Stephen Falder

Trustee and Chair
of Community Forest Trust

Event Chair

Cllr Claire Glare

The Mersey Forest Steering Group Member
for Liverpool City Council

Welcome

Richard Mawdsley

Development Manager
Peel Holdings Management Ltd

Trees Leading to Jobs!
Infrastructure at Wirral Waters

Tom Armour

Director, Landscape Architecture
ARUP

Cities Alive

Cities Alive

Rethinking green infrastructure

TOM ARMOUR – INTERNATIONAL FESTIVAL OF BUSINESS
SETTING THE SCENE FOR GROWTH CONFERENCE 27-06-2014

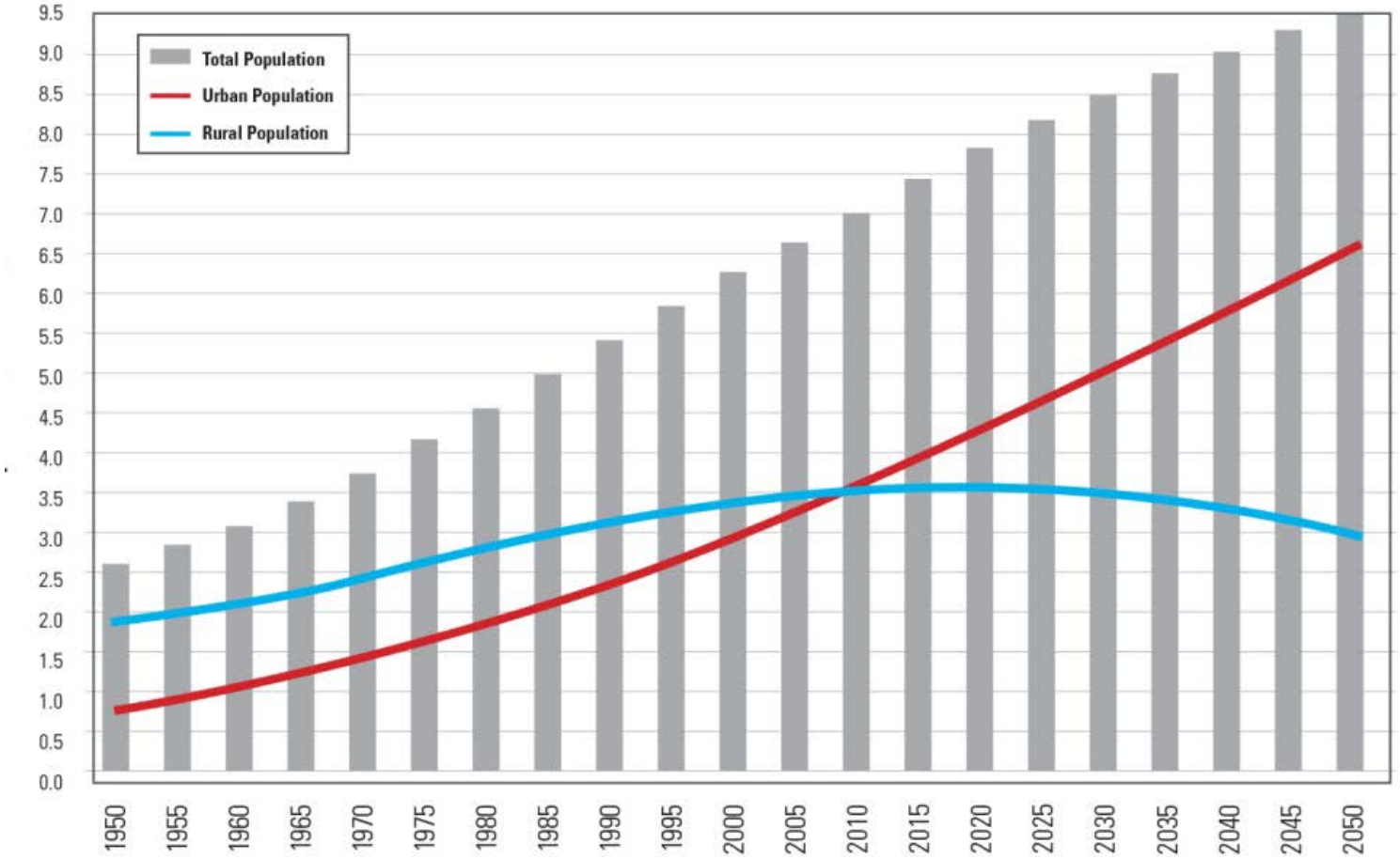
ARUP

RUA GONÇALO DE CARVALHO, PORTO ALEGRE, BRAZIL

Green infrastructure is essential

WILDFOWL & WETLAND TRUST, LONDON WETLAND CENTRE

Cities Alive



World population 1950 - 2050

UNITED NATIONS - POPULATION DIVISION OF THE DEPARTMENT OF ECONOMIC AND SOCIAL AFFAIRS (2010)

Extreme weather events | natural disasters | flooding | rising sea levels | drought heat | loss of biodiversity | deterioration of water and soil quality | food security

‘OXFLOOD’ – ANNUAL FLOOD LOSSES SET TO REACH £1BN

PLACE DE LA REPUBLIQUE, PARIS

POMPIDOU CENTRE, PARIS

Creating balance using urban ecosystems

HAMMARBY SJÖSTAD, SWEDEN

Cities Alive

“The natural environment underpins our economic prosperity, health and well-being.”

UK GOVERNMENT NATURAL ENVIRONMENT WHITE PAPER – 50 YEAR VISION FOR THE NATURAL ENVIRONMENT

Cities Alive

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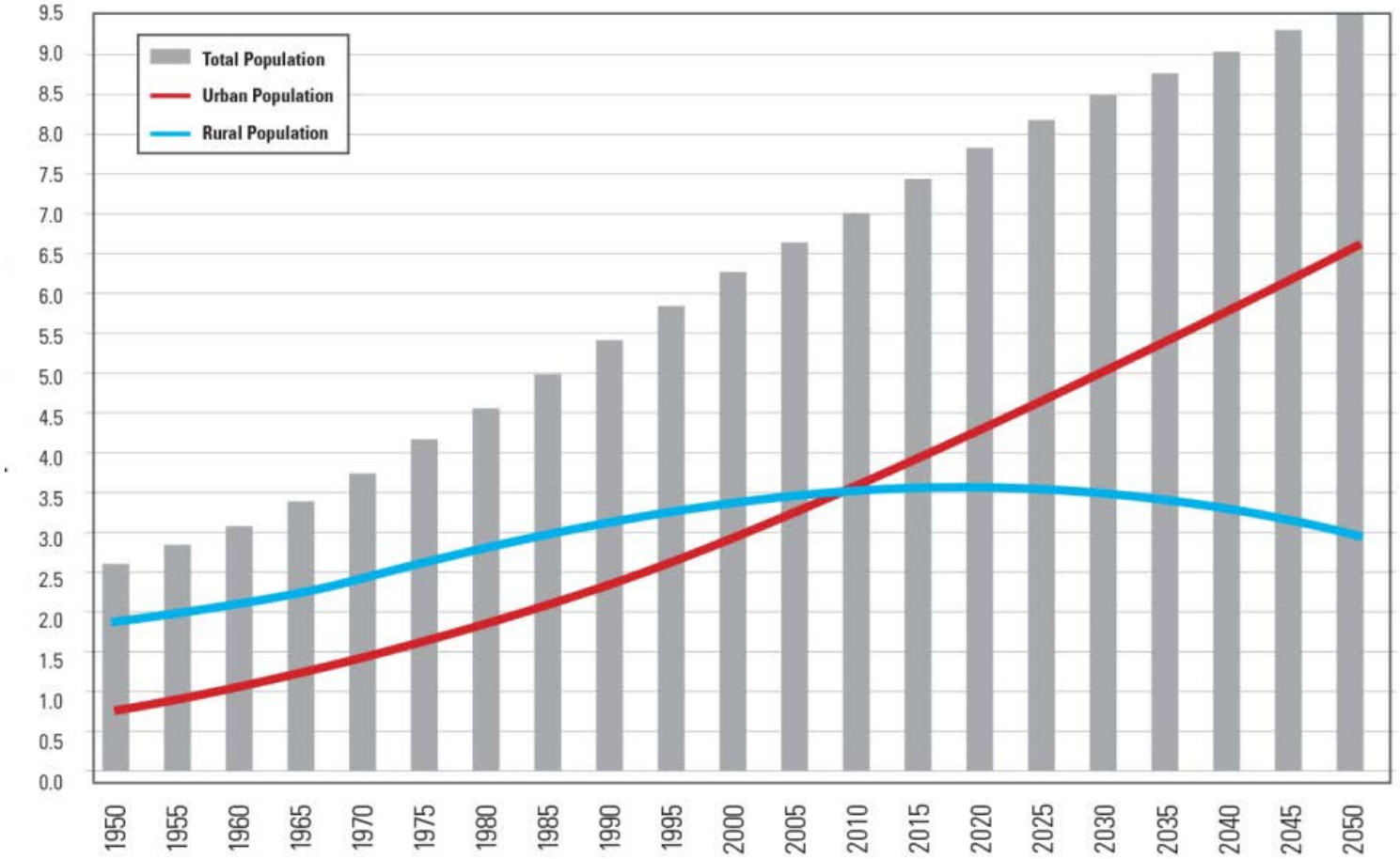

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Cities Alive

Many cities have lost their natural systems – as rivers have been buried or culverted and open space, urban planting, trees and habitats are lost through development

Our city parks, open spaces, urban woodland, green streets, squares and public realm, gardens and roofs - rivers, streams waterways and sustainable drainage form essential ‘natural systems’

- Vital for climate proofing our cities
- Providing buffers from extreme weather conditions
- Purifying water, soil and air from pollution
- Providing healthy and liveable environments

Environmental, social & economic benefits

1 Environmental Benefits:
Smart and Resilient Environments

Enabling Long-Term
Climate Resilience

Creating Smart and
Connected Landscapes

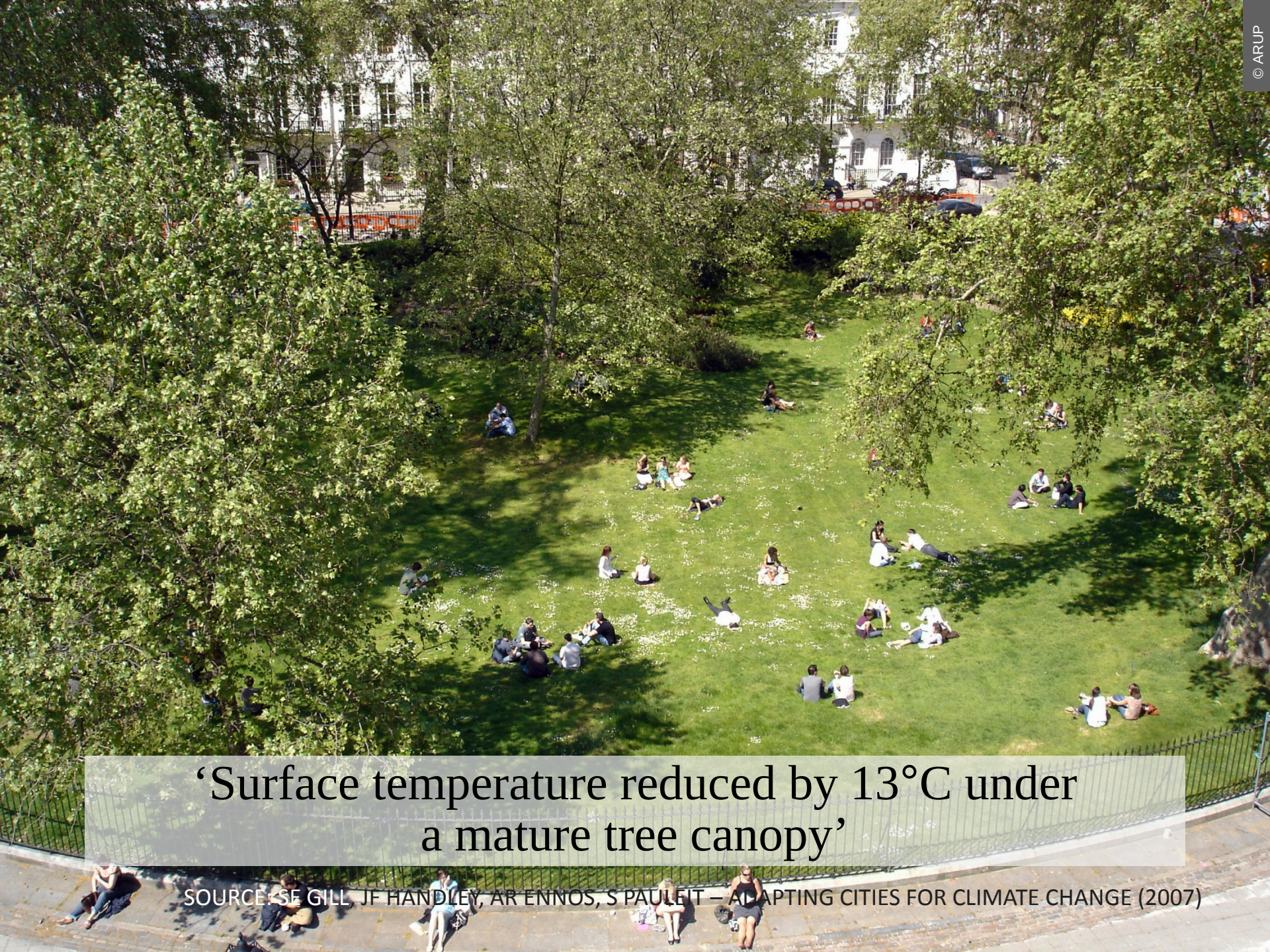
Fostering Urban
Biodiversity

1 Environmental Benefits:
Smart and Resilient Environments

- Better urban microclimate
- Reduce heat island effect
- Improve air quality
- Reduce flood risk
- Improve water quality
- Improve biodiversity
- Reduce ambient noise
- Reduce atmospheric carbon dioxide
- Store carbon

‘Green streets can cut pollution by 30%’

SOURCE: MARK KINVER BBC NEW S SCIENCE – ENVIRONMENT 2012

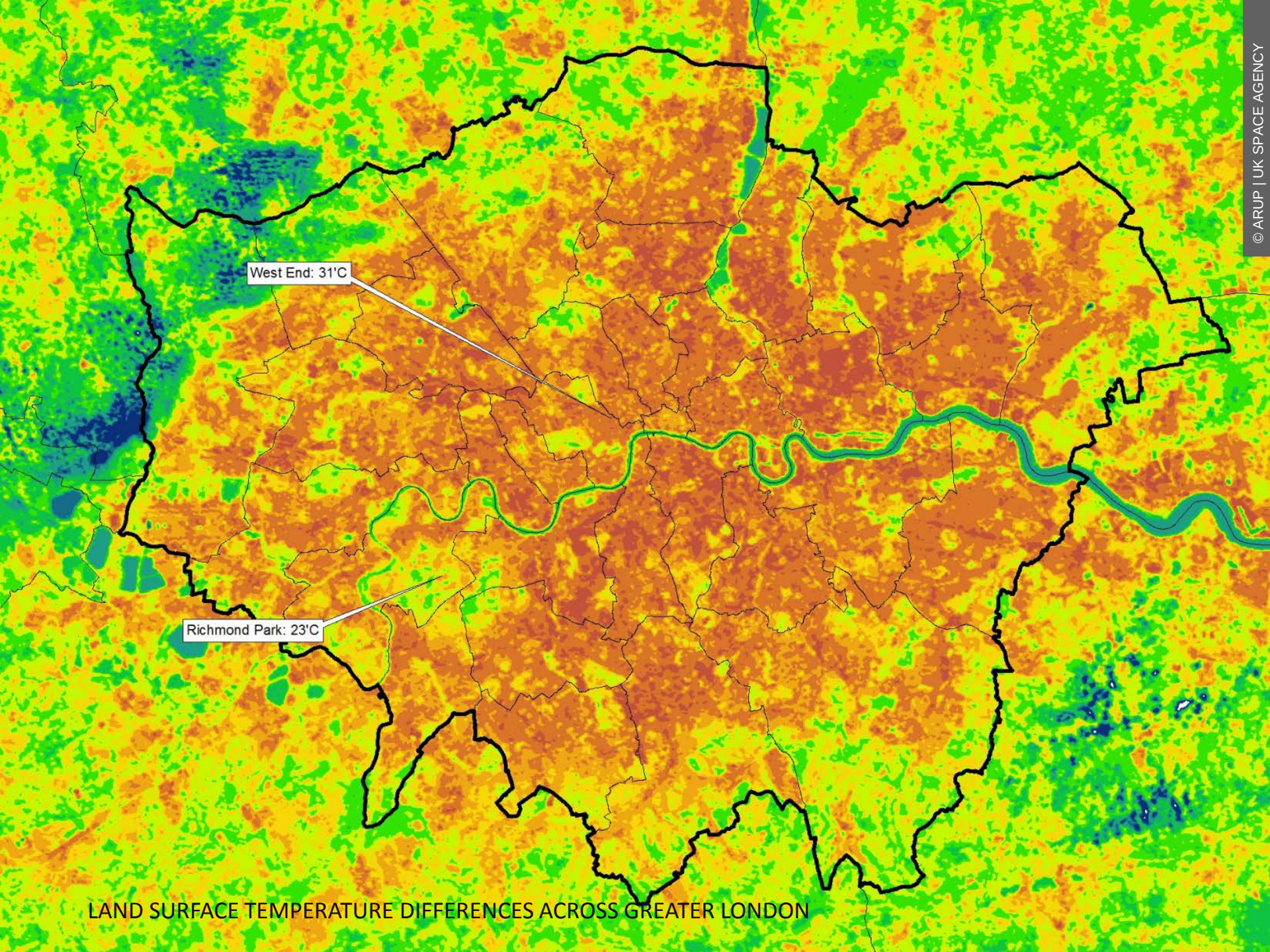


‘Surface temperature reduced by 13°C under a mature tree canopy’

SOURCE: SE GILL, JF HANDLEY, AR ENNOS, S PAULEIT – ADAPTING CITIES FOR CLIMATE CHANGE (2007)

‘Existing urban green can slow down and reduce storm water runoff by 4 to 8%’

SOURCE: HERRERA ENVIRONMENTAL CONSULTANTS, THE EFFECTS OF TREES ON STORM WATER RUNOFF (2008)



LAND SURFACE TEMPERATURE DIFFERENCES ACROSS GREATER LONDON

THE ALL LONDON GREEN GRID

2 Social Benefits: Rethinking Urban Communities

Encouraging Healthy and Sustainable Lifestyles

Supporting Urban Communities

Investing in Liveable Spaces

MADRID RIO

2 Social Benefits:
Rethinking Urban Communities

- Improve physical activity
- Improve mental health
- Faster hospital recovery rates
- Improve workplace productivity
- Increase social cohesion
- Reduce crime
- Better childhood development

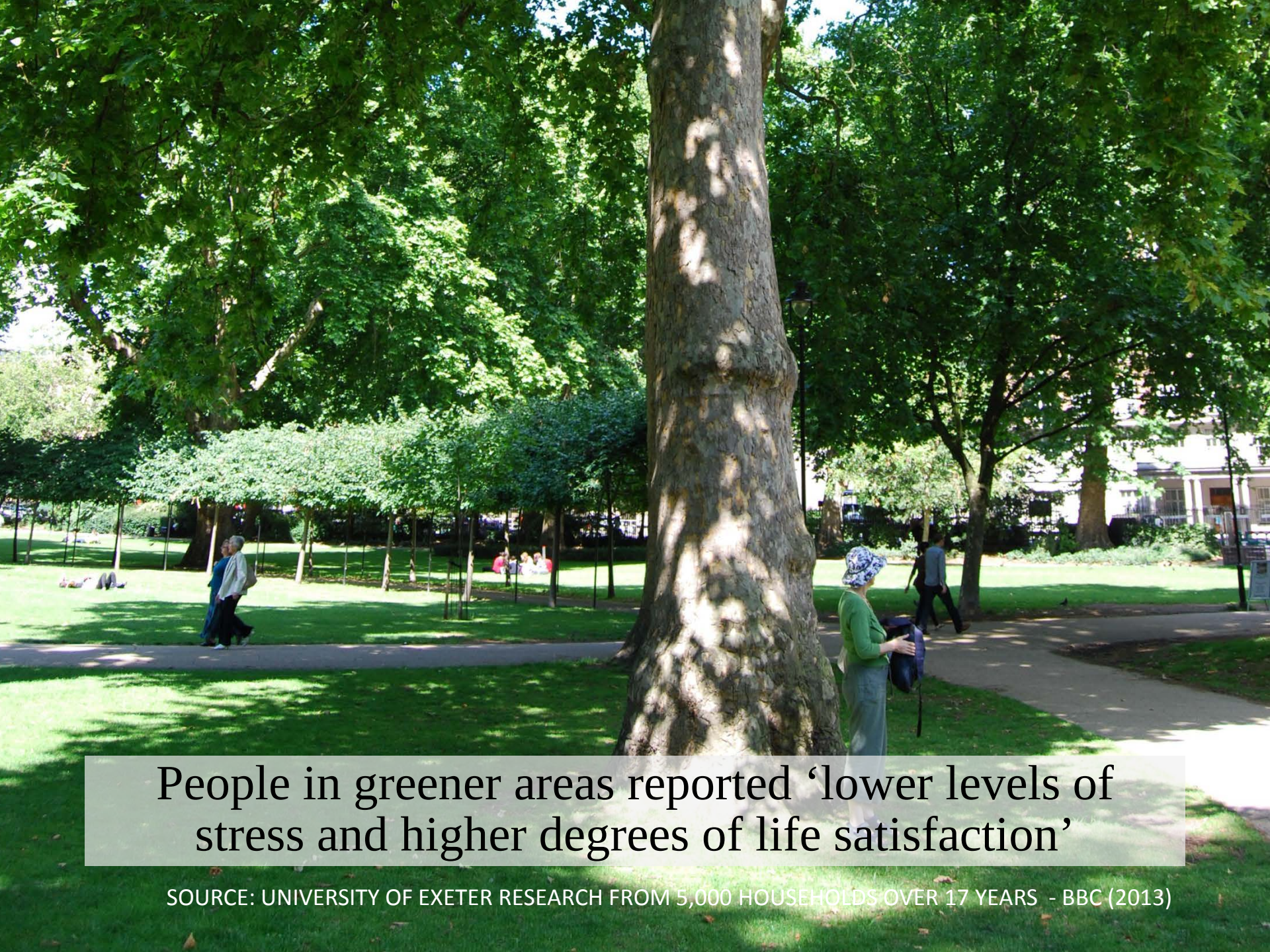
MADRID RIO

‘Residents in greener environments were 3.3 times more likely to take frequent physical exercise’

FORESTRY COMMISSION, THE CASE FOR TREES IN DEVELOPMENT & THE URBAN ENVIRONMENT (2010)

Copenhagen: 10% more cycling ‘saves £12m on healthcare’

SOURCE: TONY JUNIPER – WHAT HAS NATURE EVER DONE FOR US?



People in greener areas reported ‘lower levels of stress and higher degrees of life satisfaction’

SOURCE: UNIVERSITY OF EXETER RESEARCH FROM 5,000 HOUSEHOLDS OVER 17 YEARS - BBC (2013)

‘Greener neighbourhoods report better social cohesion and 52% fewer crimes’

SOURCE: AGGRESSION &VIOLENCE IN THE INNER CITY:- DOES VEGETATION REDUCE CRIME?
– F. E. KUO AND W. C. SULLIVAN, (2001)

3 Economic Benefits: Urban Resource Streams

- Integrating Urban Food
- Renewing Urban Spaces
- Enabling Energy and Resource Efficiency

LANDSCHAFTSPARK, DUISBURG NORD -

3 Economic Benefits: Urban Resource Streams

- Increase property values
- Increase land values
- Boost economic activity
- Decrease demand on city infrastructure
- Reduce building & heating costs
- Improve chances of planning permission
- Improve tourist economy
- Lower healthcare costs

LANDSCHAFTSPARK, DUISBURG NORD -

Green spaces ‘can save NHS £2.1 billion’

SOURCE: BBC NEWS 2013 QUOTING SUE HOLDEN WOODLAND TRUST CHIEF EXECUTIVE

‘City trees raise property values by 5-18%’

SOURCE: CABE SPACE 2005

NEW ROAD, BRIGHTON © LANDSCAPE PROJECTS / GEHL ARCHITECTS / SHAW & SHAW

Regenerated public spaces ‘boosts trade by 40% and generates significant investment’

SOURCE: DEFRA AND ASSOCIATION OF TOWN CENTRE MANAGEMENT 2007

I-TREE VALUE OF CHICAGO'S URBAN FOREST

Number of trees = 33 600 000
Canopy cover = 17.2% of area
Air pollution removal = 754 tons / year ($6.4m/ year)
Carbon storage = 716 000 tons ($14.8m)
Carbon sequestration = removes 25 200 tons of carbon/year ($521 000/ year)
Building energy reduction = $360 000 / year
Structural value (cost of replacement) = $2.3bn

SOURCE NOWAK, DJ, HOEHN III, RE CRANE, DE STEVENS, JC AND FISHER, CL (2010) ASSESSING URBAN FOREST EFFECTS AND VALUES – CHIGACO'S URBAN FOREST UNITED STATES DEPARTMENT OF AGRICULTURE FOREST SERVICE DELAWARE.

Natural systems should be embedded as an equal partner with other city infrastructure

CENTRAL PARK NEW YORK

Cities Alive

“Cities need green in sizes S, M, L and XL otherwise the human ecosystem is incomplete.”

GIL PEÑALOSA QUOTED IN ‘HAPPY CITY’ BY CHARLES MONTGOMERY (2013)

CAIXA FORUM, MADRID


TRITON HOUSE LONDON
S
© ARUP | FARRELLS | BRITISH LAND

BOSCO-VERTICALE, MILAN

THE HIGH LINE, NEW YORK

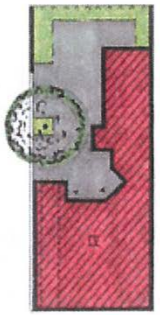
© JAMES CORNER FIELD OPERATIONS

THE LOWLINE, NEW YORK

GARDEN BRIDGE, LONDON

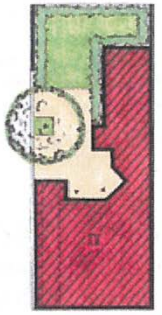
BILBAO: SPAIN - FLOOD RESILIENCE AT S, M, L, XL

PLACE DE LA REPUBLIQUE, PARIS



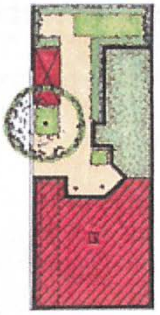
Current situation
BAF = 0.06

Sealed surface = 140m²
Semi-open surface = 59m²
Open soil =1 m²



Planning variant A
BAF = 0.3

Vegetation = 115 m²
Mosaic paving = 25.5m²



Planning variant B
BAF = 0.3

Concrete surface = 21 m²
Vegetation = 79 m²
Mosaic paving = 100 m²
Green walls = 10 m²
Green roofs = 41 m²

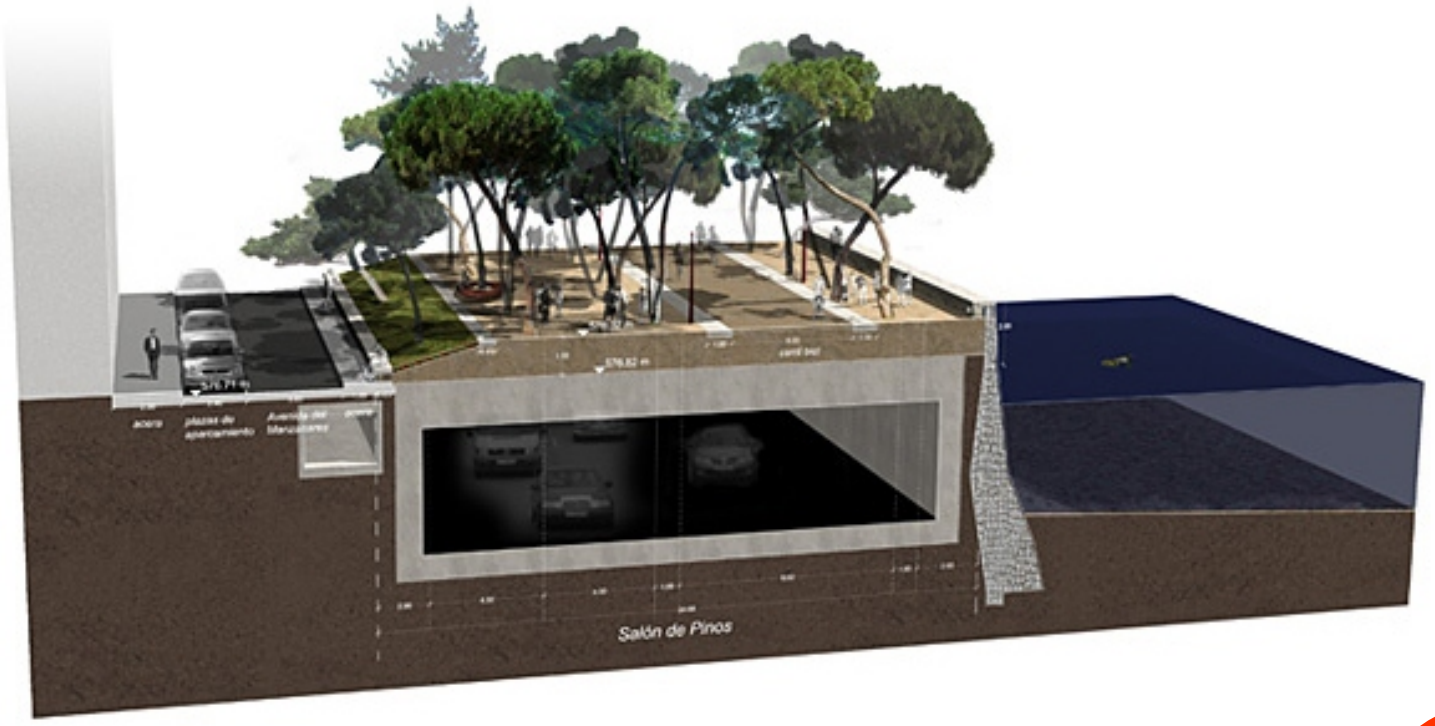
L

QUEEN ELIZABETH OLYMPIC PARK, LONDON

QUEEN ELIZABETH OLYMPIC PARK, LONDON

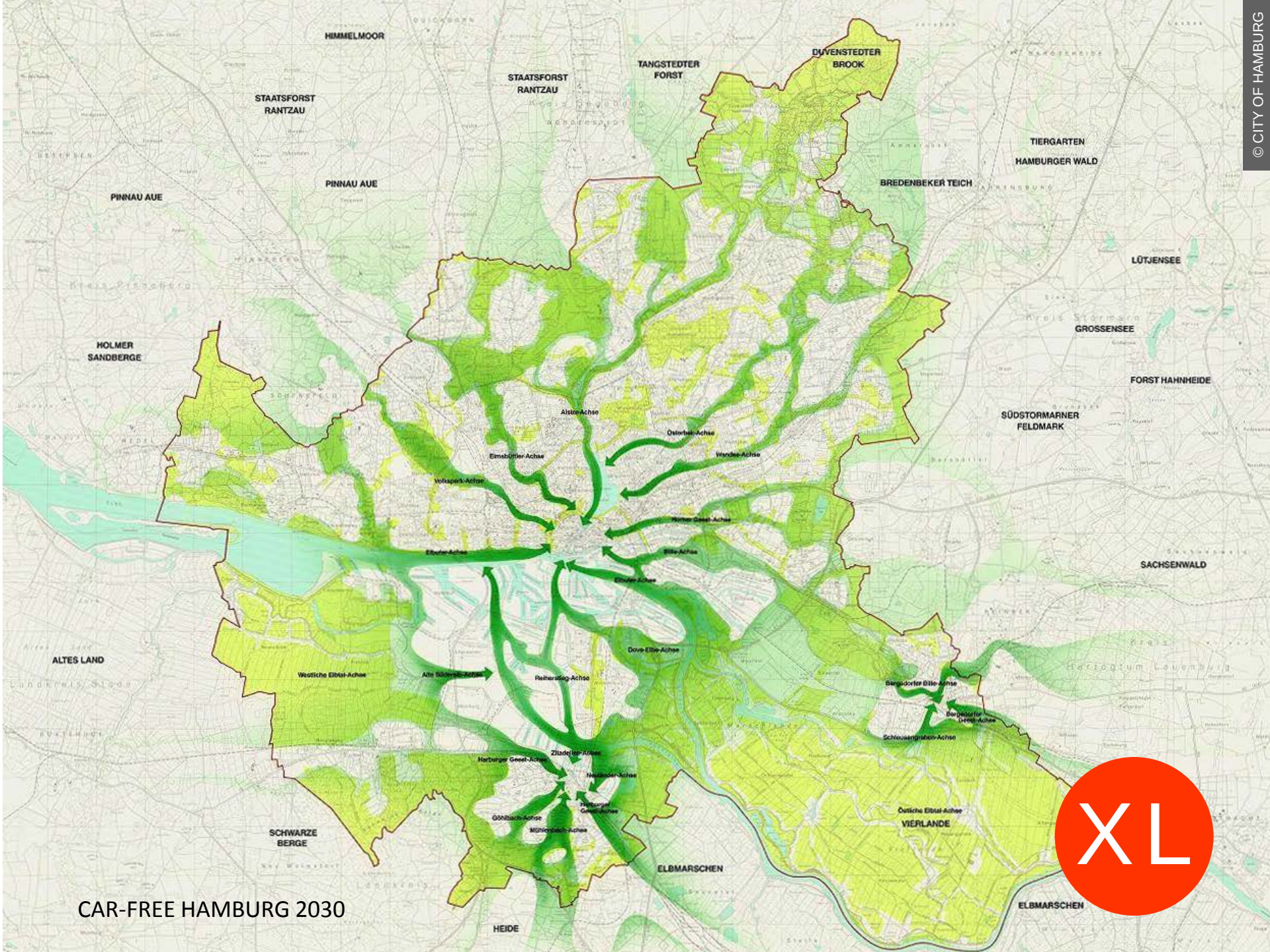
CHEONGGYECHEON RIVER, SEOUL, SOUTH KOREA

CHEONGGYECHEON RIVER, SEOUL



MADRID RIO - SALÓN DE PINOS

MADRID RIO - SALÓN DE PINOS



CAR-FREE HAMBURG 2030

Cities Alive - Summary

BERLIN

1 – Green infrastructure is essential

HAMMARBY SJÖSTAD, SWEDEN

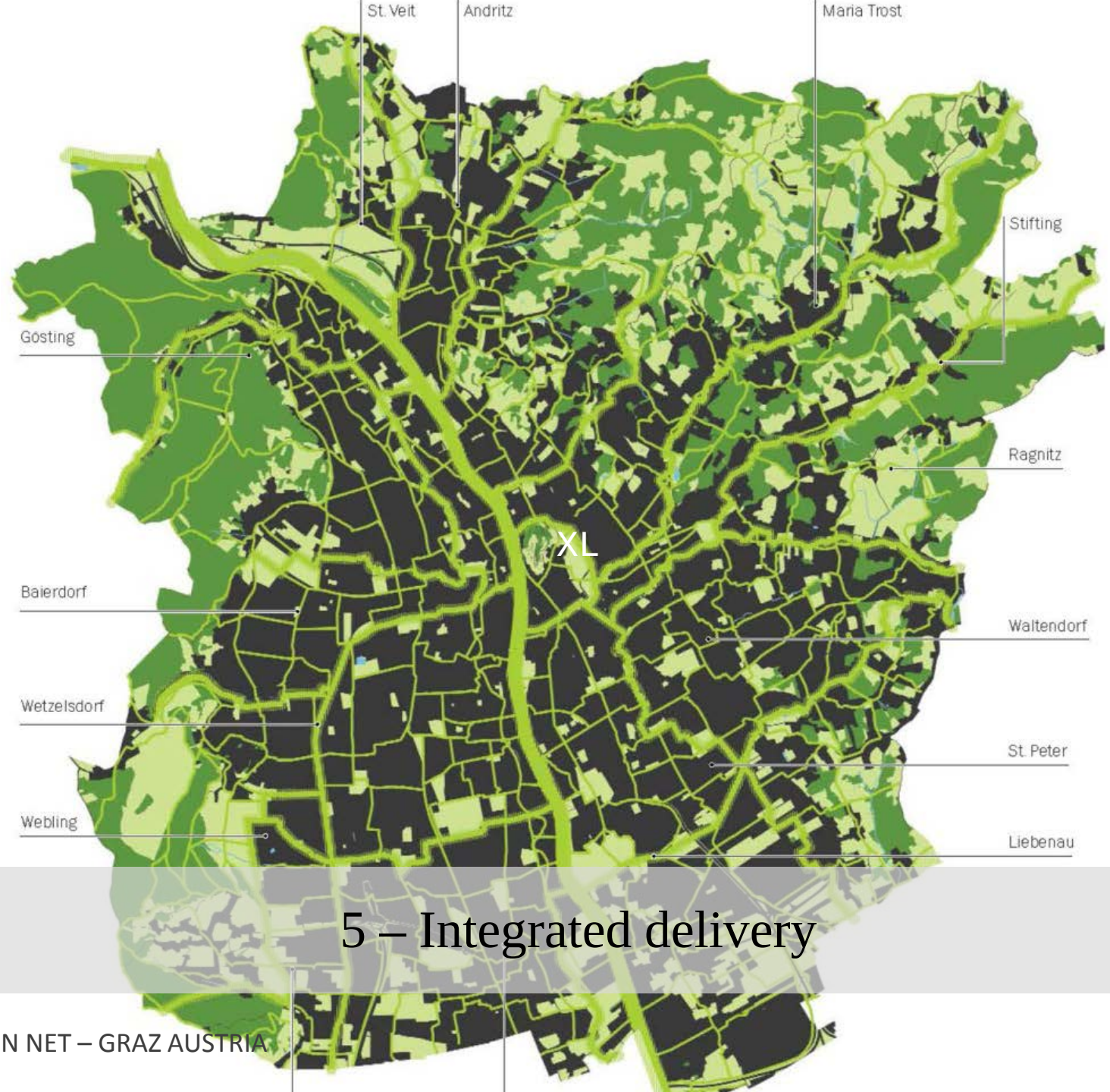
2 –Multifunctional design approaches

QUEEN ELIZABETH OLYMPIC PARK

3 – Creative use of city space

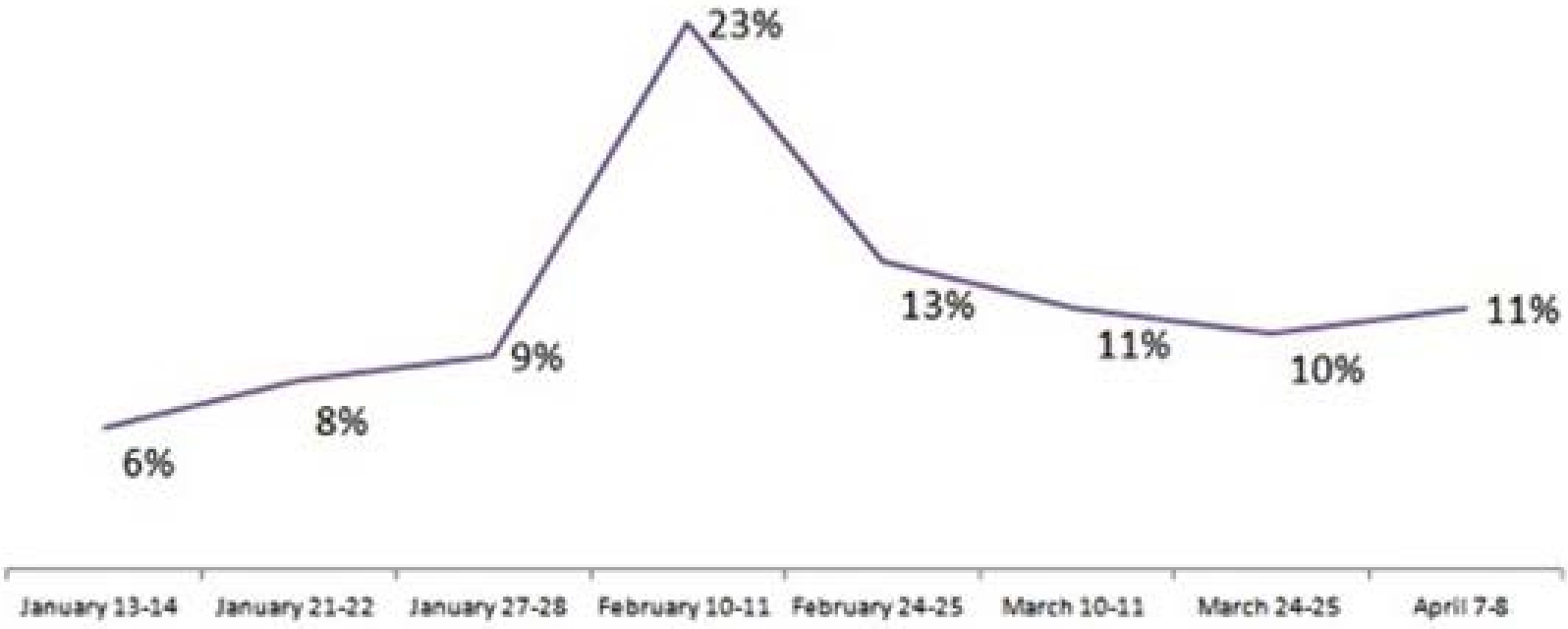
THE HIGH LINE NEW YORK

4 –Measure value, evaluate & monitor



5 – Integrated delivery

Which of the following do you think are the most important issues facing the country at this time? Please tick up to three. *% selecting environment*



YOU.GOV SURVEY JANUARY - APRIL 2014

full report from www.arup.com

Cities Alive

1

Automated public transport is advancing rapidly. In the future we can expect to see more driverless electric trams, buses and trains in the streetscape. This will reduce the dominance of and our reliance on the car; lower pollution, noise and congestion; increase safety; make cities for people; and provide the opportunity for green corridors.

2

Vertical farming may become more popular as urban populations explode and available space shrinks. The use of roofs, vertical spaces and basements to grow arable crops could result in shorter, more environmentally friendly distribution routes, healthier diets and fresher foods.

3

In denser city environments our **public realm, streets and squares** will gain in importance as vital places for people to meet, relax and socialise. Large city trees and urban woodland will be more essential than ever to create attractive and healthy spaces with comfortable microclimates.

4

With land at a premium, creating city space for people will call for courageous design. As cities expanded in previous times urban railways went underground—why not **underground roads** now? Burying key highways will significantly lower pollution, noise, congestion and barriers to movement. This will create huge gains by freeing up city space for people and enhancing the city environment.

5

Research is being poured into vehicle automation and electric cars. **Automated private cars** will act to improve safety for pedestrians, whilst lowering pollution and noise to create better city environments where people come first.

6

Green roofs, walls and façades are likely to become more prominent in cities, as we need to exploit and retrofit the layers of the city to find space for recreation and nature. Supporting valuable ecology, or as pleasant places for urbanites to hang out, these features also provide pollution mitigation, natural warming/cooling, rainfall attenuation and insulation to lower energy costs.

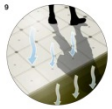
7

Cool city parks—spaces for larger urban populations to socially interact, keep healthy and escape—will become even more important than they are now. These spaces will need to be more densely tree-covered to provide vital urban cooling, shade and weather protection, and they should incorporate or retrofit multifunctional design features like temporary floodable areas to provide climate change mitigation.

8

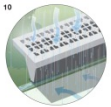
Extensive green networks through the city are the aim of a green infrastructure design approach. Networks can be formed over time to create an encompassing "city ecosystem" that can support the sustainable movement of people, rebuild biodiversity and provide substantial climate change adaptation.

9



Permeable paving and soft landscape areas will help urgently convert grey to green in future city environments. This is a simple technology, but a vital one to improve water absorption and slow rain water run-off. This will help cities cope with extreme weather events and increased precipitation whilst significantly visually improving the environment.

10



City environments will need to be modified to design in or retrofit **sustainable drainage systems** within streets and city green spaces to better cope with predicted extreme weather events. Measures may also include temporarily floodable areas of public realm and **"water roofs"**, designed to hold stormwater which is often cheaper than conventional drainage systems.

11

Green bridges can retain important links in green infrastructure city networks. They also act to provide continuous wildlife corridors to benefit city biodiversity and bring opportunities for healthier traffic-free routes and pedestrians crossings over waterways and roads.

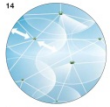
12

Entertainment in the urban environment for citizens is very likely to move into the digital age. Features such as interactive art installations allocated in denser urban environments will provide opportunities for social interaction, community involvement and tourism—all essential for successful cities.

13

Green corridors provide important routes for wildlife to migrate and travel through the city. Urban green spaces are far more effective when linked; this is a key objective of a green infrastructure design approach. Another is multifunctional design, and these corridors can also provide natural drainage solutions and better airflows for climate change resilience.

14



Smart weather covering could help keep public spaces usable in varying conditions. This may include covers that automatically unfold during rain events or when sunshine is intense. By collecting solar energy during daytime they could provide "smart lighting" that responds to the presence of people, providing security whilst also saving energy.

15

The urban environment will need to work harder in the future in cities to provide flexible uses when city space is in demand. **Adaptable public spaces** can be designed for multiple functions: as meeting places, markets and entertainment and education places. This approach will help local business and engender local community pride.

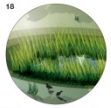
16

Bike sharing is already very popular in many cities, and research shows significant health benefits to city dwellers who are provided with convenient cycle ways and good facilities. This trend needs to be encouraged—cycling will deliver lower public transport and public health costs; along with innovative solutions such as underground bike parks, it could save valuable city space.

17

Large-species trees need to form a vital component of a green infrastructure city ecosystem, for the multiple benefits they deliver, which includes a role as the best **carbon sinks** a city can get. They absorb huge amounts of CO_2 from the atmosphere and convert it to oxygen, helping create healthier and liveable cities for urban dwellers.

18



Urban wetlands will need to become more commonplace as essential hard-working city components to deliver storm protection, buffering, filtration and reed beds for cleaning and purifying water through natural processes. These features can also support attractive and significant wildlife areas to increase city biodiversity.

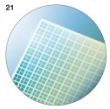
19

The "harder" public realm areas and streets will continue to provide vital "breathing rooms" in the city. **Healthy streets and urban squares** will need to work harder, incorporating more permeable surfacing and sustainable drainage for flood protection, and a higher percentage of large trees as standard, to generate better microclimates. Greener city spaces will help increase land values and boost retail sales.

20

Finding city space for informal recreation may look to retrofitting obsolete city infrastructure above ground or even to finding space for **underground parklands**. Cities are already pioneering research into how to facilitate green spaces using fibre optics. Urban greening should be designed to occupy multiple layers within the city to effectively utilise available space.

21



Solar panels are likely to become more commonplace as cities look to spread the energy load. Panels are increasingly a cornerstone of municipal environmental policy in many cities. With zero carbon emissions they can effectively provide heat and power to urban structures.

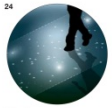
22

Glowing trees are being researched as a way of providing lighting without the use of electricity. Using bioluminescence technology they would provide all the benefits of large trees as well as provide secure and shared public space for people to enjoy.

23

Interactive spaces provide the opportunity for entertainment and interaction with light and music. These spaces can be used for artistic or commercial events and increase the attractiveness and success of urban space.

24



Glowing pavements use particles in the pathway to absorb and reflect light and emit it at low ambient light levels. This provides an environmentally efficient and exciting way to light parklands, streets and squares.

25

Our urban environments may become places to go to experience **augmented reality**, especially as devices get smarter and more wearable. This provides opportunity for new experiences of the city as well as practical solutions to way finding, navigation and tourism in the city.

Chris Baines

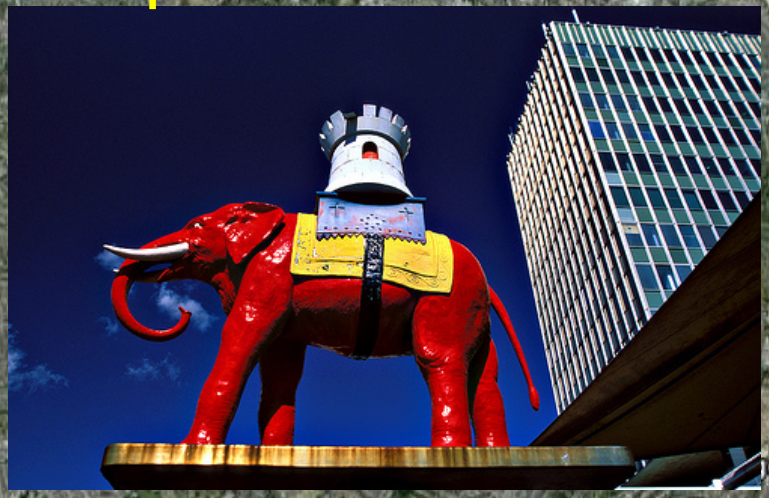
Principal
Chris Baines Associates Ltd

Heygate Estate Redevelopment,
Lend Lease and the secret urban forest

THE HEYGATE ESTATE
Elephant and Castle

CENTRAL LONDON

Heygate Estate
Elephant & Castle



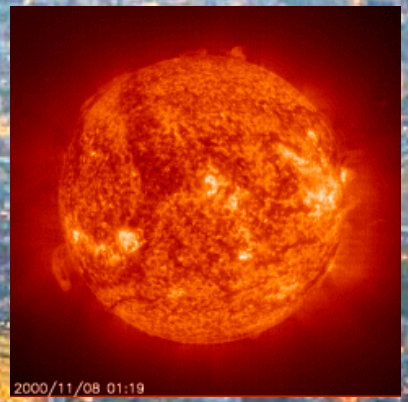

Elephant And Castle, Camber
Image© 2011 Bluesky

Negative image


40 years of growth

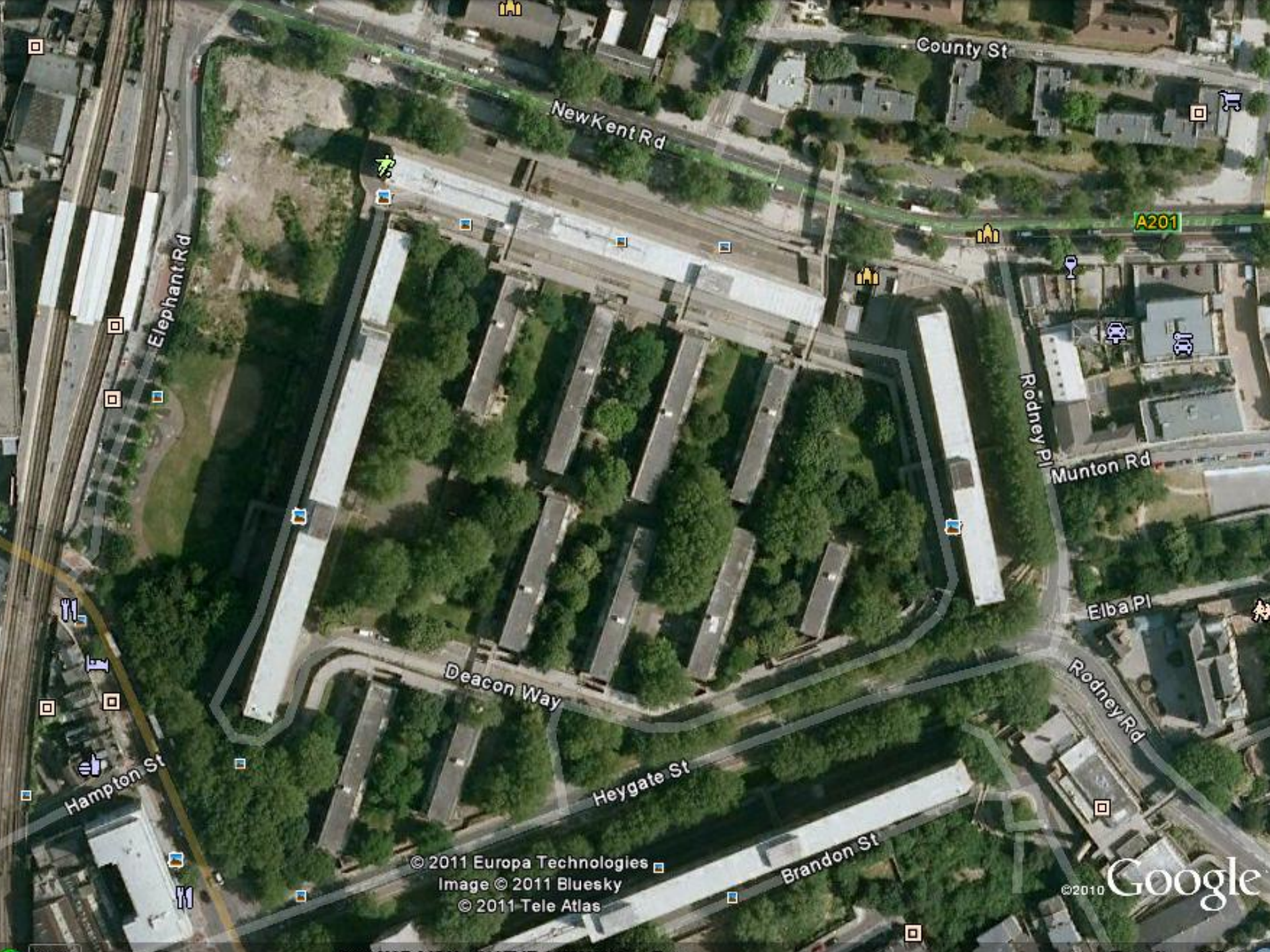
4° TEMPERATURE
RISE BY 2080

MUCH MORE FLASH FLOODING



INCREASING
GREEN INFRASTRUCTURE
CAN COUNTER
THE EFFECT

BIGGEST TREES HAVE
GREATEST IMPACT


County St
New Kent Rd
A201
Elephant Rd
Rodney Pl
Munton Rd
Elba Pl
Deacon Way
Rodney Rd
Hampton St
Heygate St
Brandon St
© 2011 Europa Technologies
Image © 2011 Bluesky
© 2011 Tele Atlas
©2010 Google

LEND LEASE DEVELOPMENT STRATEGY

- REDESIGNED LAYOUT
- PHASING
- SKILLED SITE MANAGEMENT
- USE OF FELLED TIMBER
- INNOVATIVE TECHNOLOGY

First building block layout and tree survey

414 Trees on Site - Existing Condition
(based on Lend Lease's tree study)

Revised building block layout

KEY

- Existing Trees to be retained (including those requiring further testing)
- Signature Trees
- Avenue Trees (Framework)
- Street Trees (Framework)
- Ornamental Feature Trees
- Belts/Groups
- Flowering/Fruiting Trees
- Existing Trees Offsite
- Trees to be Removed
- Site Boundary

Our technical and landscape assessment of the trees is ongoing as part of continuing design development to determine which trees can be retained from those currently identified.

0 25 50 100m

Location: East of T12

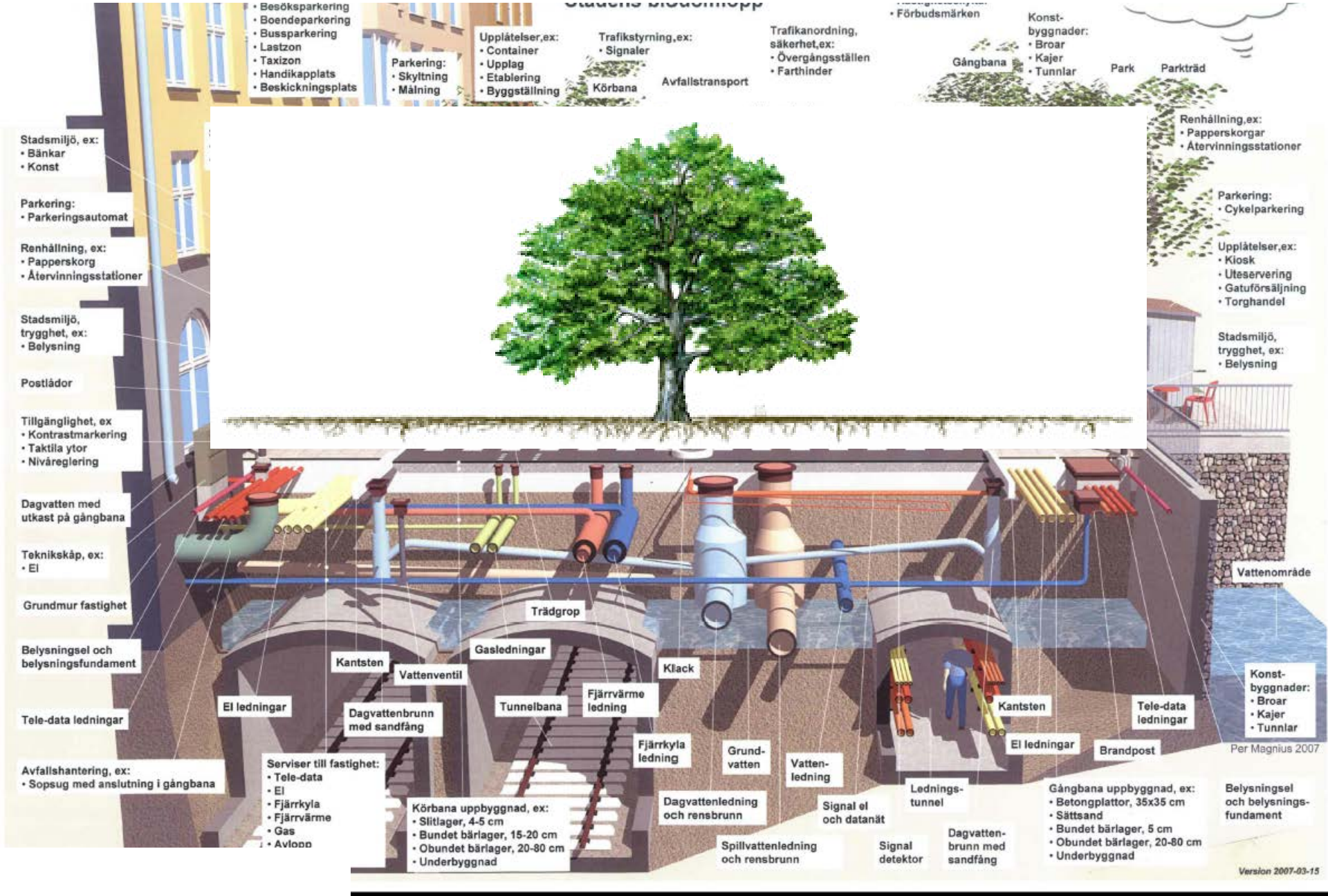
View to the West (2.4m)

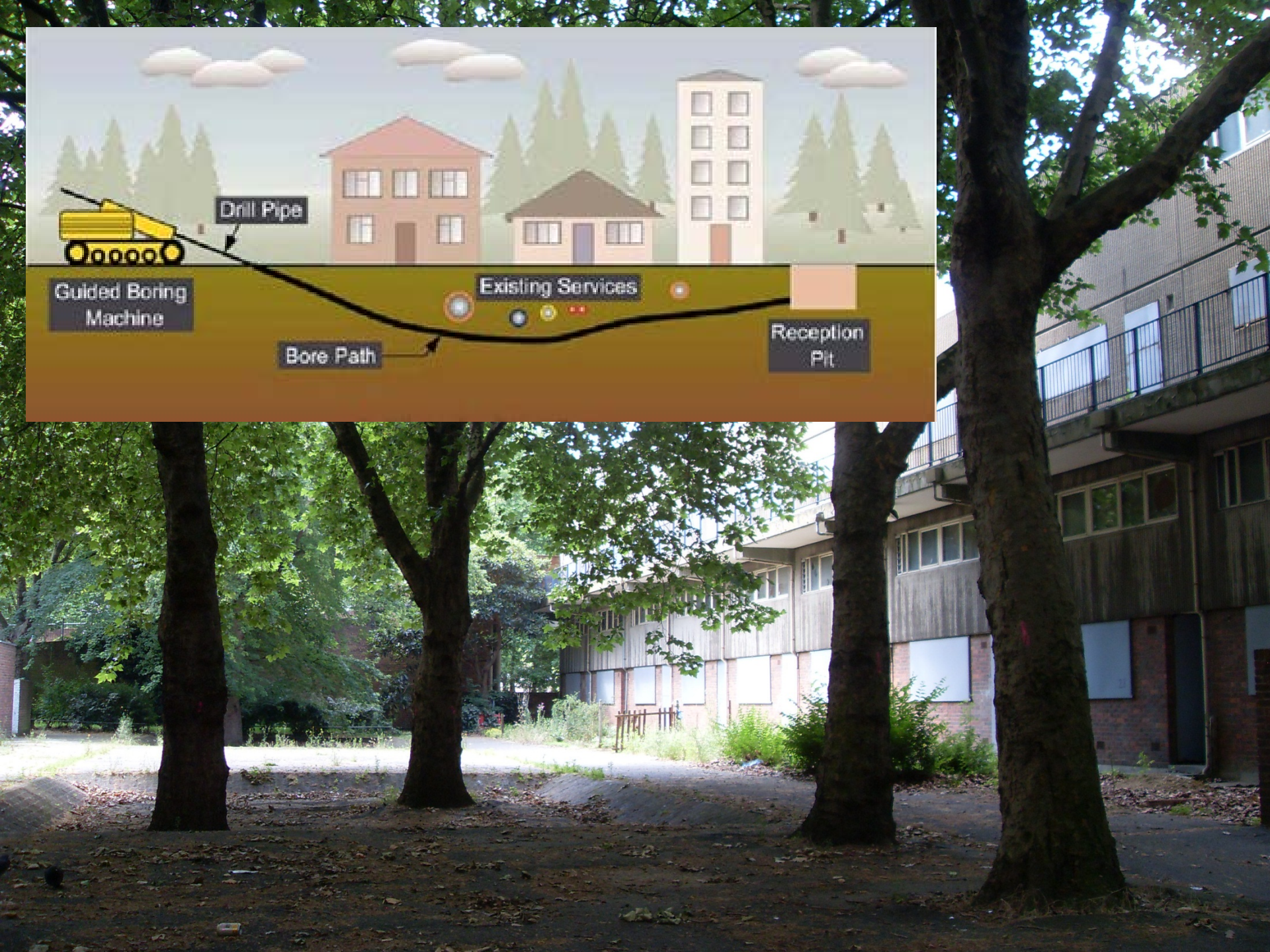
Location: West of T11

View to the West (2.4m)

ARUP


ANTILLON
DEMOLITION


• Besöksparkering
• Boendeparkering
• Bussparkering
• Lastzon
• Taxizon
• Handikapplats
• Beskickningsplats
Parkering:
• Skyltning
• Målning
Upplåtelser,ex:
• Container
• Upplag
• Etablering
• Byggställning
Trafikstyrning,ex:
• Signaler
Körbana
Avfallstransport
Trafikanordning, säkerhet,ex:
• Övergångsställen
• Farthinder
• Förbudsmärken
Konst-byggnader:
• Broar
• Kajer
• Tunnlar
Gångbana
Park
Parkträd
Renhållning,ex:
• Papperskorgar
• Återvinningsstationer
Parkering:
• Cykelparkering
Upplåtelser,ex:
• Kiosk
• Uteservering
• Gatuförsäljning
• Torghandel
Stadsmiljö, trygghet, ex:
• Belysning
Stadsmiljö, ex:
• Bänkar
• Konst
Parkering:
• Parkeringsautomat
Renhållning, ex:
• Papperskorg
• Återvinningsstationer
Stadsmiljö, trygghet, ex:
• Belysning
Postlådor
Tillgänglighet, ex
• Kontrastmarkering
• Taktila ytor
• Nivåreglering
Dagvatten med utkast på gångbana
Teknikskåp, ex:
• El
Grundmur fastighet
Belysningsel och belysningsfundament
Tele-data ledningar
Avfallshantering, ex:
• Sopsug med anslutning i gångbana
Serviser till fastighet:
• Tele-data
• El
• Fjärrkyla
• Fjärrvärme
• Gas
• Avlopp
Körbana uppbyggnad, ex:
• Slitlager, 4-5 cm
• Bundet bärlager, 15-20 cm
• Obundet bärlager, 20-80 cm
• Underbyggnad
Trädgrop
Gasledningar
Kantsten
Vattenventil
El ledningar
Dagvattenbrunn med sandfång
Tunnelbana
Fjärrvärme ledning
Klack
Fjärrkyla ledning
Grund-vatten
Vatten-ledning
Dagvattenledning och rensbrunn
Spillvattenledning och rensbrunn
Signal el och datanät
Signal detektor
Dagvatten-brunn med sandfång
Ledningstunnel
Vattenområde
Konst-byggnader:
• Broar
• Kajer
• Tunnlar
Kantsten
El ledningar
Tele-data ledningar
Brandpost
Gångbana uppbyggnad, ex:
• Betongplattor, 35x35 cm
• Sättsand
• Bundet bärlager, 5 cm
• Obundet bärlager, 20-80 cm
• Underbyggnad
Belysningsel och belysnings-fundament
Per Magnius 2007
Version 2007-03-15


Drill Pipe
Guided Boring Machine
Existing Services
Bore Path
Reception Pit

LIVING LABORATORY


THANKS FOR LISTENING
chris.baines@blueyonder.co.uk

Anna Scott-Marshall

Head of External Affairs
RIBA

The value of quality green infrastructure

The Value of Green Infrastructure

Anna Scott-Marshall
RIBA

RIBA

Why?

- Walking trips have fallen by 27% over the last 15 years
- Local Authorities have responsibility to join up health policy with other strategies around housing, planning and transport infrastructure
- Adults should undertake 150 minutes of exercise per week
- Study showed that people with access to large attractive public spaces were 50% more likely to walk

RIBA

Liverpool

- Liverpool is the most deprived city out of the eight core cities and London
- Life expectancy for women was the worst out of the eight core cities and London and second worst for men.

Physical activity

Table B: Levels of physical activity in adults

Least active — Most active

Ranking	9	8,7	6	5	4	3	2	1
Physically active adults	Birmingham	London Newcastle Joint place	Liverpool	Manchester	Bristol	Nottingham	Sheffield	Leeds
Participation in moderate exercise (%)	8.9	9.9	10.4	10.5	10.6	10.9	11.05	11.1

Liverpool ranked sixth place with only 10.4% of adults meeting recommended exercise levels according to Public Health Observatory (PHO) data.

RIBA

Diabetes

Liverpool has high levels of diabetes ranking eighth.

Table C: Levels of adults with diabetes

RIBA

Obesity in children

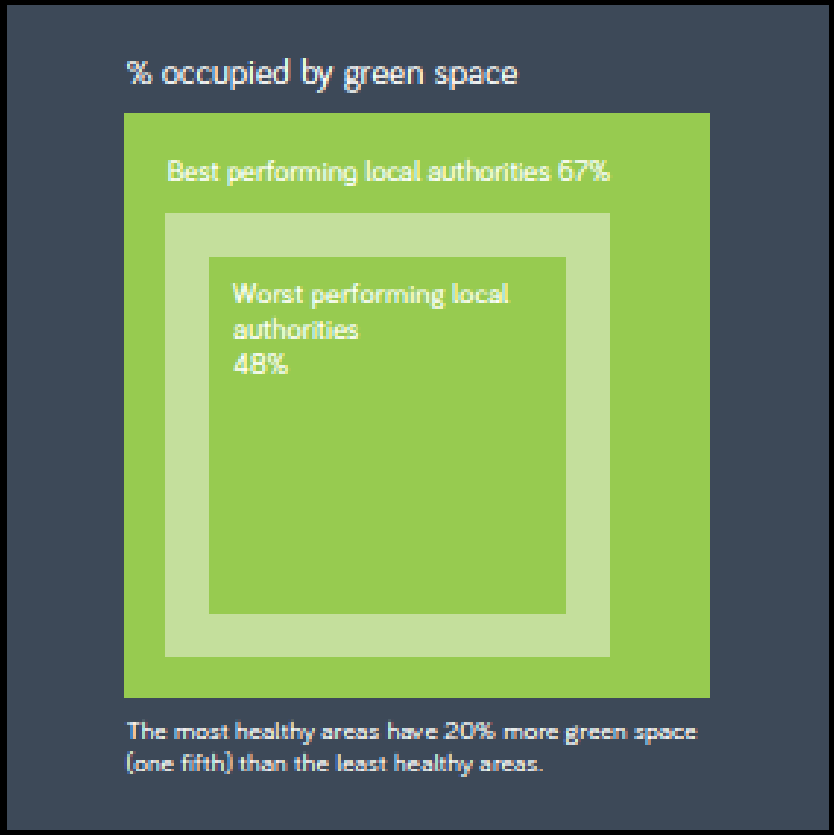
Table D: Levels of obesity amongst children

Most obese									Least obese
Ranking	**9**	**8**	**7**	**6**	**5**	**4**	**3**	**2**	**1**
Obese children	Liverpool	Newcastle	Nottingham	Birmingham	London	Sheffield	Leeds	Manchester	Bristol
(%) of obese children	**22.8**	**22.6**	**22.2**	**22**	**21.9**	**20.9**	**19.9**	**19.6**	**17.3**

Liverpool has the highest number of obese children of all the core cities and London

Land Use

Land use in the best performing and worst performing local authorities found a clear correlation between land use and health outcomes with the authorities with the poorest health outcomes had a greater housing density (larger area taken up by housing) and lower level of green space.



Public Survey

- RIBA YouGov survey of 1,330 people showed that:
  - 59% reported that they did not exercise enough
  - 75% of people who don't exercise enough could be convinced to walk more
  - The most common changes people reported which would make them walk more were streets and parks designed to be safer and more attractive

- Of the 150 people surveyed in Liverpool the highest number of all cities said nothing could convince them to walk more – 33%.

RIBA

Liverpool survey

- Of the 150 people surveyed in Liverpool the highest number of all cities said nothing could convince them to walk more – 33%.
- Liverpool had the second highest level of self-reported inactivity with 61% of respondents failing to meet recommended levels of exercise.
- For those that could be encouraged safe design was a clear priority.

RIBA

Where has it worked?

RIBA

Recommendations

- Local Authorities should develop Healthy Infrastructure Action Plans to sit alongside and as part of the Local Plan.
- A proportion of the Community Infrastructure Levy obtained from new developments should be redirected to fund the areas identified as necessary in the Healthy Infrastructure Action Plan.
- Developers and Architects when submitting plans should outline within their Design and Access Statement how they fulfil the priorities set out in the Healthy Infrastructure Action Plan.

Dave Anderson

Head of Planning Projects
Cheshire West & Chester Council

Competitive Regeneration!

Cheshire West and Chester

Competitive Regeneration!

International Festival of Business
Liverpool 27th June 2014

Dave Anderson
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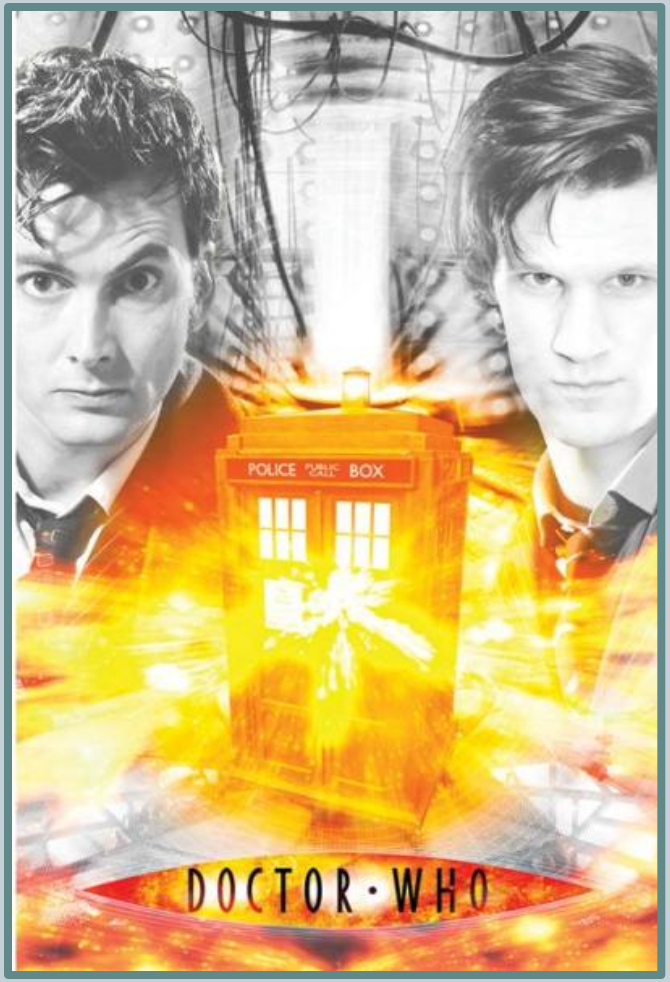
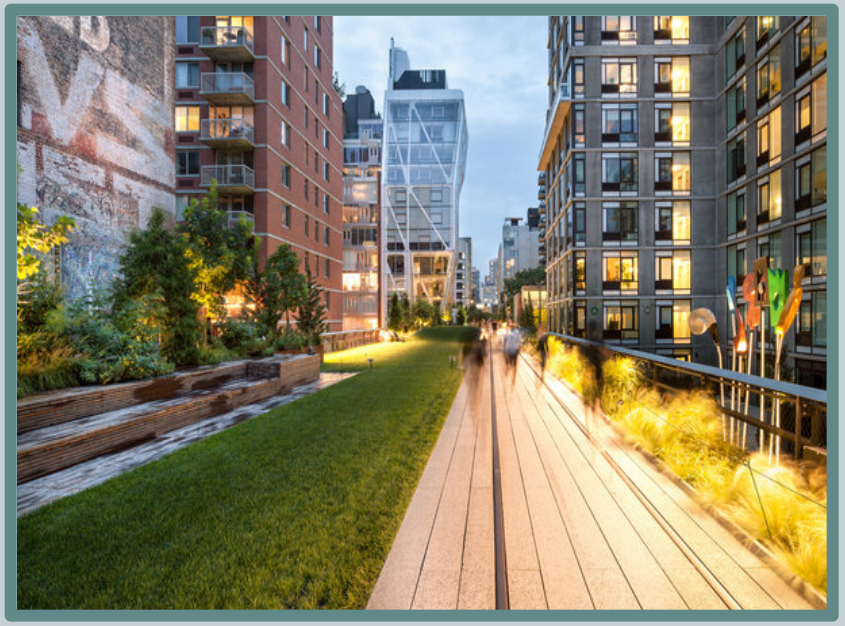
I’m not trying to cause a big s-s-sensation… just talking about regeneration!!



Regeneration

Synonyms: Renewal, revival, restoration, reanimation, rebirth, renaissance, rejuvenation, reinvention, recovery, recuperation, revitalisation, resuscitation.



Near antonyms: death, expiry, extinction

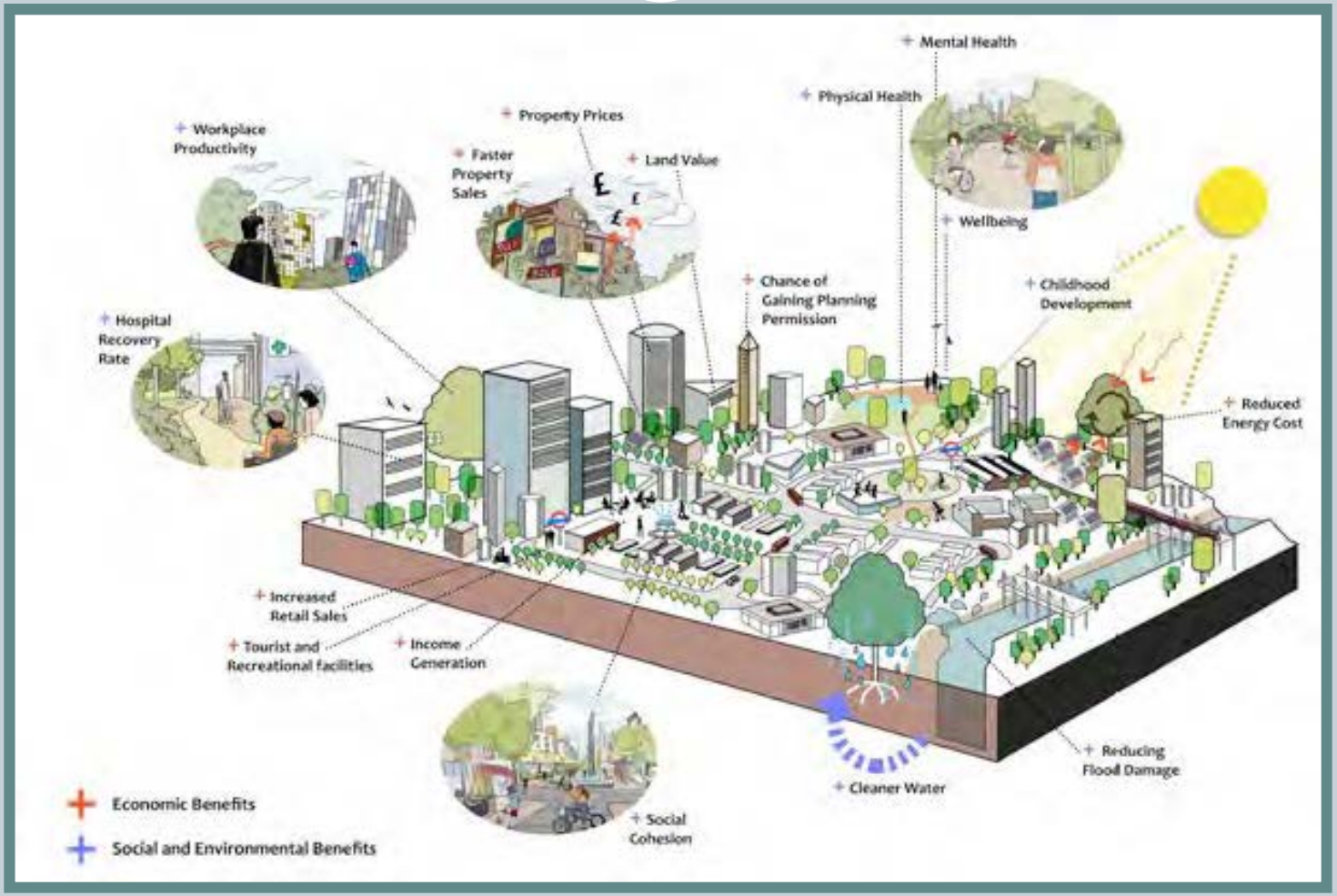
Regeneration requires improvements to quality of place: but involves much more

‘The times they are a' changing’

“Urban design is changing, and it is changing fast. Due in large part to environmental and climatological crises that are translating directly into quality of life issues, cities are focused on their urban landscapes as perhaps never before.”
—Mark Hough, “Urbanism and the Landscape Architect ” (2013)

Urban roof garden: Toronto

The Urban Ecosystem



Source: Arup 'Cities Alive' - rethinking green infrastructure

Successful regeneration needs to anticipate and be relevant to the key drivers of change in the external environment

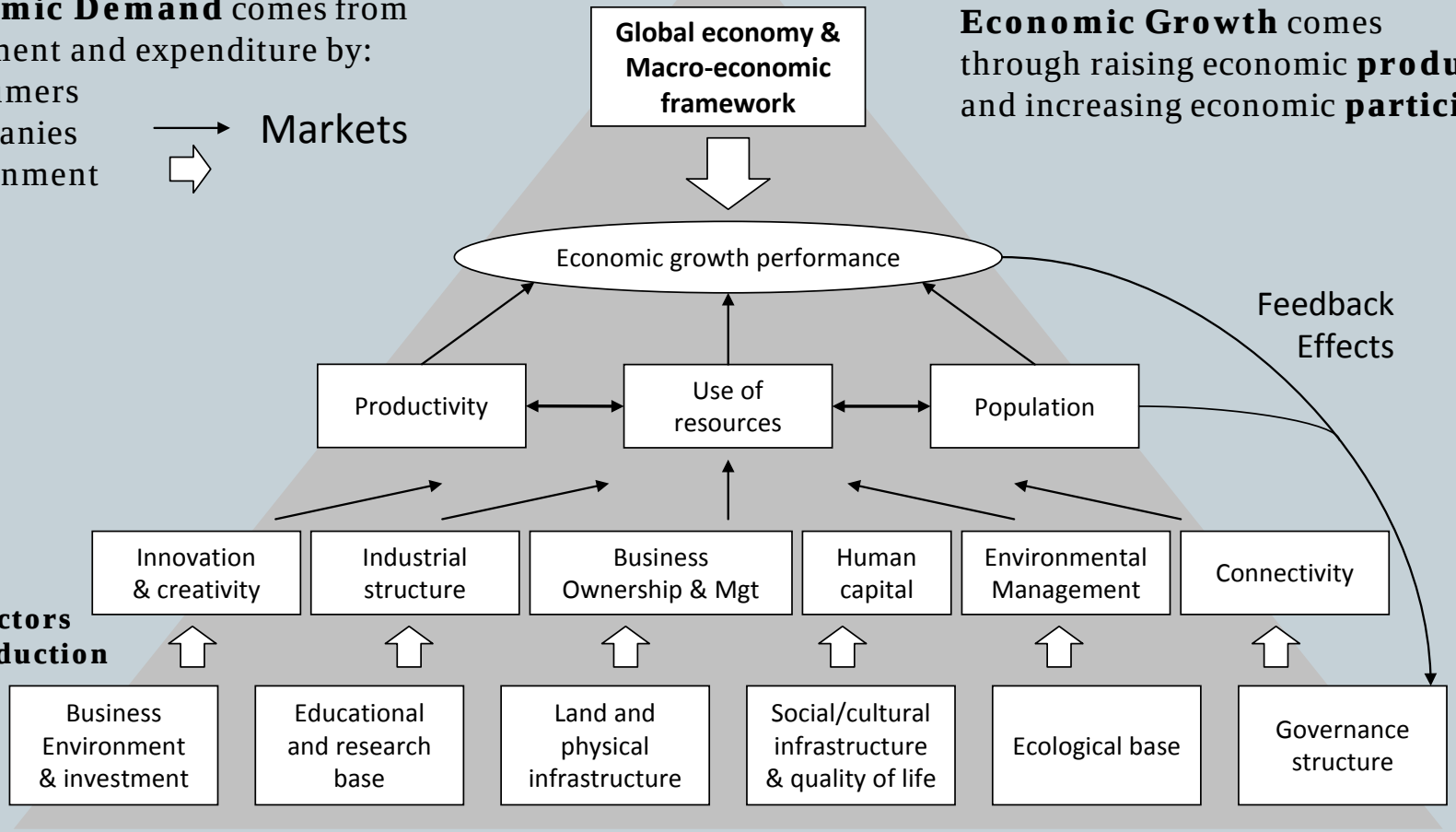
Climate Change	Population Growth and ageing	Health & Well-Being
Technology Big Data	Community identity and localism	Urbanisation and rise of mega cities
Post industrial knowledge economy	Sustainability Resource efficiency	Globalisation: the war for talent

Drivers of Growth and competitiveness

Economic Demand comes from Investment and expenditure by:
- Consumers
- Companies
- Government

→ Markets

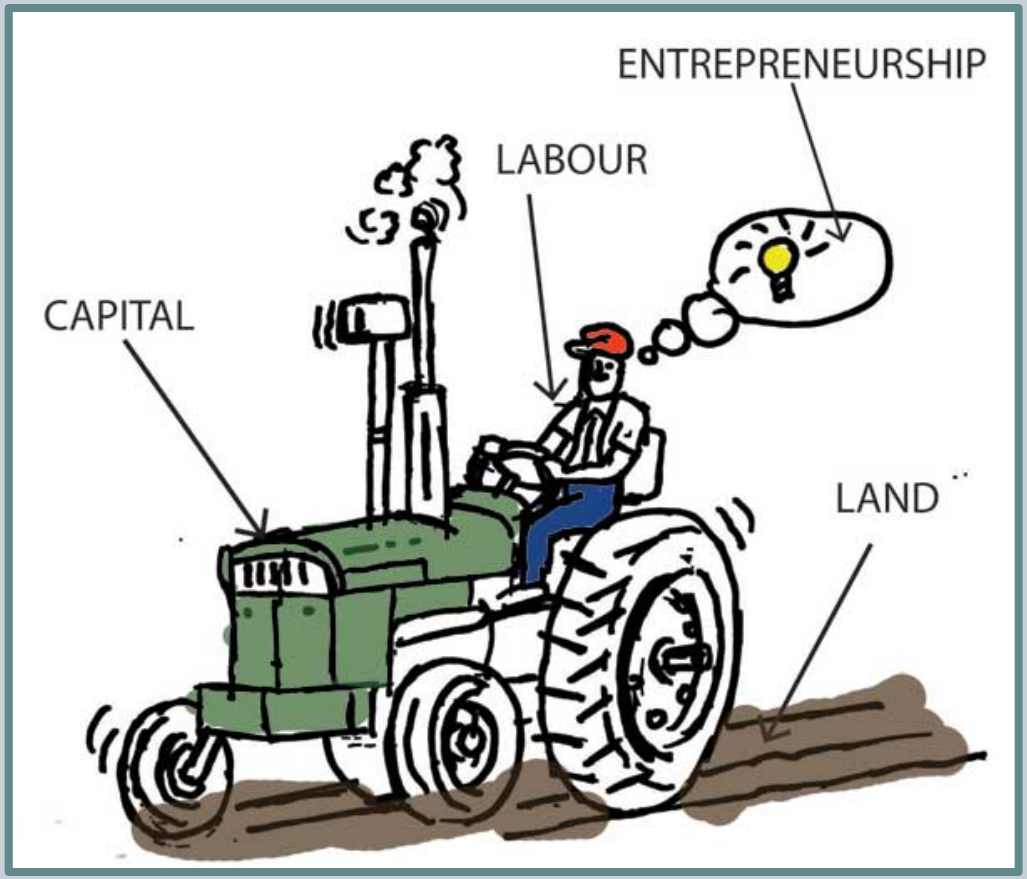
Economic Growth comes through raising economic **productivity** and increasing economic **participation**



Economic performance is supported by **key factor conditions**: Local Authorities can play a significant role in the supply and quality of the key factors of production

Growth is driven increasingly by networked communities of knowledge workers

Traditional Factors of Production



There is a shift in the relative importance of factors of production

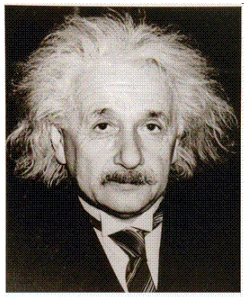
Factors of Production - 20th Century

Land

Capital

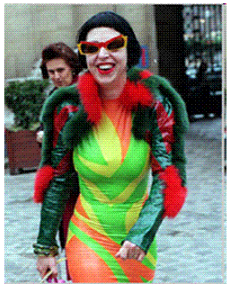
Labor

Factors of Production – 21st Century



Intellectual Capital

Social Capital



Creative Capital

What are the implications for regeneration?

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- We need a 'whole system' view of regeneration that embraces economic, social, environmental and quality of life factors.
- Green infrastructure is not a 'bolt on'; it should be a fundamental part of the solution, working with the natural environment.
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edinburgh bioQuarter
at the heart of Scottish life sciences

Case Study: Life Sciences, Edinburgh BioQuarter – targets stem cell therapies and translational medicine.

edinburgh bioQuarter
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Economic Fundamentals

Demand side

- Growing and ageing population driving demand for healthcare.
- Advances in medical technologies/ therapies.
- New possibilities emerging from Stem Cell research.
- Large pharma/ medical companies investing in ‘translational medicine’.
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Supply side

- Edinburgh’s strong history of medical research.
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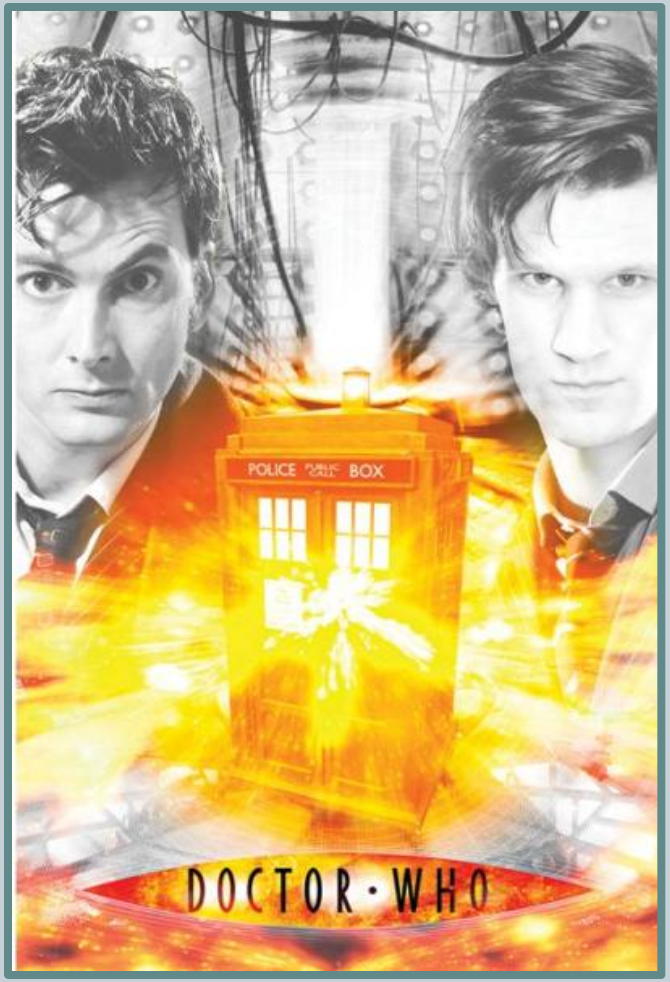

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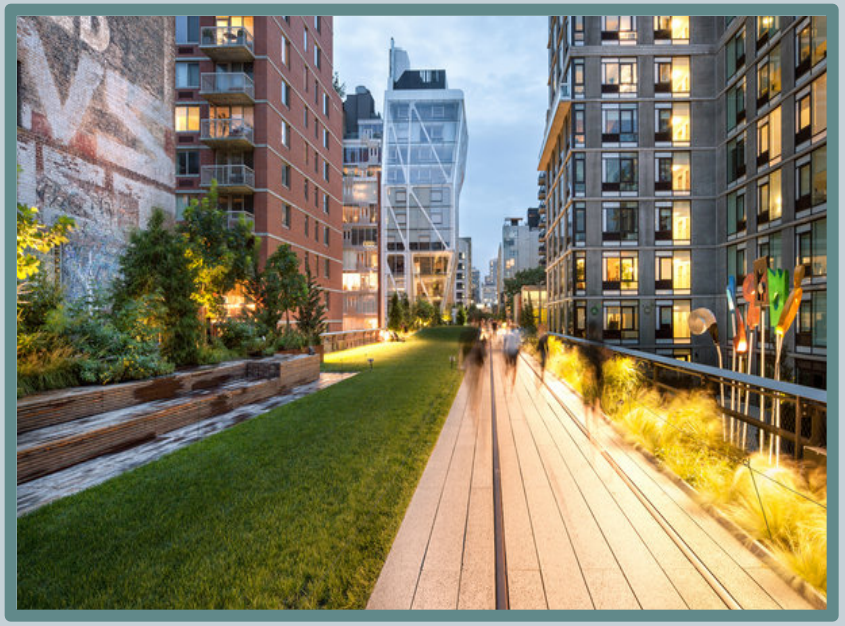

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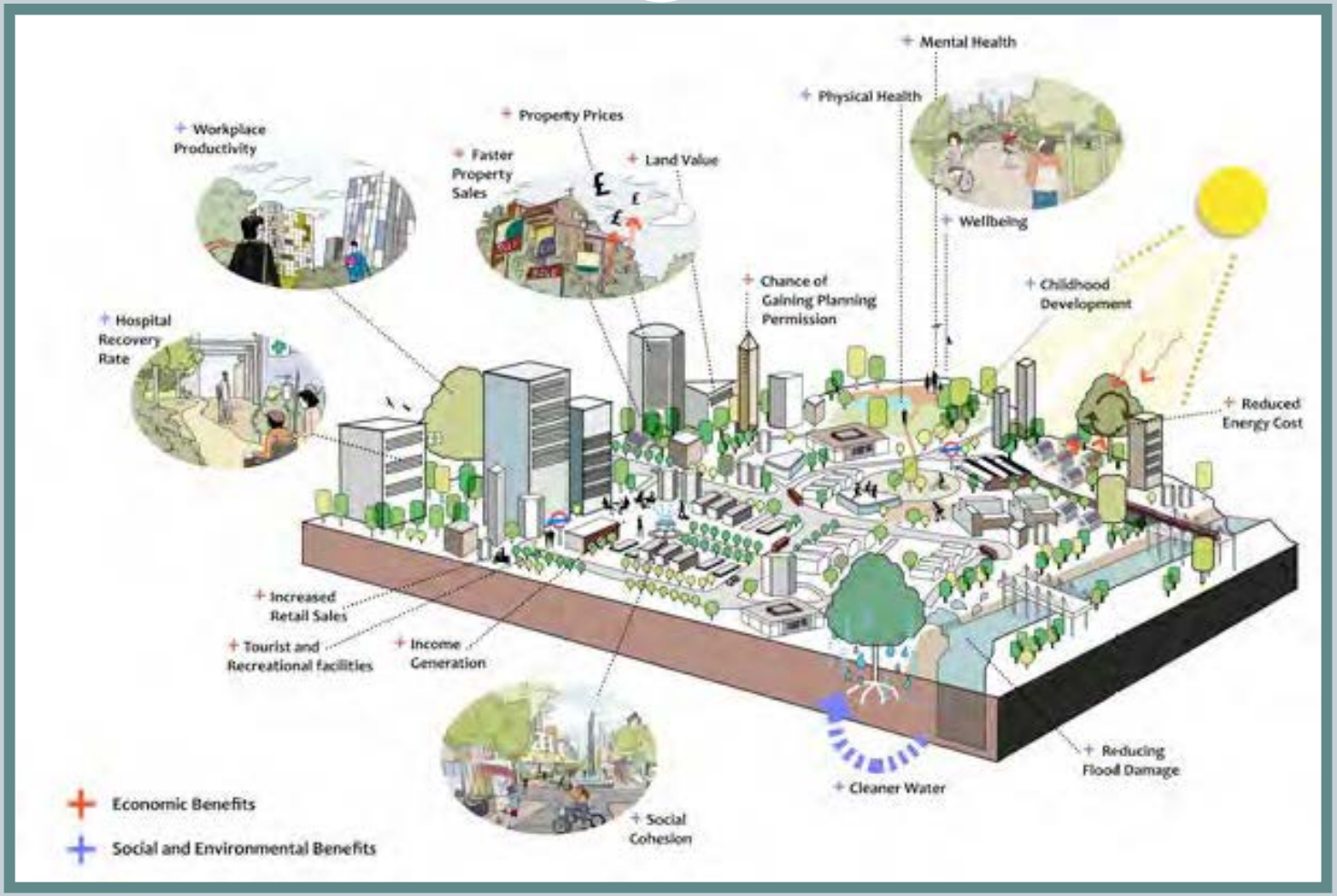

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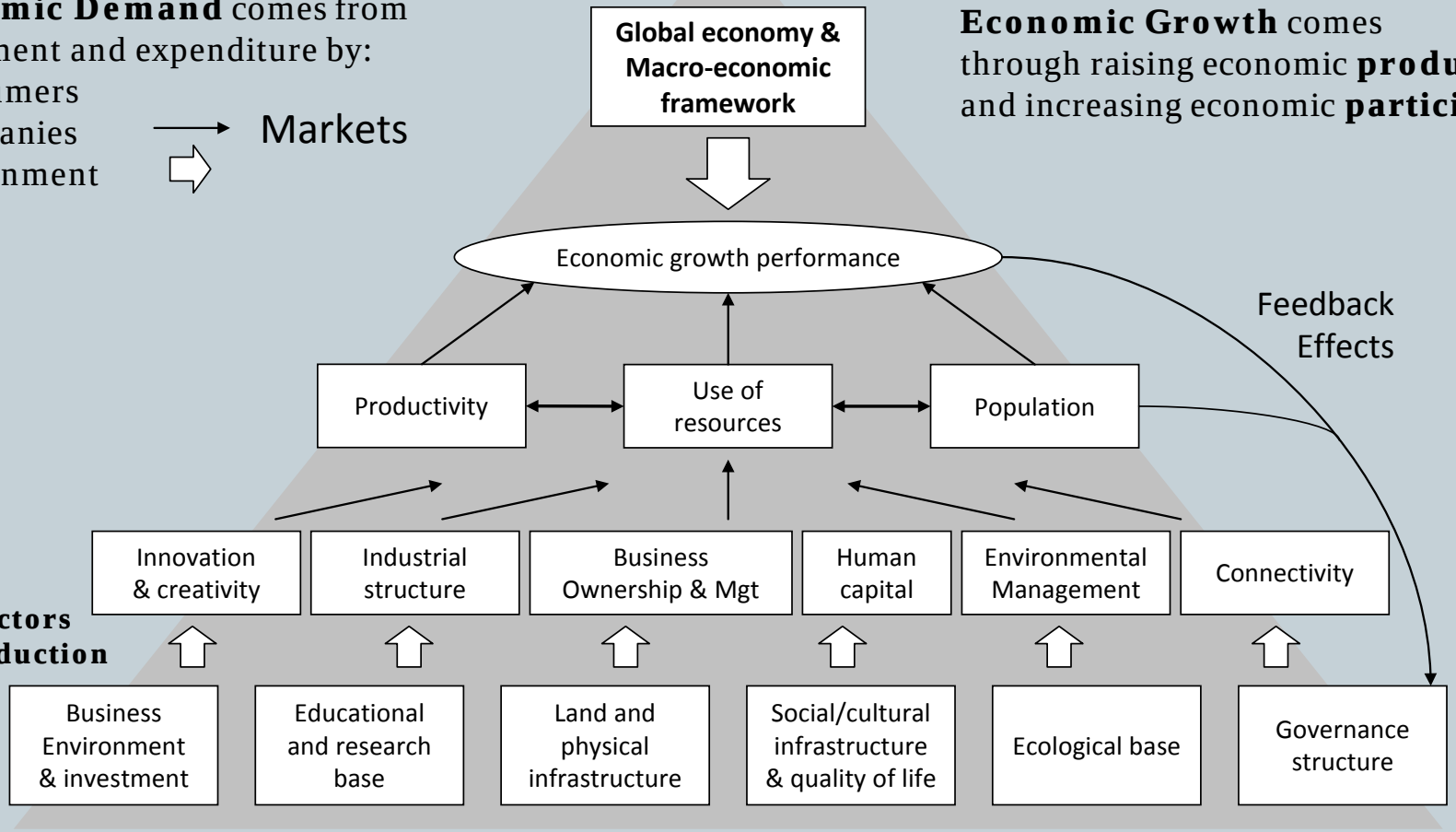

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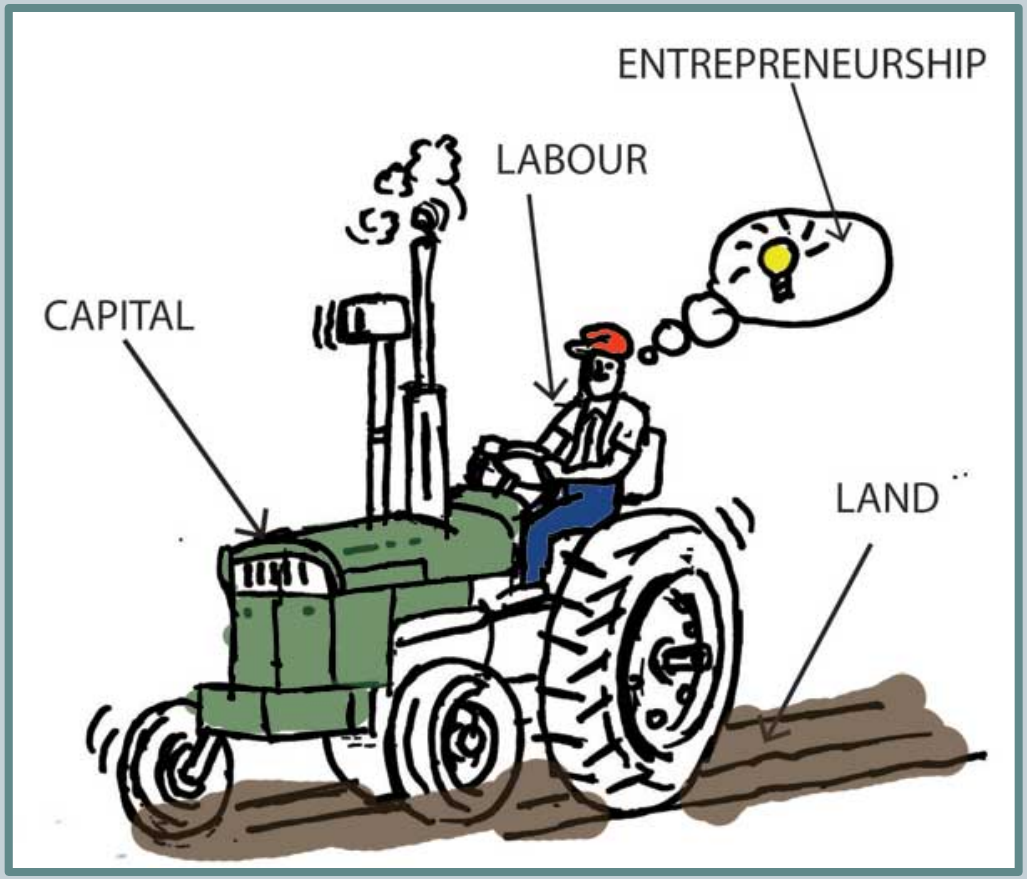

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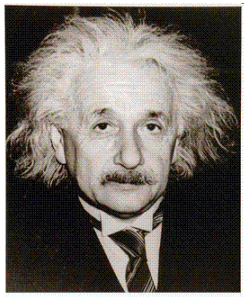

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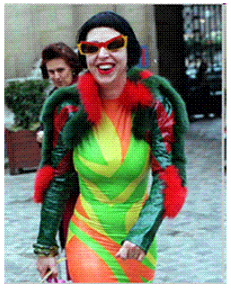

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edinburgh bioQuarter
at the heart of Scottish life sciences

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- Co-location of Royal Infirmary and University Research and teaching facilities.
- Favourable UK legal framework for stem cell research.

The Royal Infirmary of Edinburgh - a major 900-bed teaching hospital.

Queens Medical Research Institute (QMRI) with 650 researchers working on projects related to inflammation, cardiovascular disease and reproductive health.

University of Edinburgh Medical School - 250 researchers and clinical teaching staff

The Scottish Centre for Regenerative Medicine - 230 researchers working on stem cells and regenerative therapies.

The BioQuarter - a three-story multiple occupancy building for life science companies from start-ups to major international businesses

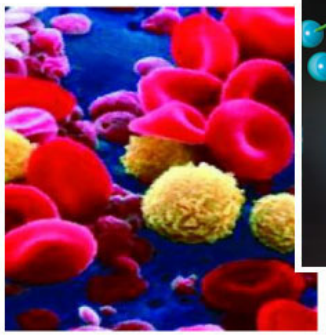
Anne Rowling **Regenerative Neurology Clinic** – creating new therapies for MS and related conditions.

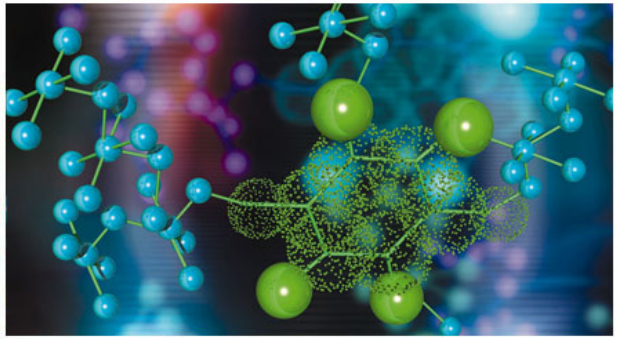
Brain and Body institute 500 researchers in neuroscience, neurology and psychology.

Royal Hospital for Sick Children, a 600-bed paediatric facility

edinburgh bioQuarter

at the heart of Scottish life sciences





Case Study:
Tourism

Loch Lomond

loch lomond shores
shop, eat, play ~ naturally

Economic Fundamentals:

Demand side:

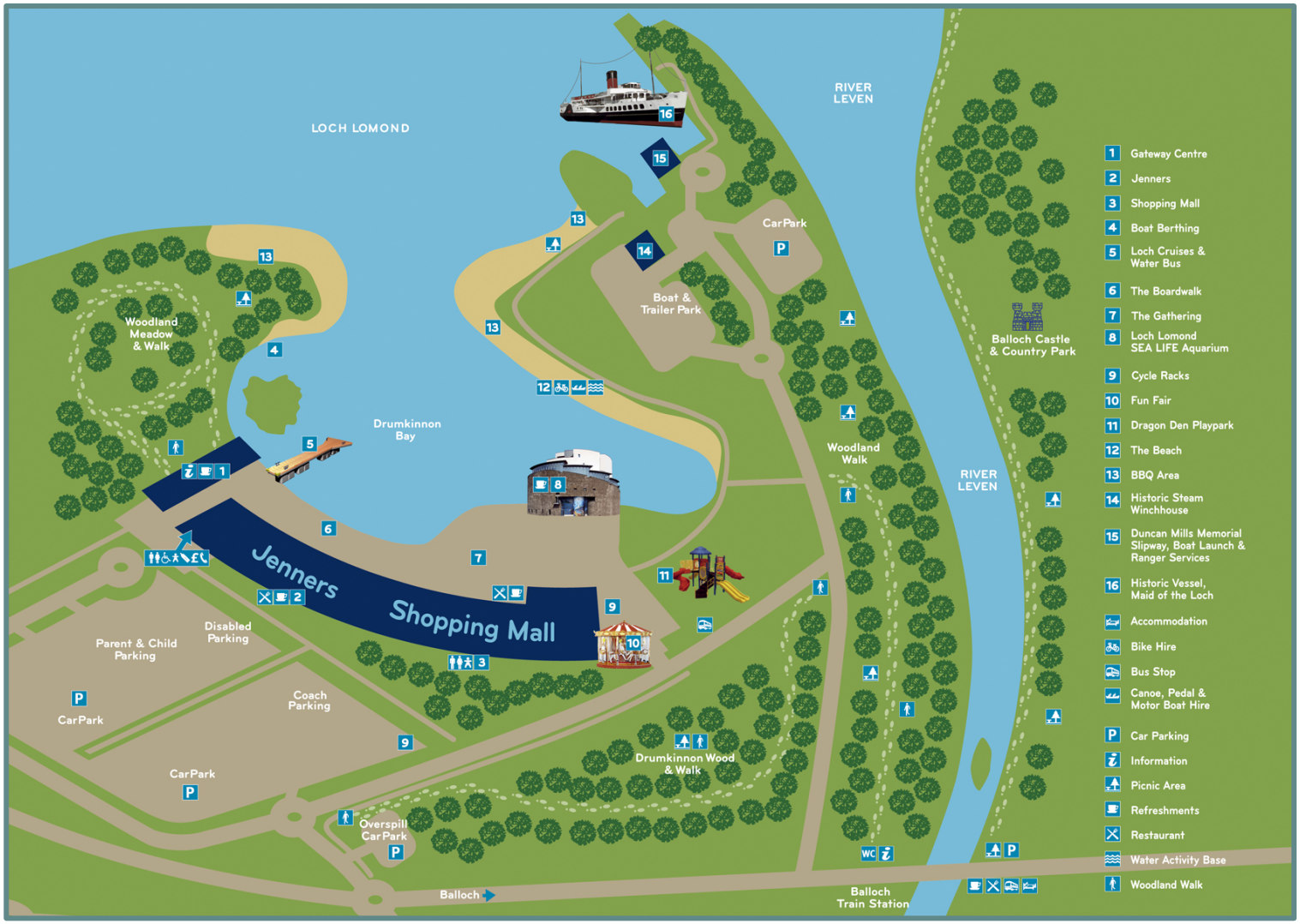
- Growing market for natural/ outdoors tourism;
- Visitors looking for a broader leisure offer;
- 7 million people passing Loch Lomond every year en route to Highlands & Islands
- Loch Lomond underperforming average Scottish day visitor spend by 30%

Supply side:

- Site of former sand gravel quarry and silk dye works;
- Opportunity to create a must see destination;
- Encourage more passers by to stop, stay and spend;
- Opportunity to use National Park designation as a branding device;
- Link development to skills and employability training for local unemployed;
- Build critical mass of attractions to extend visitor stay.

loch lomond shores

shop, eat, play ~ naturally



loch lomond shores
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loch lomond shores
shop, eat, play ~ naturally

Cheshire West and Chester

KING CANUTE:
Belatedly argues the case for green infrastructure ……!!!

Thank you! David.Anderson@cheshirewestandchester.gov.uk;

THE MERSEY FOREST
more from trees

Q&A

Forestry Commission England

TRAVELWISE MERSEYSIDE®

BIS Department for Business Innovation & Skills

GIFT-T! Green Infrastructure For Tomorrow - Together!

Investing in Opportunities

Dr Hugh Ellis

Head of Policy
Town and Country Planning Association

The Lie of the Land

THE MERSEY FOREST
more from trees

Dr Hugh Ellis

tcpa

Forestry Commission England

TRAVELWISE MERSEYSIDE

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GIFT-T! Green Infrastructure For Tomorrow - Together!

Paul Nolan

Director

The Mersey Forest

The Mersey Forest – Setting The Scene For Growth

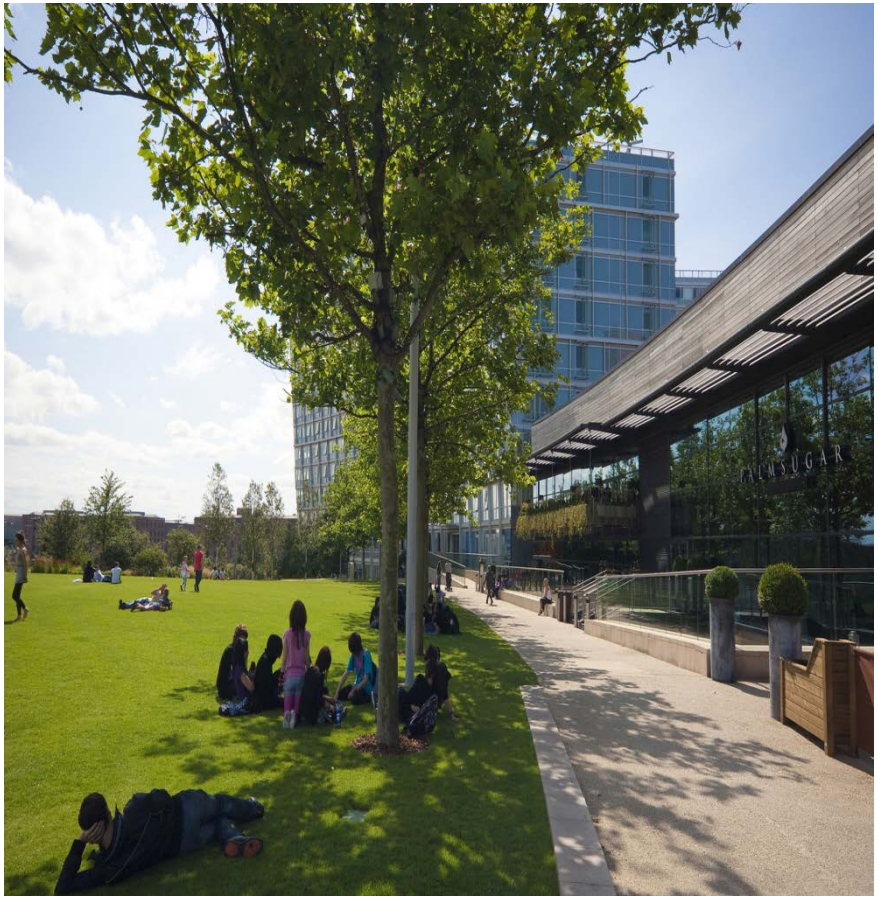
Setting the Scene for Growth

Paul Nolan
Project Director
The Mersey Forest

GIFT-T!
Green Infrastructure For Tomorrow - Together!

Opportunities

- Atlantic Gateway
- From data to delivery
- Green infrastructure engineering!
- Beyond valuation
- Funding green infrastructure



GIFT-T!
Green Infrastructure For Tomorrow - Together!

More from trees

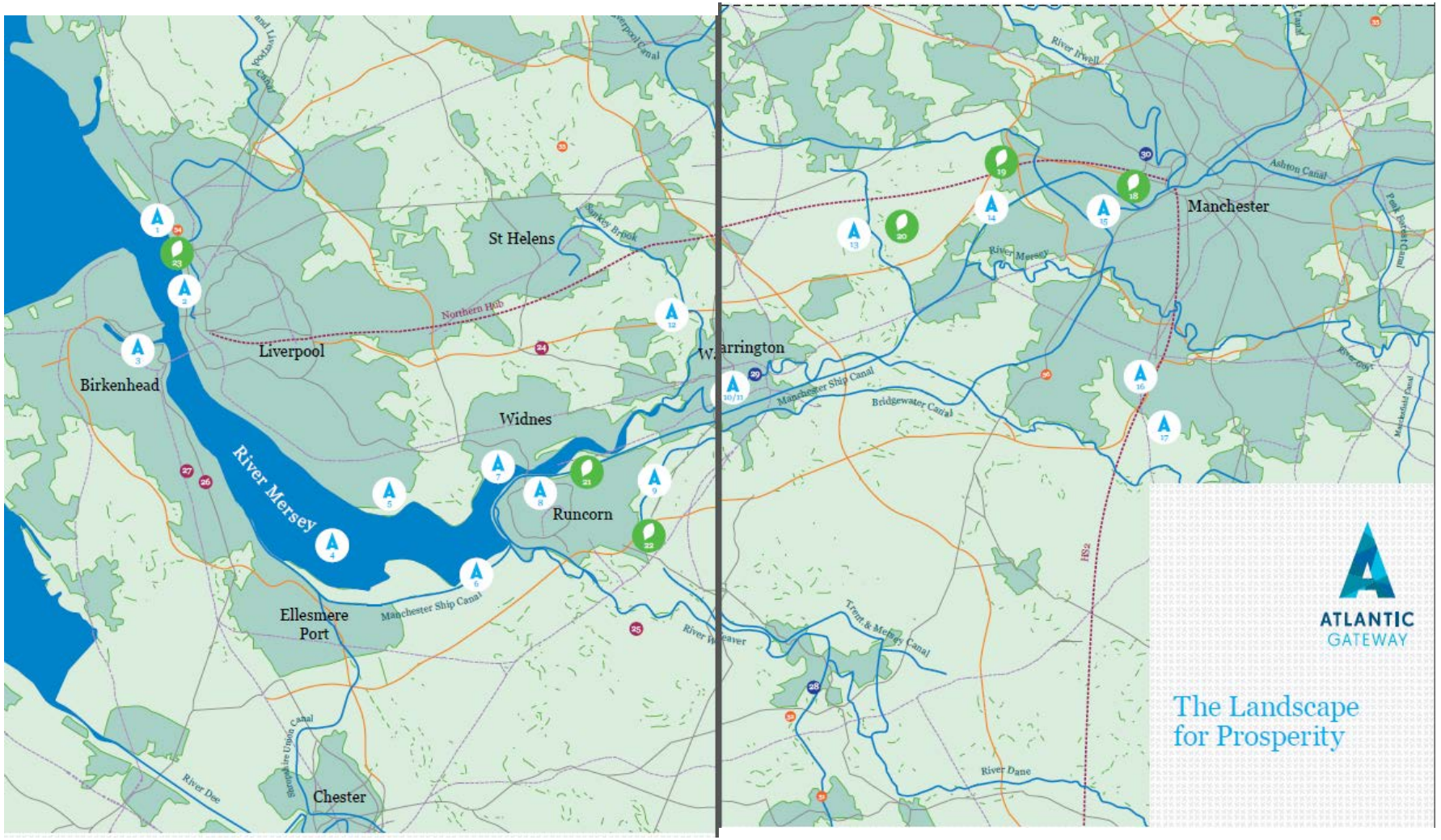
The Mersey Forest Plan

GIFT-T!
Green Infrastructure For Tomorrow - Together!

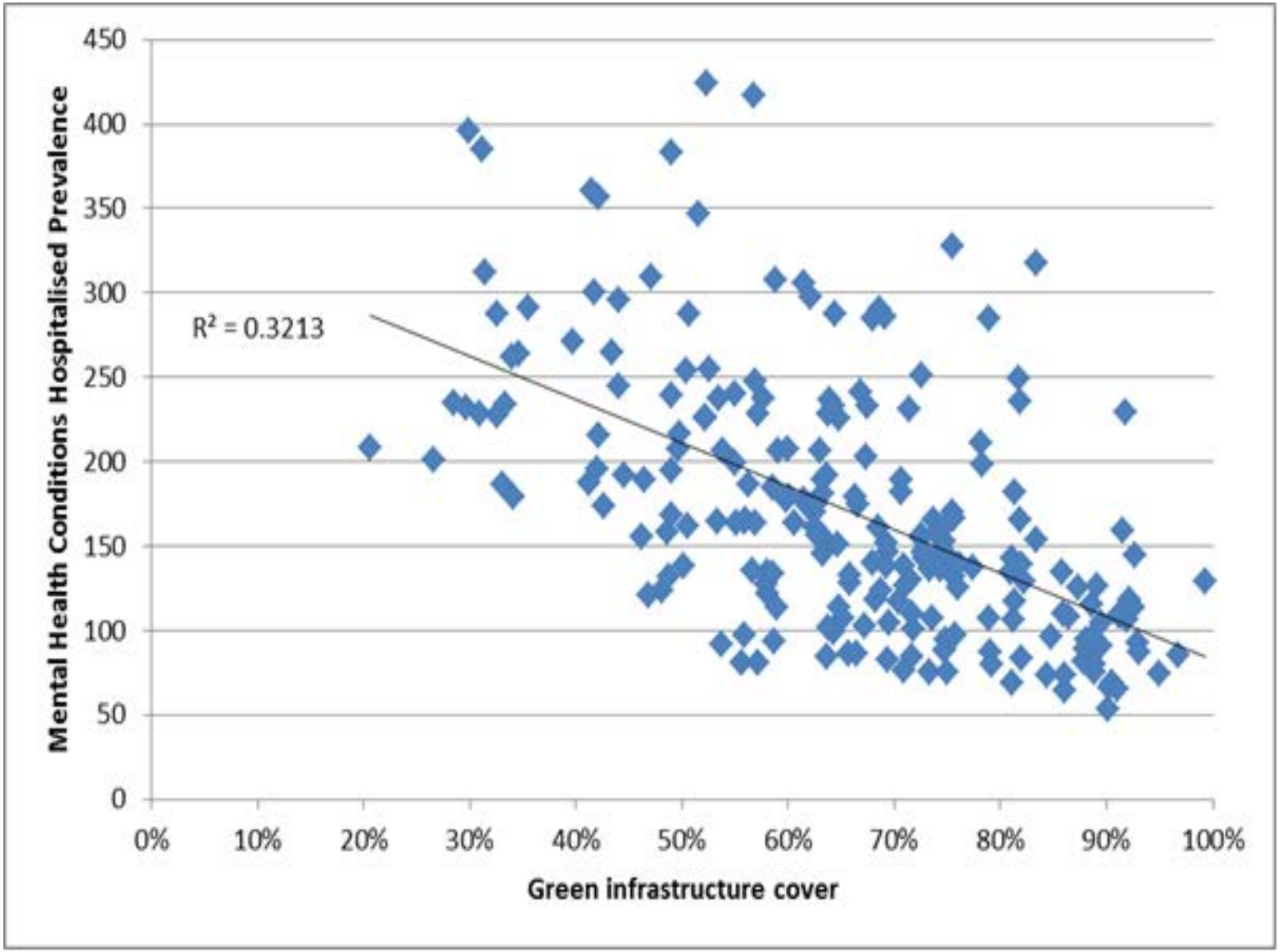
Our vision is to get ‘more from trees’ to help make Merseyside and North Cheshire one of the best places in the country to live.

Opp 1 - Atlantic Gateway Parklands

I want to see the Atlantic Gateway go from being a brilliant concept to a transforming reality.
(George Osborne – 23rd June 2014)

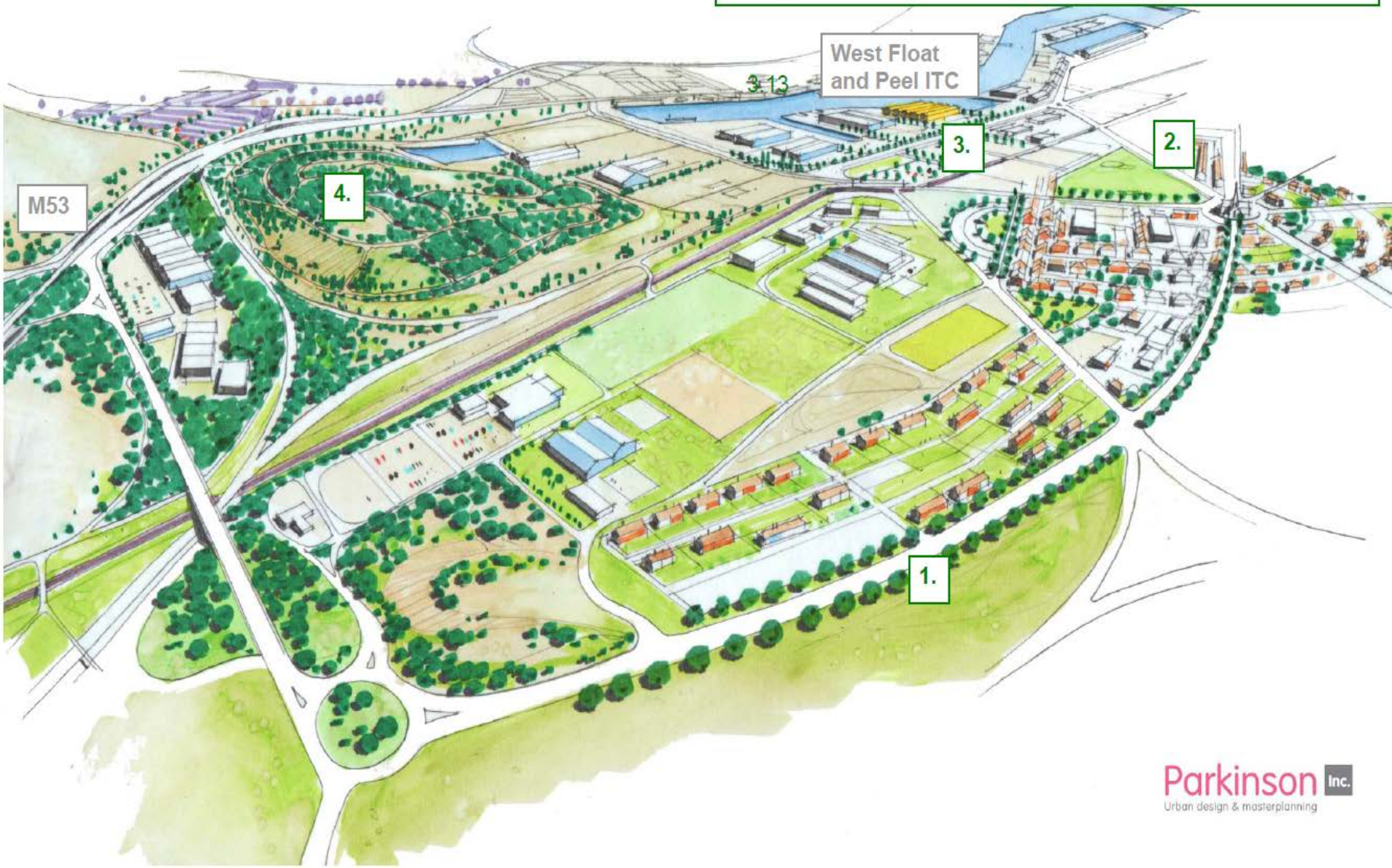


Opp 2 - Data – Design - Delivery



THE MERSEY FOREST
more from trees

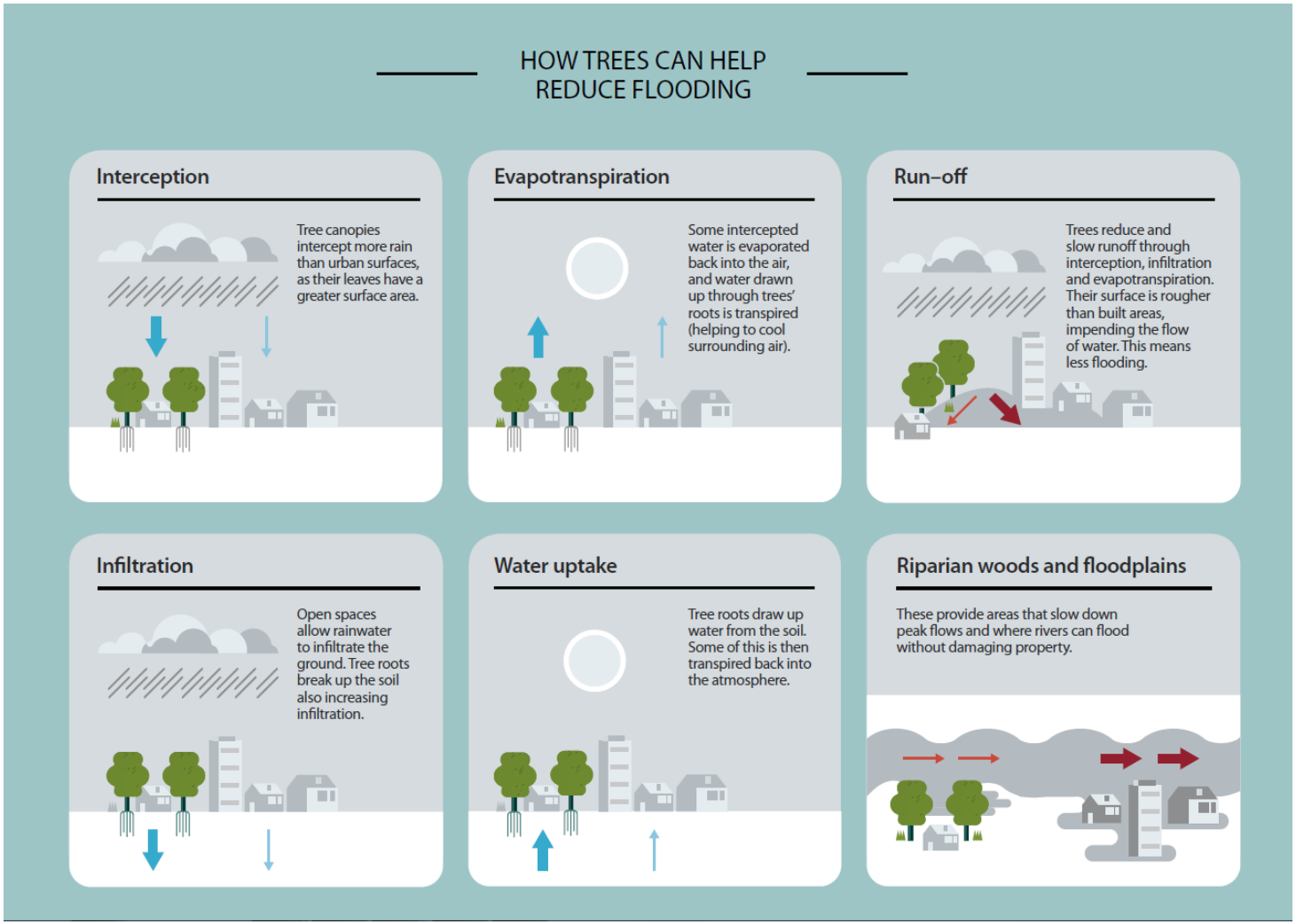
Western Approaches – tree planting connecting pedestrian, cycleway, rail and road approaches from the west to West Float and East Float. Bidston and Birkenhead North Stations, and the M53 are key approaches and arrival points into Wirral Waters, Wallasey and North Birkenhead



Parkinson Inc.
Urban design & masterplanning


Junie's

Opp 3 - GI Engineering



Natural England Research Report NERR057

Microeconomic Evidence for the Benefits of Investment in the Environment 2 (MEBIE2)

Is it worth it?

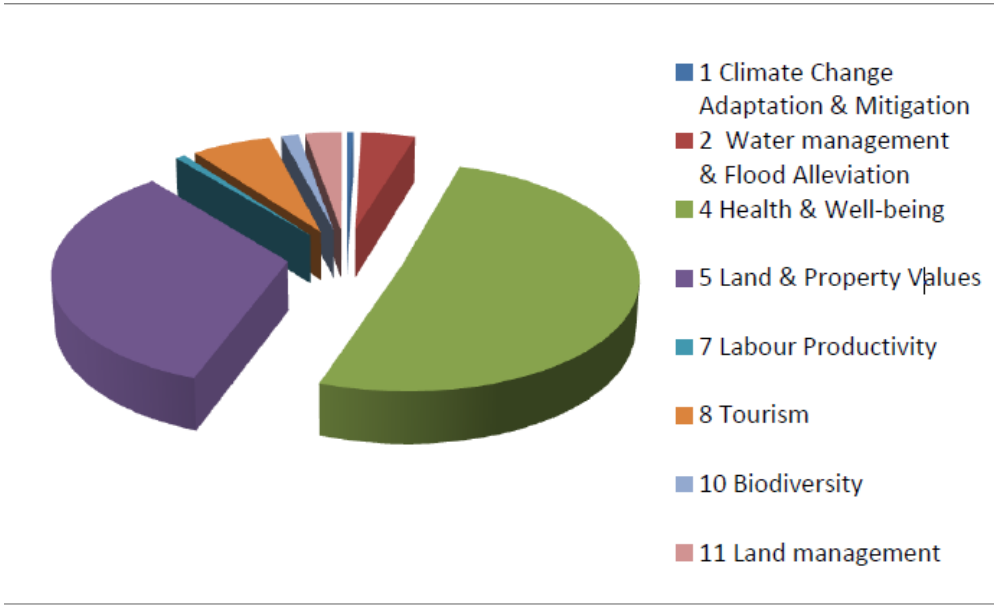
Building natural value for sustainable economic development

The green infrastructure valuation toolkit user guide

Result for Green Streets Wirral Waters

- Contribution to **GVA -** for Wirral Waters the toolkit identified value of **£12.7m**

- **Wider economic benefit** - For Wirral Waters the toolkit identified value of **£16.7m**



Opp 4 - Beyond Valuation!

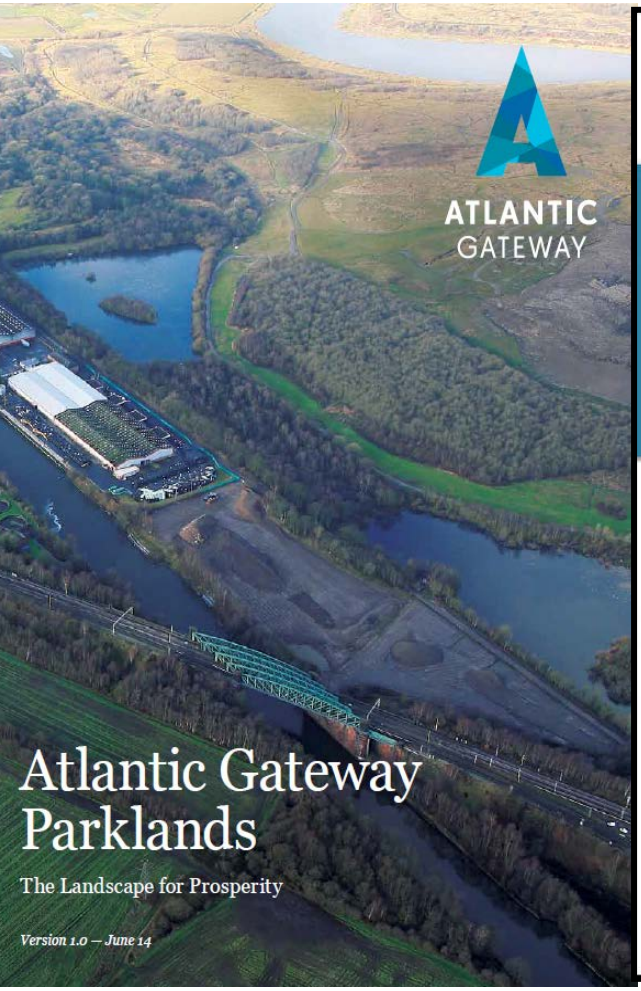
- **GI increasing Land value** - encourages investment generally and allows sites to more easily be brought forward for development.

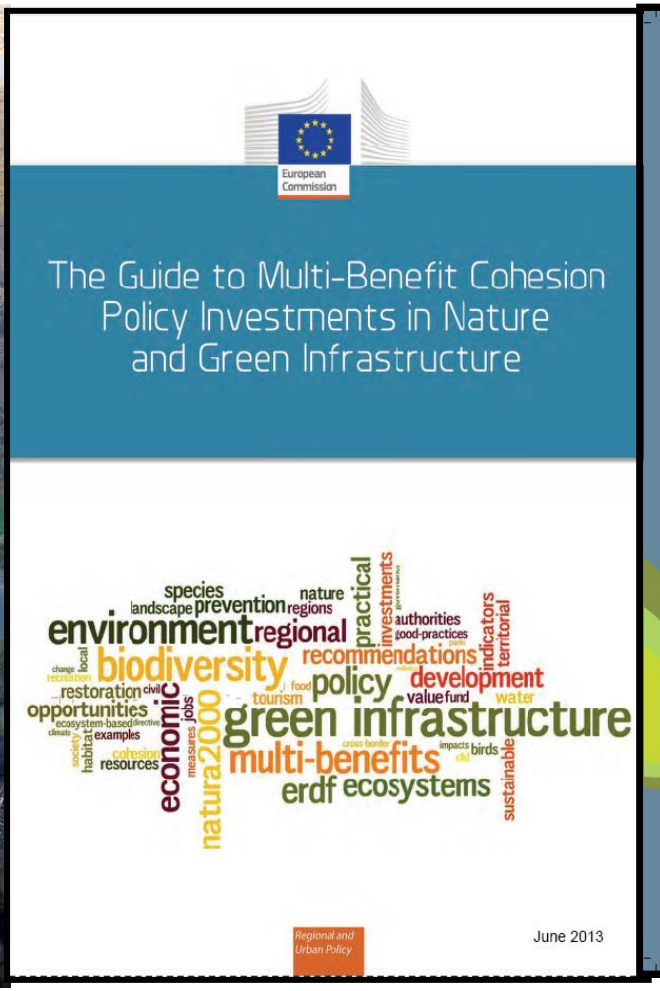
$$IRR = r_1 + \frac{(NPV_1) \times (r_2 - r_1)}{(NPV_1 - NPV_2)}$$

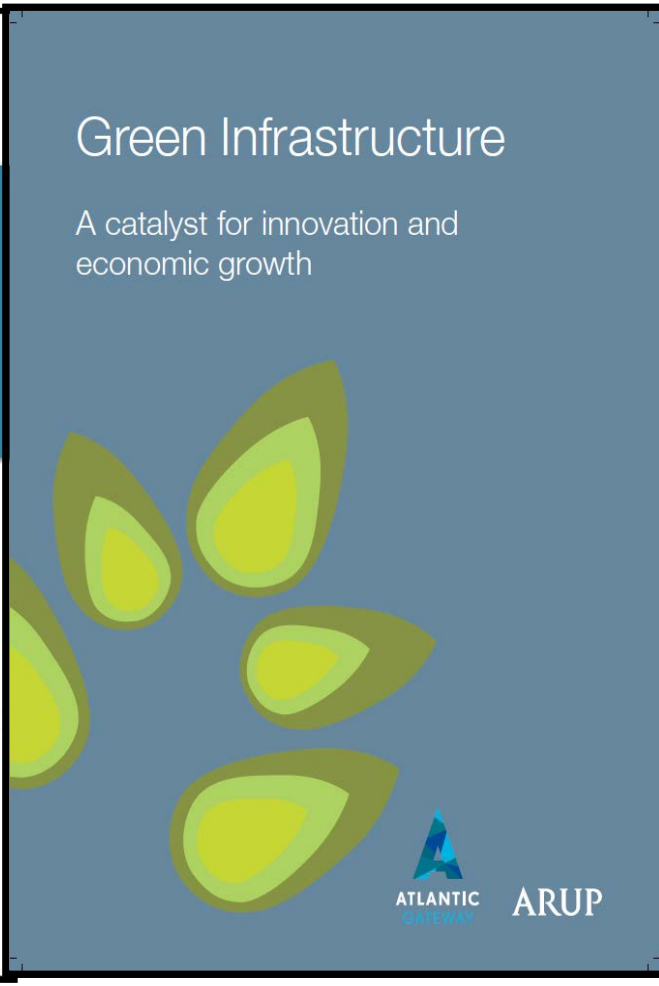
- **Reducing the time to development** – bringing forward the date at which income is received.

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

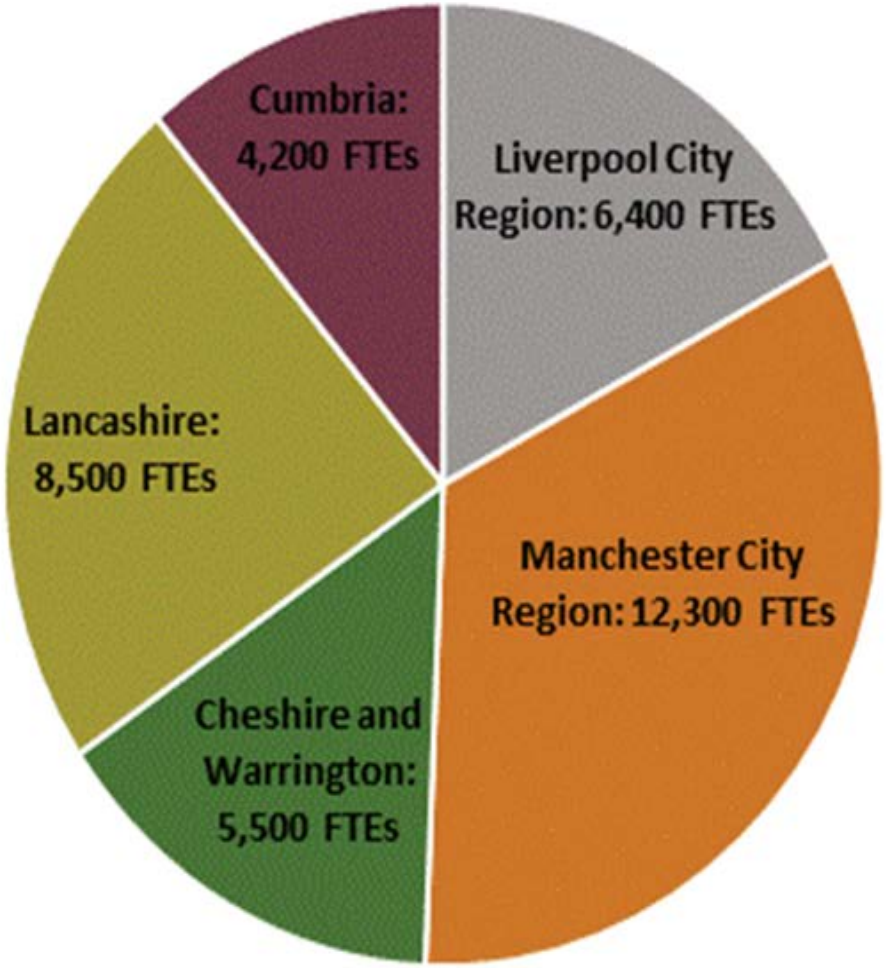
Opp 5 – Getting resources





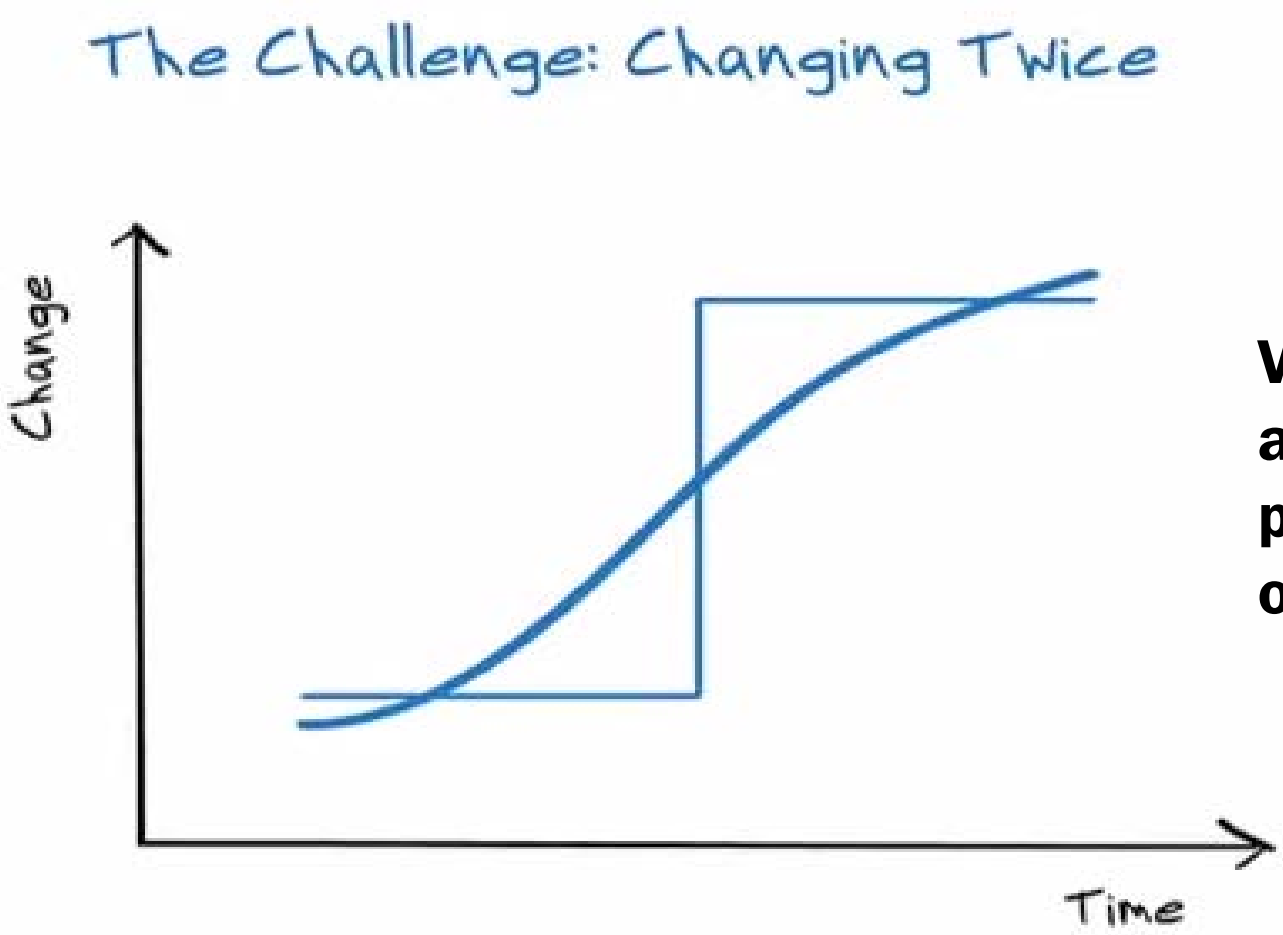


Don’t forget jobs in green infrastructure sector too



“To change is to change twice”

Luc de Brabandere - Ecole Centrale Paris



Vision -
a new
perception
of the world

Thank You

GIFT-T!
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