Greening our Towns and City Centres

Paul Nolan

Director

The Mersey Forest

£3.4m European cash to create new green spaces in Liverpool

New parks and 'green corridors' planned for city centre, Baltic Triangle and Otterspool

BY ALISTAIR HOUGHTON
15:54, 12 DEC 2016

NEWS

Merseyside from the Air...Aerial pic New Liverpool...city centre Chevasse Park, Liverpool one, Liver buildings,

RECOMMENDED

Crowbar-wielding carjacker led police on 70mph chase

Hungry crook called at the bakers to buy a steak pie while on a gun delivery

How much value does living near a Liverpool park add to your home?

We reveal the top 10 parks in the city that could significantly boost your house price.

2 COMMENTS

BY LIAM THORP

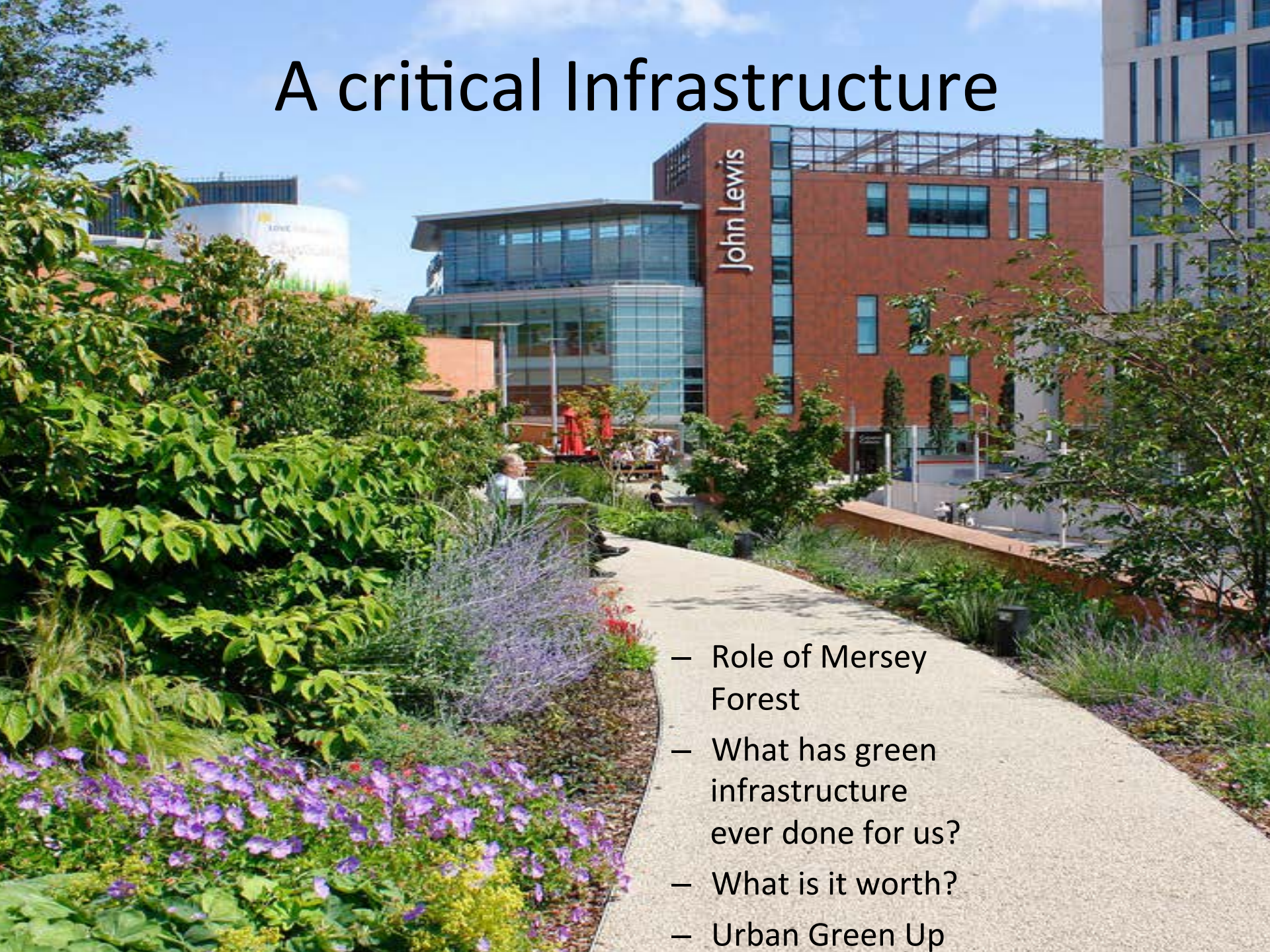
16:50, 19 FEB 2017 | UPDATED 16:51, 19 FEB 2017

NEWS

Living near a park in Liverpool can add as much as £165,000 to the value of your house, new figures have revealed.

Analysis of house price data by the ECHO shows that if your house is situated near to one of the city's parks, it could be worth significantly more - but it very much depends on which park.

A critical Infrastructure



- Role of Mersey Forest
- What has green infrastructure ever done for us?
- What is it worth?
- Urban Green Up

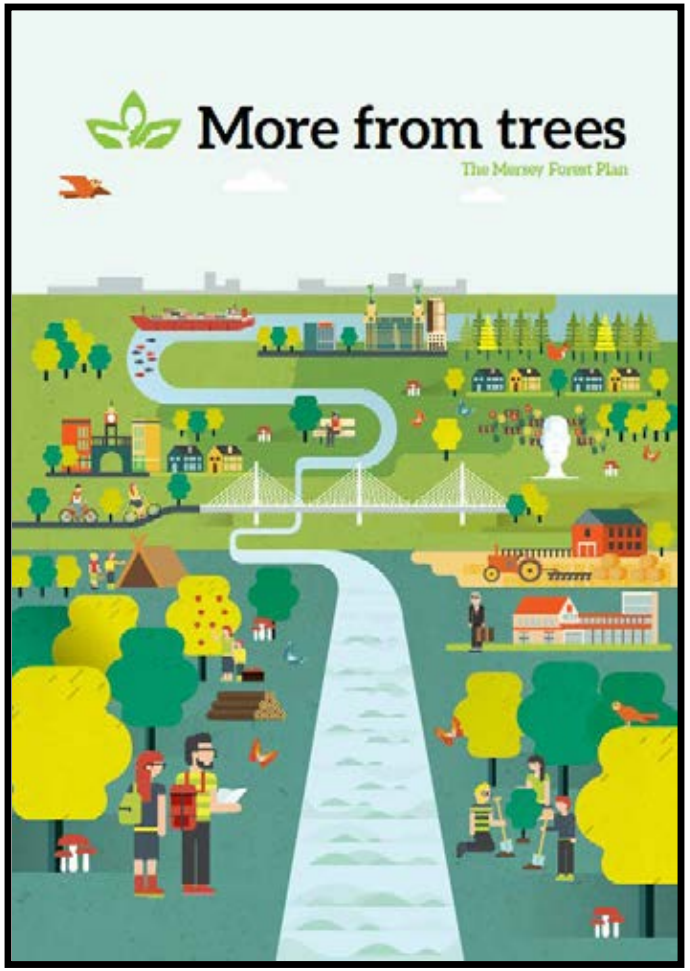
The Mersey Forest

The Mersey Forest

- The Mersey Forest is a place
- With a long-term Forest Plan
- Co-ordinated by a Team
- Funded through programmes, projects and core funds

Our Plan

Tackles some of the most difficult issues facing our towns and cities

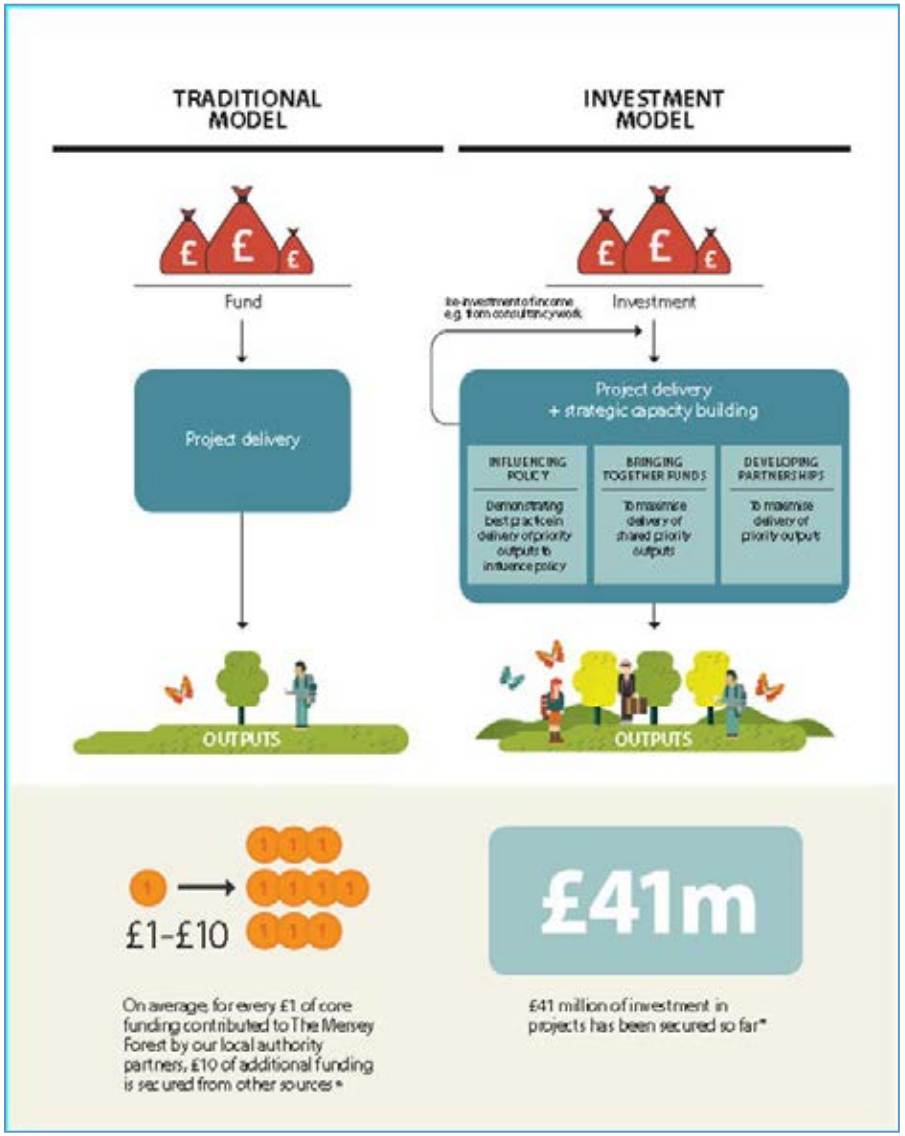


www.merseyforest.org.uk/plan

Our vision is to get 'more from trees' to help make Merseyside and North Cheshire one of the best places in the country to live.

What we do and how

- Land
- Communities
- £
- Communicate
- Research
- Influence policy



Achievements to date

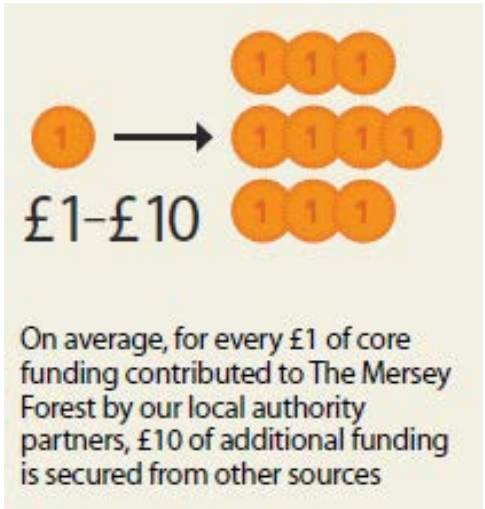
9 million
trees planted; or
3,000ha of
woodland

Woodland has
doubled,
from 4% to 8%

3X more
woodland managed than before The Mersey Forest

We've worked with more than 500 landowners in the last ten years & more than half the schools in our area

of people say their environment has improved thanks to our work



For every £1 invested, £2.60 of GVA and £10.20 of total economic benefits

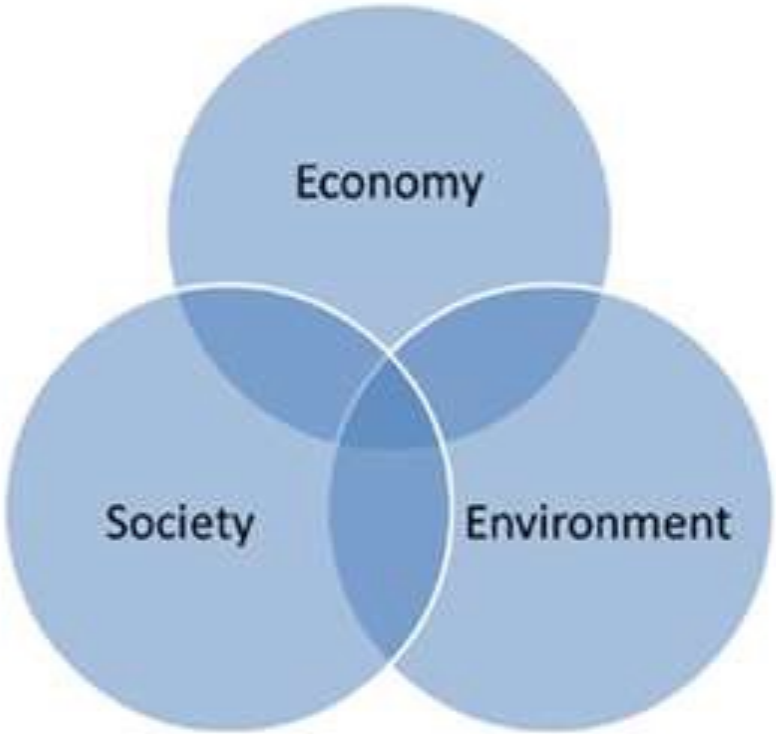


Figure 4.4a

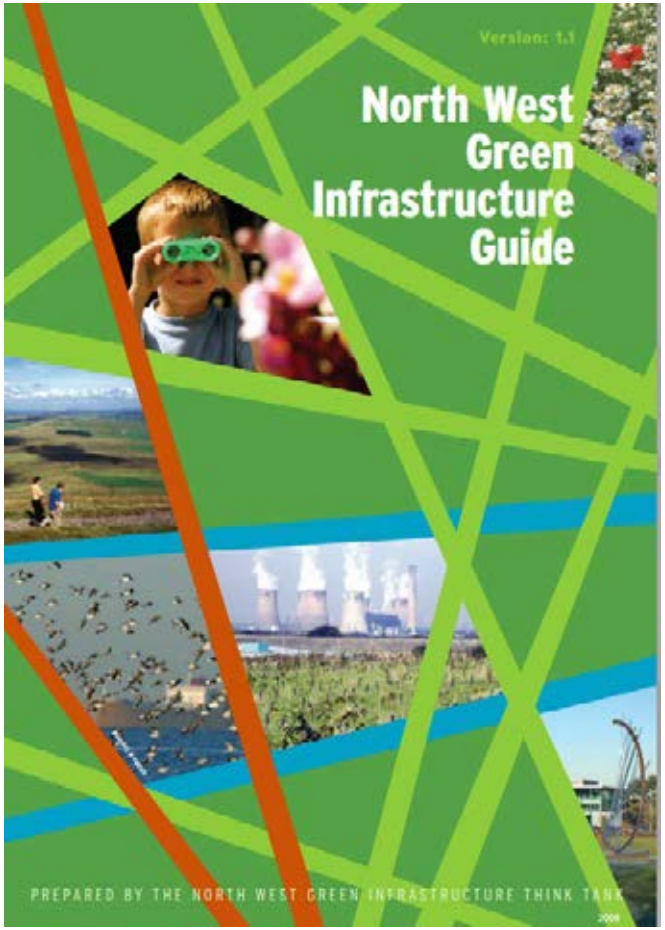
Figure 4.4b

Putting economic values on green infrastructure Improvements – Natural England

What is green infrastructure?

Our life support system.

A network of natural environmental components, green & blue spaces that lie within and between our cities, towns and villages, providing multiple social, economic & environmental benefits.



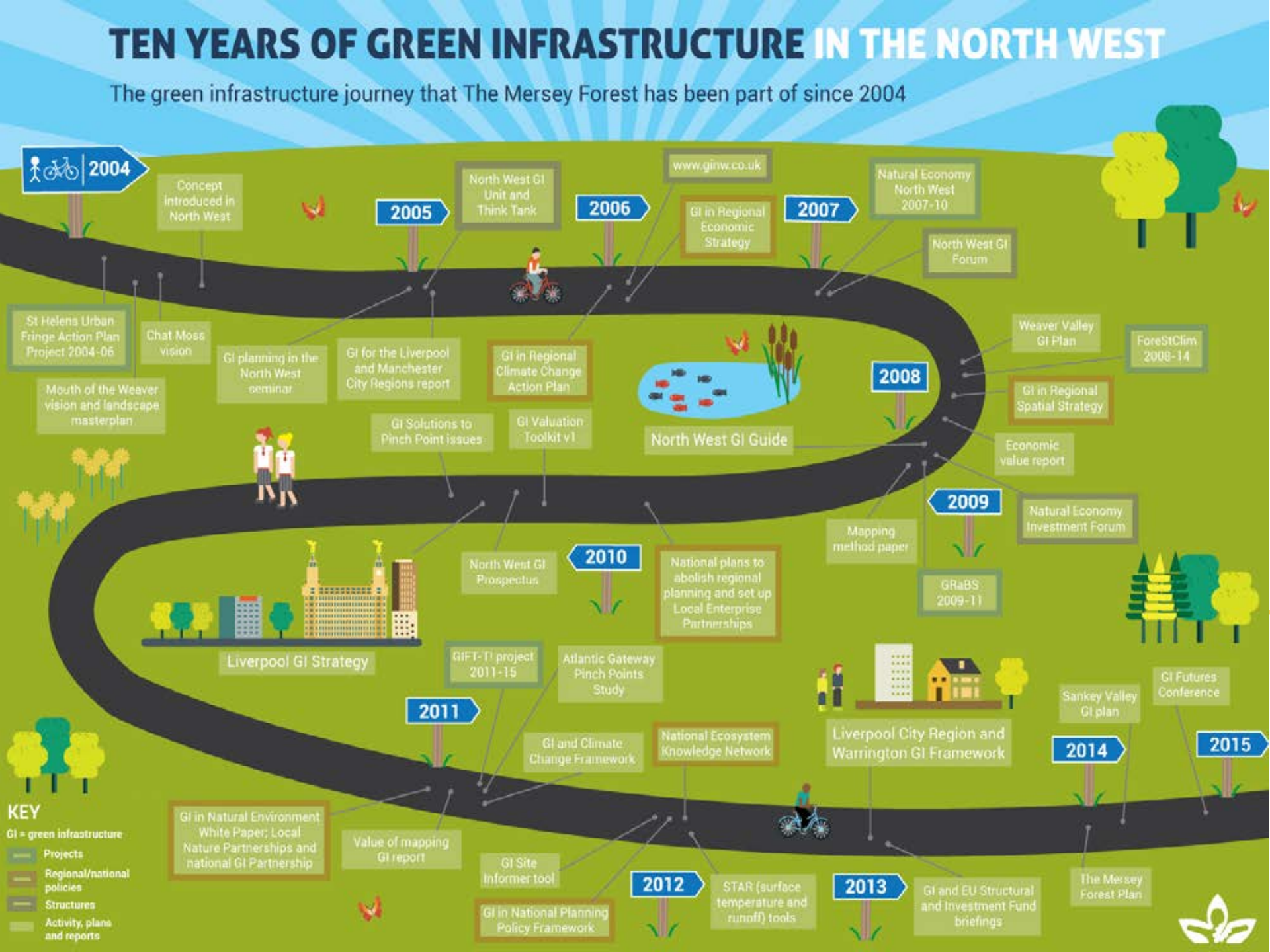
EVAPO-TRANSPIRATION	→	CLIMATE CHANGE ADAPTATION - URBAN COOLING	→	£ REDUCED AIRCONDITIONING COSTS/HEALTH
CARBON SEQUESTRATION	→	CLIMATE CHANGE MITIGATION	→	£ MARKET VALUE OF CO_2 STORED
PARTICULATE FILTERING	→	IMPROVED AIR QUALITY	→	£ REDUCED HEALTH COSTS

GREEN INFRASTRUCTURE ASSET / INTERVENTION	→	GREEN INFRASTRUCTURE FUNCTION	→	GREEN INFRASTRUCTURE BENEFIT	→	GREEN INFRASTRUCTURE VALUE (£)

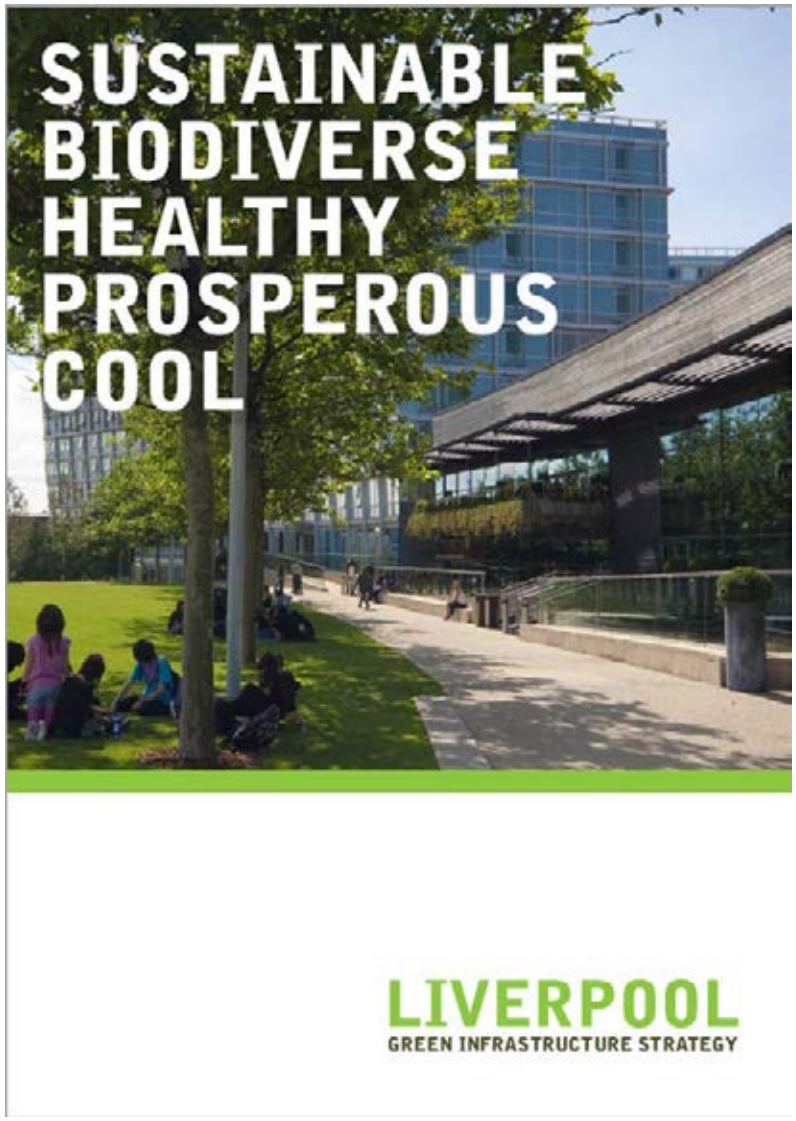
type → functions → benefit → value

TEN YEARS OF GREEN INFRASTRUCTURE IN THE NORTH WEST

The green infrastructure journey that The Mersey Forest has been part of since 2004



Liverpool GI Strategy

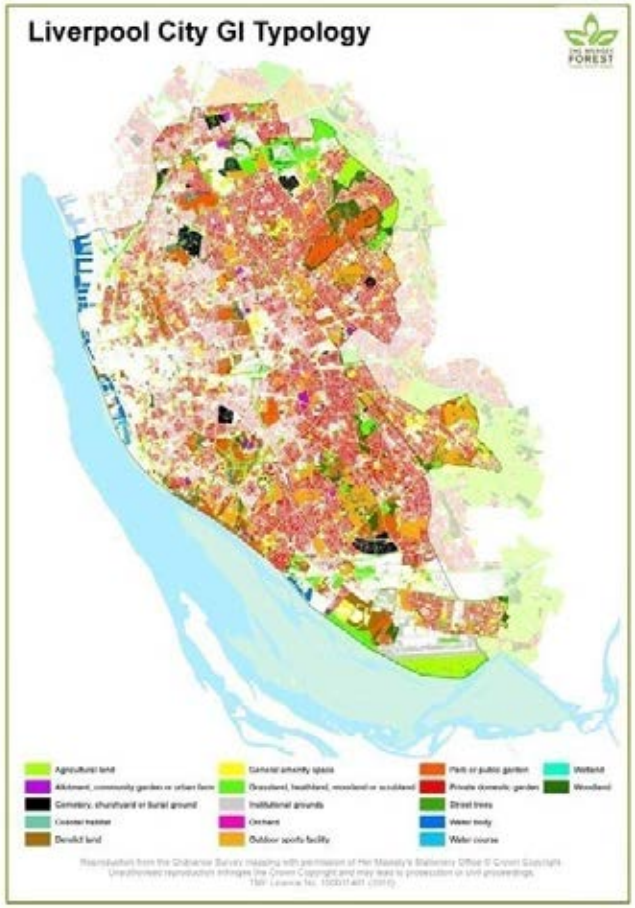


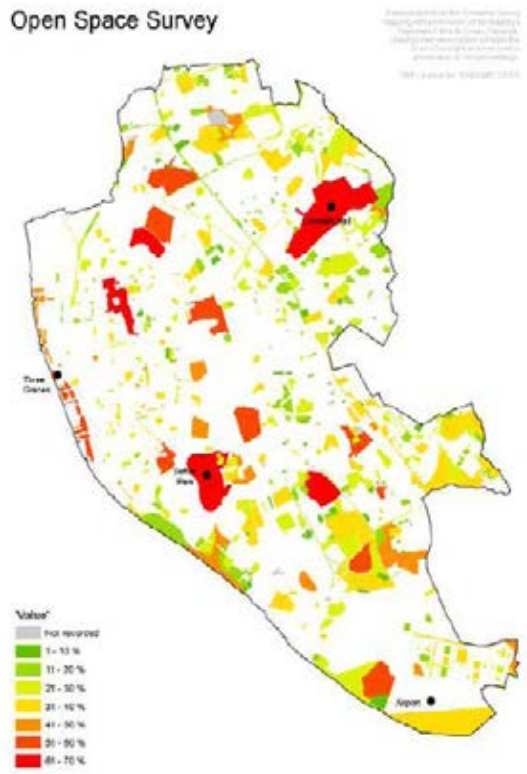
The most affluent areas have 18% more green infrastructure than the most deprived

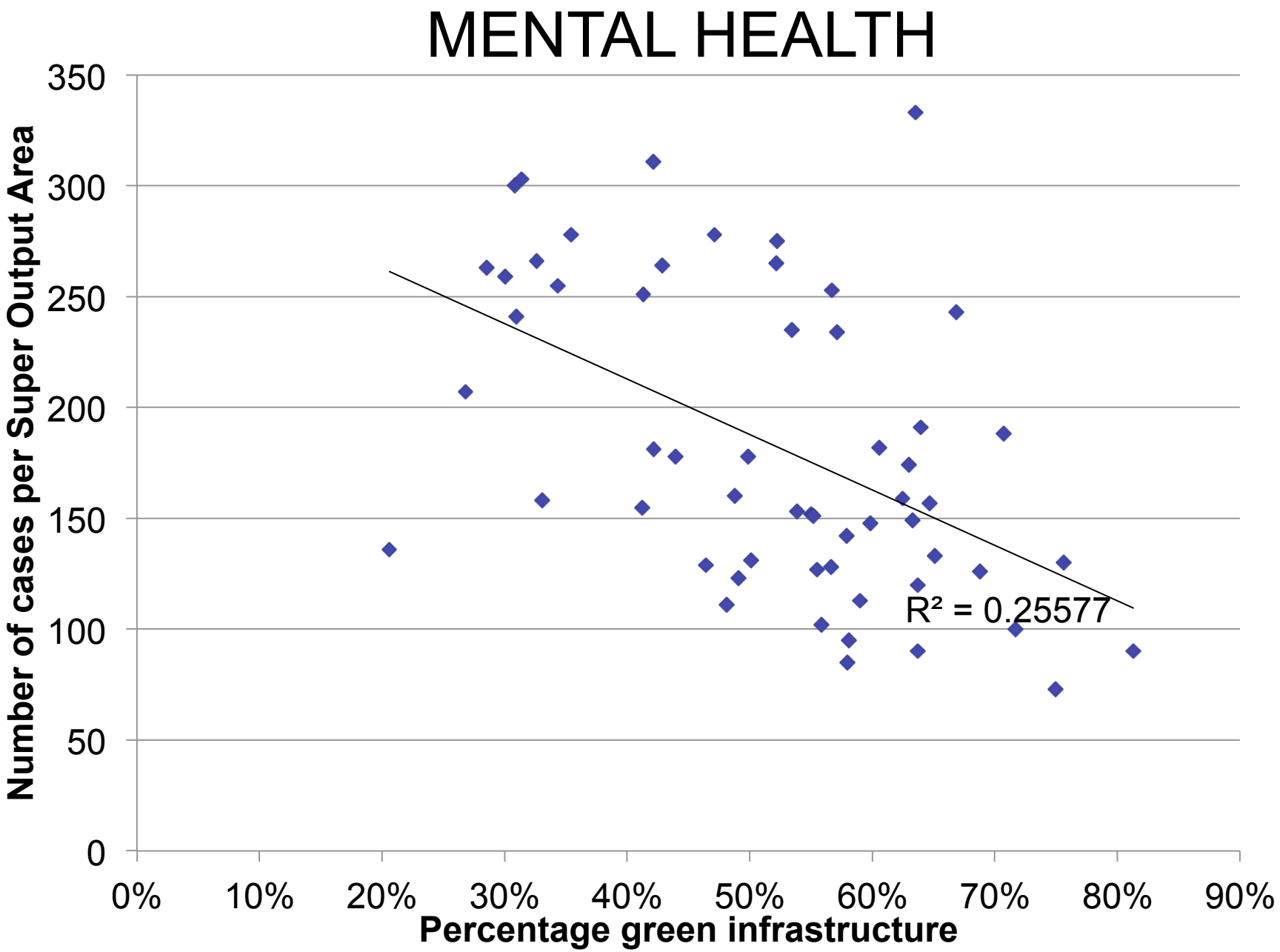
Largest individual type is private domestic gardens - 16% of the city

Green Infrastructure is an £8bn asset for the city

Where is the Green Infrastructure?

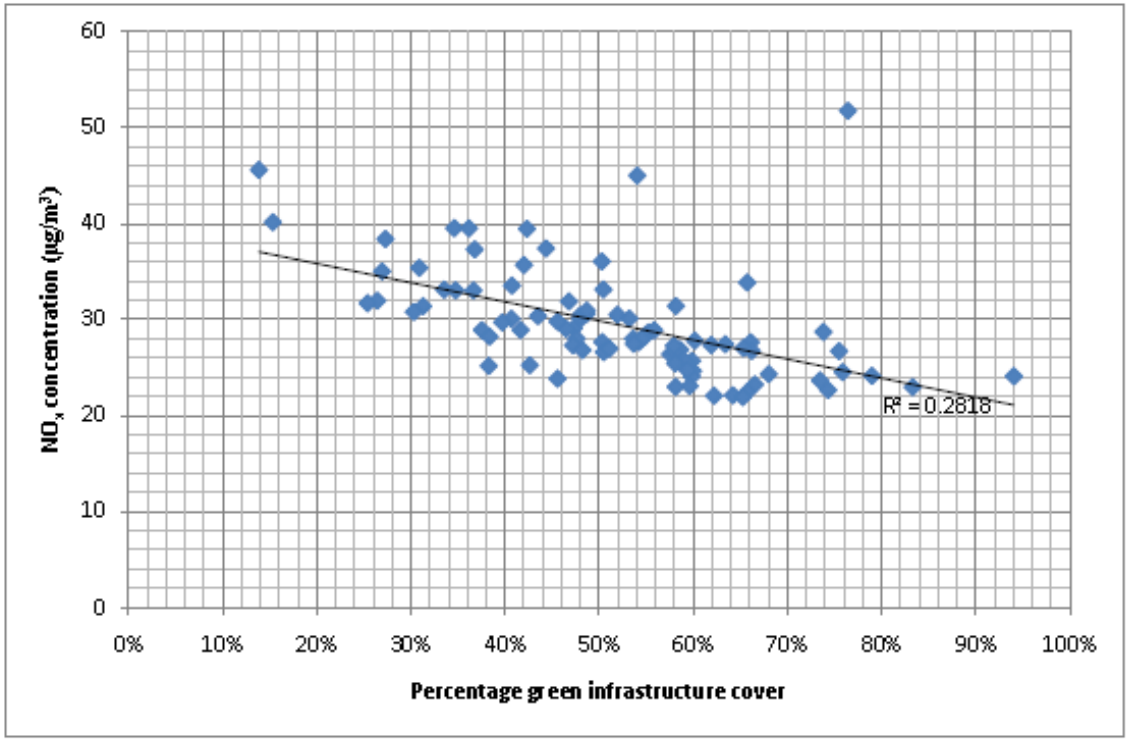




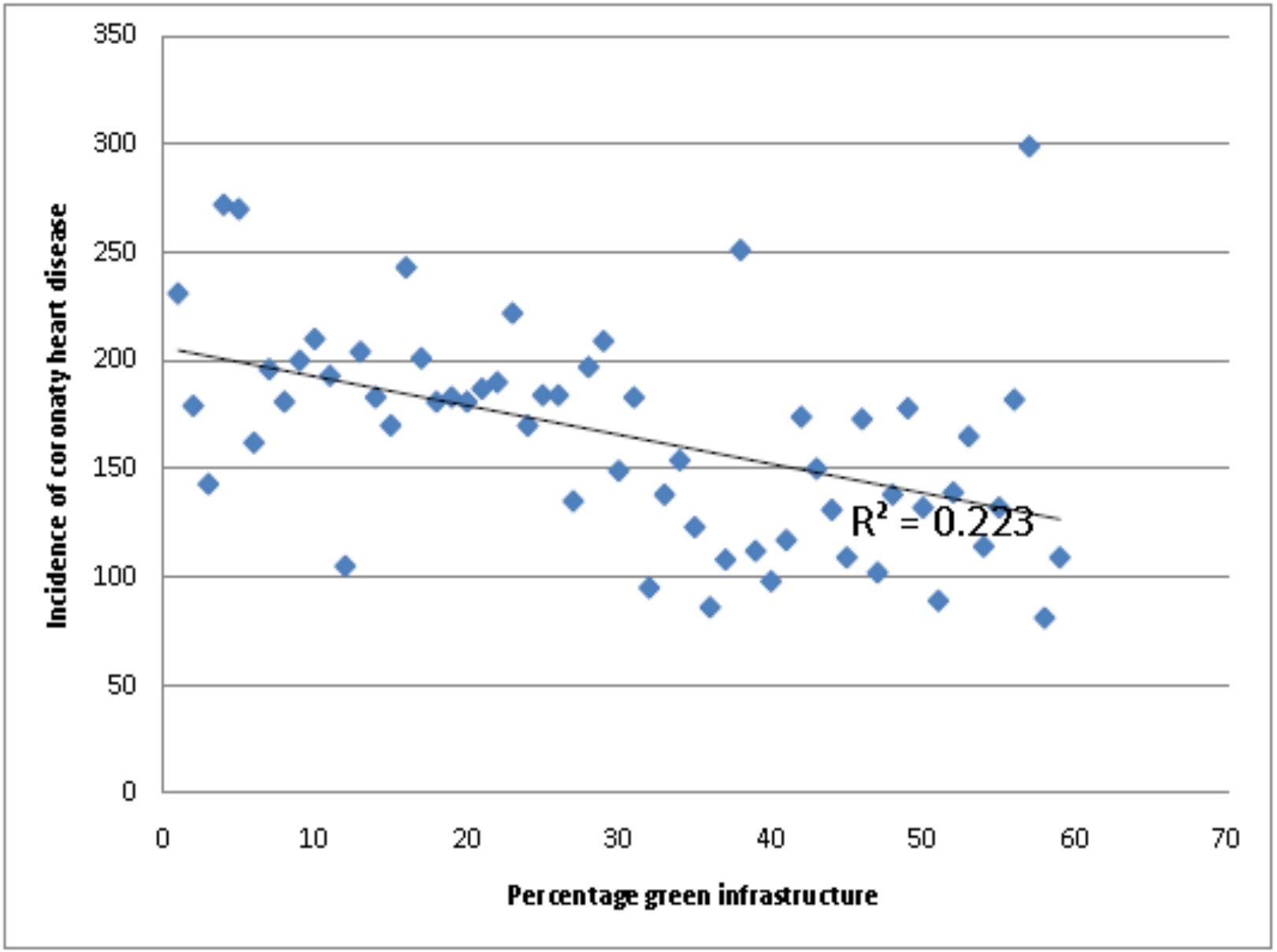

MENTAL HEALTH
Number of cases per Super Output Area
350
300
250
200
150
100
50
0
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
Percentage green infrastructure
R² = 0.25577

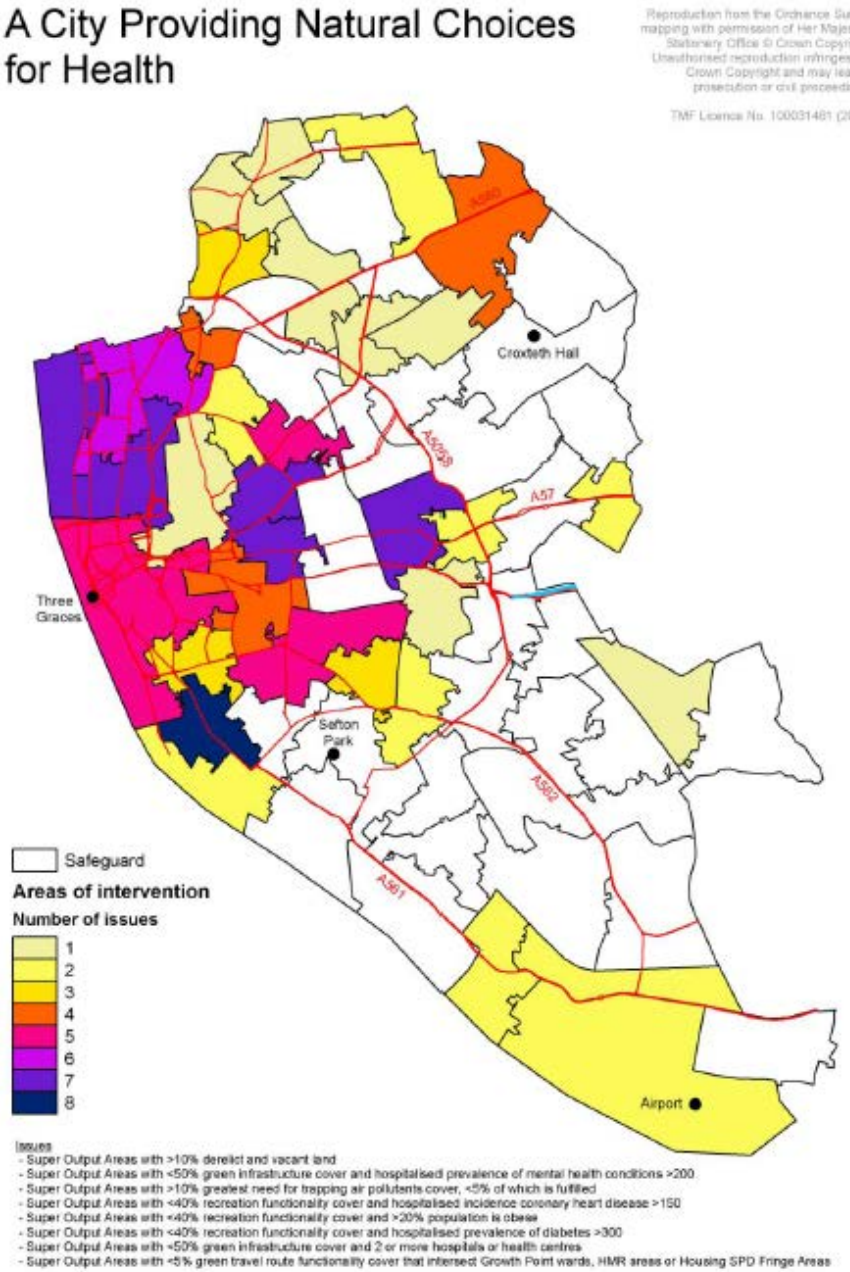
GI and Air Quality

Figure 6 Nitrous oxides air pollution and percentage green infrastructure cover



GI and CHD


Incidence of coronaty heart disease
350
300
250
200
150
100
50
0
0
10
20
30
40
50
60
70
Percentage green infrastructure
R² = 0.223



Darker areas indicate areas where there are low levels of green infrastructure and high levels of multiple health need

ISSUES OF POOR HEALTH AND LOW LEVELS OF GI

Trees and woodland to help keep communities healthy

- "More people more active more often"
- Passive benefits of trees and woodlands
- Trees as part of a "Natural Health Service"

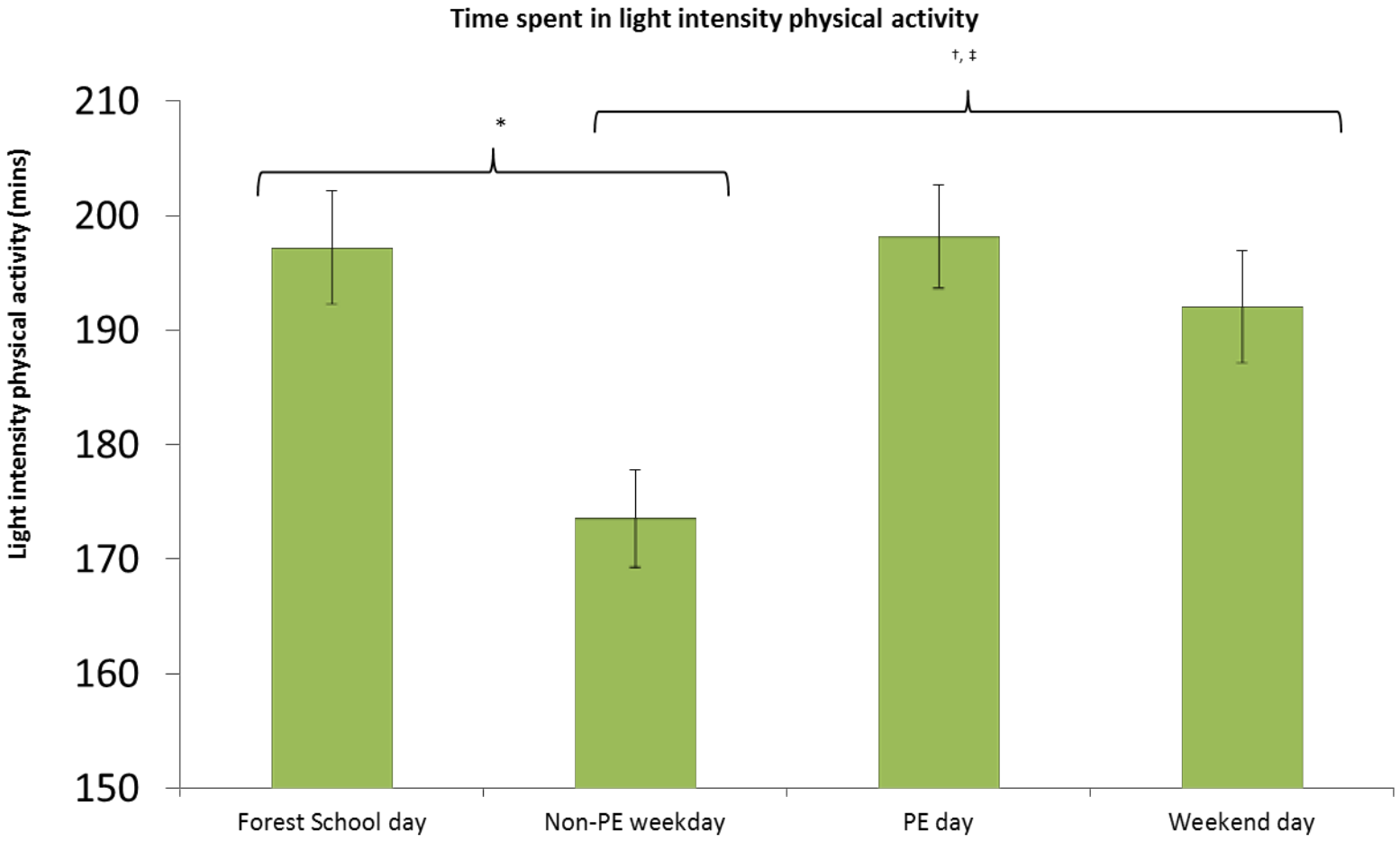
Targeted products

- 6 “Products” based in the natural environment
- Specific “dose” for each product
- Target specific conditions e.g.
  - Weight management
    - Adults
    - Children
  - Mild/moderate mental health issues
  - Post operative/treatment recuperation
- Developing robust evidence to enable future commissioning

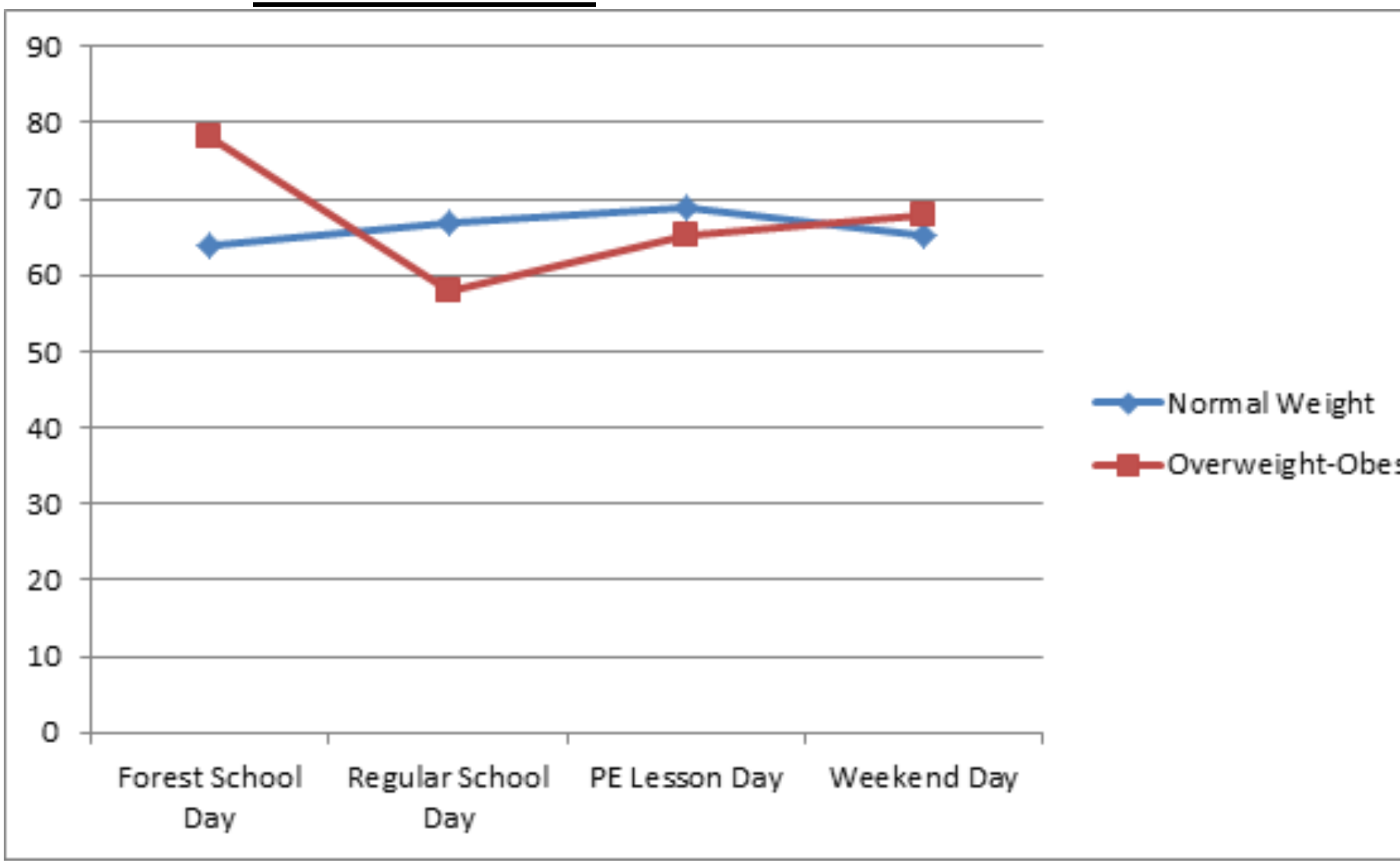
Natural Health Service

Some results already!

Children are as active on Forest School days as PE days



Children who are overweight/obese are the most active in Forest School!!



Liverpool City Council

Strategic Green and Open Spaces Review Board

Final Report

2016

“One tree per child”

“A forest school for every school”


“Happy Places”
and Investment

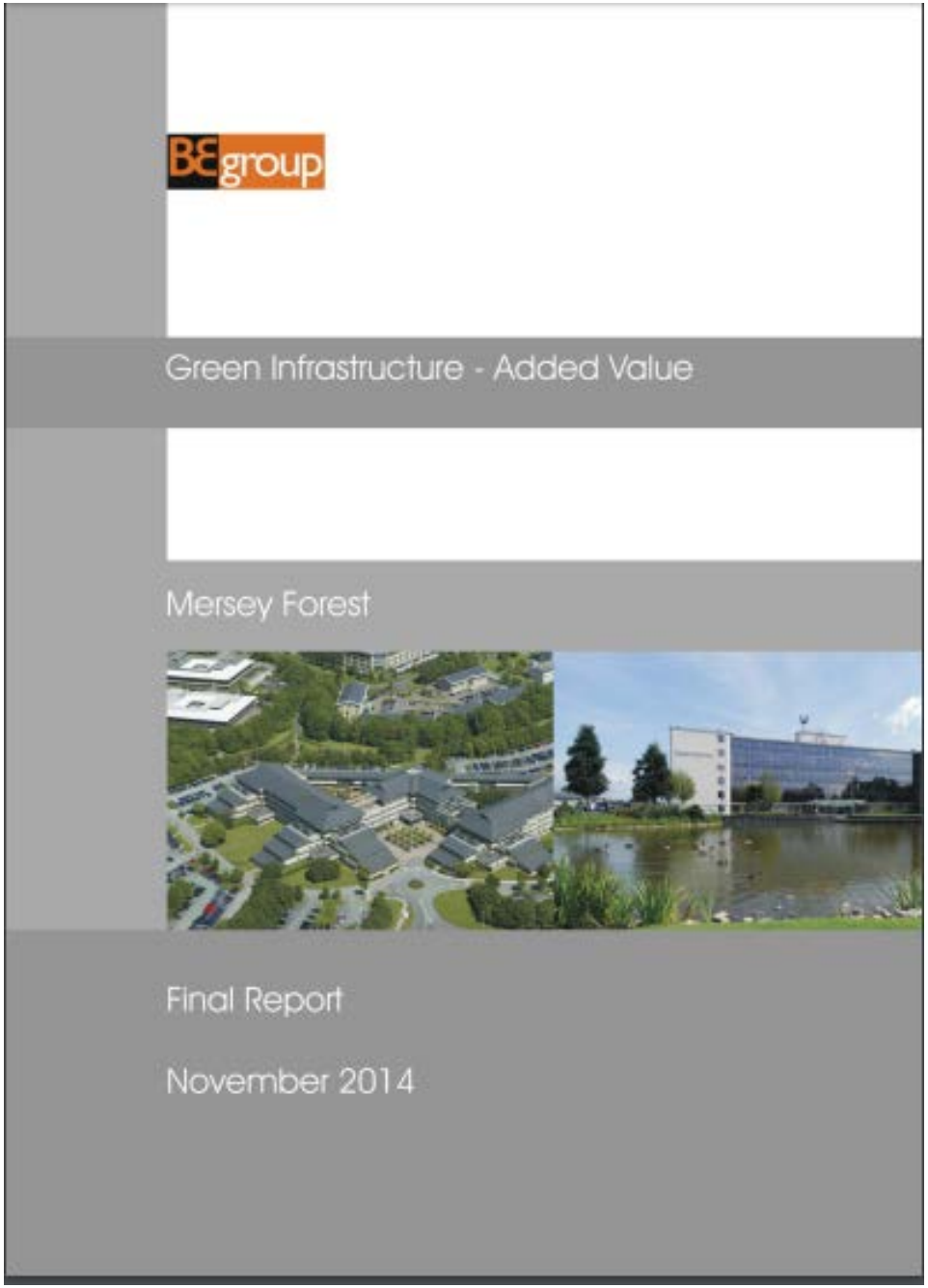
Influencing investment decisions

- **GI increasing land value** - encourages investment generally and allows sites to more easily be brought forward for development.

$$IRR = r_1 + \frac{(NPV_1) \times (r_2 - r_1)}{(NPV_1 - NPV_2)}$$

- **Reducing the time to development /reducing voids**– bringing forward the date at which income is received.

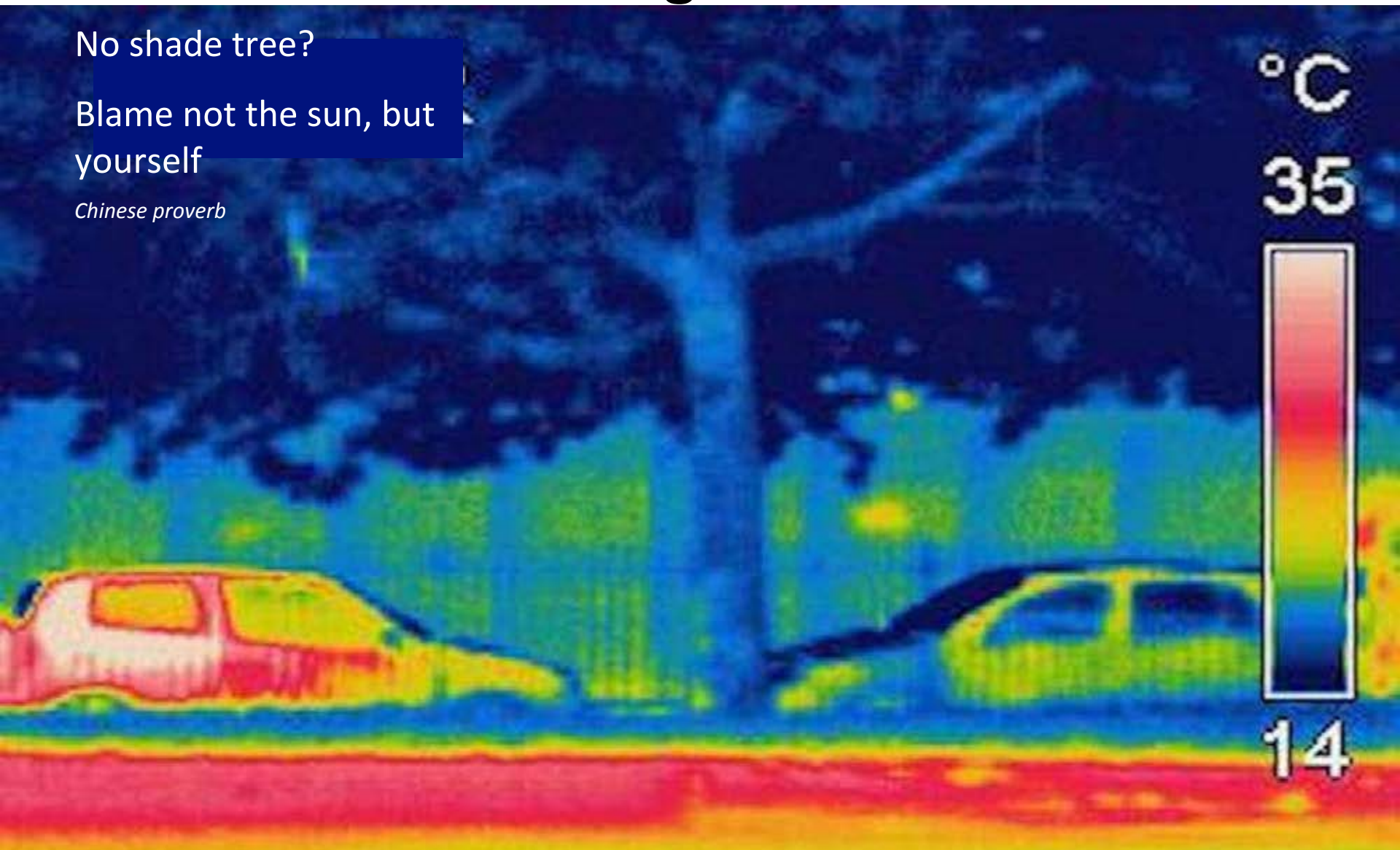
$$NPV = \sum_{t=0}^{n} \frac{CF_t}{(1+r)^t}.$$



"In the case study given, even modest benefits
such as a 5-6 percent increase in rental value and a shorter void period for the
completed properties (around six months) can move development from a loss to profit."

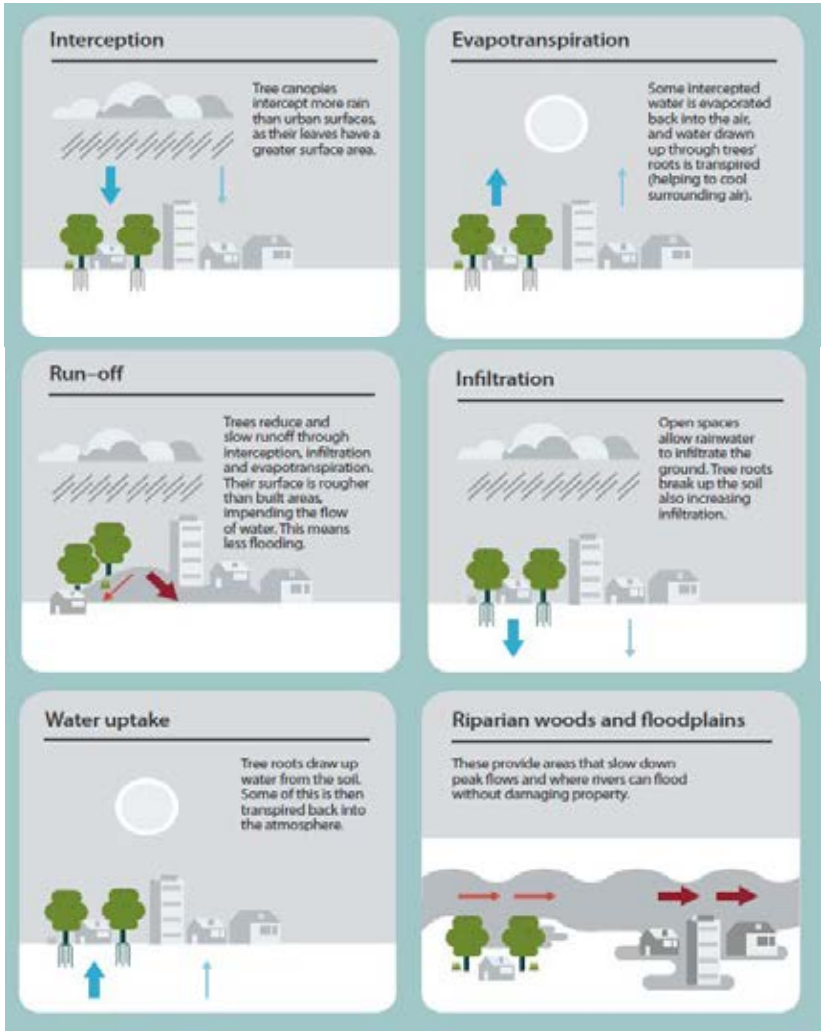
"Investment experts
suggest that the yield can reduce by 0.1-0.2 percent with green infrastructure
Investment, and consequently, that will have a large impact on value."

Climate Change – Adaptation and Mitigation



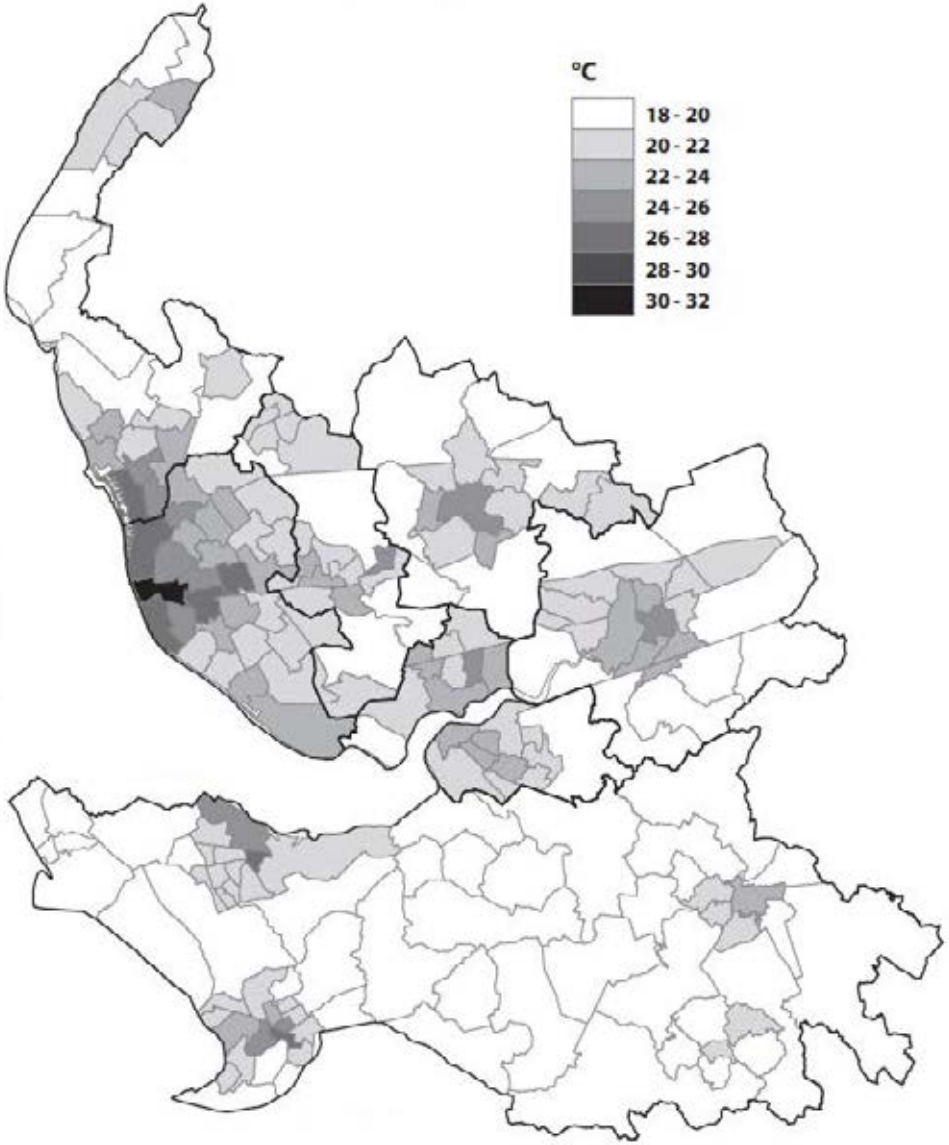
Climate Change Role of Trees & Woodlands

- **Mitigation**
  - Carbon sequestration & storage
  - Fossil fuel & material substitution
  - Reducing car travel
- **Adaptation**
  - Temperature extremes
  - Flood risk & water management
  - Visitor resource
  - Species movement

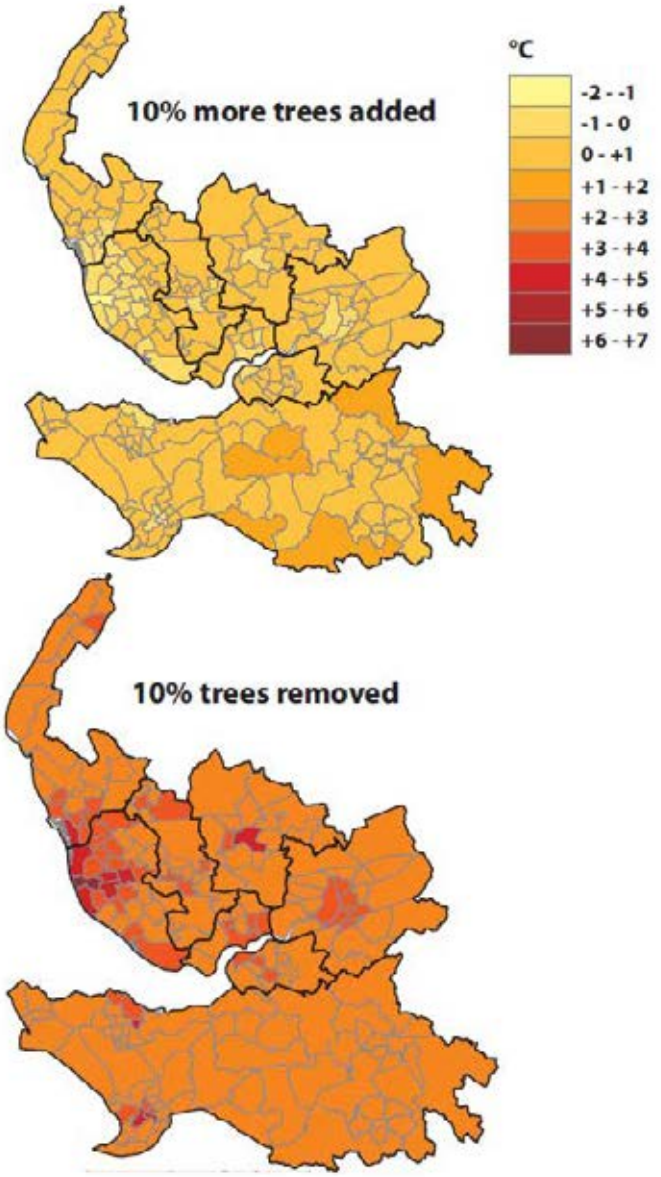


Maximum surface temperatures on a hot summer's day

1961-1990



Change in temperatures by 2041-2060 if:

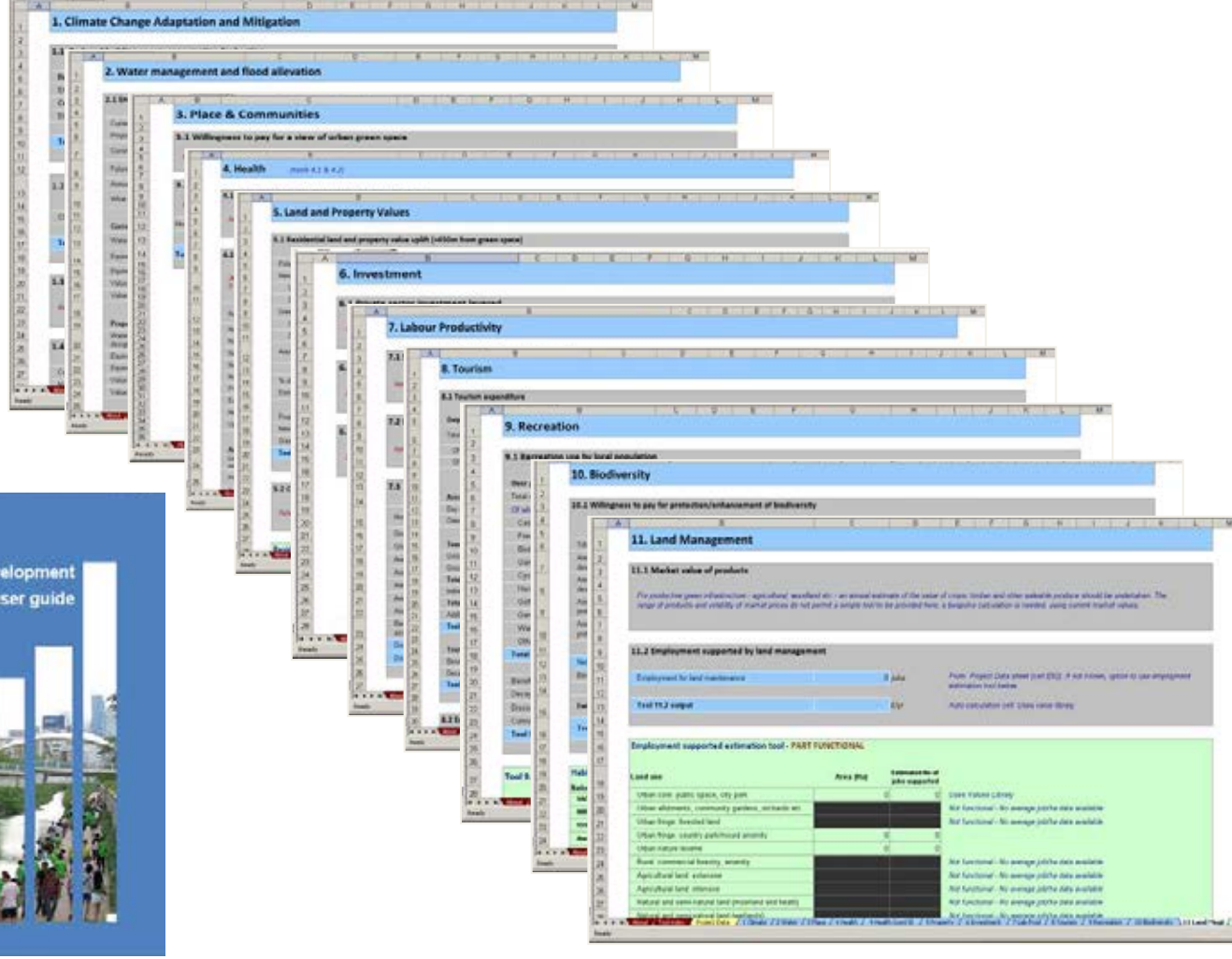


Mapped at the ward level, the 50% probability level and the 2050s High emissions scenario[7,8]

What's it worth?

GI-Val
valuing sustainability

www.ginw.co.uk



User Guide + Spreadsheet-based Calculator

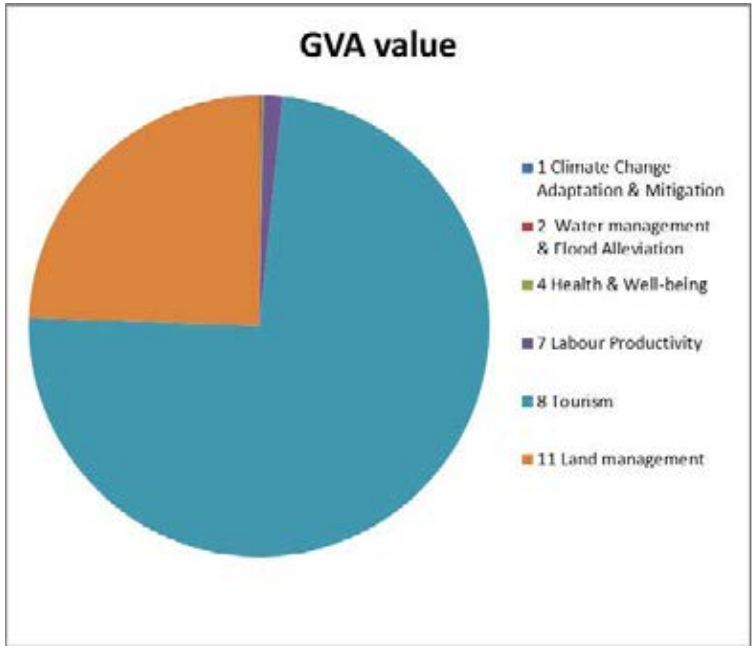
GI – Val Toolkit

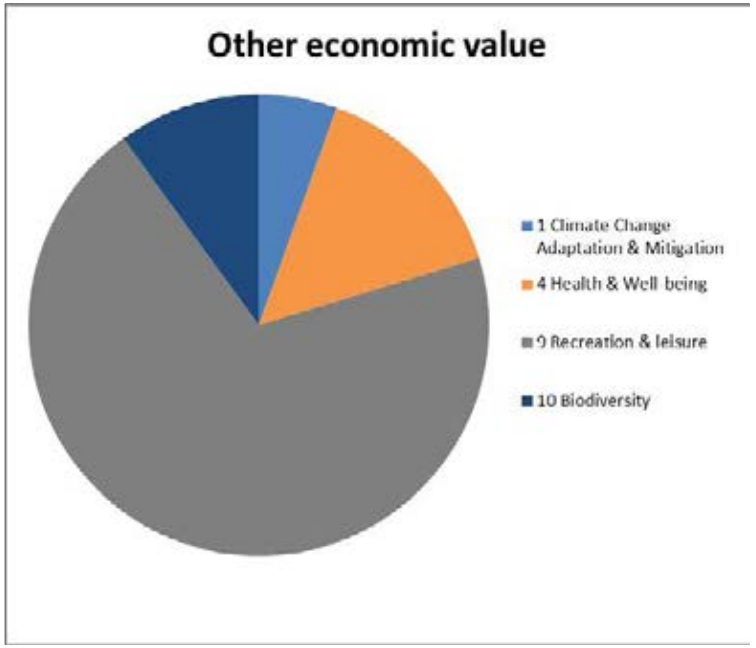
BENEFITS

Benefits groups	BENEFIT MONETISATION		
	GVA value	Land and property value	Other economic value
1 Climate Change Adaptation & Mitigation	£0	n.a.	£16.5k
2 Water management & Flood Alleviation	£23	n.a.	n.a.
3 Place & communities	n.a.	n.a.	n.a.
4 Health & Well-being	£725	n.a.	£4.5m
5 Land & Property Values	n.a.	£6.9m	n.a.
6 Investment	n.a.	n.a.	n.a.
7 Labour Productivity	£397k	n.a.	n.a.
8 Tourism	£0	n.a.	n.a.
9 Recreation & leisure	n.a.	n.a.	£184k
10 Biodiversity	n.a.	n.a.	£0
11 Land management	£0	n.a.	n.a.
TOTAL ECONOMIC VALUE OF BENEFITS	£398k	£6.9m	£4.6m

Run the numbers for Mersey Forest

- £80M investment to date in Mersey Forest
  - **£1.3bn** net present value for GVA
  - £1.5bn net present value for wider economic benefits





Urban Green Up

- Horizon 2020
- £3.4 m
- Green Infrastructure in the city
  - BID
  - Baltic
  - Jericho
- CARTIF are the lead partner

Greening our Towns and City Centres- Delivery, management and realising the benefits

URBAN GreenUP

New Strategy for Re-naturing Cities throuhg Nature-Based Solutions

21 February 2017
Quaker Meeting House, School Lane, Liverpool

Raúl Sánchez
Technical Coordinator URBAN GreenUP project

CARTIF DESCRIPTION

- CARTIF is a Spanish Research Centre, private, non profit and horizontal.
- It's located in Valladolid (Spain)
- It has a staff of 120 high level researchers, who developed more than 100 R&D projects each year

CARTIF EUROPEAN FRAMEWORK

Current projects:

FP7 – 10 (5 coordinating)
H2020 – 7 (4 coordinating)
LIFE – 14 (9 coordinating)
CYTED – 2
COST – 3
INTERREG – X (5 coordinating)

URBAN GreenUP CONCEPT

Topic: SCC-02-2016

Budget: 14.777.136,94 €

Funding: 13.970.642,25 €

Partners: 25

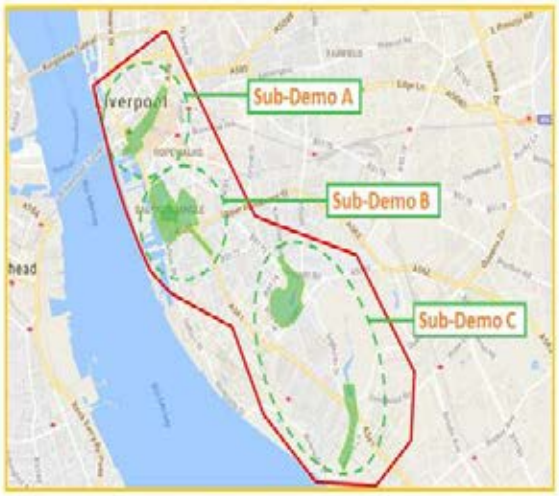
Duration: 60 months

URBAN GreenUP project aims at the creation of a Renaturing Methodology as a specific part of the Sustainable Urban Plan focused to CCM and water resilience based on NBS implementation. In parallel, will be carried out a large scale demonstration in three European cities (front-runners), **Valladolid** (Spain), **Liverpool** (UK) and **Izmir** (Turkey).

URBAN GreenUP DEMO SITE STRUCTURE

Front-runner (FR) cities location

Follower (FLL) cities location



Liverpool Demo Site

Valladolid Demo Site

Izmir Demo Site

Valladolid - 3 Sub-demos- 42 Interventions

Valladolid Interventions structure

	RE-NATURING URBANIZATION	WATER INTERVENTIONS	SINGULAR GI	NON TECHNICAL INTERVENTIONS
SubDemo A	VAc1- New green cycle lane	VAc8- SUDs for green bike lane	VAc15 - Cycle-pedestrian green paths	Common non-technical interventions: VAc37, 38, 39, 40, 41 & 42
	VAc2- Planting 1,000 trees		VAc16- Smarts soils as substrate	
	VAc3- Tree shady places		VAc19- Natural pollinator's mod.	
	VAc6- 3 Green Resting areas		VAc22 - Green Noise Barriers.	
Sub-Demo B	VAc4- Shade and cooling trees		VAc17- Smarts soils as substrate.	Common non-technical interventions: VAc37, 38, 39, 40, 41 & VAc42
			VAc20- Compacted Pollinator's mods.	
			VAc23 - Green Noise Barriers.	
			VAc24 - Vertical mobile garden.	
			VAc25 - Green Façade.	
			VAc26 - Electro wetland Roof.	
			VAc27 - Green Covering Shelter.	
			VAc28 - Green Roof.	
			VAc29 - Green Shady Structures.	
			VAc30 - Urban Garden Bio-Filter.	
Sub-Demo C	VAc5- 250 trees to re-naturing parking	VAc9- SUDs (re-naturing parking)	VAc18 - Smarts soils as substrate	VAc34: Educational path in VAc13
		VAc13- Nat. wastewater Plant	VAc19, 21-Natural pollinator's mod.	VAc35: Educational path in VAc11
		VAc10- Rain gardens	VAc20 - Compacted Pollinator's mod.	VAc36 - Urban Farming Educational activities.
		VAc12– Green filter area		
	VAc7- Urban Carbon Sink	VAc11- Floodable Park	VAc31 - Urban orchards	Common non-technical interventions: VAc37, 38, 39, 40, 41 & VAc42
		VAc14- Parking Green Pavement	VAc32 - Community composting.	
			VAc33 - Small-scale urban livestock.	

City Partners involved

- Front-runner Cities. These cities take part in the specific climate structure of the project, thereby it will possible to assess the NBS application in three different climate regions:
  - **Valladolid** (Spain)
  - **Liverpool** (UK)
  - **Izmir** (Turkey)
- Follower Cities to foster international cooperation
  - **Mantova** (Italy)
  - **Ludwigsburg** (Germany)
  - **Quy Nhon** (Vietnam)
  - **Chengdu** (China)
  - **Madellín** (Colombia)

All partners involved

Demo Site and follower site Partners:

- Valladolid City Council (Spain)
- Liverpool City Council (UK)
- Izmir City Council (Turkey)
- Comune di Mantova (Italy)
- Stadt Ludwigsburg (Germany)
- Alcaldía de Medellin(Colombia)
- Binh Dinh People's Committee (Vietnam)
- Bureau of Sci. and Tech. of Chengdu (China)

Industrial Partners:

- Acciona Infraestructuras (Spain)
- GMV (Spain)

Public body Partners:

- Confederacion Hifrográfica del Duero (Spain)

RTD Partners:

- CARTIF Foundation
- Centro de Nuevas Tecnologias del agua (CENTA)
- The University of LiverpooL
- EGE University (U. EGE)
- Izmir Institute of Technology (IZTECH)
- LEITAT
- Universita Commerciale Luigi Bocconi
- RMIT Vietnam
- Sociedade Portuguesa de Inovacao

SME Partners:

- Singular Green (Spain)
- DEMIR (Turkey)
- BITNET (Turkey)

Non Profit Partners:

- The Mersey Forest (UK)
- Fundazione ICONS (Italy)

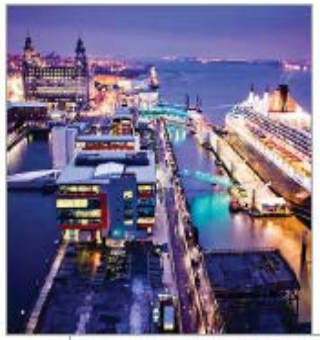
[CENTRO TECNOLÓGICO] CARTIF

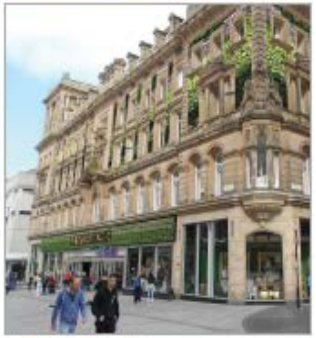
Thank you!!

[TECHNOLOGY CENTRE] CARTIF

Making plans for Liverpool





Liverpool City Central and Commercial District
Business Improvement Districts
Green Infrastructure Action Plan:
PROPOSED INTERVENTIONS

Mersey Forest March 2017




OPPORTUNITIES - ELEMENTS : Green/Pollinator Walls & Screens

Green Pollinator Walls & Screens:

Building living pollinator walls in urban areas decreases the urban heat island effect and provides pollinators a safe place to feed, rest and thrive. Pollinator walls and other verticals will seek to create Green Infrastructure in tight spaces dominated by hard urban landscapes.

Polution Filters:

Densely planted trees, hedging or other vegetation that creates a physical barrier to intercept or trap fine particulate pollutants in urban areas.

These GI elements can be achieved in many ways, each dependant on location and available budget, which inoudes maintenance and watering techniques. Arguably, the greenest solution sees planting directly into the ground, however - these are less exciting in appearance than the computerised systems available. All need to consider watering.

Interestingly - Offices sited adjacent to the Victoria Street Car Park in Liverpool have achelved an artifical perception for greening of the space through aplication of a forest to the office windows. Whilst not providing GI natural outcomes, this approach still has a positive effect on the area.

Screens:

Examples are given of planting growing vertically within a screen frame. A possible approach that may be suitable within some of the car park spaces. Bottom Inage: an approach proposed: forming a green screen / wall through planting tall narrow tree species in close lines.

Walls:

Many specialist companies exist who could provide intersting designs using species planted to form shapes / sculpture / company logos etc. These employ technology to ensure the pockets of soils are kept moist throughout the year.

OPPORTUNITIES - GI PROJECTS : GI03

Project GI03: Cunliffe St / Vernon St Links

WHAT COULD BE ACHIEVED:

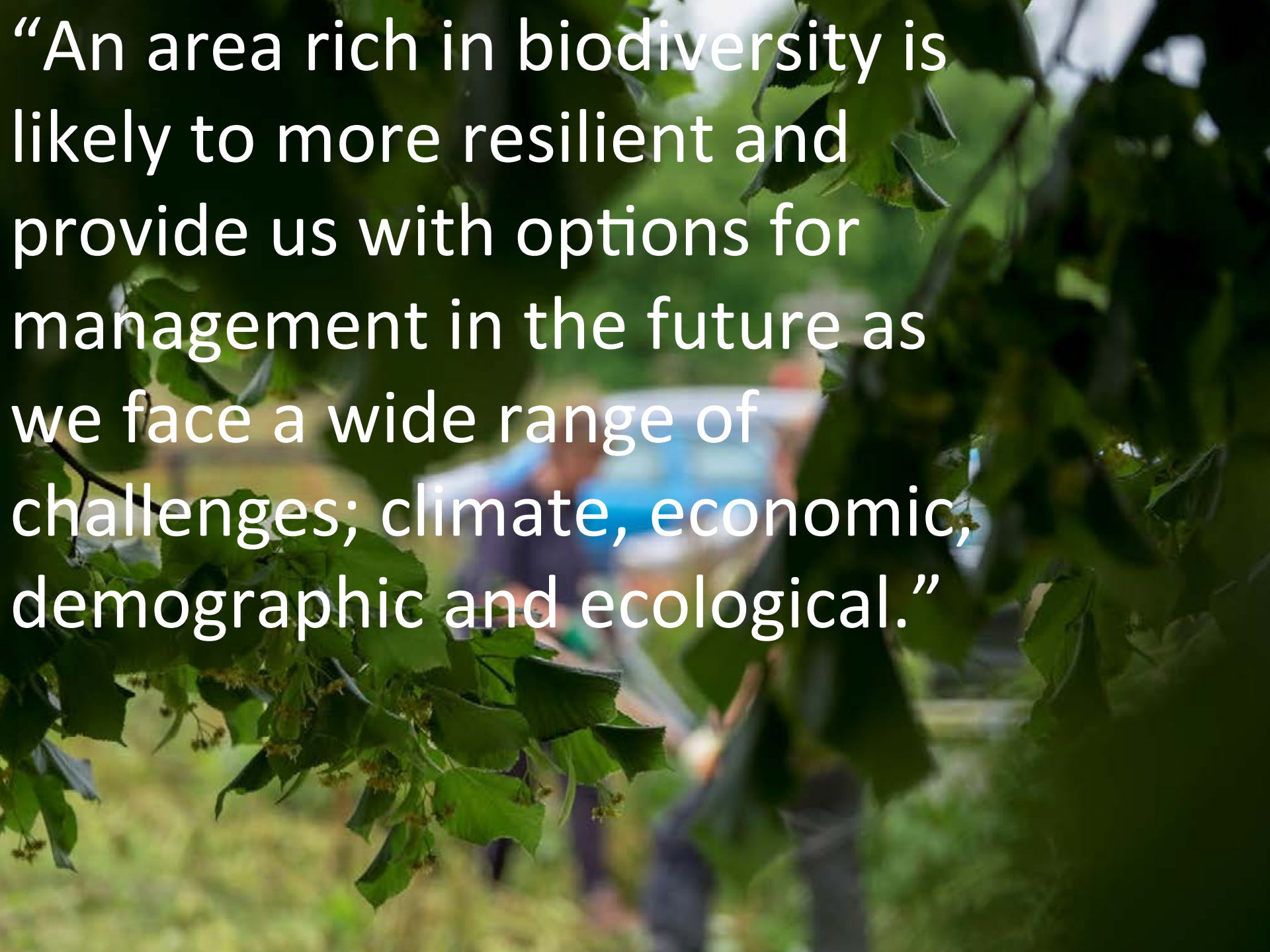
- Softening of the harsh environment.
- encourage healthy lifestyle, use of spaces
- Improved health & well being
- Shade / cooling effect / improved, filtered air quality
- SUDS / improved water management for surface water run off
- Promote "Sense of Place" - give space a new identity - promote foot traffic

Howitts Place Visualisation

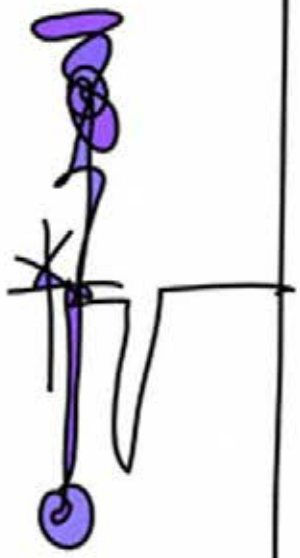
Vernon Street Visualisation:

Note potential to add company logos to specific planters for sponsorship and marketing.
Should planters be moved about at a later date, the sponsoring company logo would travel with the planters.

Project GI03 : Cunliffe St / Vernon St Links


“An area rich in biodiversity is likely to more resilient and provide us with options for management in the future as we face a wide range of challenges; climate, economic, demographic and ecological.”

NOTHING HAPPENS UNTIL SOMEBODY FEELS SOMETHING.



@gapingvoid

Resident Green Streets Project

Daniel H. Burnham

Make no little plans. They have no magic to stir men's blood…

Thank You

and if you want to help

www.merseyforest.org.uk