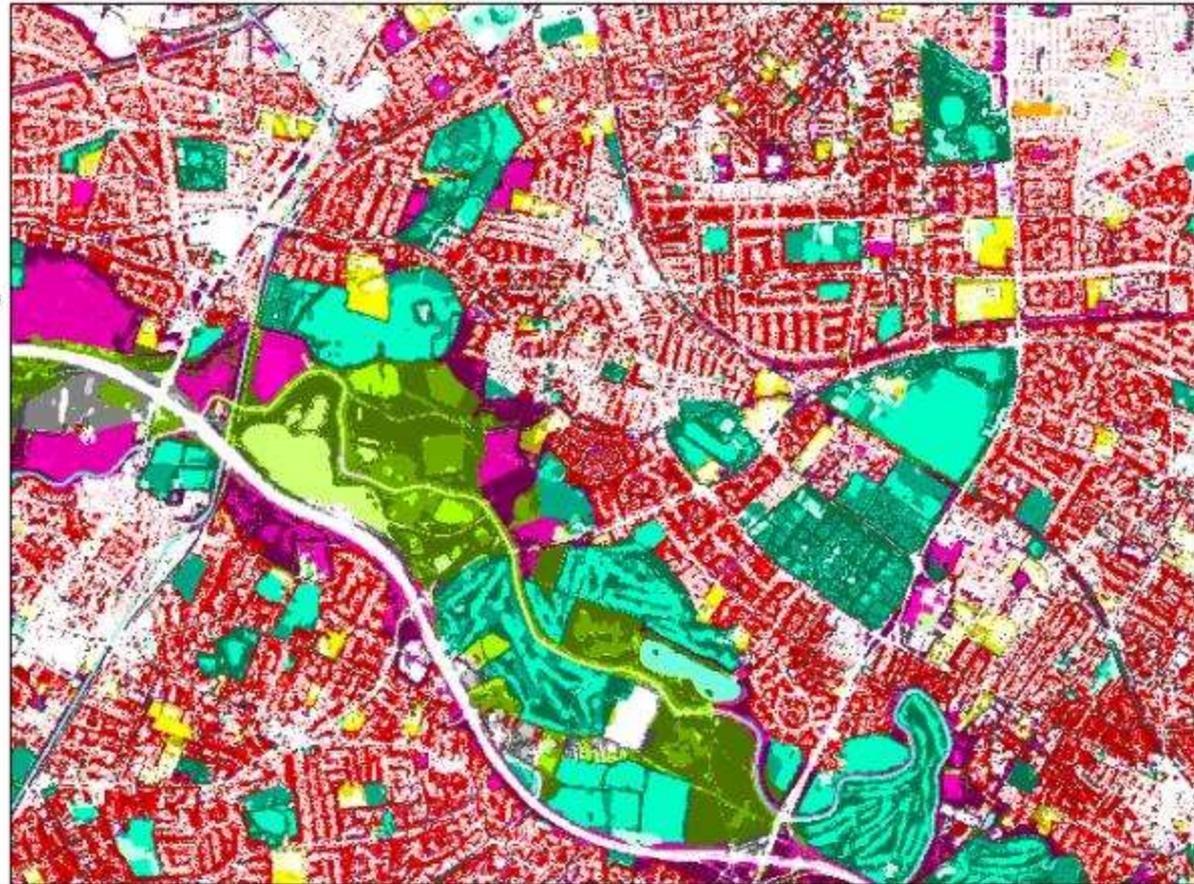
GHIA (2018) derived from OS, City of Trees and European Space Agency data



# Form AND Function

## Landscape Feature

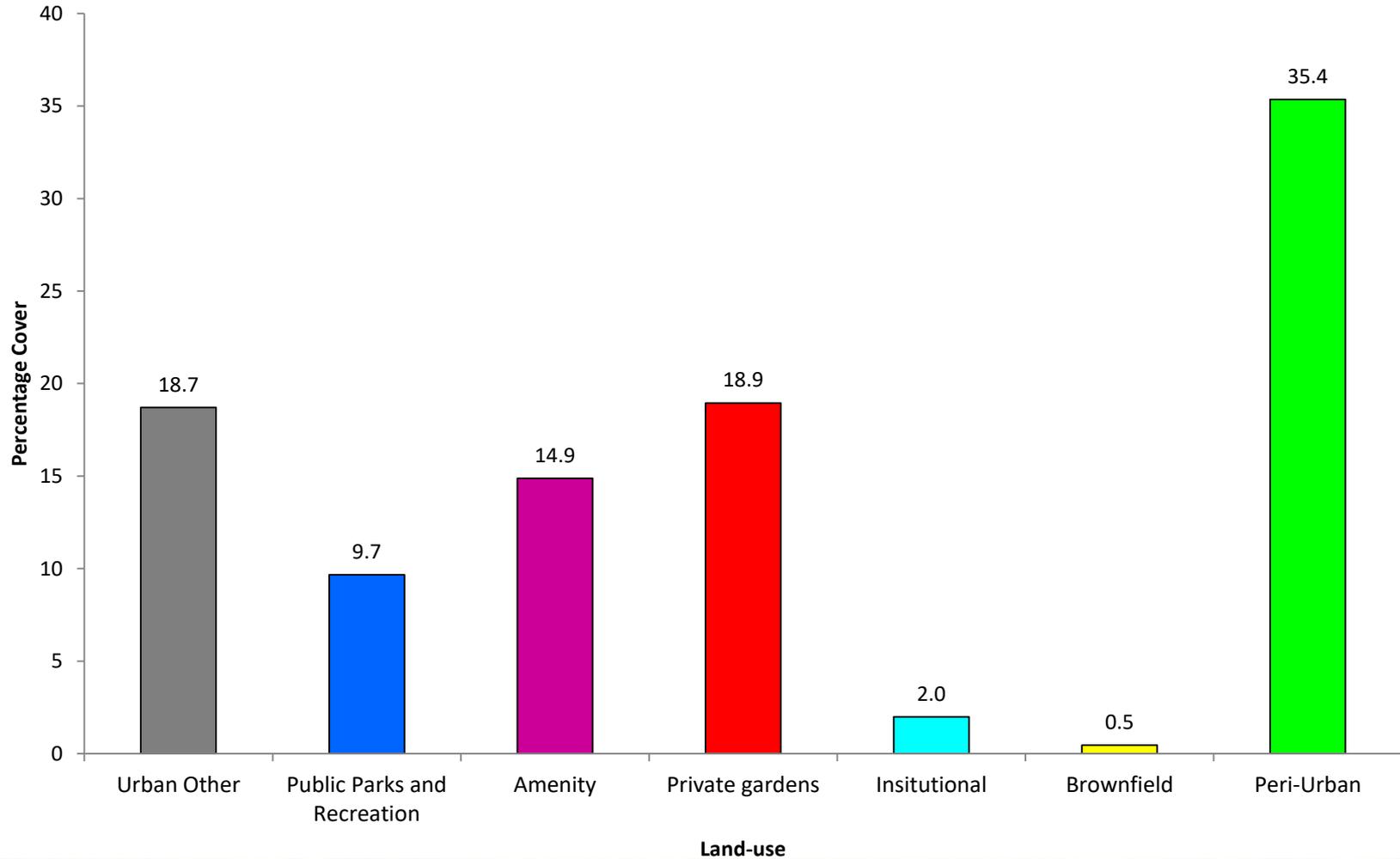
-  Urban Other\_Water
-  Urban Other\_Tree Canopy
-  Urban Other\_Grasses
-  Urban Other\_Forbs and Shrubs
-  Urban Other\_Built
-  Public Parks and Recreation\_Water
-  Public Parks and Recreation\_Tree Canopy
-  Public Parks and Recreation\_Grasses
-  Public Parks and Recreation\_Forbs and Shrubs
-  Public Parks and Recreation\_Built
-  Private Domestic Garden\_Water
-  Private Domestic Garden\_Tree Canopy
-  Private Domestic Garden\_Grasses
-  Private Domestic Garden\_Forbs and Shrubs
-  Private Domestic Garden\_Built
-  Peri\_urban Other\_Water
-  Peri\_urban Other\_Tree Canopy
-  Peri\_urban Other\_Grasses
-  Peri\_urban Other\_Forbs and Shrubs
-  Peri\_urban Other\_Built
-  Institutional Land\_Water
-  Institutional Land\_Tree Canopy
-  Institutional Land\_Grasses
-  Institutional Land\_Forbs and Shrubs
-  Institutional Land\_Built
-  Brownfield\_Water
-  Brownfield\_Tree Canopy
-  Brownfield\_Grasses
-  Brownfield\_Forbs and Shrubs
-  Brownfield\_Built
-  Amenity\_Water
-  Amenity\_Tree Canopy
-  Amenity\_Grasses
-  Amenity\_Forbs and Shrubs
-  Amenity\_Built



0 1 2  
Kilometres

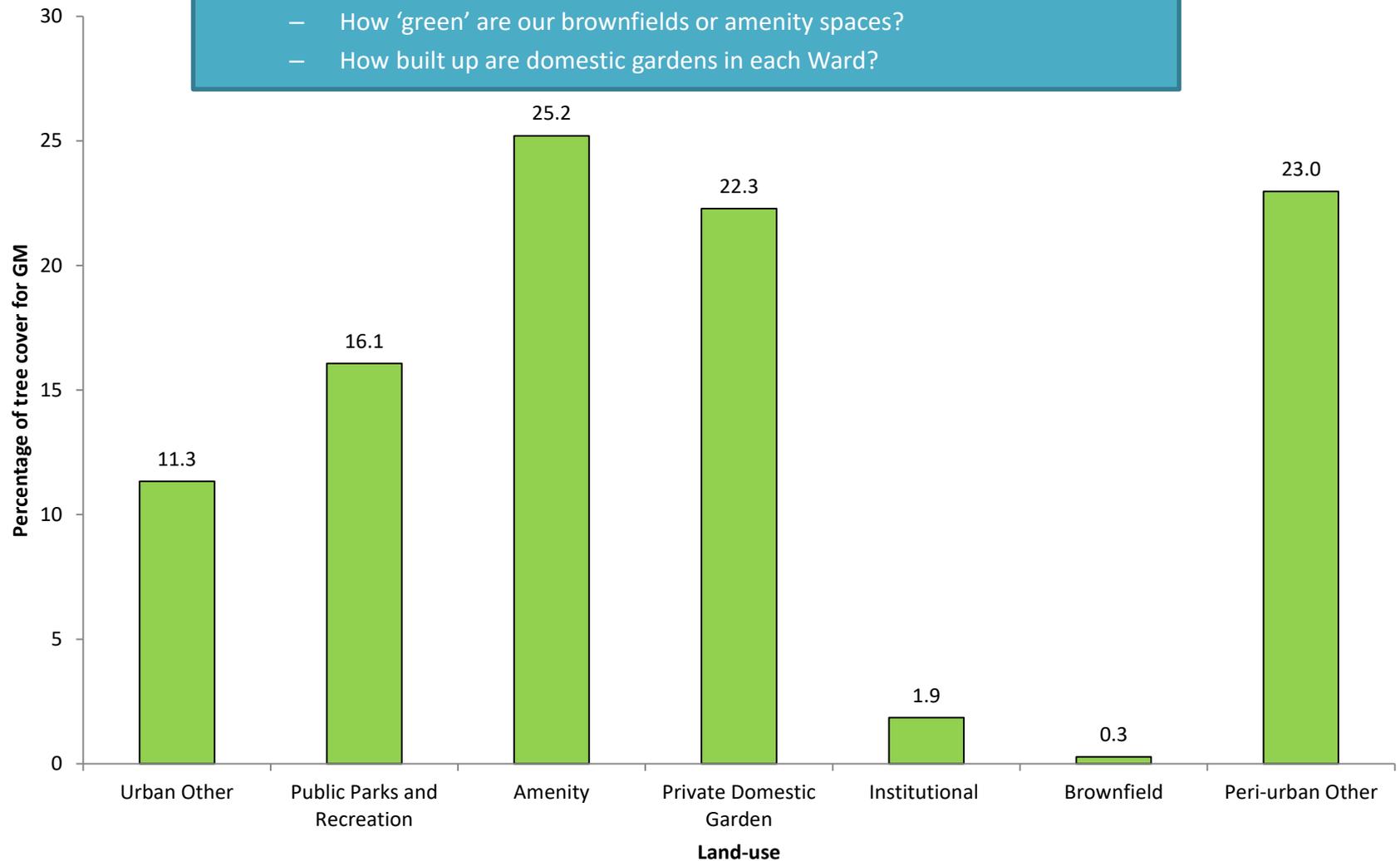
Source: University of Manchester GHIA Project 2018. Derived from Ordnance Survey Mastermap Greenspace Layer, OS Open Rivers, OS Open Greenspace, European Space Agency (Sentinel 2A), Natural Environment Research Council (CEH) Land Cover Map and City of Trees Tree Audit data. Funders: Natural Environment Research Council, the Arts and Humanities Research Council and the Economic and Social Research Council under the Valuing Nature Programme. NE/N013530/1

## % GM associated with each land-use category



# Proportion of tree cover attributable different land-uses (% tree cover for GM as whole = 20%)

- Questions that can be answered
  - How leafy are the Public Parks/Recreation spaces in your LA or Ward?
  - How 'green' are our brownfields or amenity spaces?
  - How built up are domestic gardens in each Ward?

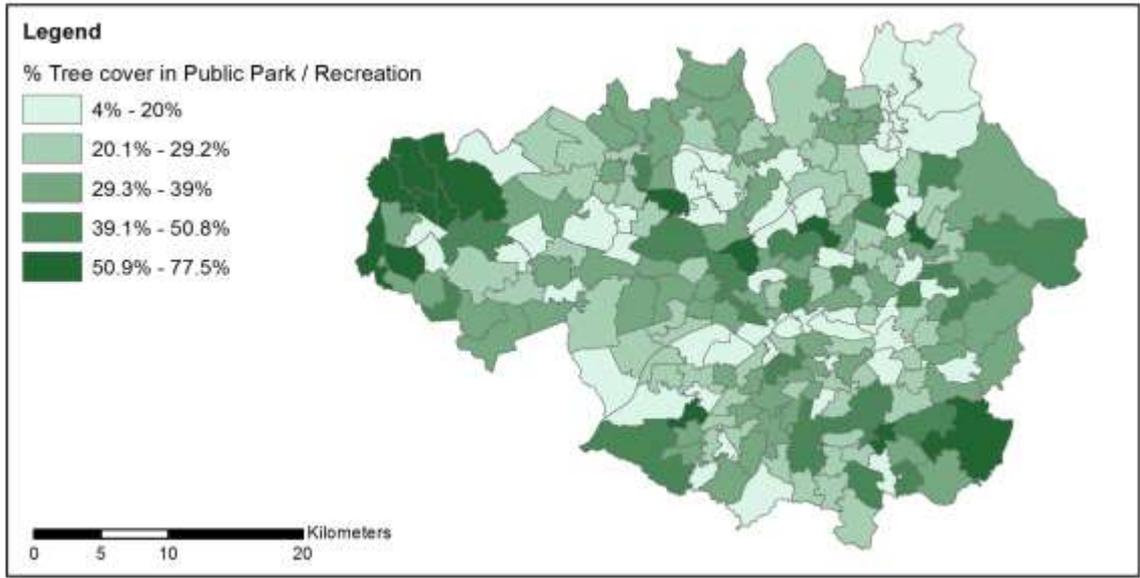
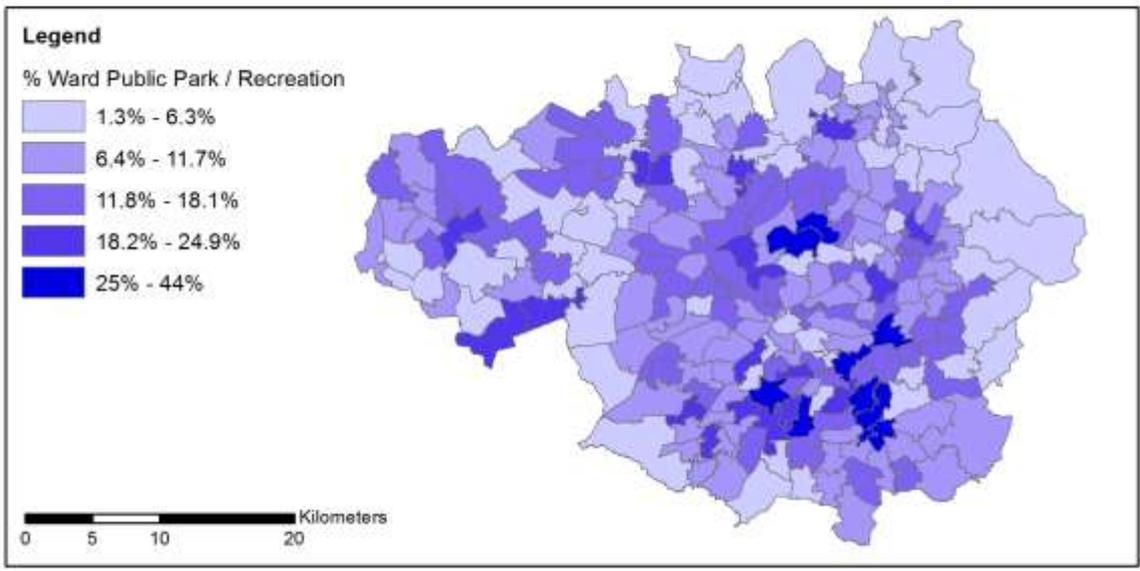


> 30% Public  
Park &  
Recreation

Higher Blackley
Chorlton Park
Audenshaw
South Middleton
Manor
Reddish South

- 16% of GM's public parks and recreation sites are tree canopy, but how does it vary?
- Wards with leafiest parks ( $\geq 50\%$  tree cover)

Winstanley
St Mary's
St Mary's
St Mary's
Royton North
Marple North
Little Lever and Darcy Lever
Wigan Central
Standish with Langtree
Orrell
Wigan West
Manor
Shevington with Lower Ground
Aspull New Springs Whelley
South Middleton
Pendlebury
Moss Side
Shaw



# Conclusion

- GHIA project is **by** Greater Manchester Universities, **for** Greater Manchester and **with** Greater Manchester.
- We have developed new data which provide insights into green infrastructure types, form and function.
- A brief look at what we've so far produced
  - how provision varies across GM
  - Paper currently in review
- Further analysis is in progress:
  - health data and how other indicators vary with green infrastructure amount and quality
- Other GHIA work is looking at:
  - Air pollution; physical activity and other aspects of health and wellbeing, such as social isolation
  - participatory valuation



@GHIA\_VNN



Explore the data online at [www.ghia.org.uk](http://www.ghia.org.uk)



## Researchers

- **Lead** Prof Sarah Lindley, Department of Geography, University of Manchester (UoM)
- sarah.lindley@manchester.ac.uk

### Investigators

- Dr Jenna **Ashton**, Manchester Metropolitan University (MMU)
- Dr Adam **Barker**, School of Environment, Education & Development, UoM
- Dr Gina **Cavan**, School of Science and the Environment, MMU
- Prof Penny **Cook**, School of Health Science, University of Salford (UoS)
- Prof David **French**, School of Psychological Science, UoM
- Dr Anna **Gilchrist**, School of Environment, Education & Devt, UoM
- Prof Philip **James**, School of Environment and Life Sciences, UoS
- Prof John **O'Neill**, School of Social Sciences, UoM
- Prof Christopher **Phillipson**, School of Social Sciences, UoM
- Dr Konstantinos **Tzoulas**, School of Science and the Environment, MMU
- Prof Ada **Wossink**, School of Social Sciences, UoM

### Researchers

- Dr Matthew Dennis
- Dr Ruth Colton
- Dr Richard Christian

- Jack Benton (PhD/RA)
- Labib SM (PhD)

## Partners

- City of Trees
- Public Health Manchester → GM Ageing Hub & MICRA
- Greater Manchester Centre for Voluntary Organisations (GMCVO) → Ambition for Ageing
- The Canal and River Trust
- Manchester: A Certain Future
- Manchester City Council
- Manchester Arts and Galleries Partnership



### Advisory Group

- Prof John Handley (Chair) with additional representatives, including GM LAs & other organisations



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www.ghia.org.uk



Arts & Humanities  
Research Council

# Maximising the Benefits of Accessible Green Infrastructure in Greater Manchester

Natural England- Dave Bell, Jane Houghton, in  
collaboration with Greater Manchester  
Combined Authorities, Ordnance Survey

# National Policy

NATURAL  
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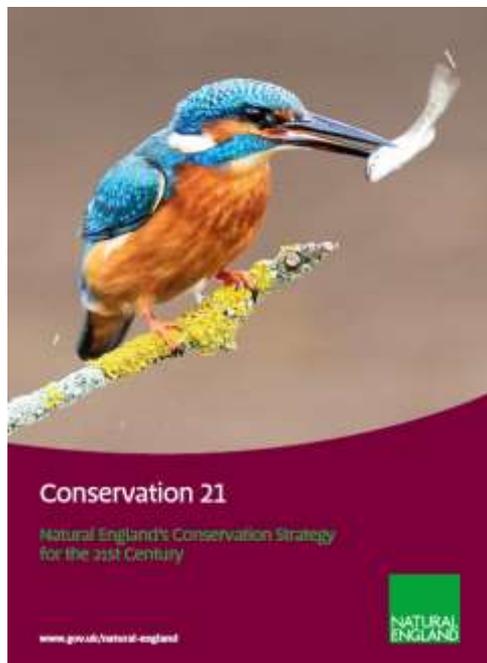
HM Government

A Green Future: Our 25 Year Plan to  
Improve the Environment



# Shared Priorities

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# Role of Green Infrastructure: Increasing Natural Capital



- Quality of place
- Quality of life
- Resilience to Climate Change
- Biodiversity, ecological networks
- Flexible and Adaptable
- Economic Growth
- Connection with Nature

# Accessible Natural Greenspace Analysis

- Identify where there are **deficiencies in accessible greenspace** for outdoor recreation and contact with nature
- Assess the **potential of new and enhanced greenspaces** to deliver multiple benefits for people, nature and places in GM
- **Learn lessons** for national review of Green Infrastructure Standards

**Greenspace:** natural surfaces, natural settings, eg parks and open spaces

**Accessible Greenspace:** available for the general public, free of charge to enter, without time restrictions

**Naturalness:** human control and activities are not intensive so that a feeling of naturalness is allowed to predominate.

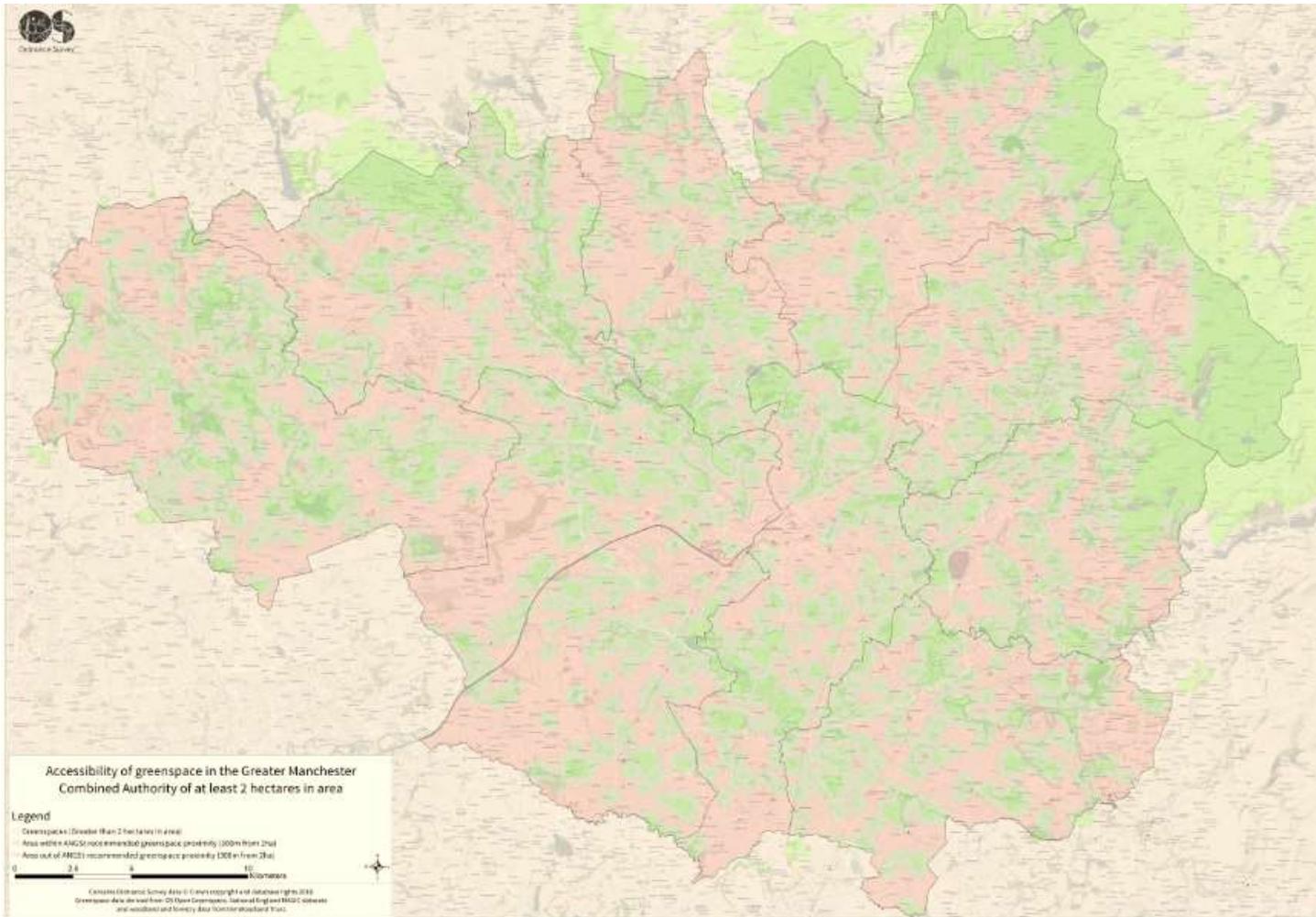
**Green Infrastructure:** A network of multi-functional green space, urban and rural, which is capable of delivering a wide range of environmental and quality of life benefits for local communities. (National Planning Policy Framework)

# Accessible Natural Greenspace Standards (ANGSt)

- Everyone should have access to natural greenspaces of the following sizes within the given distances from home

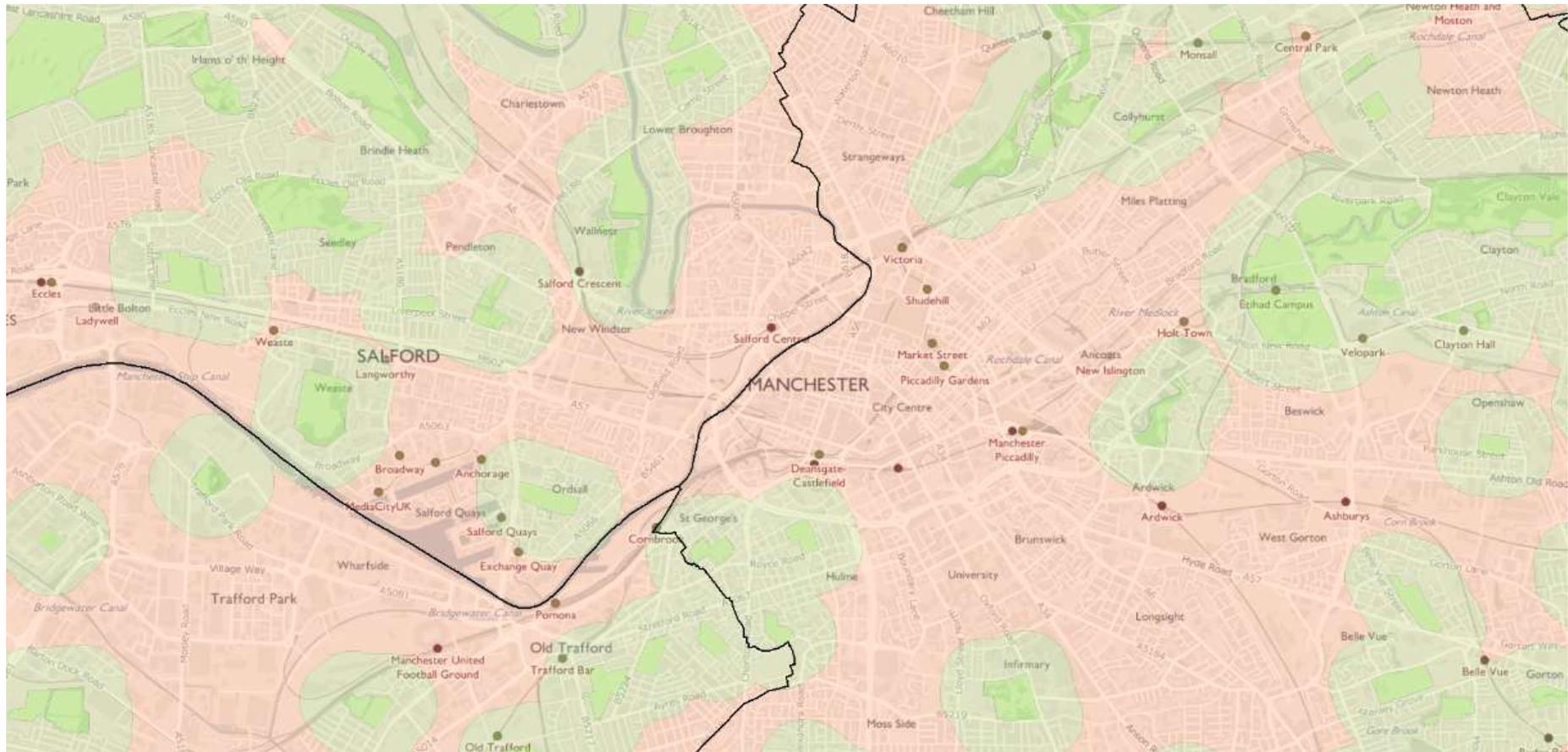
Size (hectares)	Distance
2	300m
20	2km
100	5km
500	10km
1 hectare of Local Nature Reserve per 1,000 population	

# Access to 2 ha of greenspace within 300 metres

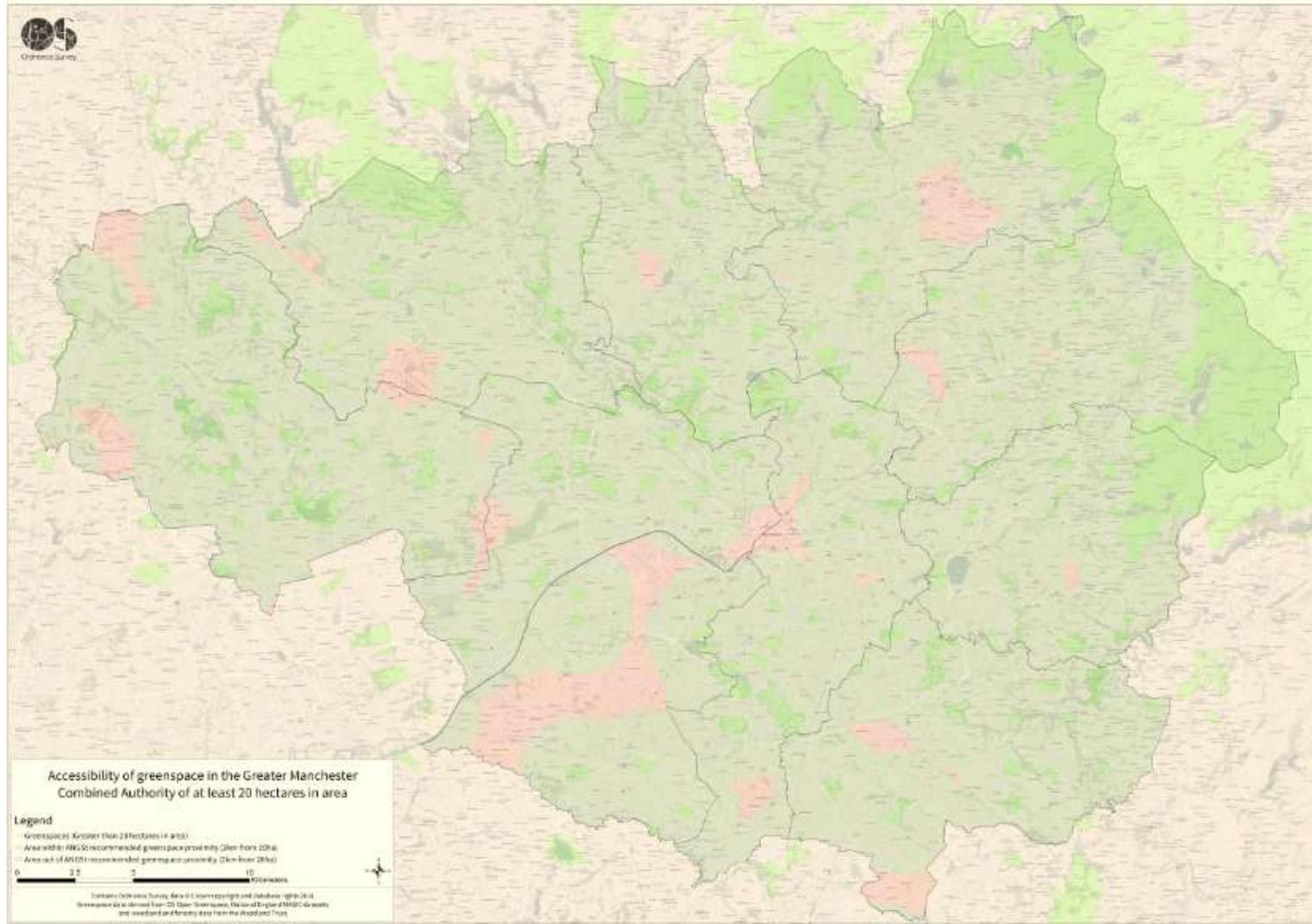


# Access to 2ha of Greenspace within 300m of home

NATURAL  
ENGLAND



# Access to 20ha of Greenspace within 2km of home

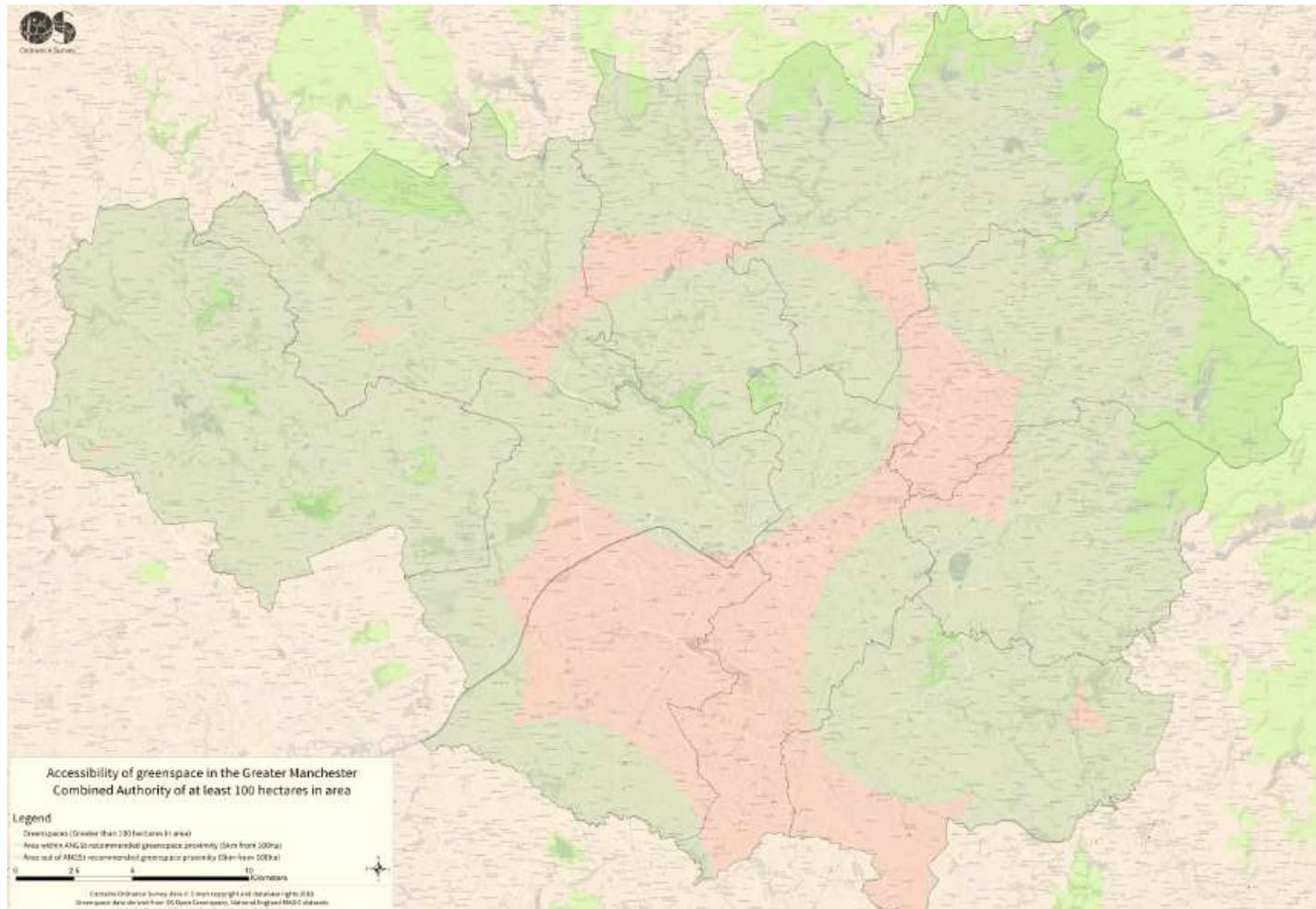


# Access to 20ha of Greenspace within 2km of home – central

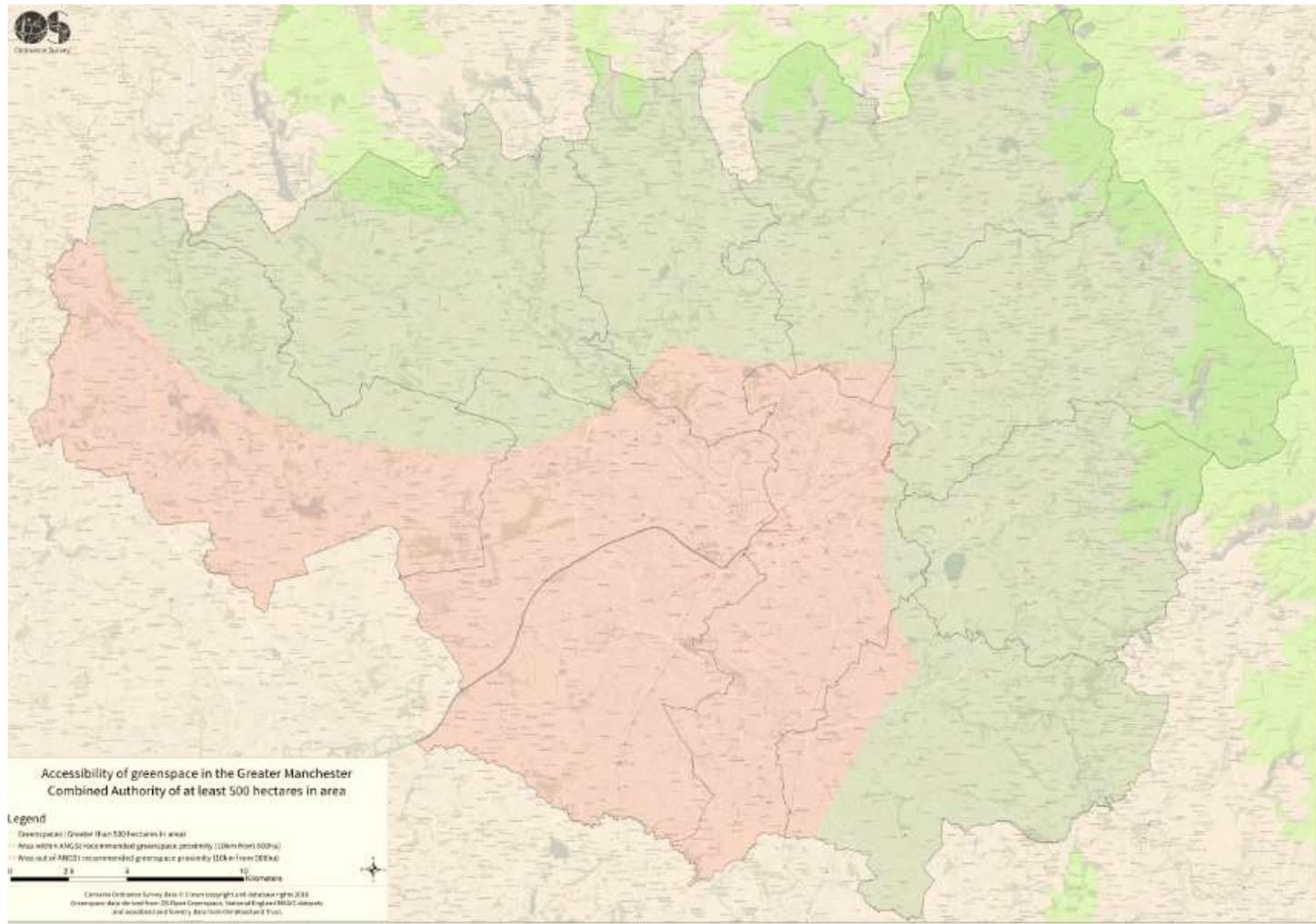
NATURAL ENGLAND



# Access to 100ha of Greenspace within 5km of home



# Access to 500ha of Greenspace within 10km of home



# What do we know about people's visits to the natural environment?

## Percentage of people who visited in the last 7 days

- 42% across England
- 38% across Greater Manchester



879 million visits  
Parks in towns/ cities (28%)



1.51 billion visits  
Walking with a dog (48%)



519 million visits  
Paths/ cycleways/ bridleways  
(17%)



869 million visits  
Walking, no dog (28%)



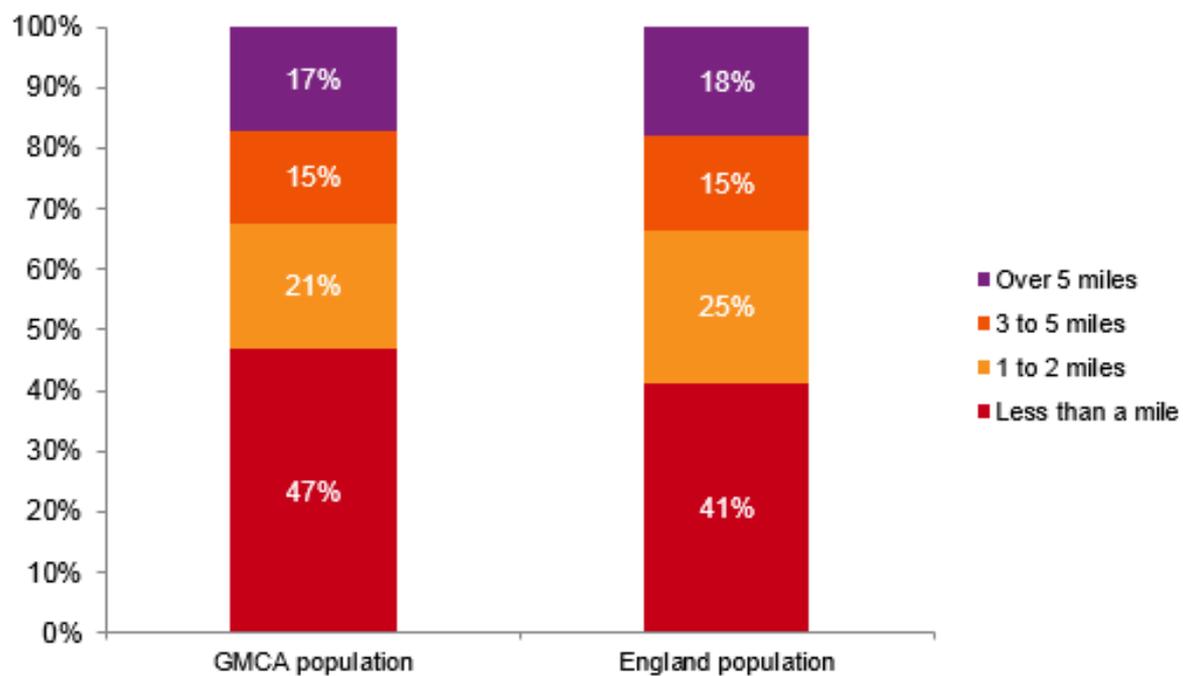
446 million visits  
Woodlands/ Forests (14%)



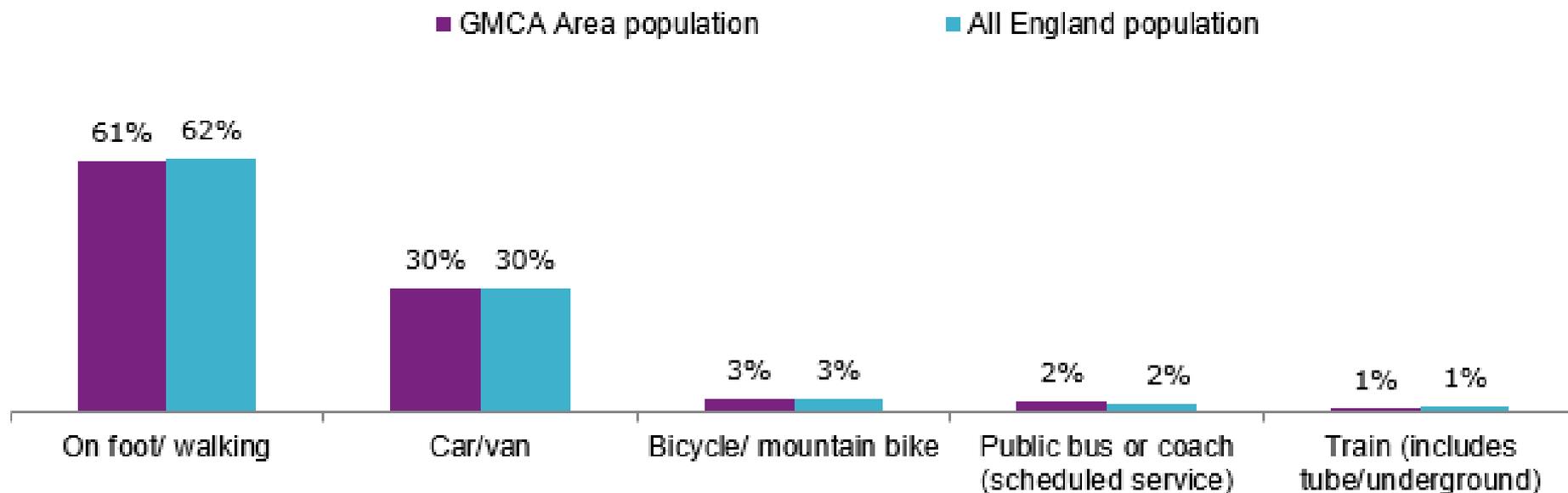
312 million visits  
Playing with children (10%)

***By 2020, we will have halved the gap with the national average for the proportion of Greater Manchester residents reporting that they visited the natural environment at least once during the previous seven days***

# Distance travelled to greenspaces



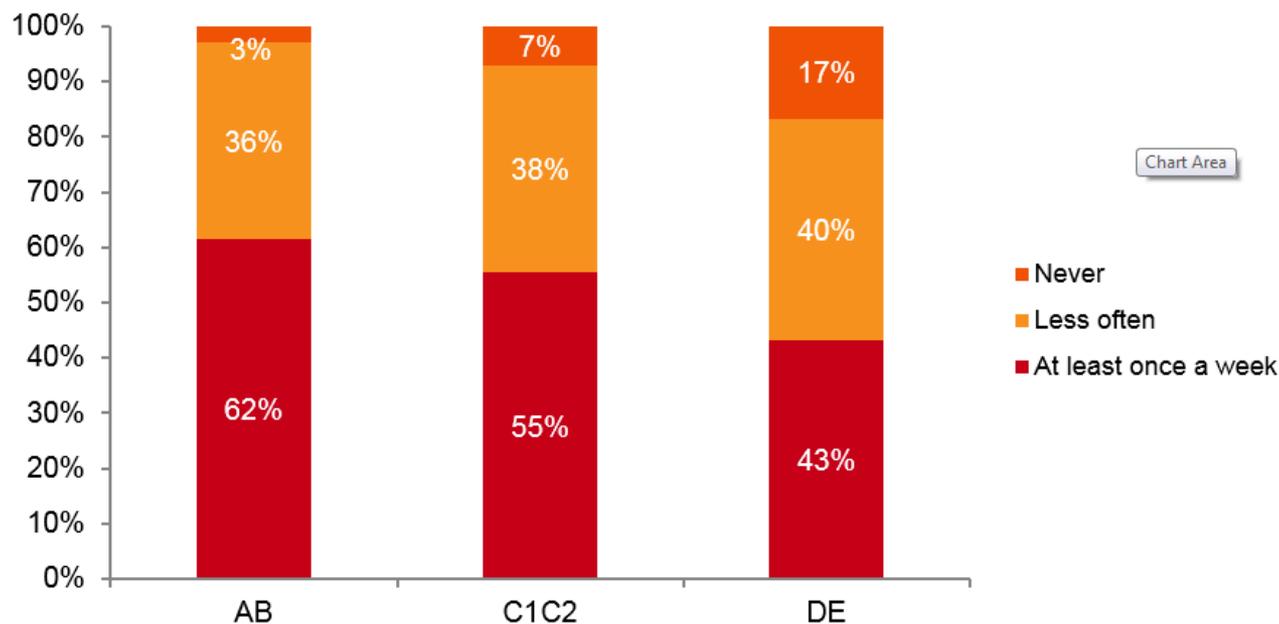
# Mode of travel to greenspaces



# Who is benefitting? MENE Visit taking by socio-economic group



Figure 13 – Greater Manchester Combined Authorities Area Population – General frequency of visit taking in last 12 months by socio-economic group



# Who needs the benefits of greenspace the most?



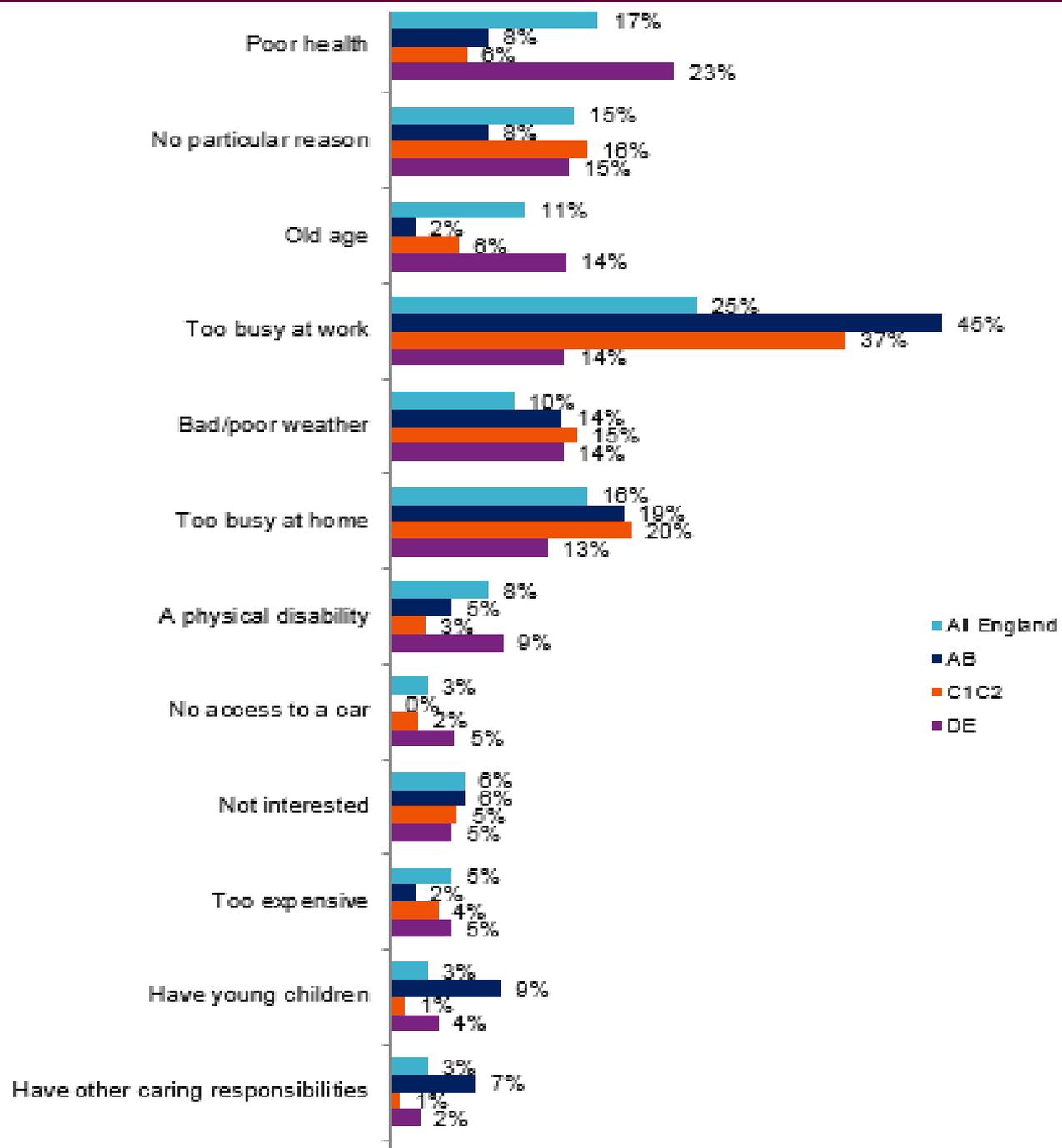
- The Marmot Review in 2010 highlighted inequalities in health - People living in the poorest neighbourhoods in England will on average
  - die seven years earlier than people living in the richest neighbourhoods
  - have poorer health; lower educational attainment, employment, income, quality of neighbourhood and so on.
  - have poorest environmental conditions
  - have fewer public parks and greenspaces than more affluent areas.
  - live furthest from countryside

# What factors encourage people to visit the natural environment?



A study in Leicester in 2011 showed:

- Over 80% of people counted the following as the top 3 environmental characteristics as the most encouraging factors to visit more often:
  - Cleanliness of greenspace
  - Walking distance
  - Feeling safe
- A significant relationship between the actual travel time, mode of travel and satisfaction with current access



# Examples of Urban GI

NATURAL  
ENGLAND



King's Cross is 40% open space





# The Edible Bus Stop, Landor Road, SW9

NATURAL  
ENGLAND



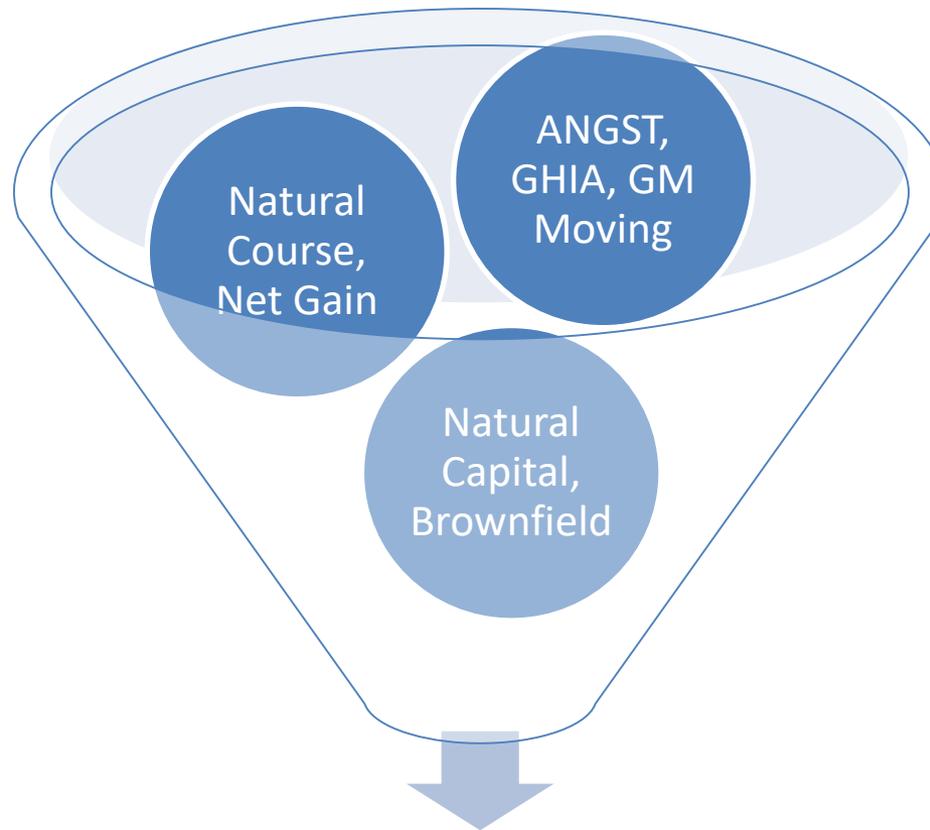
Before

After



*Aim to transform forgotten and neglected sites across London's Transport Network into valuable community growing spaces. Introducing fruit trees. Great community ownership. Volunteer gardeners. Harvest celebrations with stalls have been held by local community.*

# An integrated approach



Greater Manchester Green Infrastructure  
and Natural Capital Strategy

- More and better quality accessible green infrastructure, where it is needed most to address areas of deficiency especially in areas of deprivation
- A walkable city - pedestrianised areas, healthy walkable streets, green corridors and recreational routes, street trees, green neighbourhoods
- Strategic integrated approach to planning and managing green infrastructure eg joint planning between health, housing, education, transport, flood risk management, biodiversity and local economy
- Community engagement and volunteering in green infrastructure
- New funding approaches and investment in the natural environment

## Real world application:

- What do we know about the comparative benefits of **retrofitting GI** into local areas vs 2 ha of Accessible Natural Greenspace within 300m? Research on benefits?
- What examples can we draw from in terms of **green transport** routes and access to greenspace in an urban setting?
- **Air Quality** – How can we support GM’s aspirations over air quality and Carbon Reduction?
- **Delivery of 25 YEP** – How will this work demonstrate delivery of 25 YEP and lead the way to make GM one of the leading Green Cities in Europe?





# Natural capital and mapping opportunities to enhance connectedness to nature

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*Ashley Gorst*

*Greater Manchester Natural Capital Group  
Annual Conference 16/01/18*

# Vivid and TEP have teamed up on the Natural Course Ecosystem Services Opportunity Mapping project in the River Irwell catchment

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THE  
ENVIRONMENT  
PARTNERSHIP

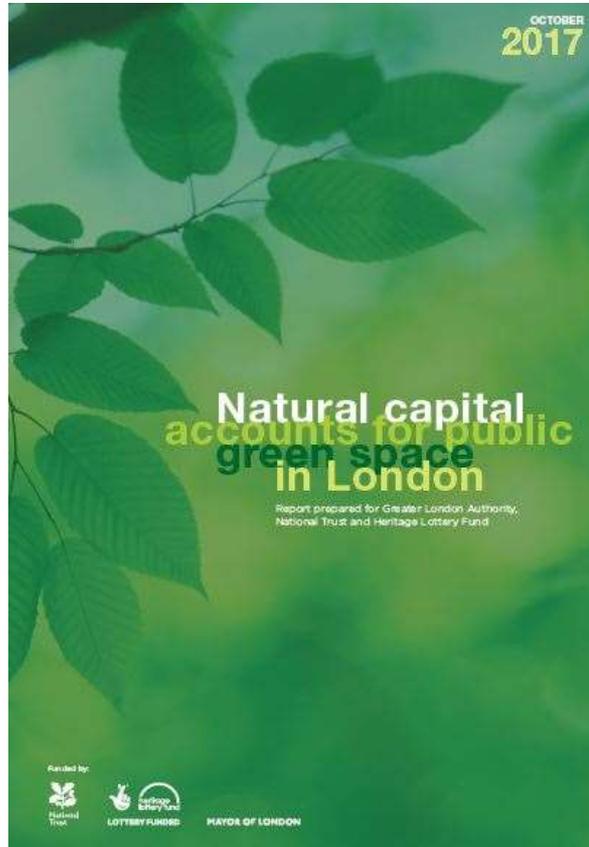
: vivideconomics

GMCA  
GREATER  
MANCHESTER  
COMBINED  
AUTHORITY

NATURAL  
OUR WATER. OUR FUTURE  
COURSE



# This builds on recent experience of producing natural capital accounts for public parks in London



## Background: economists have previously made progress in quantifying the costs of environmental degradation

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Historically, economists have made the case for reducing environmentally damaging by-products of economic development (external costs)

**Example: Coal supplied 7% of UK electricity in 2017, compared with 30% in 2014**

However, we have not made a good enough case for the benefits of maintaining or improving many aspects of our environment

The *benefits* of connecting with nature are often overlooked and subsequently are not adequately invested in

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#### **Example: Park funding in the UK**

92% of park managers report reduction in maintenance budgets in the past 3 years (Heritage Lottery Fund, State of UK Public Parks 2016)

# Natural capital approach makes the benefits of nature explicit in a way that is consistent with economic policy decisions

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Management of the stock (natural capital) to maintain flow of benefits (ecosystem services)

Being scientific and monetised, it gives force of evidence in discussions of resource allocation against competing uses.

Monetisation is a useful way to assess flows in a common metric, rather than a way to put a price on everything

Natural capital can be used to inform us about:

- The types and magnitude of benefits people enjoy from natural environments
- Where/who does and does not benefit
- Different management options

## Summary account for London

Variable	Public services £bn	Residents £bn	Business £bn	Total £bn	Share, %
Recreation		17		17	19
Mental health	1	3	2	7	7
Physical health	2	5	3	11	12
Amenity		56		56	61
Carbon (soil)				<1	1
Carbon (trees)				<1	<1
Temperature		1		1	1
Gross asset value	3	82	5	91	100
	4%	90%	6%	100%	

## Parks reduce health costs by £950 million annually in London

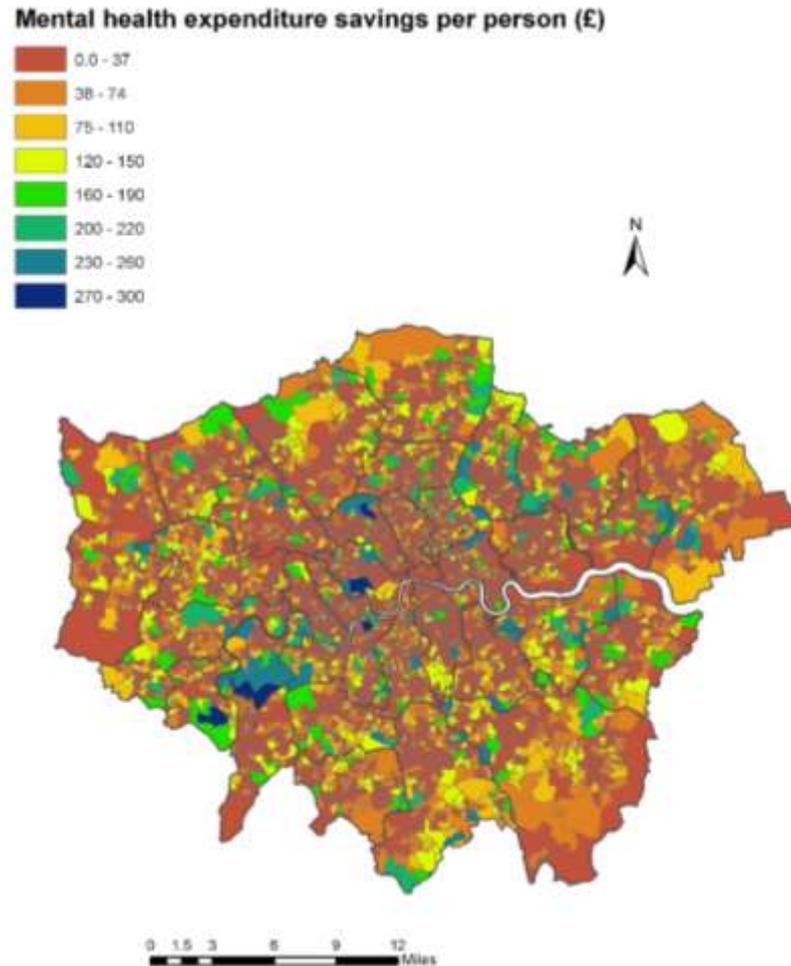
Better access to parks leads to better mental and physical health.

These estimates include avoided costs of ill health for individuals, local authorities and businesses.

	Mental	Physical
Benefits	Total: £368m/yr	Total: £582m/yr
Health benefit as proportion of total cost	2%	7%
Total population	8.7 m	
Per person benefit (persons of all ages)	£42/head/yr	£67/head/yr

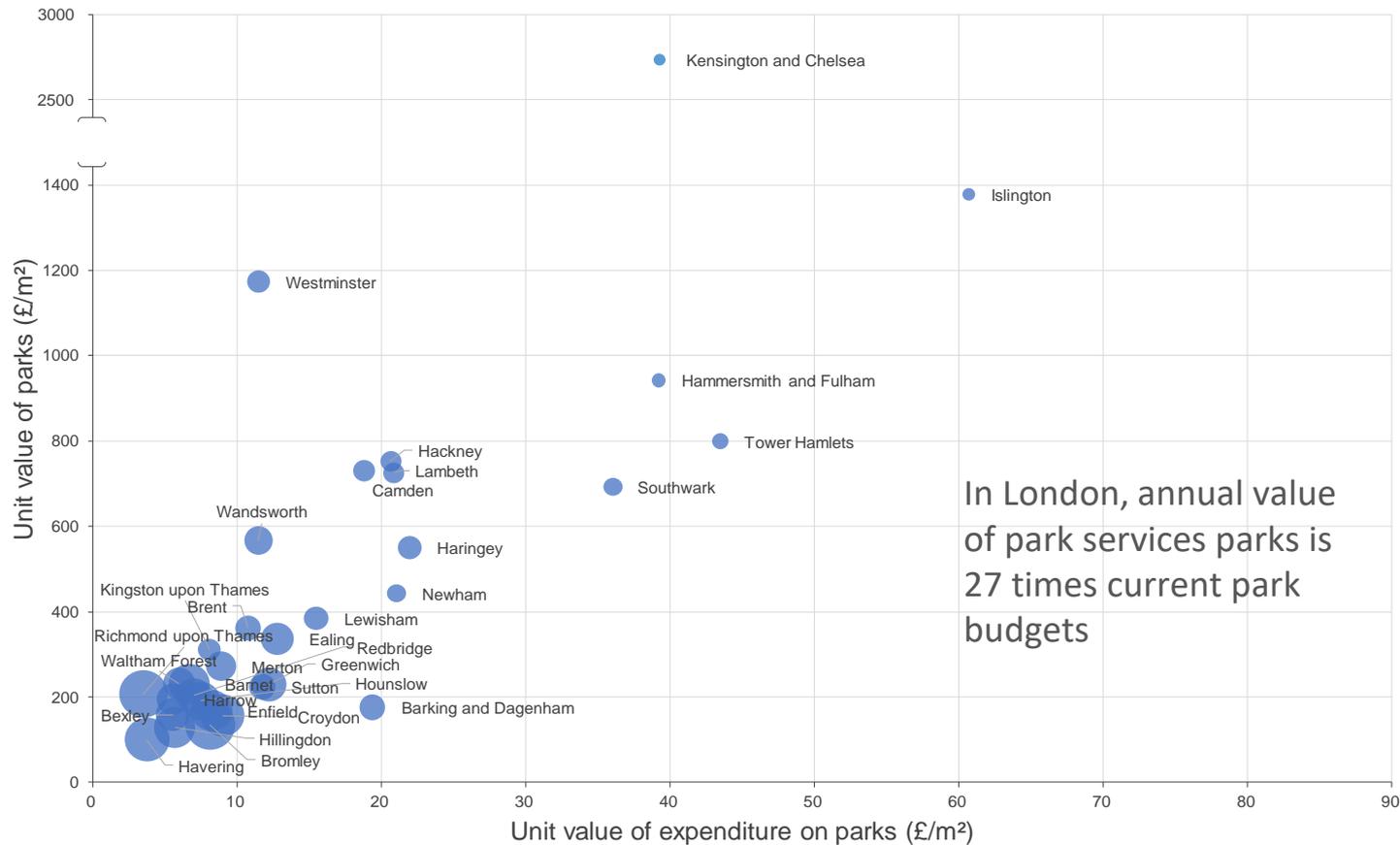
Source: Vivid Economics

# Unequal access to green spaces and unequal health



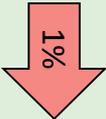
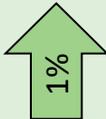
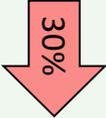
Source: Vivid Economics

# Able to compare value with current investment



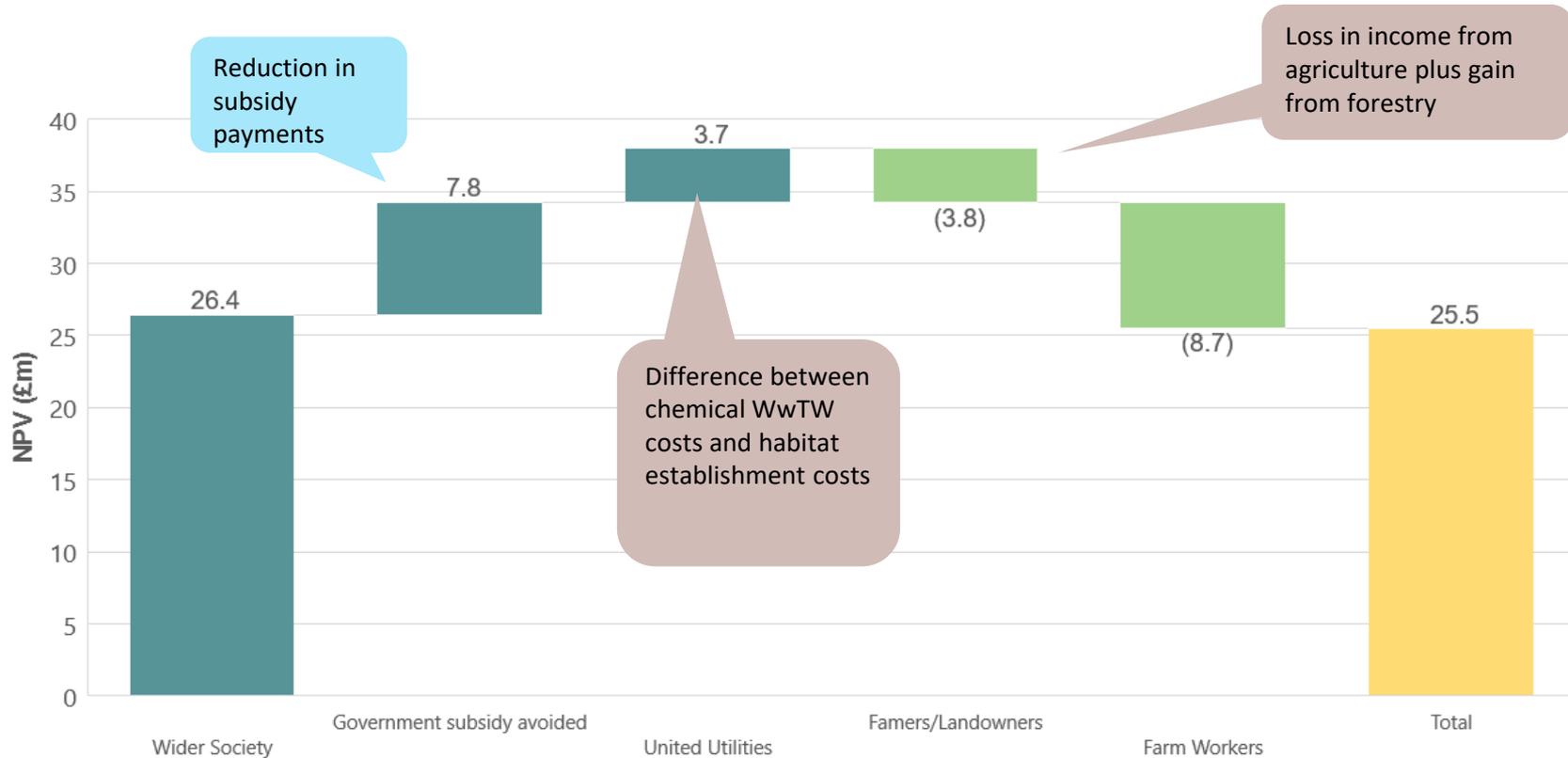
# Scenarios used to assess water treatment opportunities and land-use change options to achieve better water quality

## *The scenarios and WFD 'fair share' compliance status*

			UU water treatment	Phosphorous kg/d	WFD 'fair share' compliance
S1 – status quo			None	20.6	✘
S2 – chemical dosing asset based approach			Chemical treatment	19.3	✓
S3 – woodland increased in 2 reaches			Reed-beds	18.9	✓
S4 – woodland increased in whole catchment			Reed-beds	16.3	✓
S4 d - woodland increased in whole catchment			None	17.6	✓

# The benefits to different stakeholders can tell us about who gains from different management options

Scenario where woodland is increased in the Petteril catchment



# Looking forward

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Human life and our interaction with nature cannot be reduced to narrowly defined economic metrics

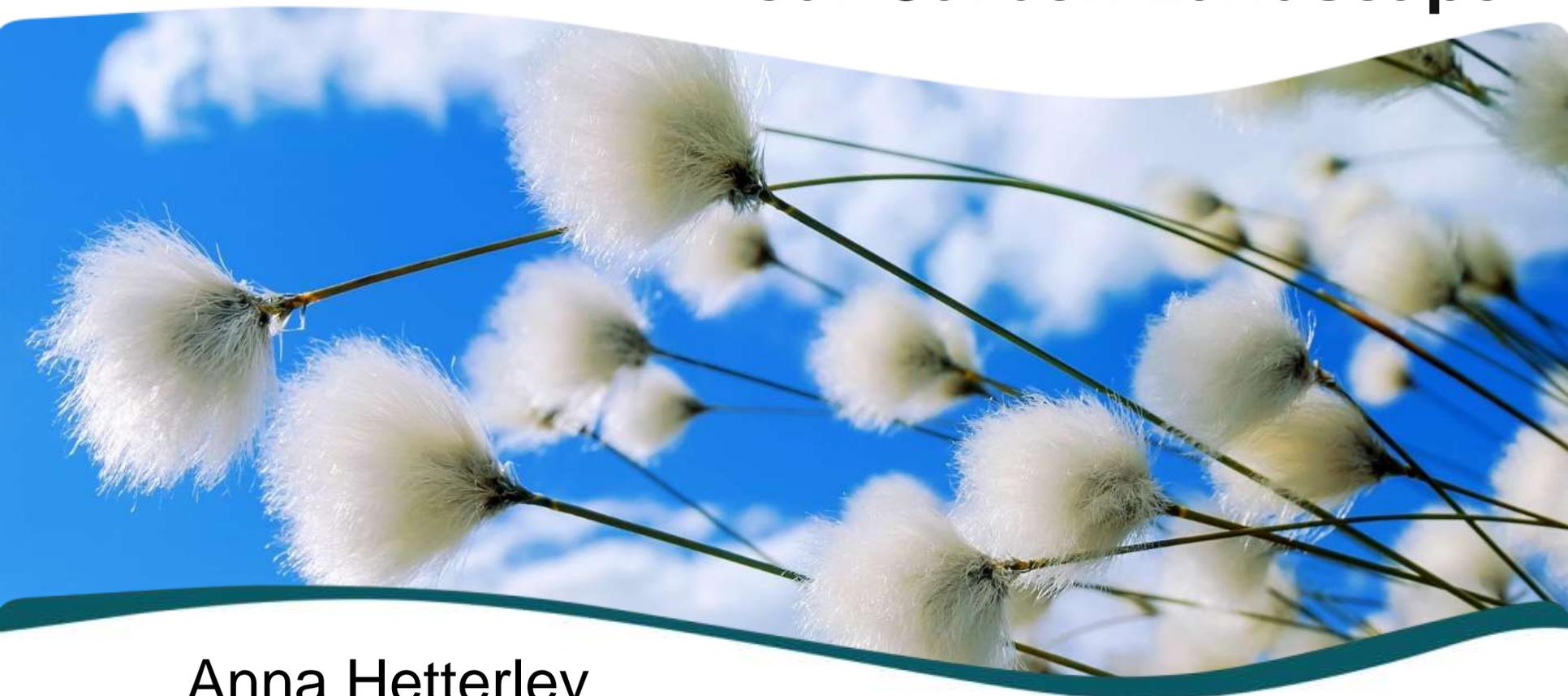
Natural capital can be used to better make the case for investing in a better environment and to tangible improvements in our lives e.g. public health budgets in Newcastle

Makes the case for long-term management of nature as vital infrastructure

Manchester is ahead of the curve... keep it up!



# Restoration, Reconnection and Access to our Carbon Landscape



Anna Hetterley



**Carbon Landscape**

**WIGAN**

Amberswood

Wigan Flashes

**Flashes**

**LEIGH**

Pennington Flash

**Mosslands**

**SALFORD**

Pestfurlong Moss

Risley Moss

Rixton Claypits

Paddington Meadows

Woolston Eyes

**WARRINGTON**

**Mersey Wetlands Corridor**



# Restoration



# Reconnection



Events



Training



# Reconnection



Trainees



Volunteers



# Access



# Partnership



- [www.carbonlandscape.org.uk](http://www.carbonlandscape.org.uk)
- [ahetterley@lancswt.org.uk](mailto:ahetterley@lancswt.org.uk)
- **Facebook:** The Carbon Landscape Partnership @carbonlandscape
- **Twitter:** @carbonlands





Inspiring everyone to grow

# RHS Garden Bridgewater

Inspiring a generation of gardeners

Anna da Silva – Programme Director



@RHSBridgewater







@RHSBridgewater



@RHSBridgewater



@RHSBridgewater



# City of Trees

Plant 3M trees within a generation

Bring back 2000Ha of woodland back into management

Nurture a woodland culture



# Green Connections

A partnership approach

Greater Manchester  
Moving > ^ < v

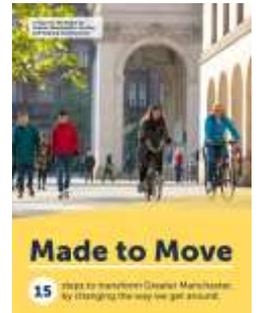


Developing green routes

Promoting sites

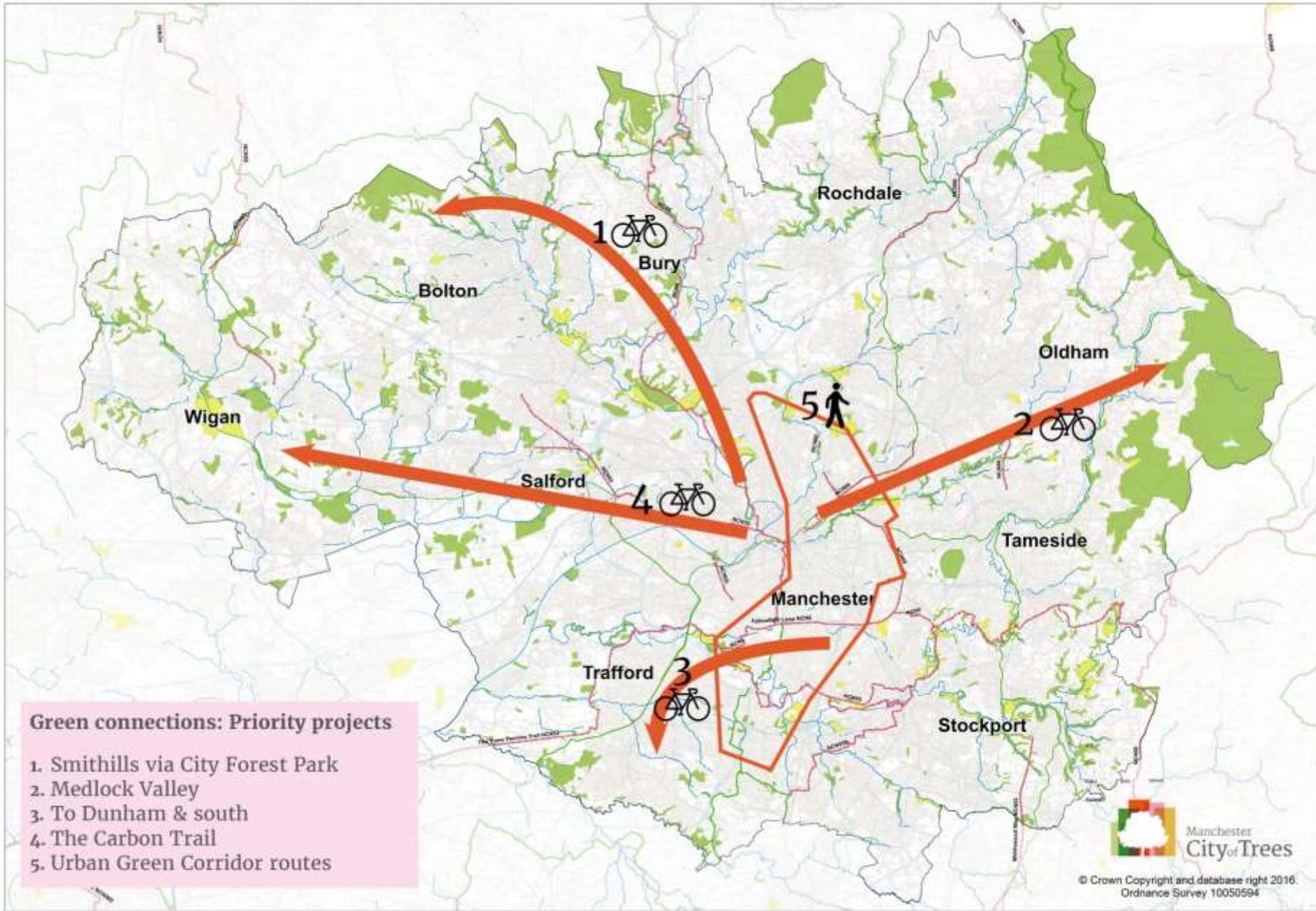
Encouraging active travel

Inspiring social action



Looking for partners....





**Green connections: Priority projects**

- 1. Smithills via City Forest Park
- 2. Medlock Valley
- 3. To Dunham & south
- 4. The Carbon Trail
- 5. Urban Green Corridor routes



# Workshop Session



Join the  
conversation  
[#GMGreenCity](#)

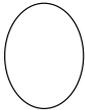


# Getting to know who is in the room

Please complete with the details of your organisation (feel free to doodle!)

After 5 minutes put all the forms in the middle and take turns to introduce each other

Who are you?



What values drive your organisation?



Who are you currently working with – partners and your organisation?



What is your current stomping ground? Where are you striving towards?



City of Trees -  
Miranda Clarke -  
Development  
Officer

What values drive your organisation?



want to  
- transform unused woods  
- plant more trees  
- connect people to green spaces  
- increase health + wellbeing

Who are you currently working with – partners and your organisation?



Partners - local authorities,  
GMA, community groups, third  
sector

Specific audiences across  
Greater Manchester, Wythenshame, Oldham,

What is your current stomping ground? Where are you striving towards?



Current - across Greater  
Manchester, based in Salford,  
City Centre, Spinkport, Oldham,

Striving towards - more work  
in Wythenshame, Wigan, Warrington in  
other landscapes



Manchester  
City of Trees

GROWING MORE TREES  
FOR GREATER MANCHESTER

## Where things are

Using the map print out on your table please highlight where you are already working and note the name of your organisation and project

(please write directly on the map)

**10 minutes**



## Letting people know about the amazing places and spaces in Greater Manchester

Please discuss with other group members how you let people know about engagement initiatives and places they can go – e.g. online information, paper based resources, signs and sculptures... Do you have suggestions for improvement?

Please note points down on the Tourist Information sign.

**10 minutes**





Manchester  
City of Trees

GROWING MORE TREES  
FOR GREATER MANCHESTER

## **The good, the bad and the ugly**

Thinking about Green Connections, can you please share any top tips, ideas or horror stories.

Note your key points on the Clint Eastwood printout !

**10 minutes**



# Vision for a Greener, Sustainable Greater Manchester

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Cllr Alex Ganotis  
Green City Region – Portfolio Lead  
Leader of Stockport MBC

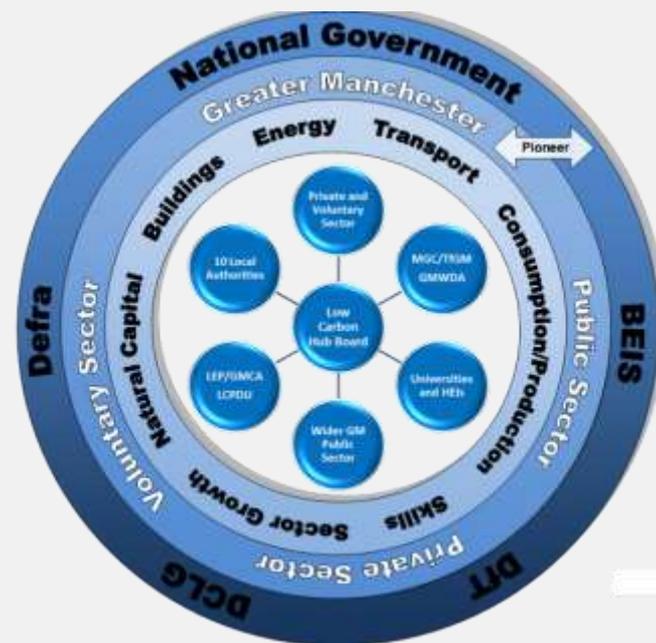
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# Green City Region Portfolio

To provide strategic leadership on the environment, green spaces, carbon reduction, air quality, waste policy and climate change adaptation agenda to support sustainable inclusive economic growth in Greater Manchester.

The portfolio is responsible for the development and delivery of the Climate Change Strategy (2012) and Climate Change and Low Emissions Implementation Plan (2016-2020). The current themes include:

- Energy efficient, low carbon **Buildings** (domestic and commercial)
- Smart and low carbon **Energy** generation and distribution
- **Natural Capital** (local nature partnership for critical green and blue infrastructure)
- Low emission/carbon **Transport**
- **Sustainable consumption and production** (waste and resource efficiency)



- and planning for the **climate change adaptation** measures needed for each.

# Mayor's Ambition for a Green City Region

*“Transform Greater Manchester into a world-leading greener, cleaner city region, improving the health and quality of life for millions of people and protecting our green spaces and environment for future generations”*



## **Mayoral Green Summit**

- 21<sup>st</sup> March 2018
- Topic specific expert workshops
- Listening events
- Online engagement

# GREEN SUMMIT

Setting

City

Area

Targets and

Trajectories

for

Emission

Reduction

Expert Workshops

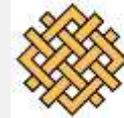
Listening Events

Green Summit

Environment  
Charter



GREENHOUSE  
GAS PROTOCOL



WORLD  
RESOURCES  
INSTITUTE



COMPACT  
of MAYORS

CORECITIESUK

GMCA

BOLTON  
BURY

MANCHESTER  
OLDHAM

ROCHDALE  
SALFORD

STOCKPORT  
TAMESIDE

TRAFFORD  
WIGAN



GREATER MANCHESTER  
LOW CARBON HUB

# Research & Evidence

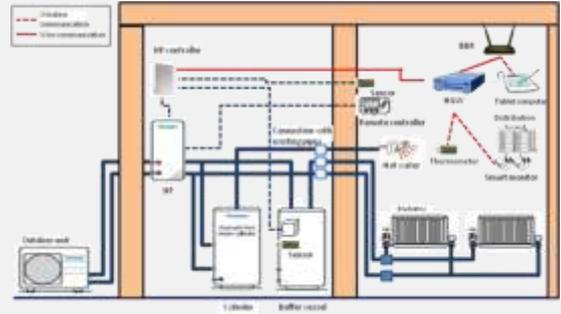
## An Evidence Based Approach:

- GM spends over £5 bn/pa on energy (all)
- Use of electricity and gas in buildings accounts for 72% of direct CO<sub>2</sub> emissions
- Longer term targets require energy efficiency, low or zero carbon heating
- GM has 140MW of installed renewable electricity & 29MW of heat capacity.
- However, technical potential for 9% of our electricity demand and 68% of our heat demand to come from renewable sources.
- Therefore significant potential for more:
  - Energy Efficiency through building retrofit
  - Heat networks/heat pumps
  - Solar technologies (heat and power)
  - Biofuel

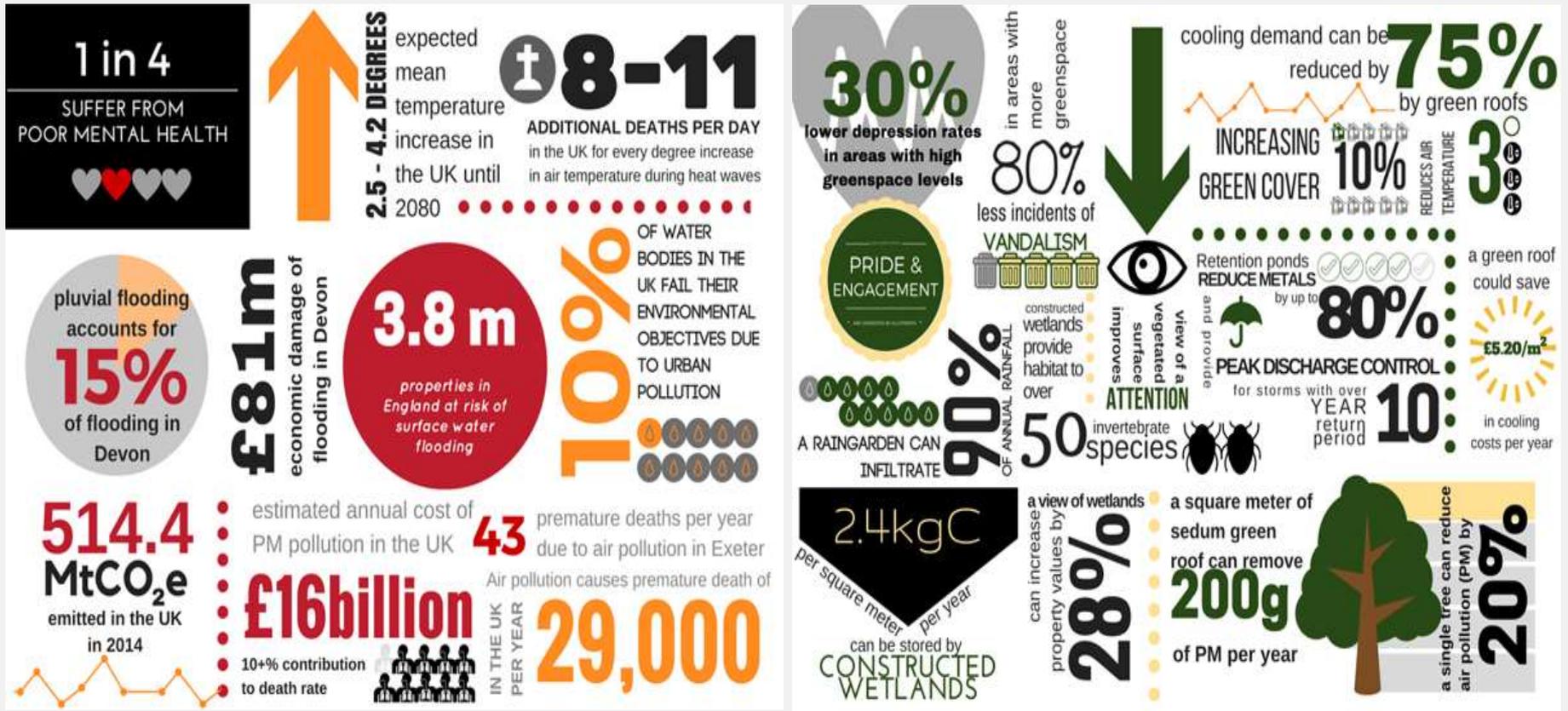


# Existing Energy Projects

- **Smart Systems and Heat (SSH)** – national pilot
- **NEDO Smart Communities project** – a £20+ million smart energy Demand Side Response
- **Buildings Efficiency** - Award Winning £19m energy efficiency domestic programme & investment opportunities identified in non-domestic buildings.
- **Heat Networks** - £10m funding for first two networks agreed.
- **Transport** - Electric Vehicle recharging Infrastructure, £23m Velocity Cycling Network, Extension of Metrolink
- **Business support** - £3m Green Growth programme.



# Challenges & Opportunities



Source: Defra Local Action Plan

# Urban Pioneer – Aims & Objectives



Develop and test a communications and engagement model that brings together sectors, organisations and the public to deliver more for the environment.



Develop a demonstrator project that shows the benefit of a Natural Capital Approach on project funding



Demonstrate a place based approach to delivery that improves policy and decision making



Creating a Natural Capital Investment Plan for Greater Manchester



Cross cutting supporting actions

*“To make a clear and evident contribution to Greater Manchester’s natural environment, engaging and connecting people with nature in their city, maximising their health and economic benefits through investment in the environment, creating sustainable growth and a good quality of life.”*

## URBAN PIONEER DELIVERY GROUP



**GMCA**

BOLTON  
BURY

MANCHESTER  
OLDHAM

ROCHDALE  
SALFORD

STOCKPORT  
TAMESIDE

TRAFFORD  
WIGAN

# Natural Capital Projects

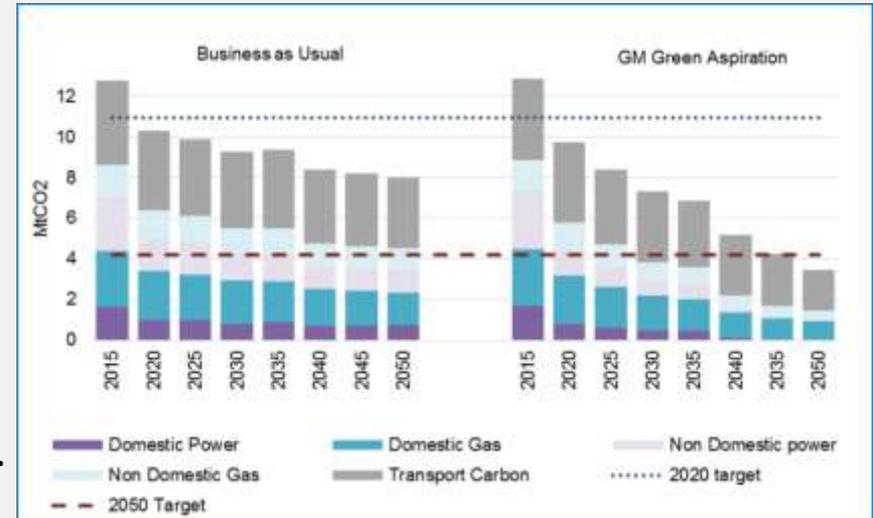


- Life IP Natural Course
- Greater Manchester Wetlands NIA
- City of Trees
- Grow Green
- RESIN



# Conclusion

- We have an opportunity to create a new vision for Greater Manchester
- 'Business as Usual' not enough to achieve carbon neutral by 2050
- We must significantly scale up our environment, energy generation & efficiency activities
- Partner collaboration, with citizens, business and academia is key to accelerating progress.



## We need to:

- Maximise the value of existing partnerships, strategic approaches and joined up thinking
- Create frameworks which provide capacity for viable project development.
- Build business cases for investment in viable natural capital, energy and transport solutions.
- Incentivise investment by others through stronger local policies.

# Less information more inspiration

Henry McGhie, Manchester Museum



# Natural history museums can help reforge the connections between people and nature



- Helping people develop their awareness, understanding and appreciation of nature
- Encourage people to experience nature for themselves





**2** ZERO HUNGER

**3** GOOD HEALTH AND WELL-BEING

**4** QUALITY EDUCATION

**11** SUSTAINABLE CITIES AND COMMUNITIES

**12** RESPONSIBLE CONSUMPTION AND PRODUCTION

**13** CLIMATE ACTION

**14** LIFE BELOW WATER

**15** LIFE ON LAND

**17** PARTNERSHIPS FOR THE GOALS





## loss

Messages based on extinction, 'Biodiversity' and 'extinction' are almost automatically communicated together. From the Red List to the plight of the rainforest, the 'biodiversity loss' message is everywhere. It is rare that any plant, animal or ecosystem is mentioned by campaigners, policy makers or the media without an 'under threat' disclaimer.

## love

Messages based on awe and wonder. From nature documentaries to posters of dolphins on teenagers' walls, our abiding fascination, wonder and deep connection with nature is powerful. The Love message is used by advertisers, therapists, artists and campaigners alike, because awe for nature captures our imagination, and our attention.

## need

Messages based on economics. A more recent message is the tangible economic value of biodiversity. From indispensable ecosystem services like soil nutrition or tourism revenue, to the trillions of dollars that biodiversity 'gifts' agriculture, pharmaceuticals and other industries every year. Our society and economy needs biodiversity.

## action

Messages asking for action. Biodiversity conservation requires people to do things. Action messages ask people to do something, whether it's to plant a tree, build a bee hive, sign a petition or donate money to a conservation charity.

## the formula

$$\begin{matrix} \text{♥} & + & \text{A} & = & \text{public} \\ \text{love} & & \text{action} & & \text{change} \end{matrix}$$

$$\begin{matrix} \$ & + & \text{A} & = & \text{policy} \\ \text{need} & & \text{action} & & \text{change} \end{matrix}$$

## what to say



### less loss

Kill the extinction message. Loss generates apathy, not action.



### more love

Celebrate our love of nature. It is the most powerful driver of public behaviour.



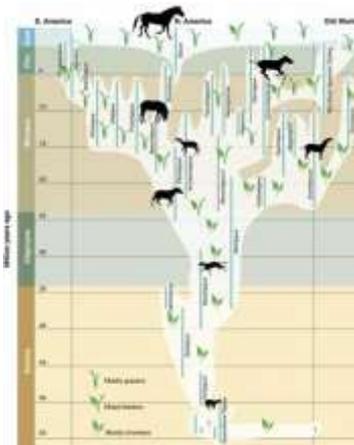
### target need

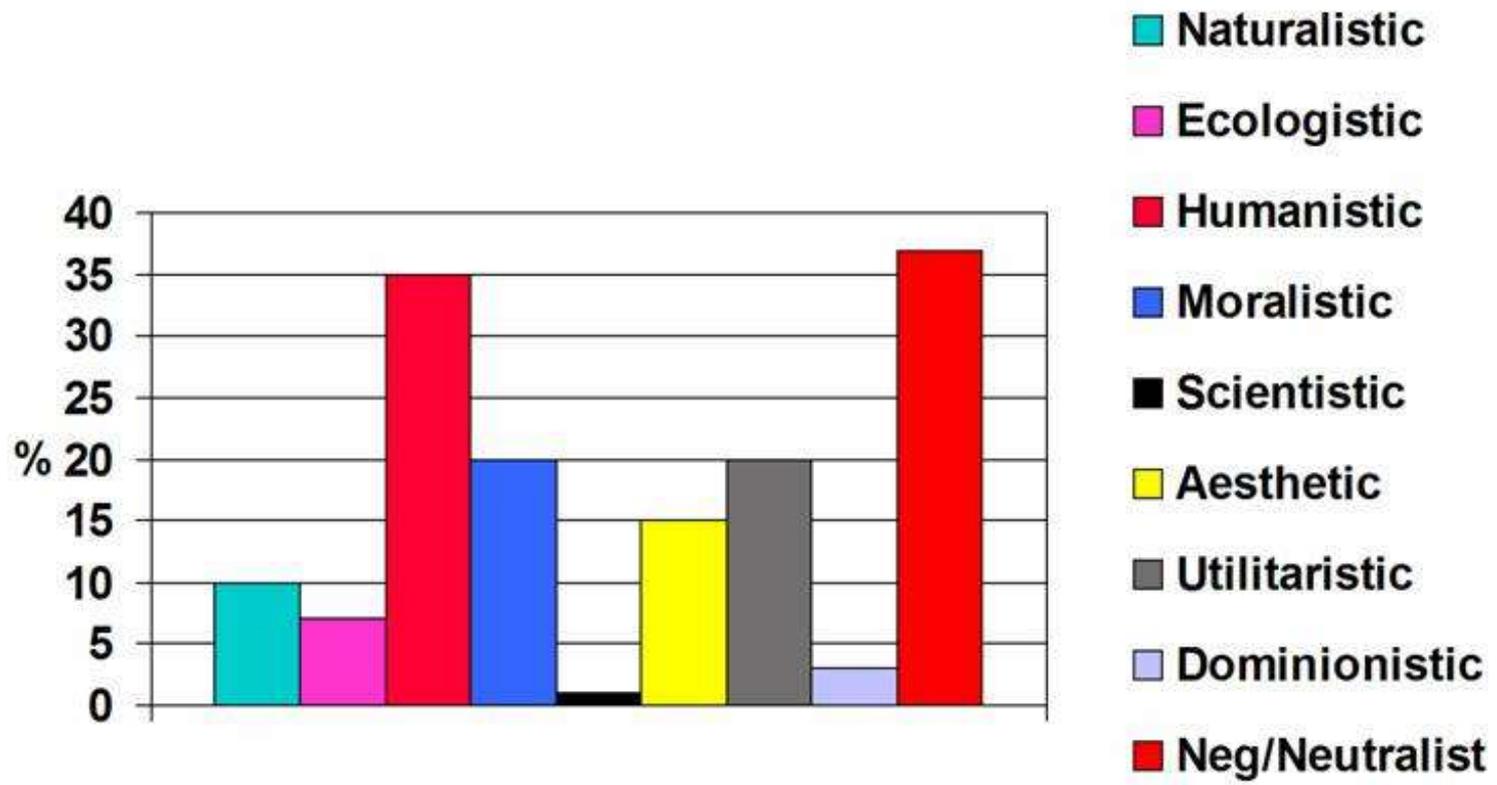
Use the Need message wisely. It's often not right for public consumption, but it's the cornerstone of policy and business decisions.



### add action

Always partner Love and Need messages with Action. Once your audience is inspired, they will want to know what to do.



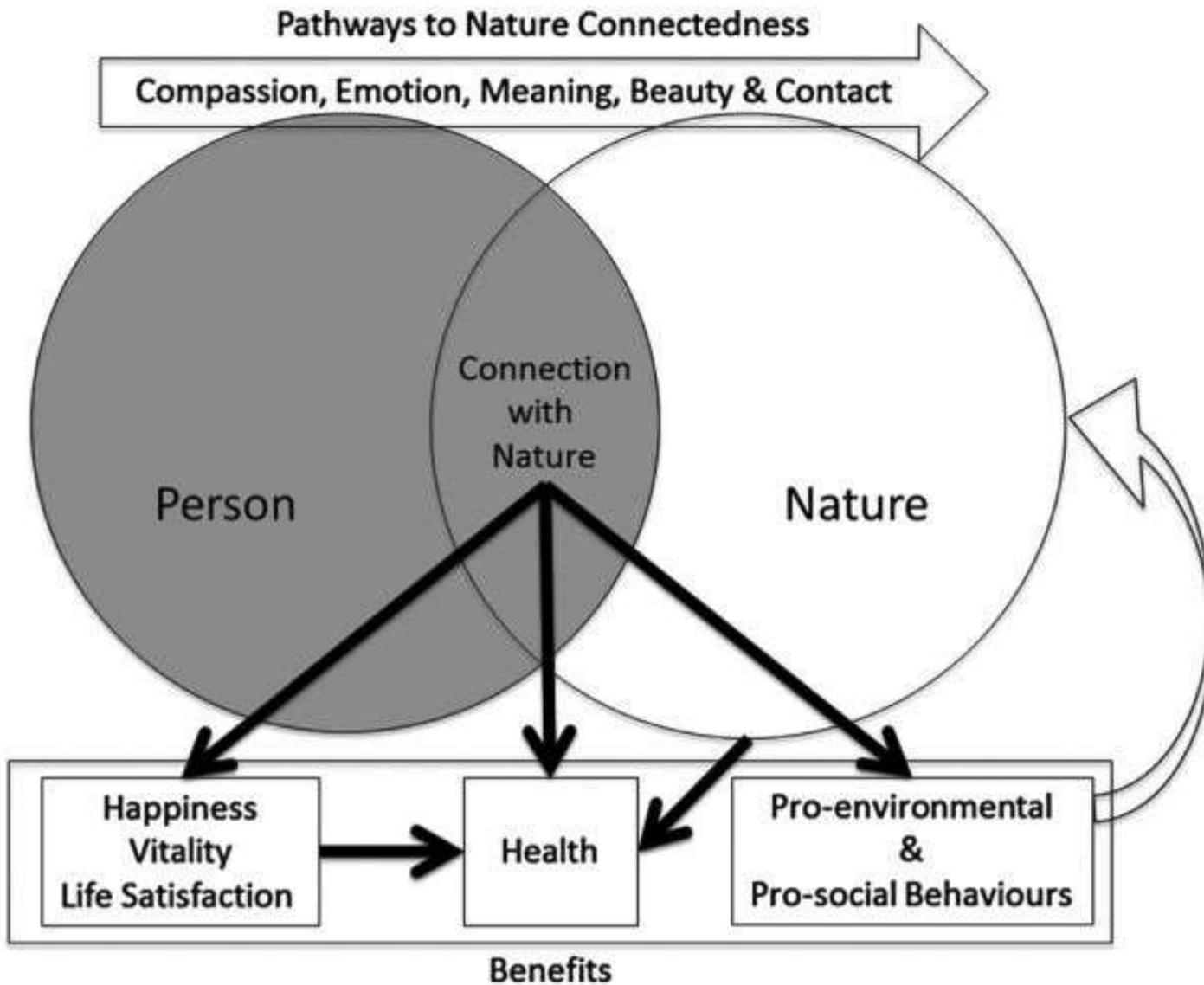






Ant Clausen Photography





# 69,380 respondents

- 47% of people already shop carefully (27%)
- 45% of people already travel light (28%)
- 43% of people already eat thoughtfully (28%)
- 43% of people eat seasonal food (30%)
- 46% of people already switch off lightswitches etc. (29%)
- 49% of people already recycle (28%)

# Cities in future climate change and the role of nature based solutions

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GM Natural Capital Group Conference  
'Connecting People with Nature'  
16<sup>th</sup> January 2018

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**Matt Ellis (Climate Resilience Officer, GMCA)**

# Presentation Outline

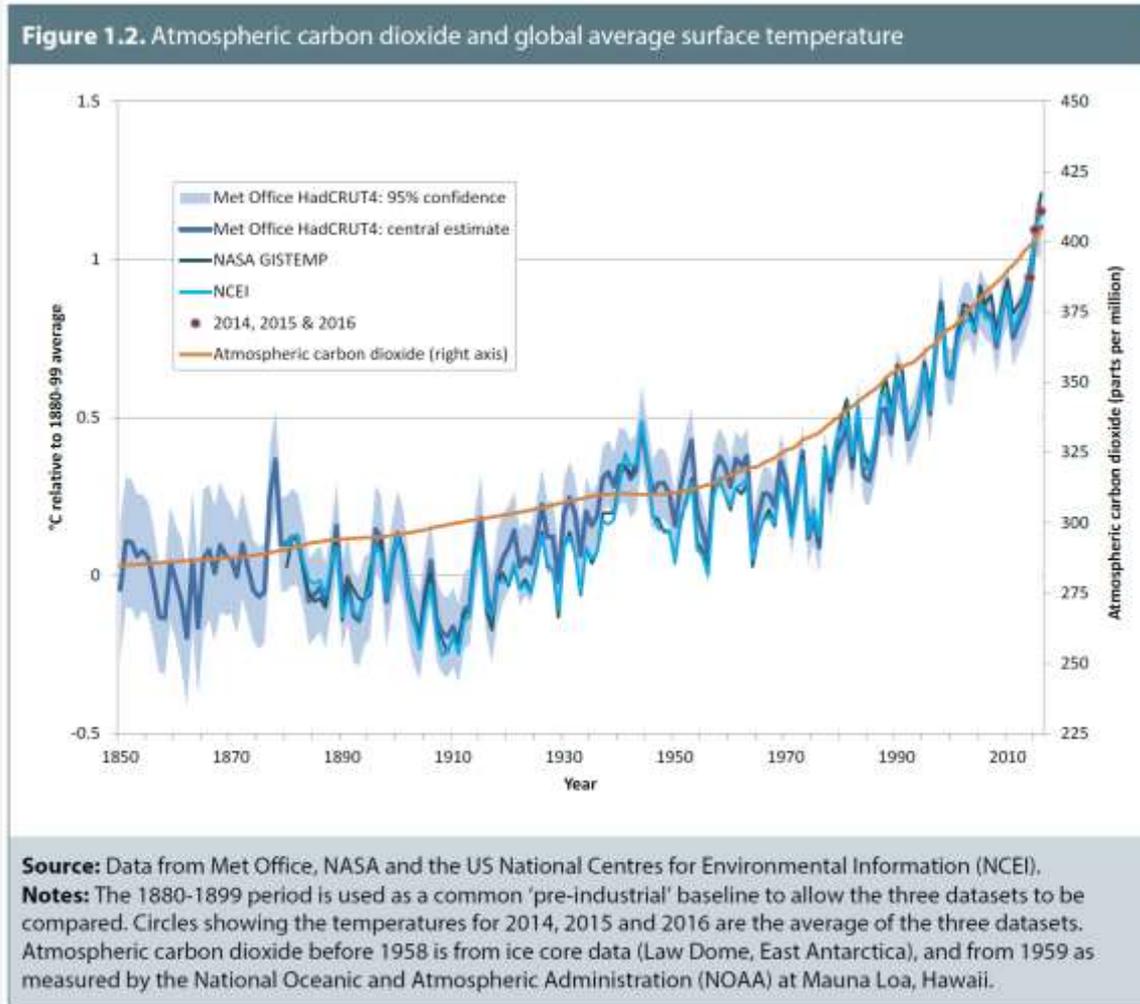
- A recap – globally, the climate is continuing to change
- What will climate change look like locally - particularly for cities like GM?
- The critical role of nature based solutions as a response to a rapidly changing climate

# A global challenge with local consequences

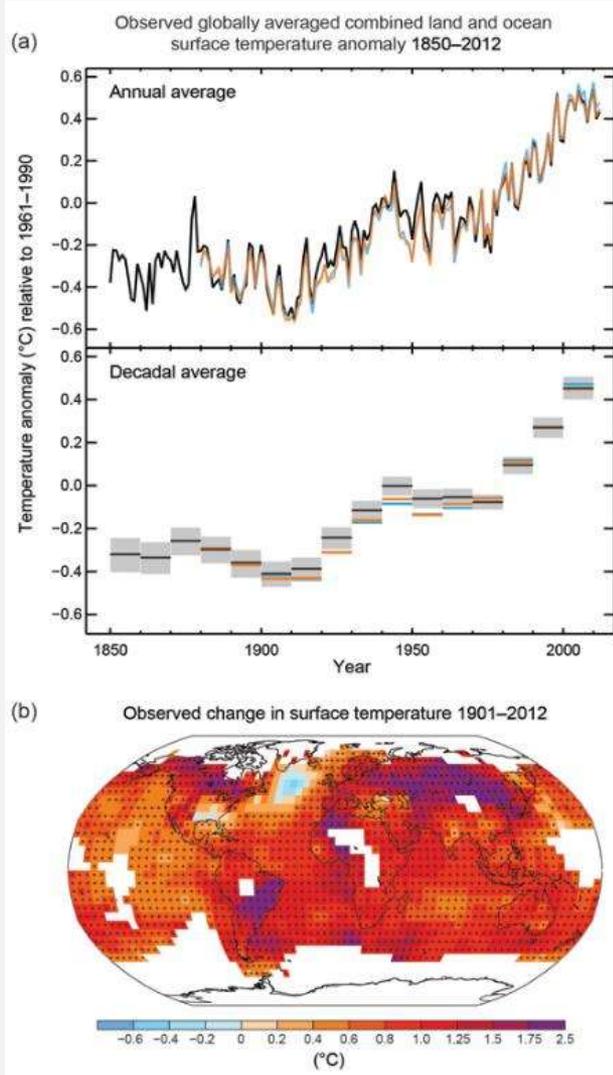


**GMCA** BOLTON MANCHESTER ROCHDALE STOCKPORT TRAFFORD  
BURY OLDHAM SALFORD TAMESIDE WIGAN

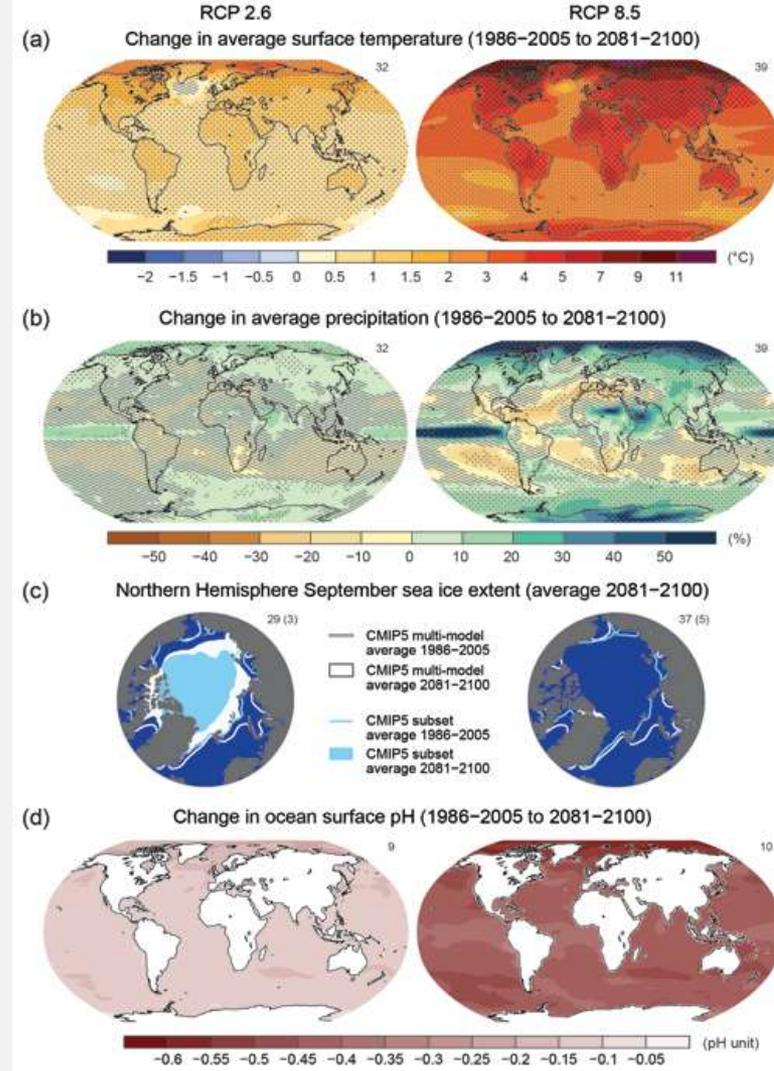
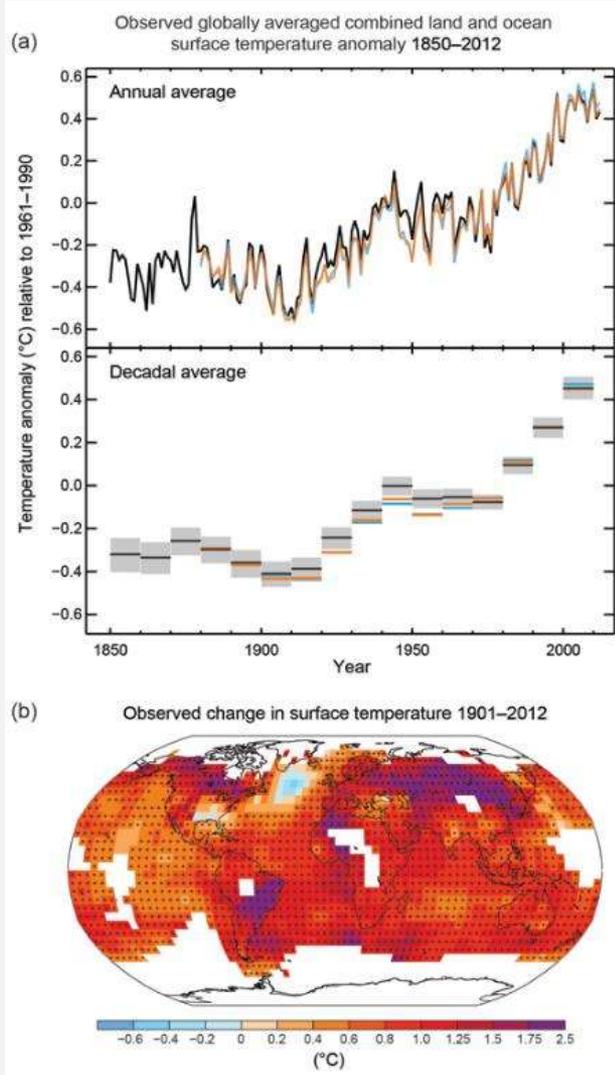
# A global challenge with local consequences



# A global challenge with local consequences



# A global challenge with local consequences



# Do we understand what a changing climate means for GM, its people & its infrastructure (including green and blue)?



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**BURY**

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**OLDHAM**

**ROCHDALE**  
**SALFORD**

**STOCKPORT**  
**TAMESIDE**

**TRAFFORD**  
**WIGAN**

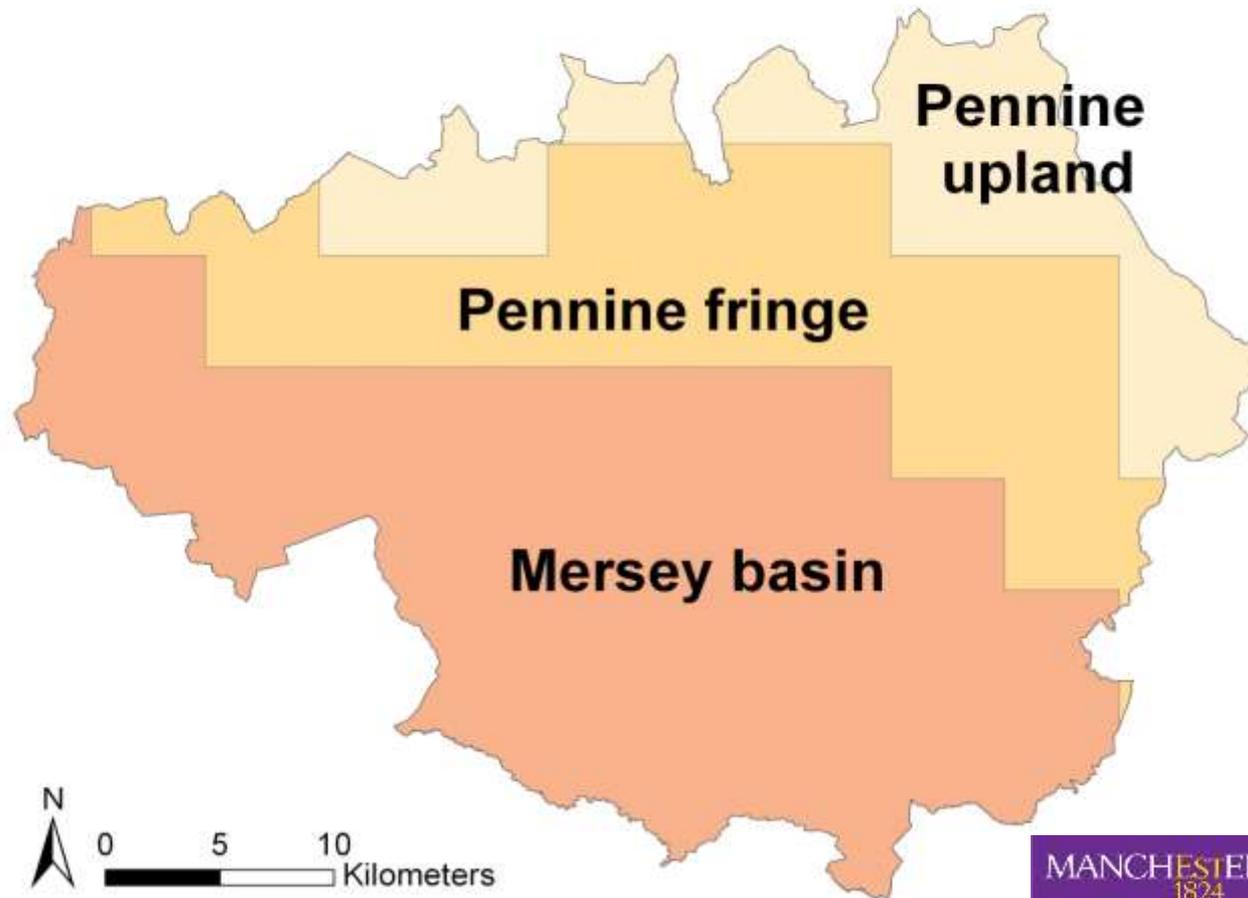
# Locally we are starting to see finer definition



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# Locally we are starting to see finer definition

Figure 3: The three climate zones across Greater Manchester



# Locally we are starting to see finer definition

**Table 2: Summary of changes from the baseline (1961-1990) for key climate variables under the high and low emissions scenarios for the 2050s**

Climate variable (changes from the baseline)	Zone*	Low emissions scenario			High emissions scenario		
		Probability level			Probability level		
		10th	50th	90th	10th	50th	90th
Annual mean temperature (°C)	MB	1.4	1.9	2.9	1.8	2.4	3.6
	PF	1.4	1.9	2.9	1.8	2.5	3.6
	PU	1.4	1.9	2.9	1.8	2.4	3.6
Summer mean daily maximum temperature (°C)	MB	1.1	2.5	4.3	1.4	2.9	5.6
	PF	0.9	2.4	4.1	1.4	3.0	5.5
	PU	1.1	2.5	4.2	1.5	3.0	5.7
Warmest day in summer (°C)	MB	1.3	2.6	4.6	1.5	3.1	6.0
	PF	1.1	2.6	4.3	1.6	3.4	6.0
	PU	1.2	3.0	4.7	1.6	3.4	5.9
Summer mean daily minimum temperature (°C)	MB	0.9	1.7	2.9	1.3	2.1	4.0
	PF	1.0	1.8	3.0	1.2	2.3	4.0
	PU	1.1	1.8	3.0	1.2	2.3	4.0
Warmest night in summer (°C)	MB	0.9	1.8	3.6	1.3	2.6	4.4
	PF	1.1	2.0	3.4	1.3	2.6	4.6
	PU	1.0	2.0	3.5	1.4	2.6	4.4
Winter mean daily minimum temperature (°C)	MB	0.9	1.9	3.3	1.7	2.4	3.9
	PF	1.0	1.9	3.2	1.8	2.5	3.9
	PU	0.9	1.9	3.4	1.7	2.4	3.9
Coldest night in winter (°C)	MB	0.6	1.9	3.3	1.3	2.4	3.5
	PF	1.2	2.0	3.3	1.7	2.4	3.8
	PU	0.8	2.0	3.7	1.4	2.6	3.7
Annual mean precipitation (%)	MB	-6	0	9	-5	2	9
	PF	-5	3	12	-4	5	13
	PU	-4	3	13	-3	4	12
Summer mean precipitation (%)	MB	5	-15	-29	-5	-20	-36
	PF	15	-12	-26	0	-20	-36
	PU	13	-13	-27	-2	-21	-36
Wettest day in summer (%)	MB	-13	1	18	-15	0	19
	PF	-12	7	31	-17	2	25
	PU	-14	5	27	-20	-3	20
Winter mean precipitation (%)	MB	-3	9	23	0	14	28
	PF	-2	10	23	1	16	36
	PU	-4	9	22	3	17	33
Wettest day in winter (%)	MB	-6	7	18	1	11	31
	PF	-1	11	22	2	15	38
	PU	-1	10	25	2	14	31

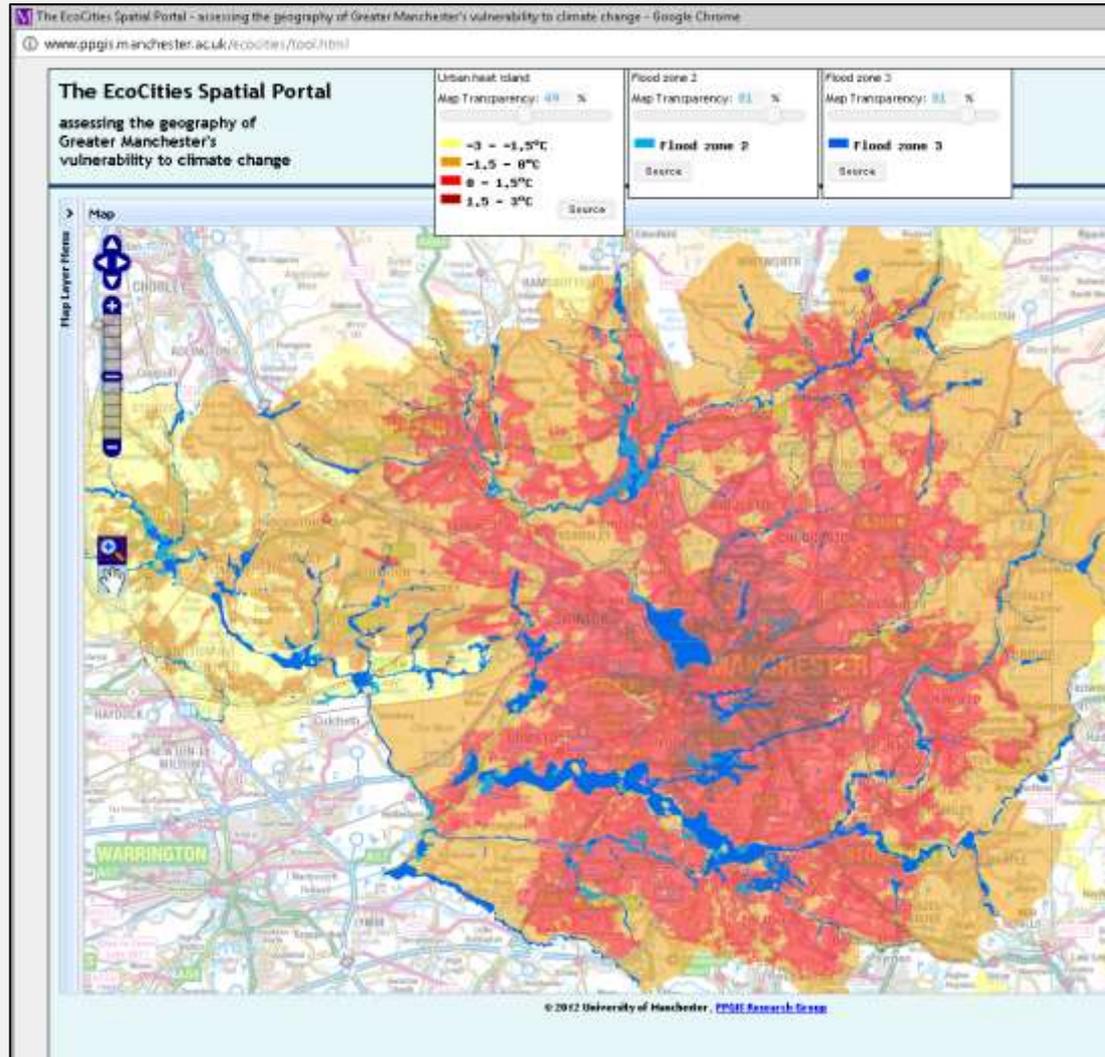
\*MB=Mersey basin; PF=Pennine Fringe; PU=Pennine Upland

# But what does this look like locally?



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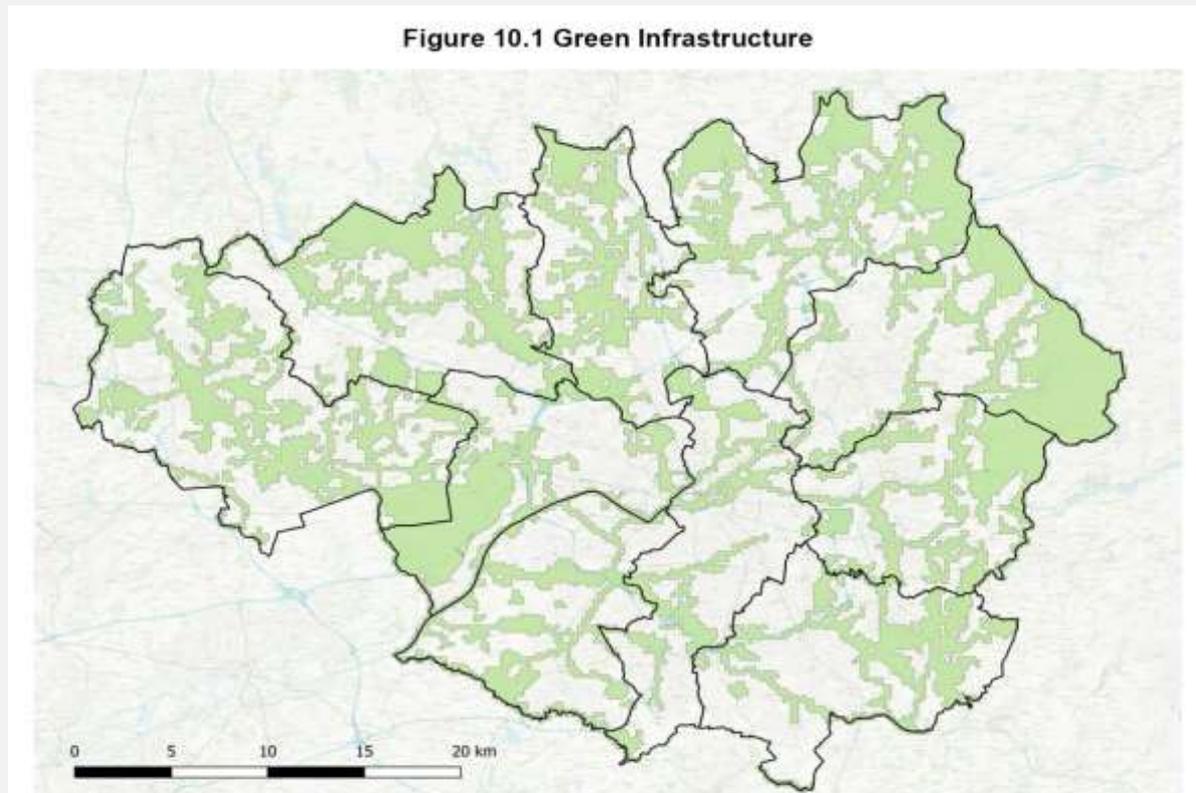
<http://www.ppgis.manchester.ac.uk/ecocities/>

# Nature Based Solutions are critical in our response to a changing climate because:



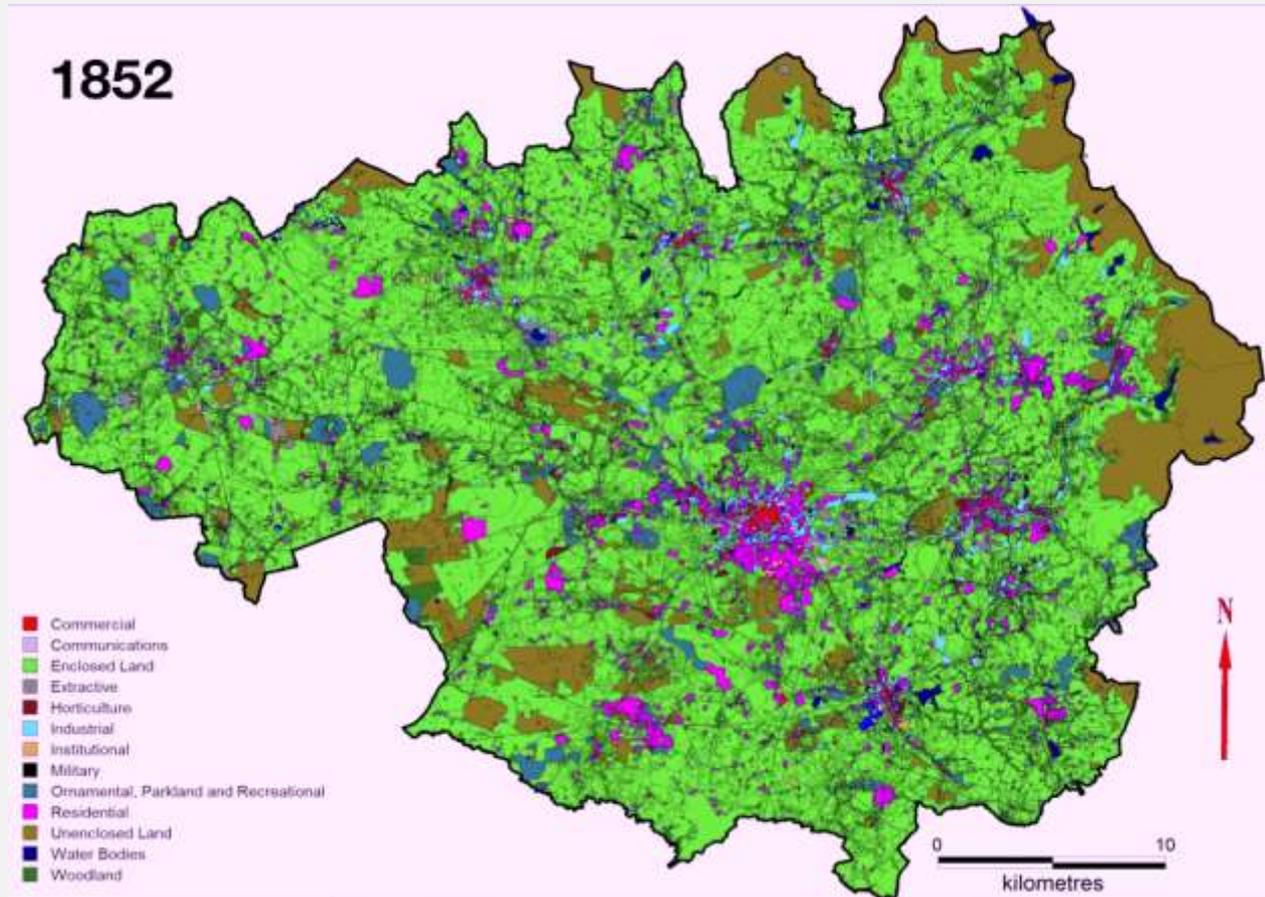
# Nature Based Solutions are critical in our response to a changing climate because of:

- **Where it is, what it is and what it does**

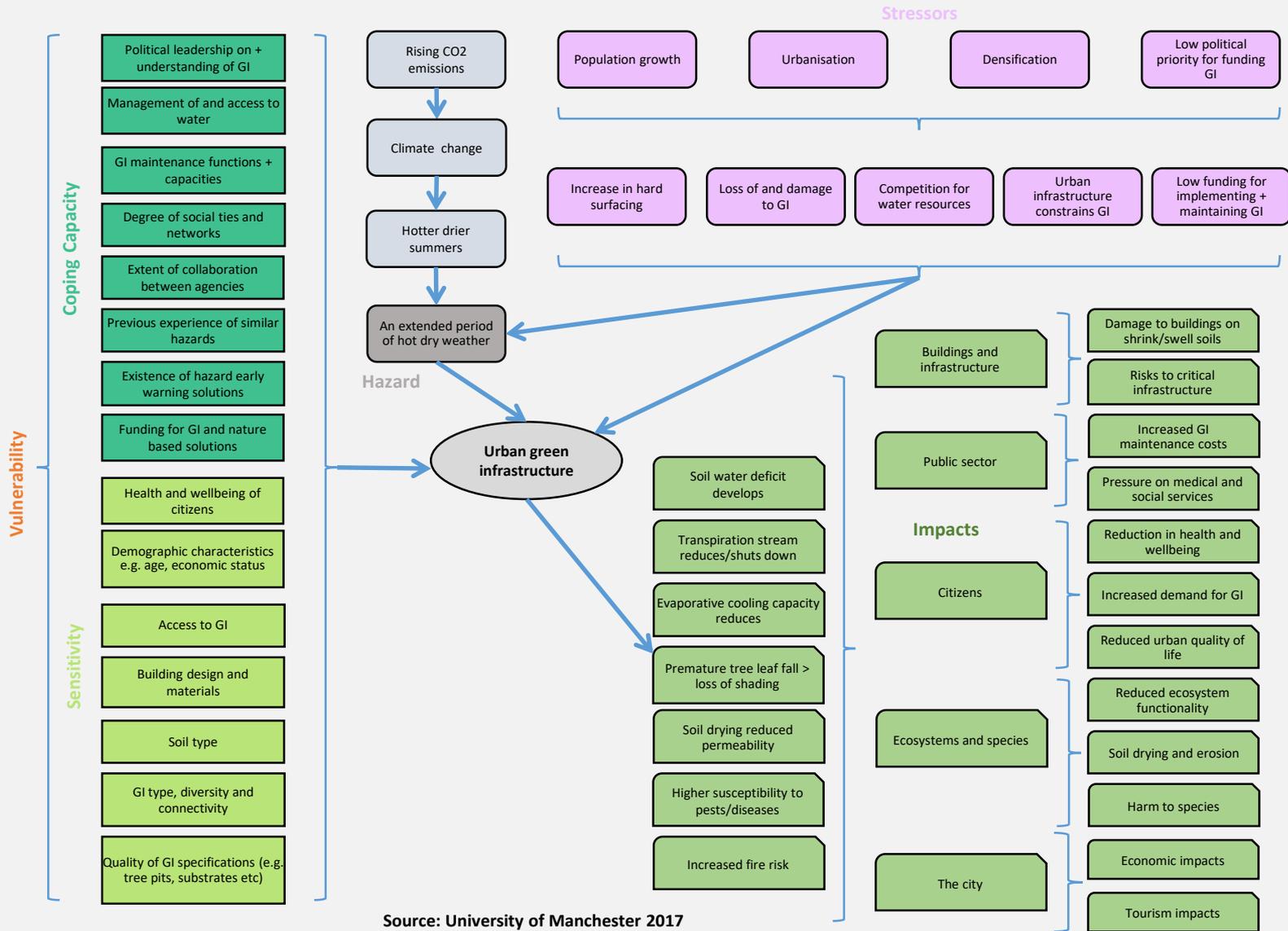


# Nature Based Solutions are critical in our response to a changing climate because of:

- Other evolving issues



Impact chain: An extended period of hot dry weather on green infrastructure (GI) in an urban location



Source: University of Manchester 2017



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**Thanks**  
**[www.resin-cities.eu](http://www.resin-cities.eu)**

# Workshop Session



Join the  
conversation  
[#GMGreenCity](#)



# Green Summit Workshop

Gill Fenna & Louise Marix Evans  
Quantum Strategy & Technology  
16 January 2018

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**ANDY BURNHAM**

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MAYOR OF  
GREATER  
MANCHESTER

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**#GMGreenCity**

**Quantum**

In 15 – 20 years' time Green  
Carbon Neutral Greater  
Manchester has...

generate your own list of ideas  
5 mins

In 15 – 20 years' time Green  
Carbon Neutral Greater  
Manchester has...

In pairs, agree top 6 ideas  
1 idea per paper; WRITE BIG,  
6-7 words per idea

10 mins

In table groups on flip chart  
15 mins

Challenges & Barriers      Solutions & Actions

For the themes/ideas  
assigned to your  
group

# More ways to get involved

- Take the survey – <https://pollev.com/GreenSummit>
- Share the survey within your organisation and networks
- Attend a specialist or area-based event including:
- Pro Manchester's Green Economy Sector Group  
Investing in the natural environment on 31 January
- Southwards/ University of Manchester: Place event on 16 February