Test

Economist

Engineer

Lawyer

Accountant

None of the above!

Shaping Cities in a Complex World

Martin Powell
Director of Projects
September 2009

“the bank we can never bail out”

•Editorial New Scientist 18 October 2008

Building a Great Global City

- London is a dynamic, exciting city, a hub for business, a magnet for tourists, a stage for international sporting and cultural events and home to a diverse population.

- London speaks over 300 languages and practices 14 different faiths.

The London Development Agency

- The LDA aims to improve the quality of life for all Londoners; working to create jobs, develop skills, and promote economic growth.

- The LDA invests to deliver the Mayor's vision for economic development in London: the Economic Development Strategy (EDS). We have three areas of focus:
  - Jobs – promoting business growth
  - Skills – providing the skills that employers need
  - Growth – developing and regeneration of communities

Governance and funding

- The London Development Agency (LDA) has an annual budget of £500m per year, and employs around 500 staff
- It is accountable to the Mayor of London
- Performance targets are set in consultation with the Mayor and agreed by the Secretary of State

Working relationships

- We work with the 33 London Boroughs, sub-regional partnerships, Government departments and key partners from the voluntary, community, public and private sector.

- The LDA is one of nine English Regional Development Agencies (RDAs) across the UK. We work with RDAs across England to ensure a wider co-operation, so that our regional work achieves a national impact.

Climate Change

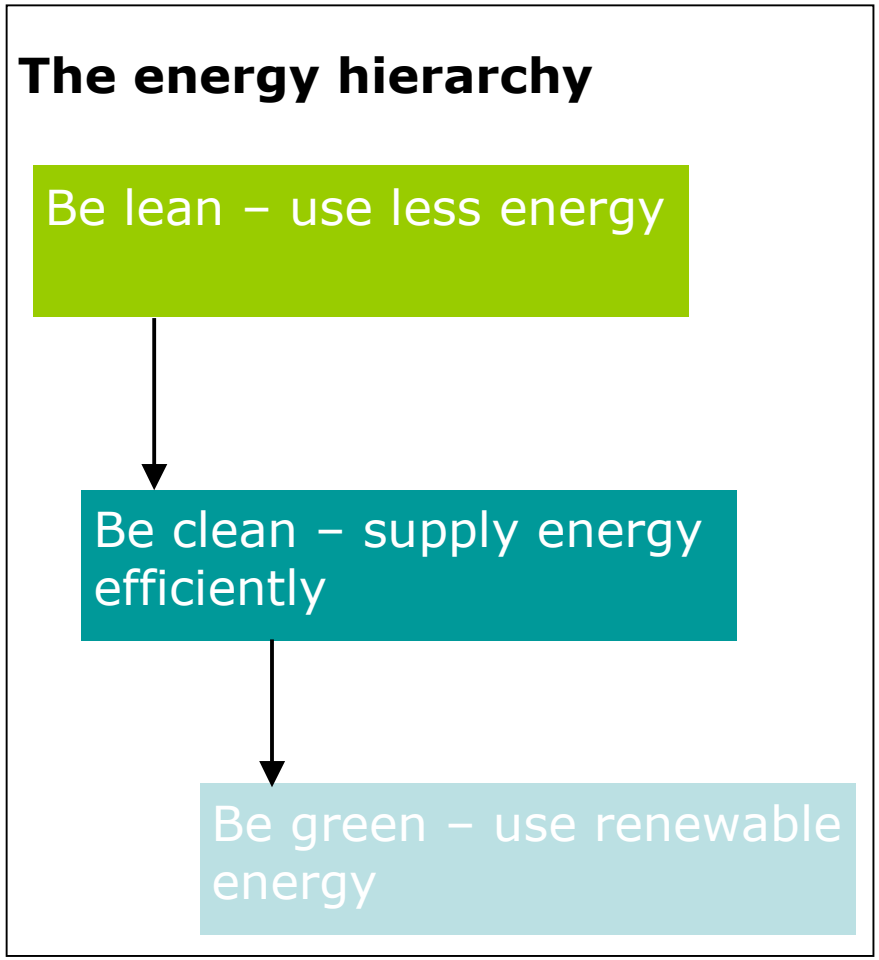
- Mayoral commitment to address the challenge of climate change, to improve the quality of London's environment and to reduce London's environmental footprint:
  - Climate risks to London as a world city
  - Urban Heat Island effect
  - Damage from flooding
  - Availability of water resources

- A strategic approach to environmental improvements in London presents both a challenge and an opportunity for London's economy. Key opportunities for the LDA include:
  - business case for environmentally responsible business practice
  - innovation in sustainable design for London
  - Investment in public realm improvements
  - New business opportunities and supply chain development in environmental innovation and technology

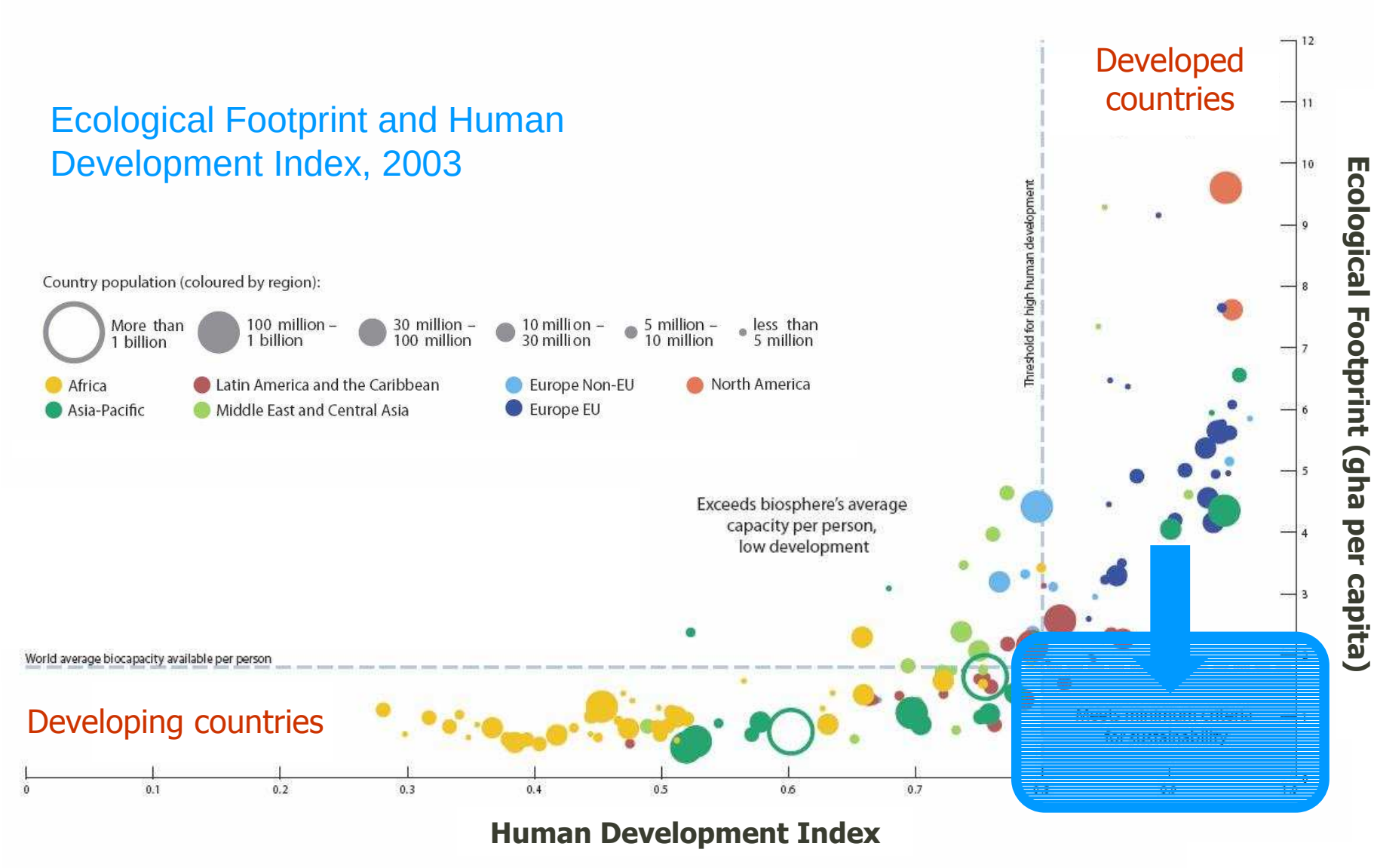
London's Energy Strategy

"There is still time to avoid the worst impacts of climate change, if we take strong action now."

Stern Review, October 2006.



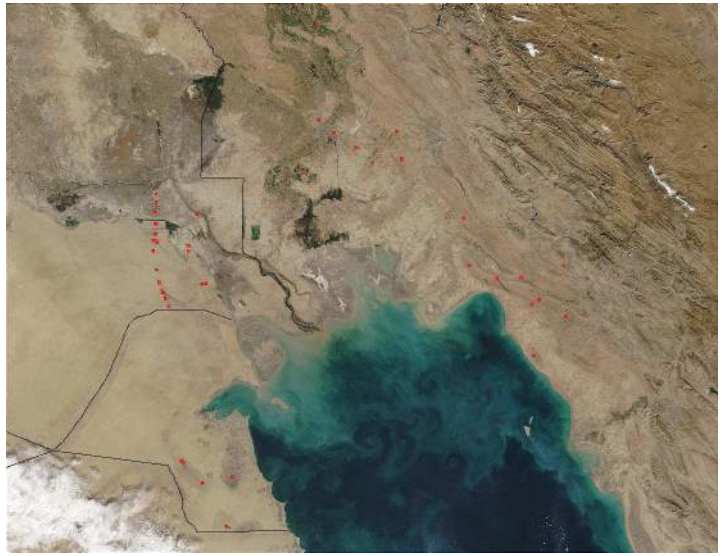
challenges: development - eco footprint



1

What kind of City

The 21st Century



Will effect the ways we live

Cities

50 % of the worlds population lives in cities

75% of the worlds energy are consumed by cities

80% of the world's GHG are emitted by cities

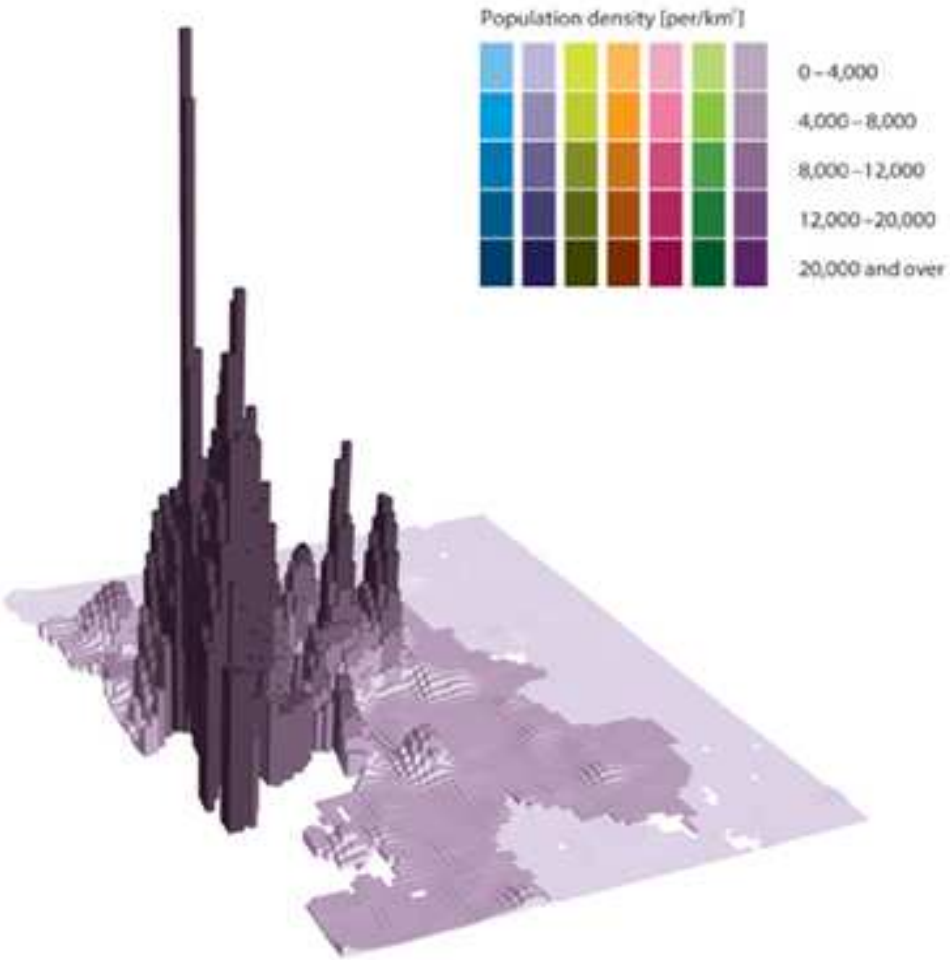
source: Clinton Climate Initiative

By 2050 80% of the worlds population will be in cities

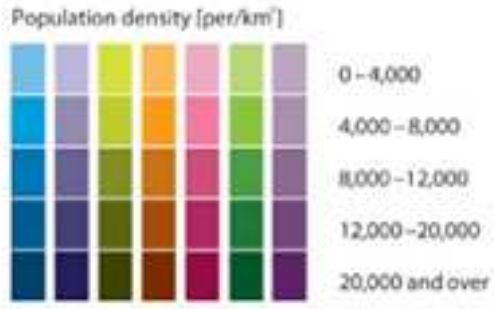
Cities are
thrilling, exciting,
creative, liberating,
cruel and inhuman

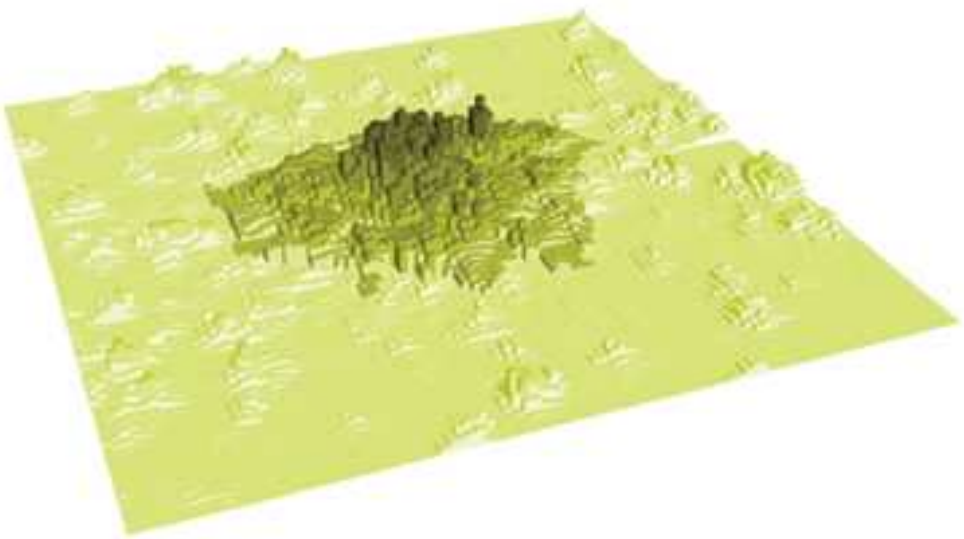
What kinds of city do we want

Mumbai - 34,000 people per km (sq)



London - 4500 people per km (sq)



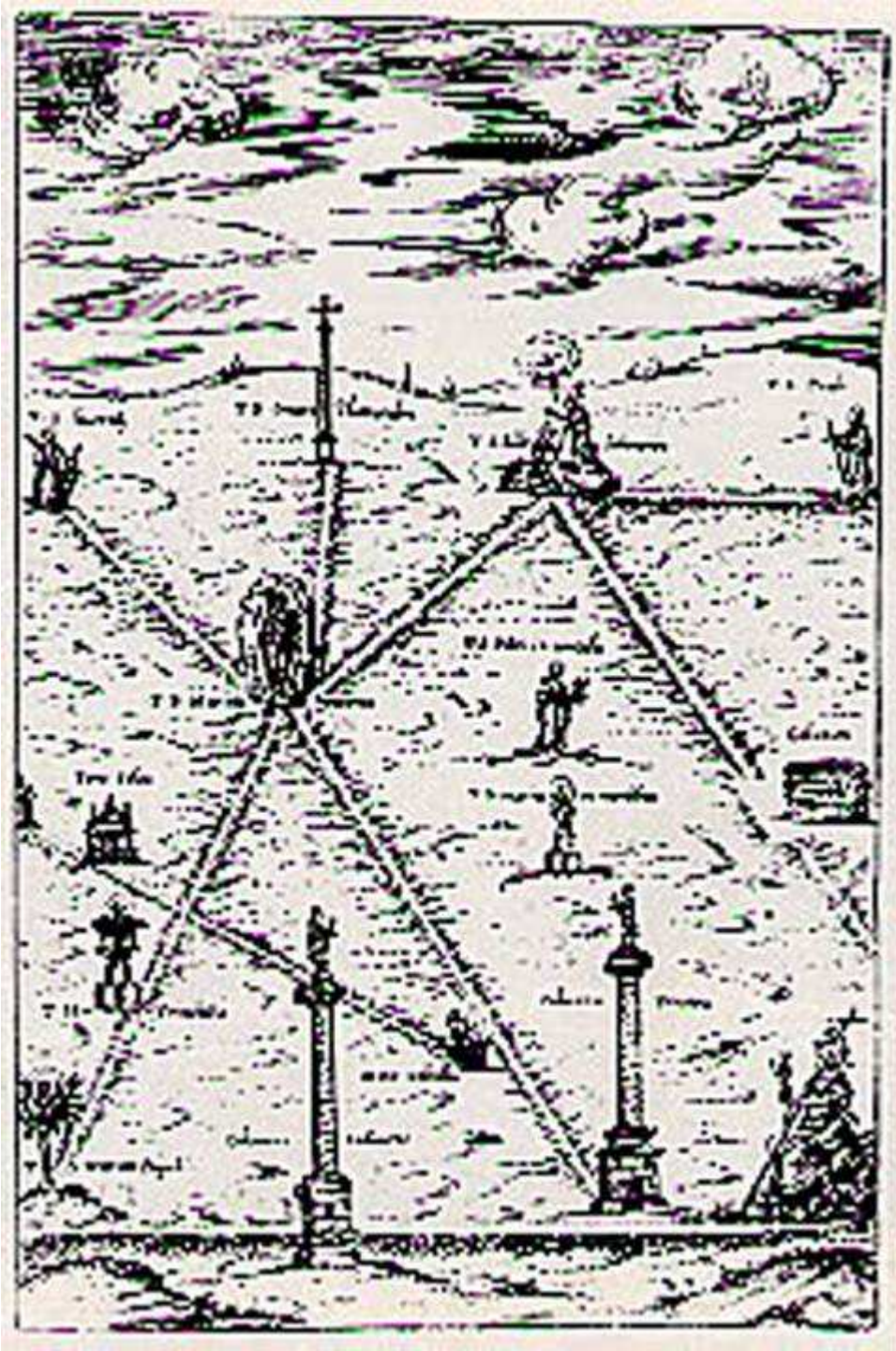


Rising Urban Stars

technology

economy

environment




WEST
SMITH
FIELD
HOLBOURN
Temple
Queen Hith


Smithfield
Piazza
Piazza
Piazza
Piazza
Key
Key
Piazza
Billingsgate
Custom House


WEST SMITH FIELD
HOLBOURN
Temple

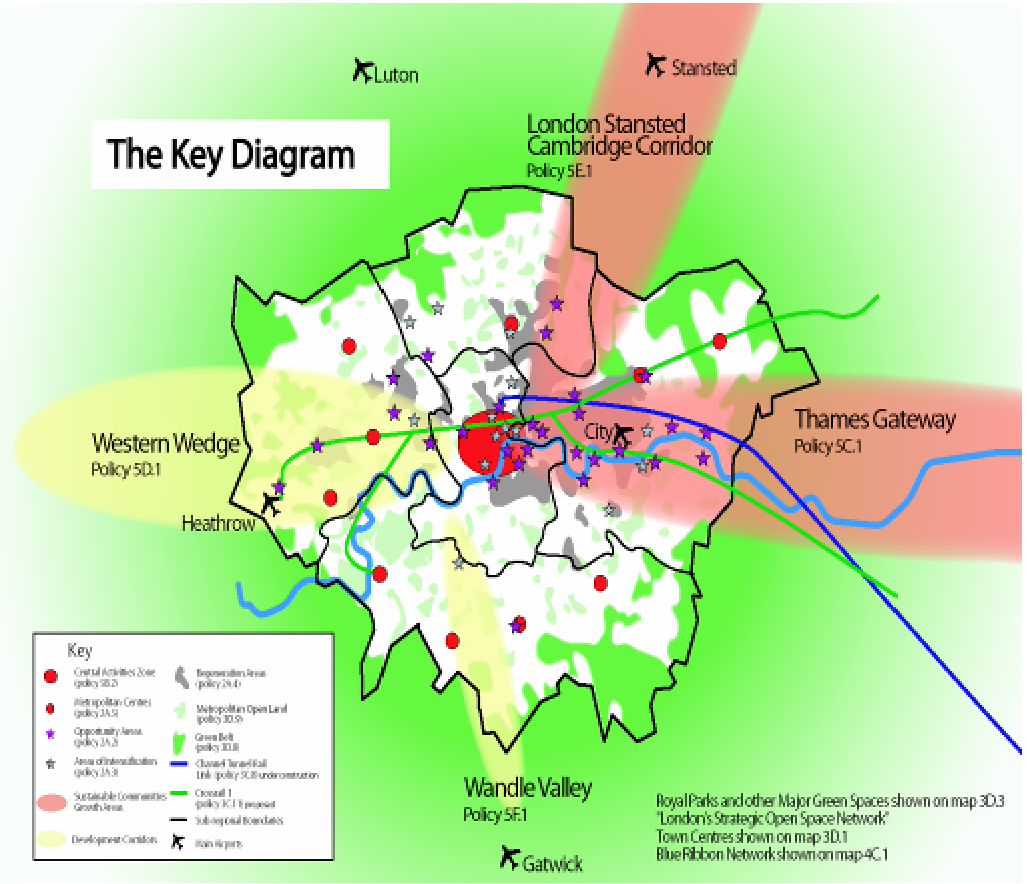
2

Shaping our Obelisks

The London Plan

- Compact City Principles

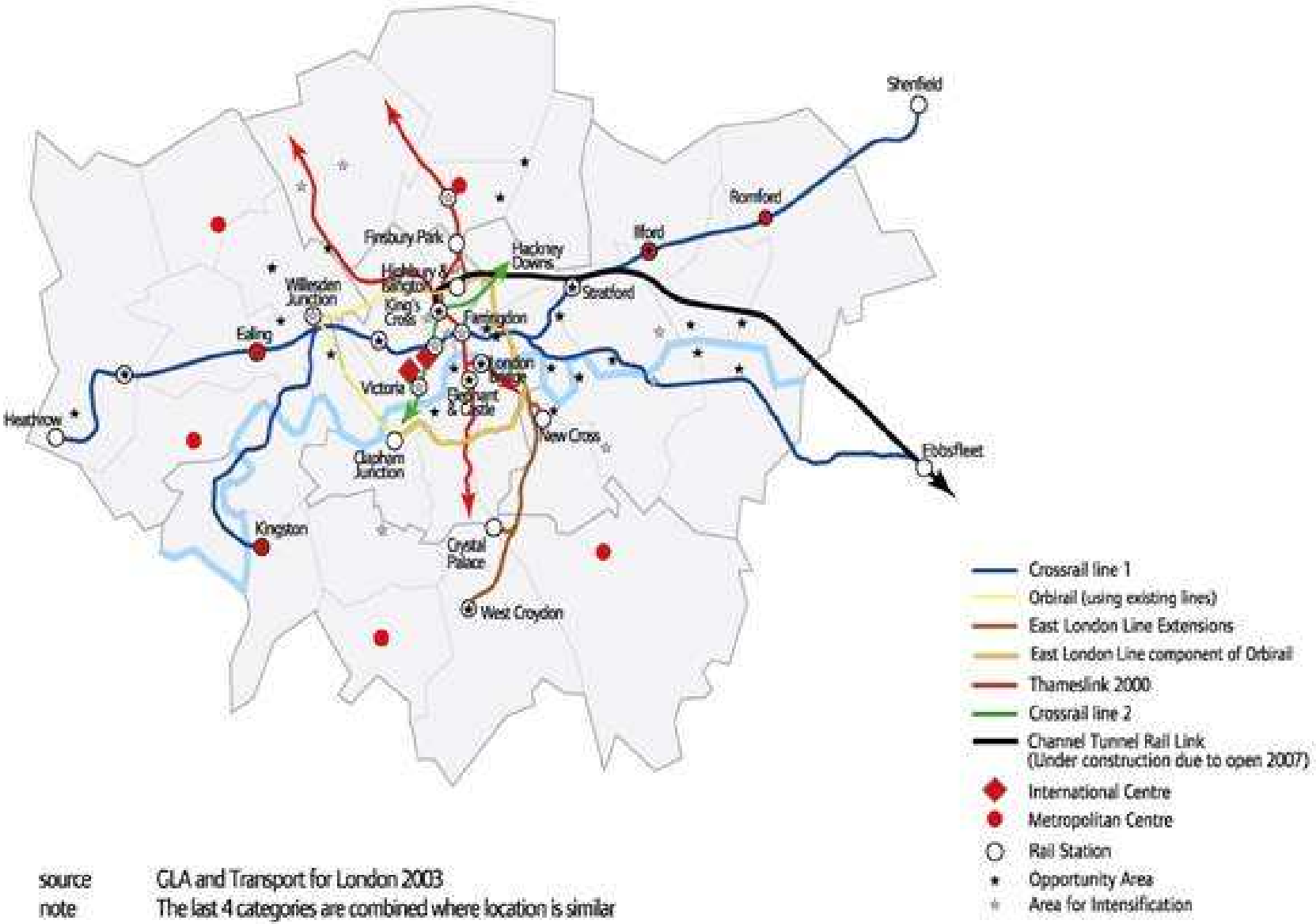
- Well designed, compact, connected
- Mix of uses
- Integrated with public transport
- Adaptable for change
- Development on brownfield sites
- Growth based on public transport
- Development on a human scale



The shaping of our Investment

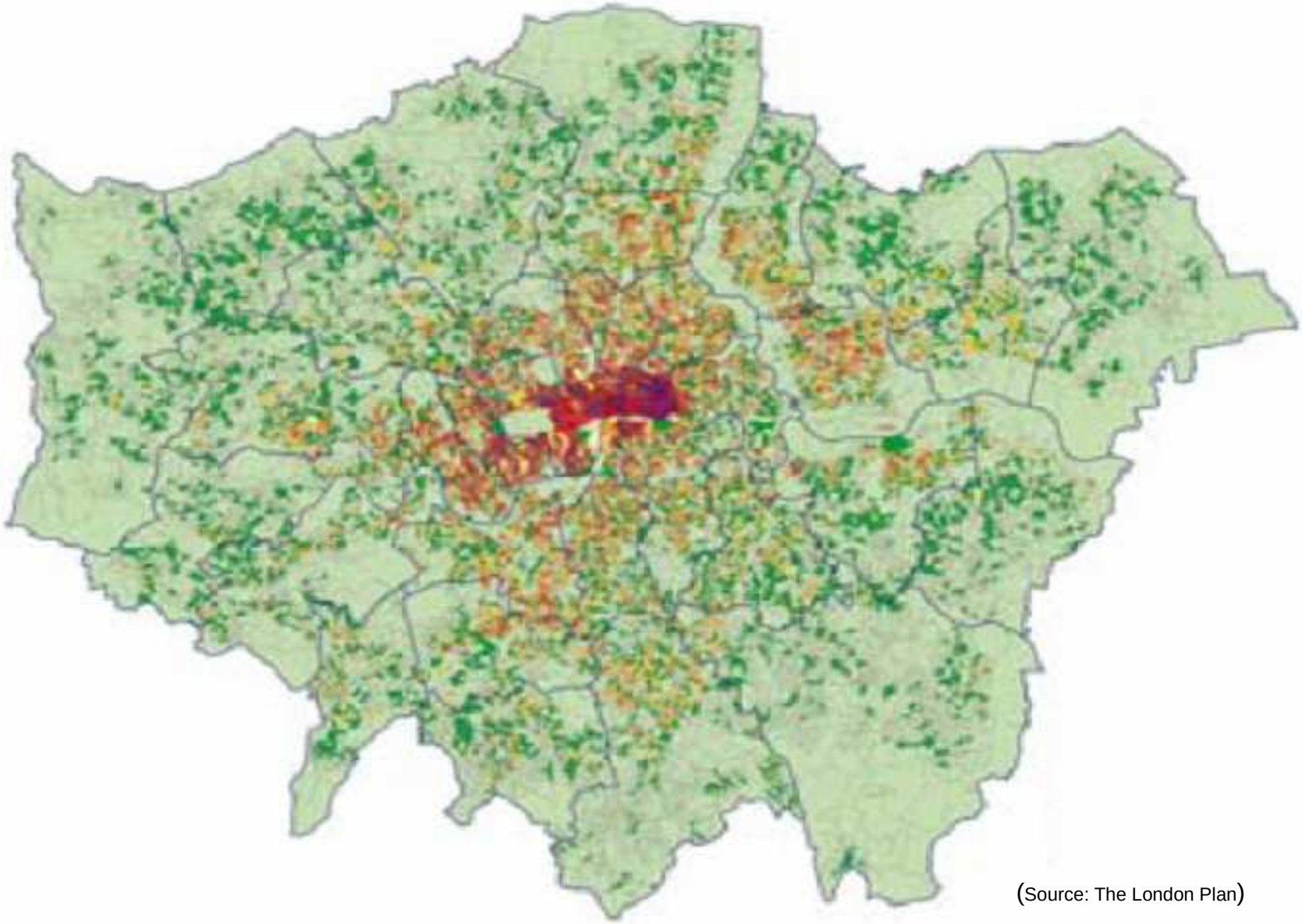
- LDA as landowner and developer
- Sustainable development expectation from the LDA
- How sustainable development will be delivered – the process
- Policy and planning basis
- Over 70 sustainability standards to be met:
  - Energy Efficiency
  - Renewables
  - Water Use
  - Flooding and Surface Water
  - Open Space & Biodiversity
  - Materials
  - Waste & Recycling
  - Inclusive/Disability
  - Construction Practice

Massive New Transport Investment

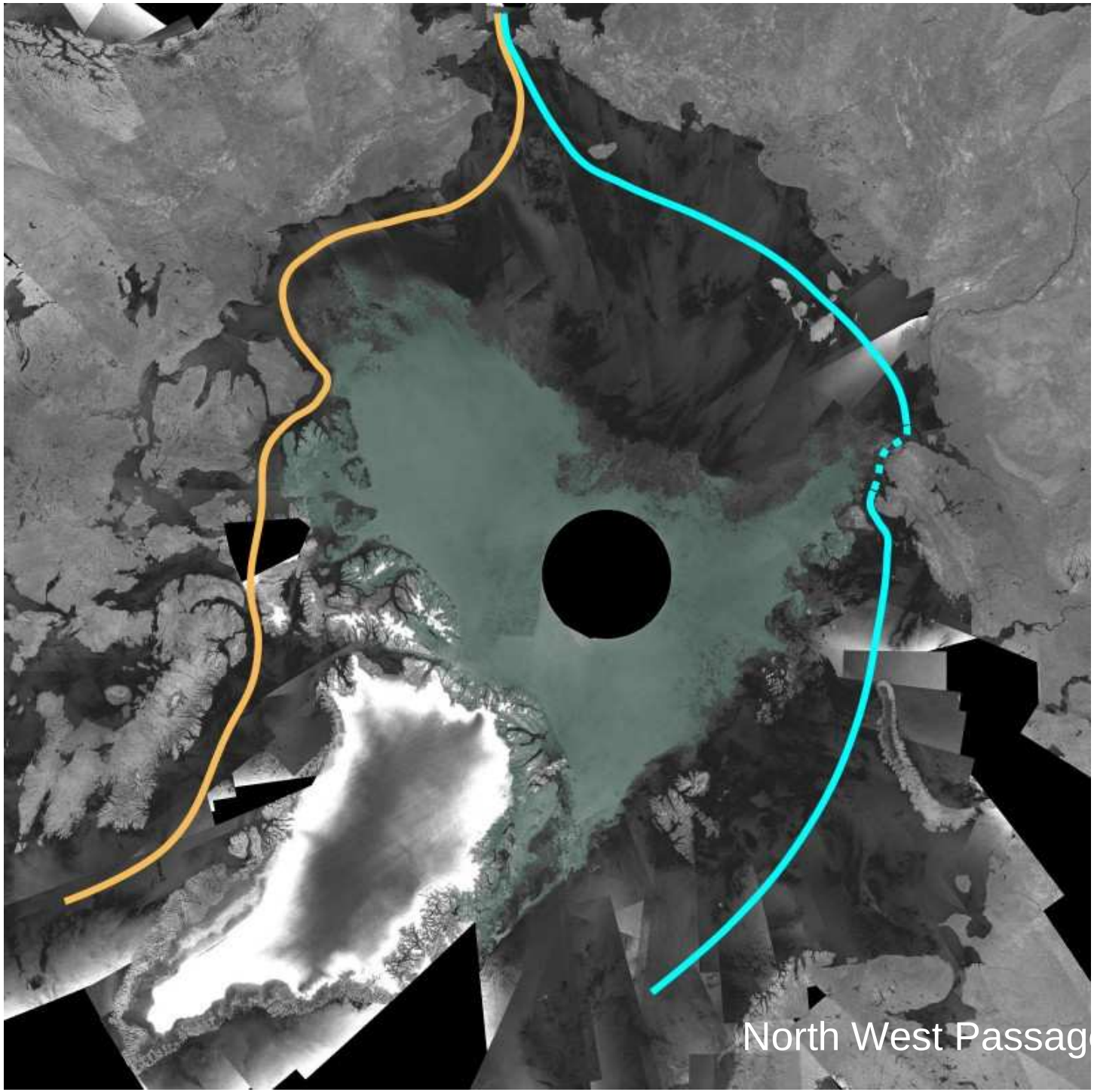


source GLA and Transport for London 2003
note The last 4 categories are combined where location is similar

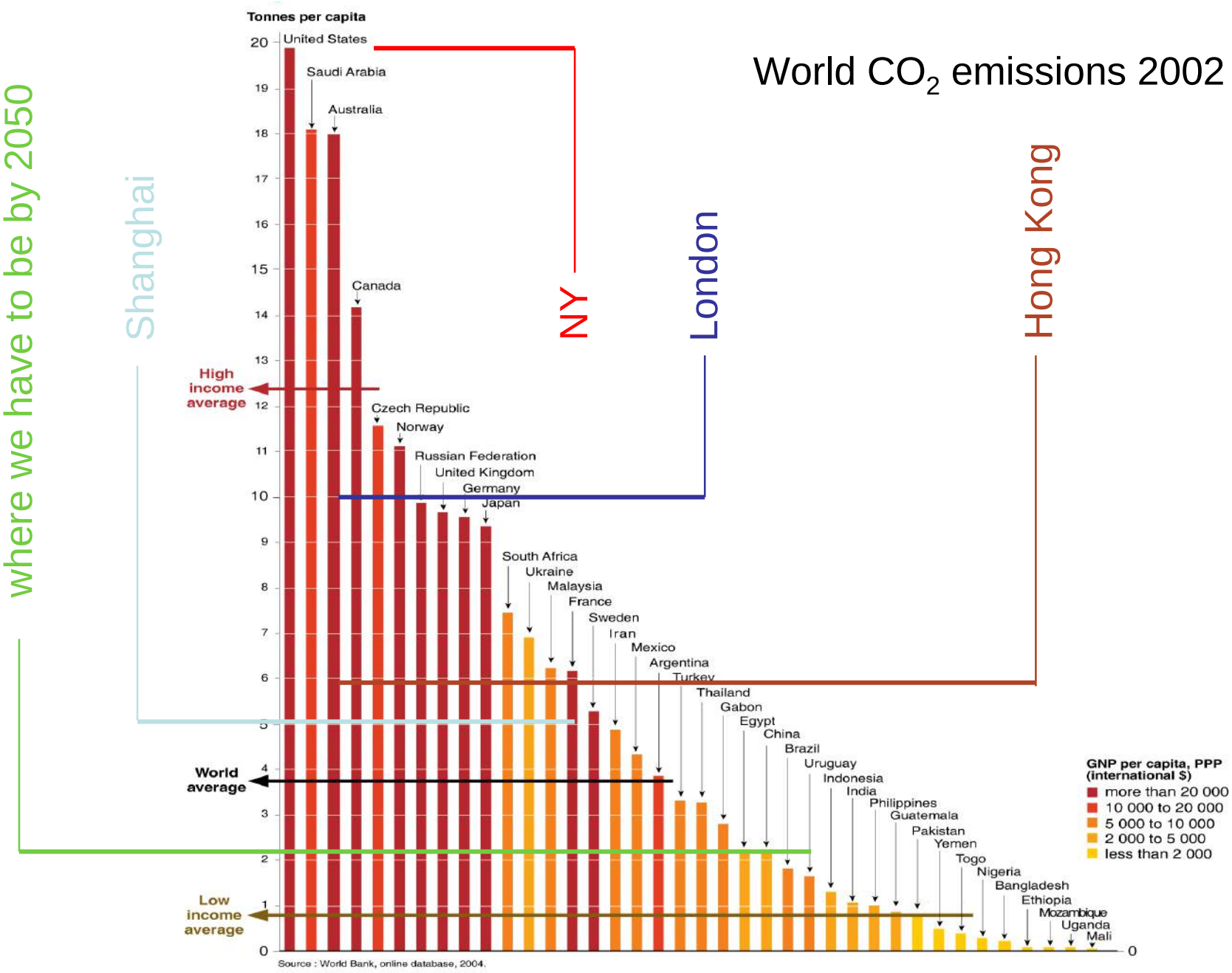
London’s heat load density distribution



(Source: The London Plan)

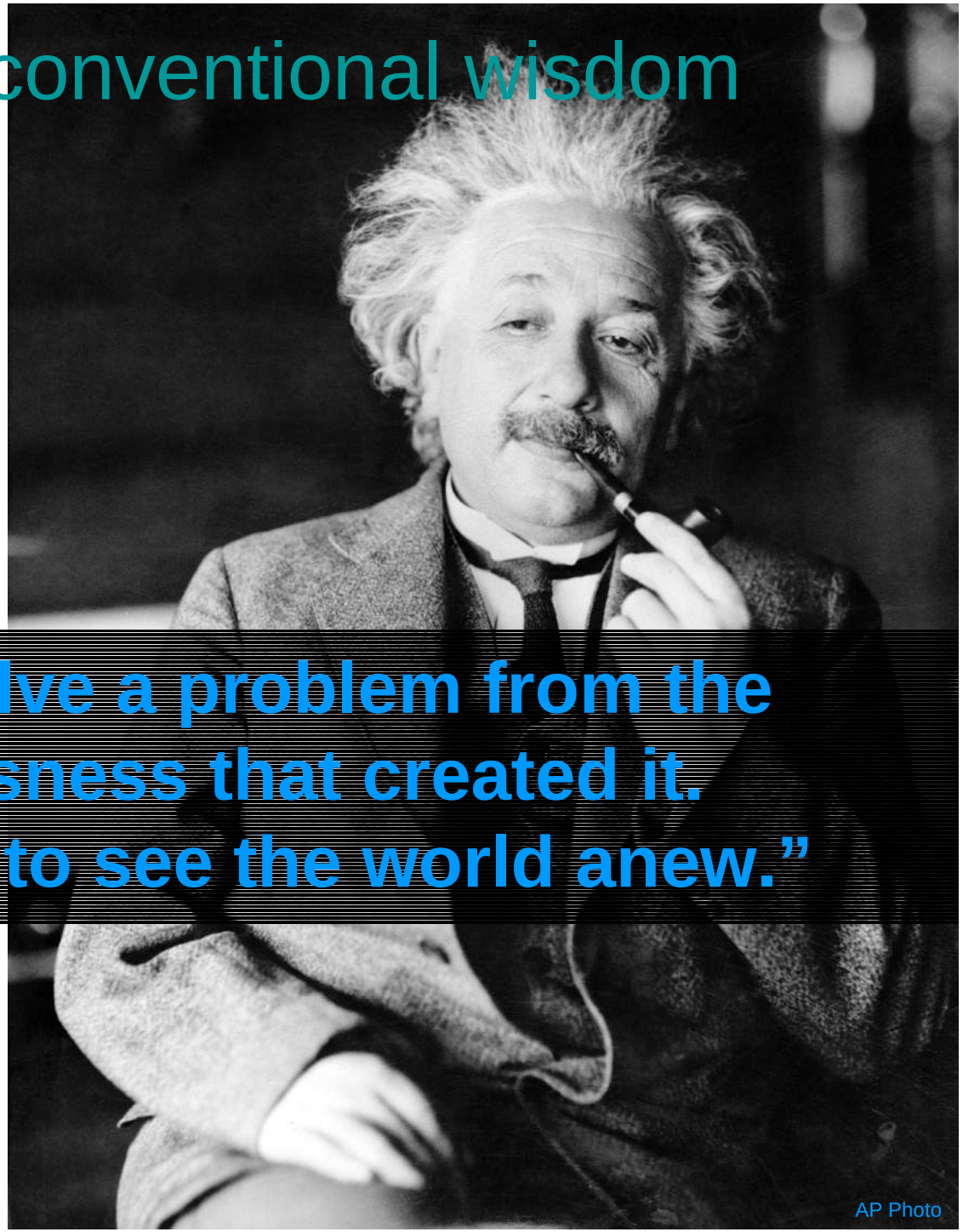

North West Passag

World CO_2 emissions 2002



United Nations Environment Programme / GRID-Arendal

challenging conventional wisdom



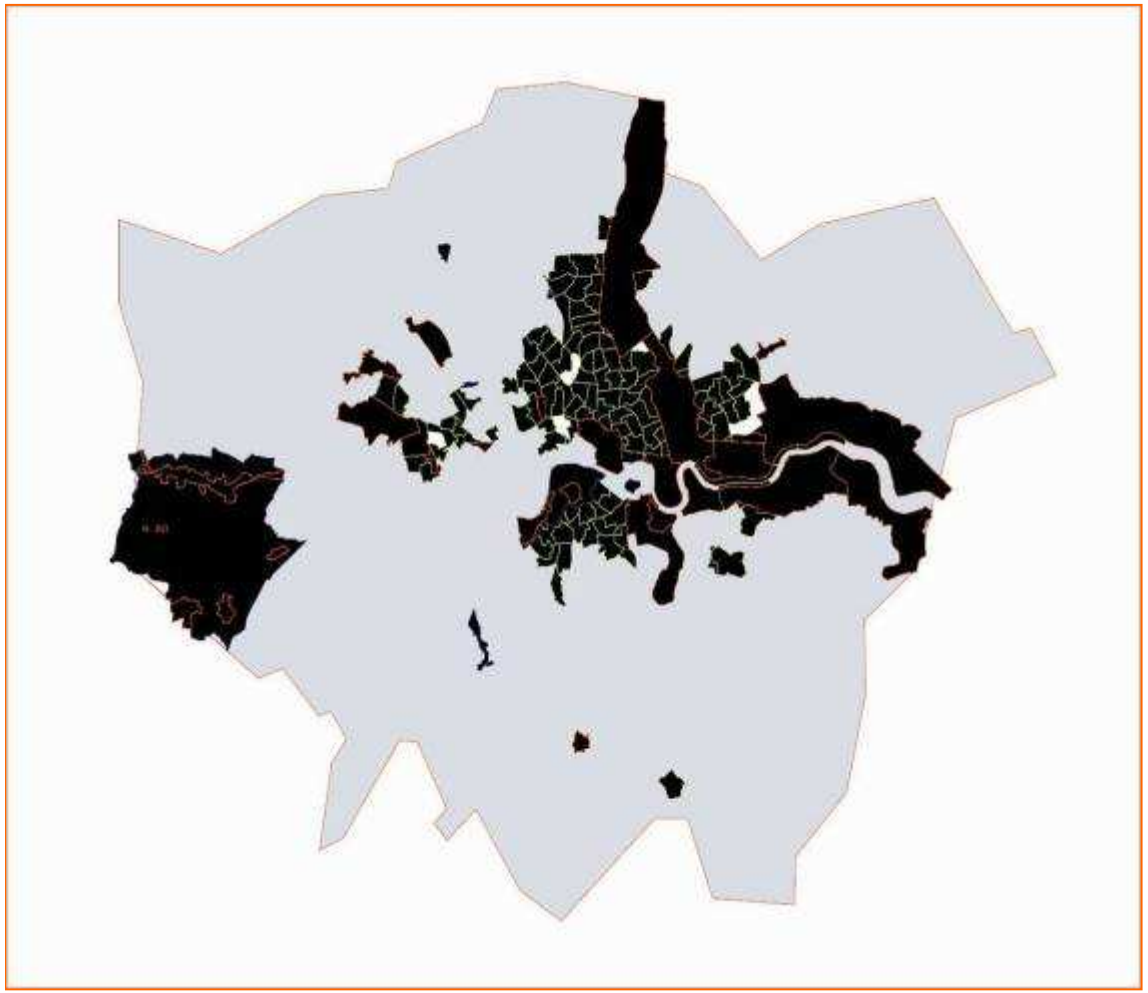
"You cannot solve a problem from the same consciousness that created it. You must learn to see the world anew."

Albert Einstein

The Shapers for our interventions

- Tight, ambitious targets set by the London Plan
- Exemplar Sustainability Standards to be achieved
- Alignment to Transport Investment
- Head Load densities to be mapped
- Culturally diverse city
- A real urgency
- A long way to go!
- New Thinking

The Big Obelisks

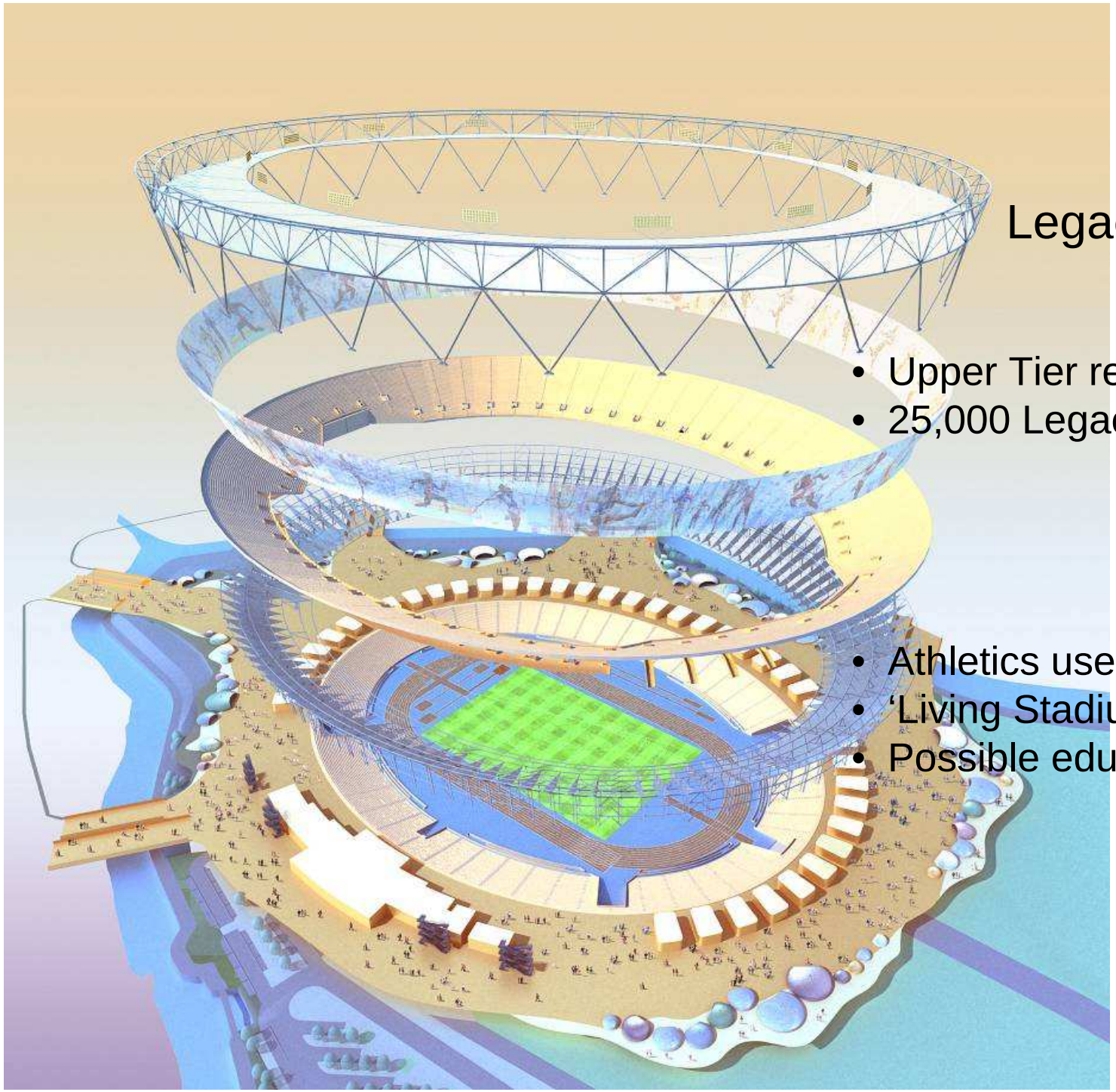


- Olympics Park
- Green Grid
- Trees
- Great Spaces
- River Use
- Green Enterprise District
- District Heating
- Zero Carbon Scheme

3

The Big Obelisks

6 July 2005



Legacy Stadium

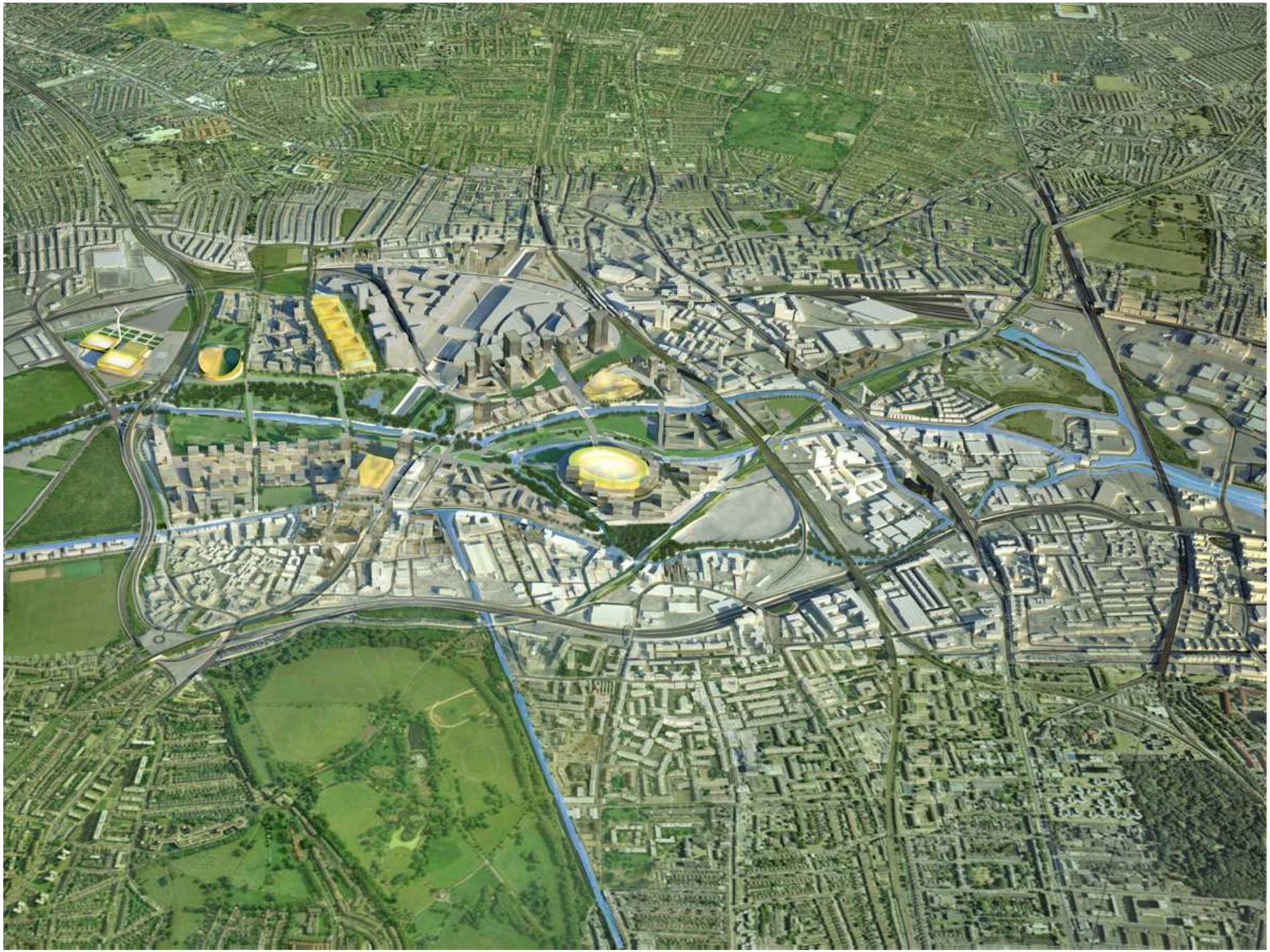
- Upper Tier removed (55,000)
- 25,000 Legacy Capacity

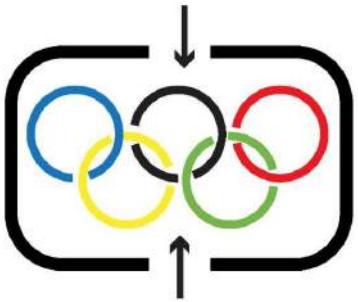
- Athletics use in legacy
- ‘Living Stadium’
- Possible education tenants

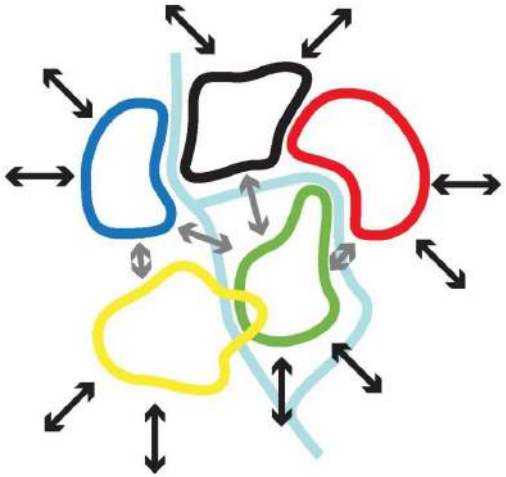
5 Olympic Legacy Venues

Legacy thinking from outset:

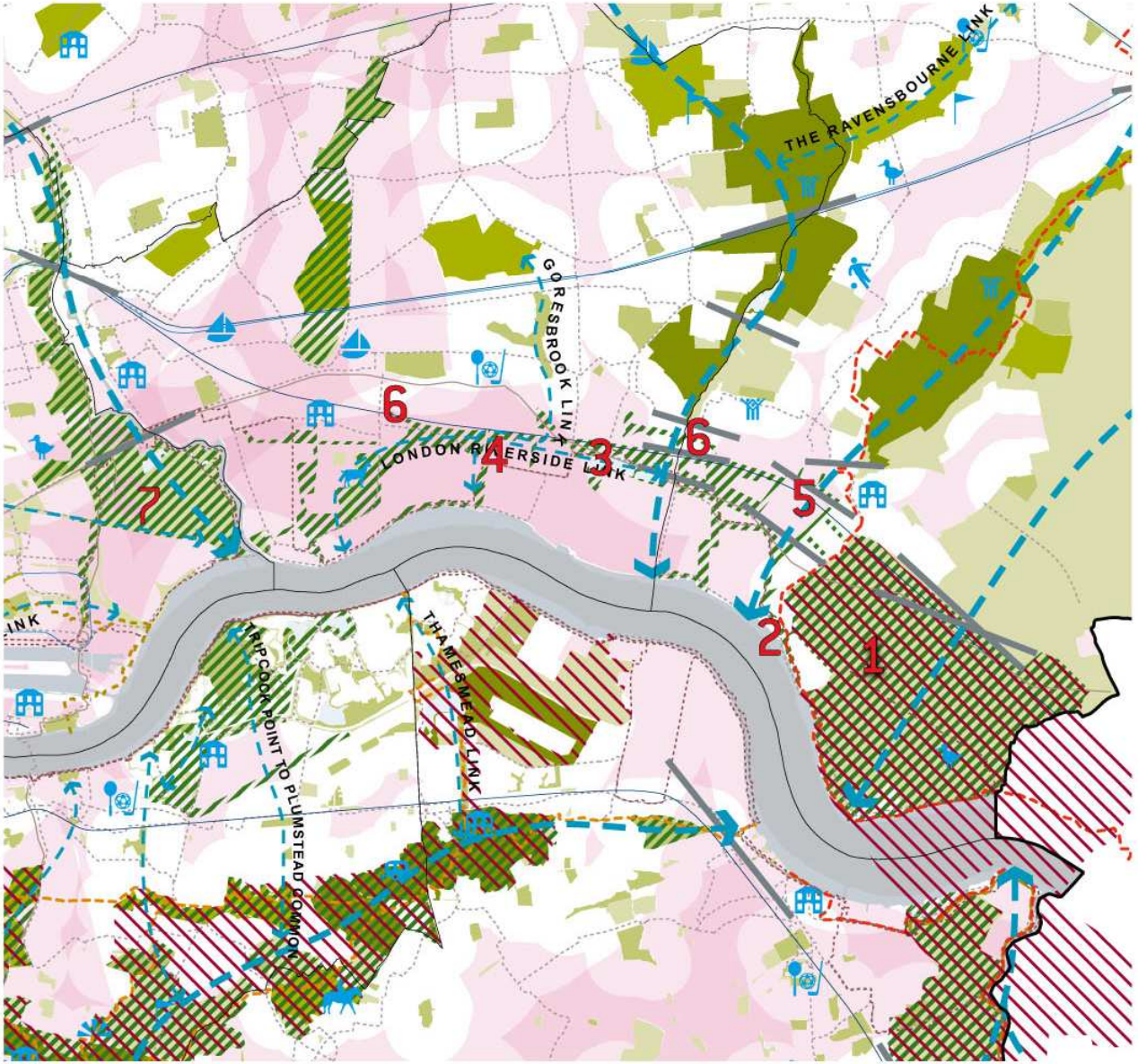
- Strategic Need
- Business Planning
- Financial Sustainability
- Environmental Sustainability
- Community Use
- High Performance Use
- Fully Inclusive







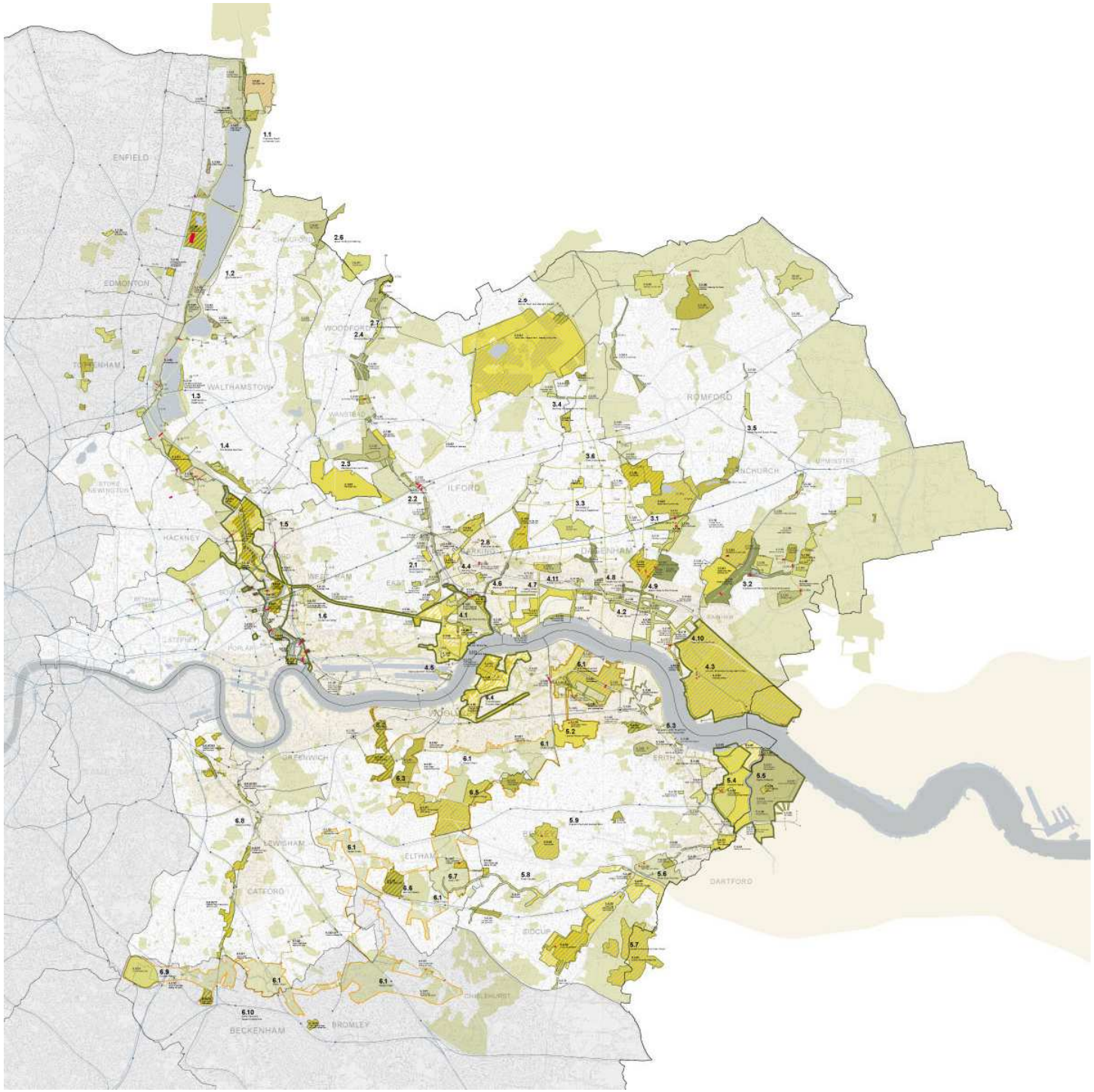
The memory of the Games?



Frameworks

1 Section 1 Area Strategy

This section examines the local and strategic context to establish a distinct vision and set of objectives for the area. These have been developed, in line with the SPG to the London Plan, to establish a framework for future change, project development and evaluation.



Projects

Over 300 green infrastructure projects are being prepared for delivery by public agencies or as an integral part of developments.

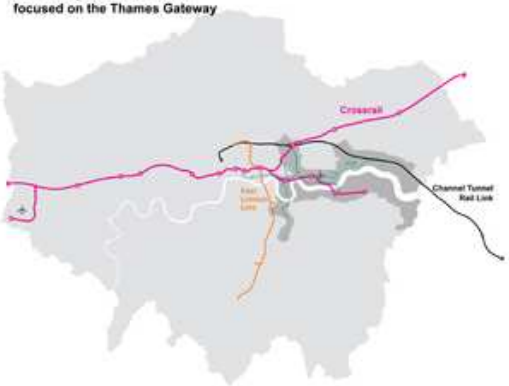
These are organised into 50 thematic and geographic clusters to link and coordinate the different delivery partner's efforts. in the six ELGG Area Frameworks.

Partners have defined a first phase of over 100 projects to be pushed forward over the next 3-5 years.


Bliar
no more war
MAB
FREEDOM FOR PALESTINE
MAB
STOP WAR
MAB
END OCCUPATION OF IRAQ
Bliar
BLAIR MUST GO!
Bliar
MAB
END OCCUPATION OF IRAQ

TRANSPORT INVESTMENT

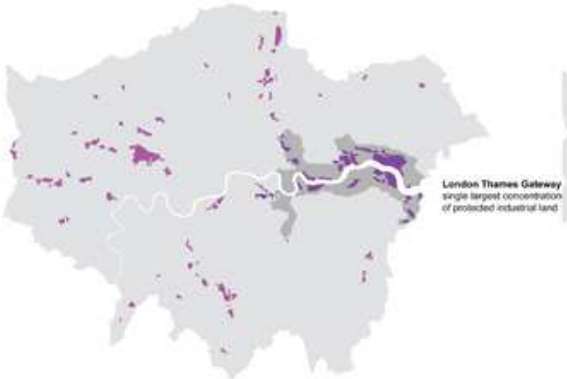
New transport infrastructure focused on the Thames Gateway



LAND OWNERSHIP

GROWTH CORRIDORS

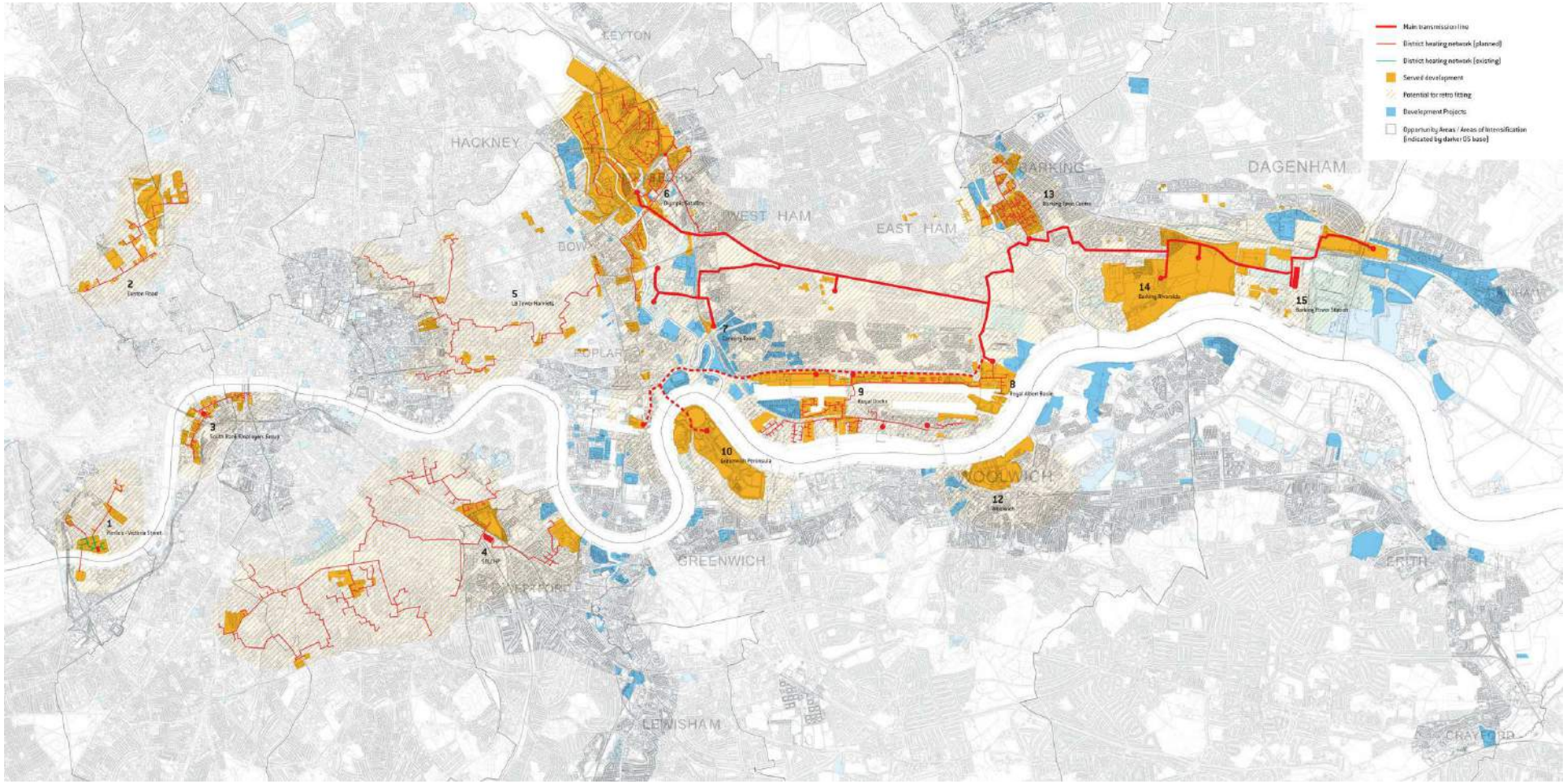
INDUSTRIAL LAND



GROWTH

East London is the key growth area

OLYMPIC SITES


Main transmission line
District heating network (planned)
District heating network (existing)
Served development
Potential for retro fitting
Development Projects
Opportunity Areas / Areas of intensification (indicated by darker OS base)
LEYTON
HACKNEY
WEST HAM
EAST HAM
BARKING
DAGENHAM
BOW
POPLAR
WOOLWICH
GREENWICH
LEWISHAM
ERITH
CRAYFORD
1
2
3
4
5
6
7
8
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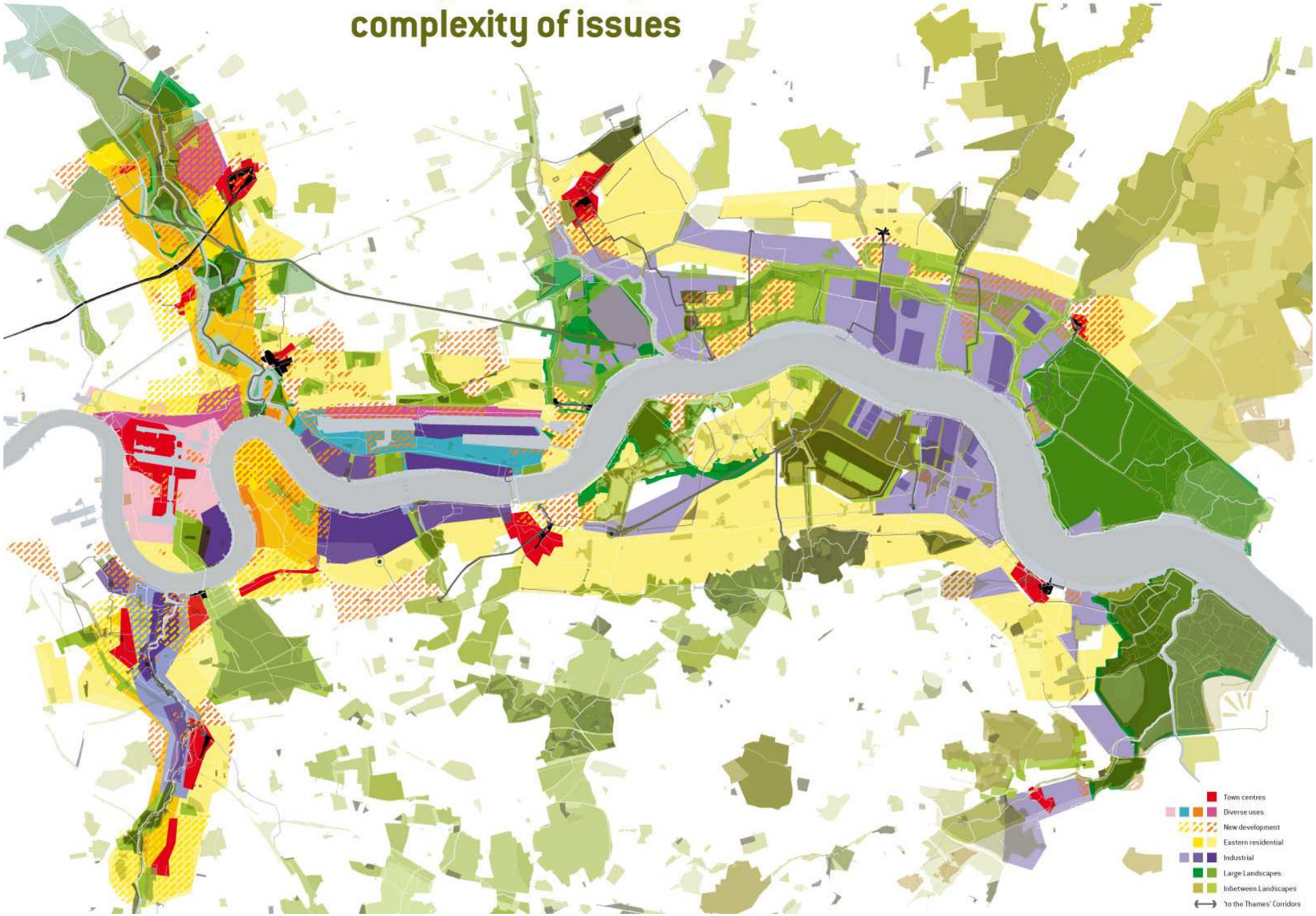
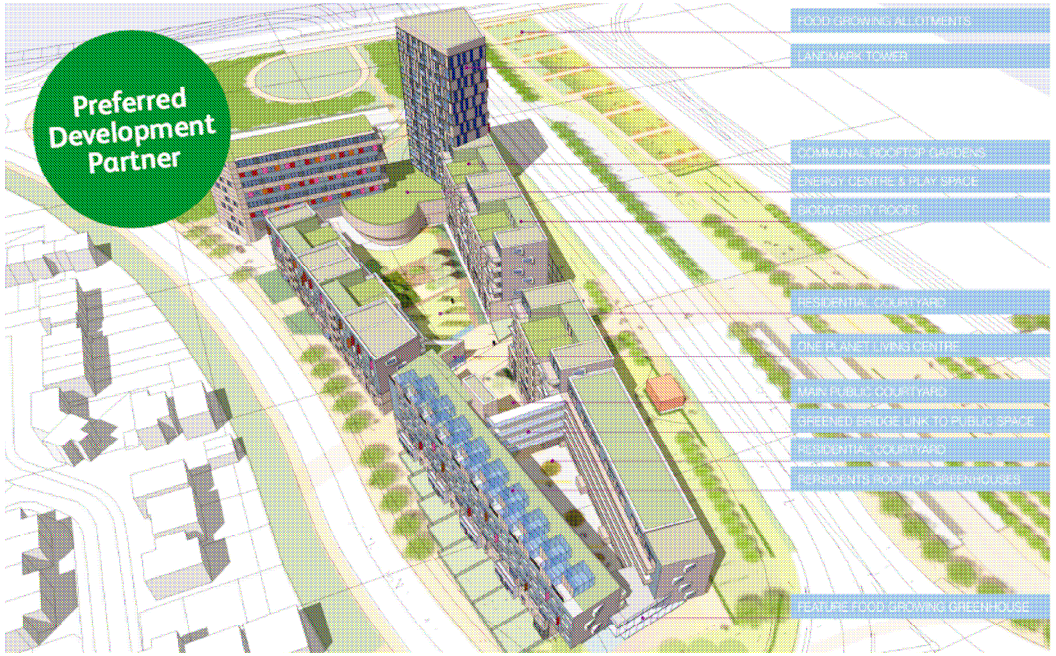
15

Strong structuring vision to deal with complexity of issues



Zero Carbon development



A zero carbon development is one that achieves zero net carbon emissions from energy use on site, on an annual basis.

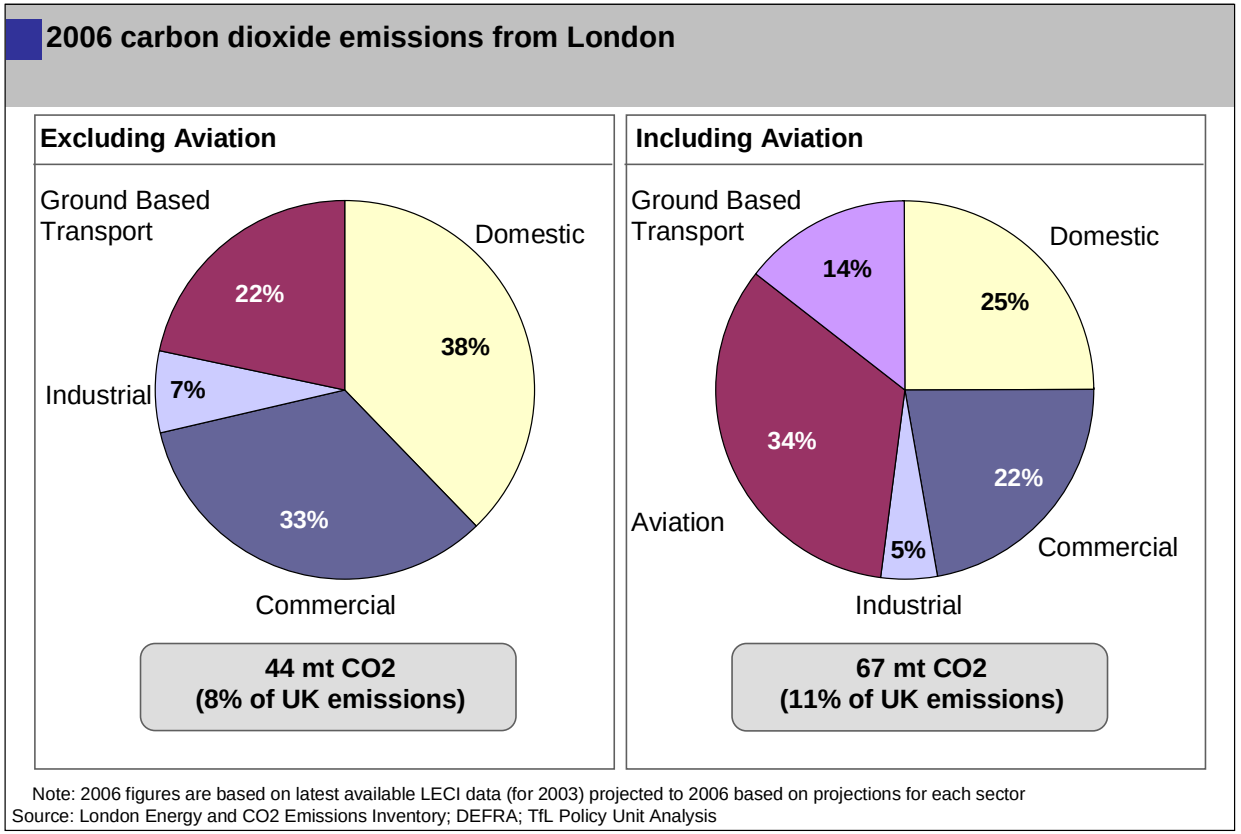
think holistically / creating synergies

4

Going Green

London's Carbon Footprint

- 8% of total UK CO2 emissions are from London, primarily from the domestic and commercial sectors
- Improving thermal efficiency in London's existing housing stock = 10% reduction in total CO2 emissions in London, and much greater reduction would come from increased energy efficiency in existing commercial buildings.



Targets

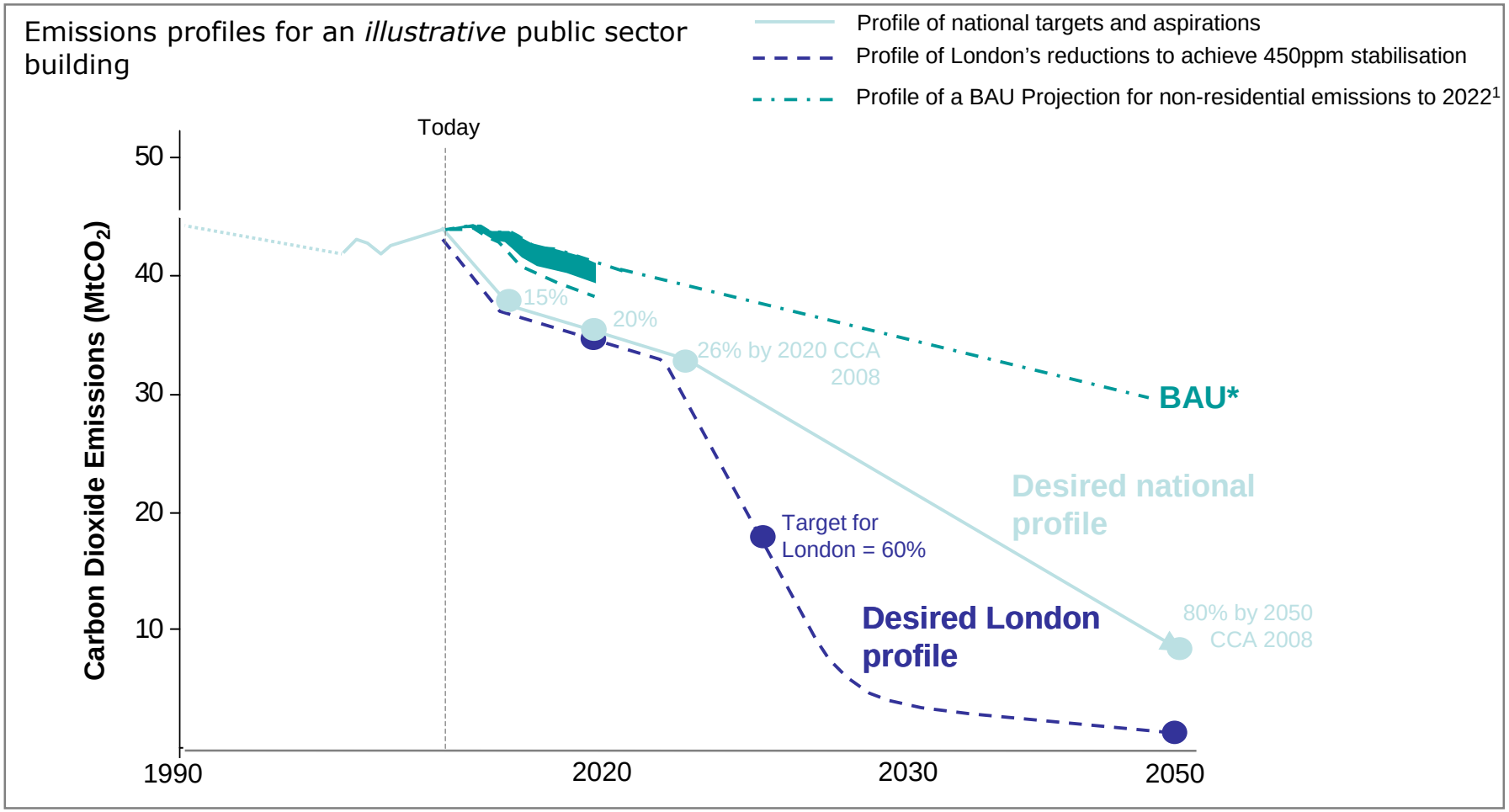
In the next 4 years the aim is to:

- reduce London's CO2 emissions by 2m tonnes
- create potential/capacity for 800 000 tonnes commercial waste to be diverted from landfill
- deliver capacity for 0.25 % of decentralised energy in London

We will base our investment decisions and assess the value of our interventions by the following measures;

- £/ tonnes CO2 saved
- £/kwh of decentralised energy
- £/tonne waste diverted from landfill
- £/kw of energy capacity created

London has committed to ambitious carbon reduction targets



[1]DECC modelling for CCC. Sources: CCAP (2006) CCC (2008) * Extrapolation based on CCA trend to 2022 for non-residential buildings

Key projects

- **Energy supply**
  - Shaping government's heat and energy strategy
  - Decentralised energy delivery
  - Energy Masterplan for London

- **Energy efficiency**
  - Commercial and public sector buildings
    - Green500
    - Better Building Partnership
    - Building Energy Efficiency Programme
  - Homes Retrofit

- **Waste**
  - London Waste and Recycling Board

- **Demonstration Projects**
  - Lighting
  - Photovoltaics

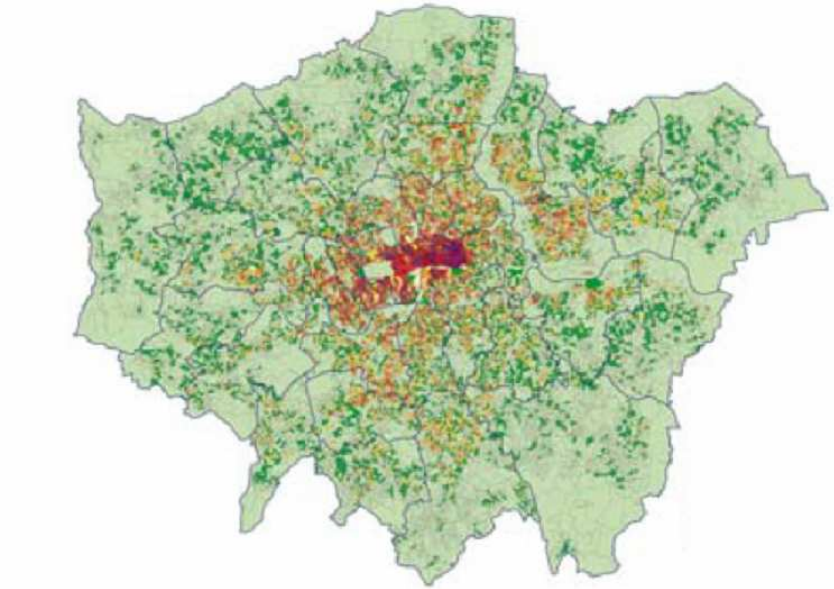
- **Adaptation**

Energy supply

Conversion of existing building stock to CHP / district heating

- Installing or upgrading CHP units located within major hospitals and university campuses, and
- Connecting districting heating networks serving the local community to these CHP unit
- There are 37 NHS Acute Trusts and Foundation Trusts in London, and 21 major universities. Assuming:
  - if 50% of these schemes are implemented,
  - a $C0_2$ saving of up to 232,000 tonnes p.a. may be possible
- Potential schemes are likely to be primarily located in the high heat load density areas of central London

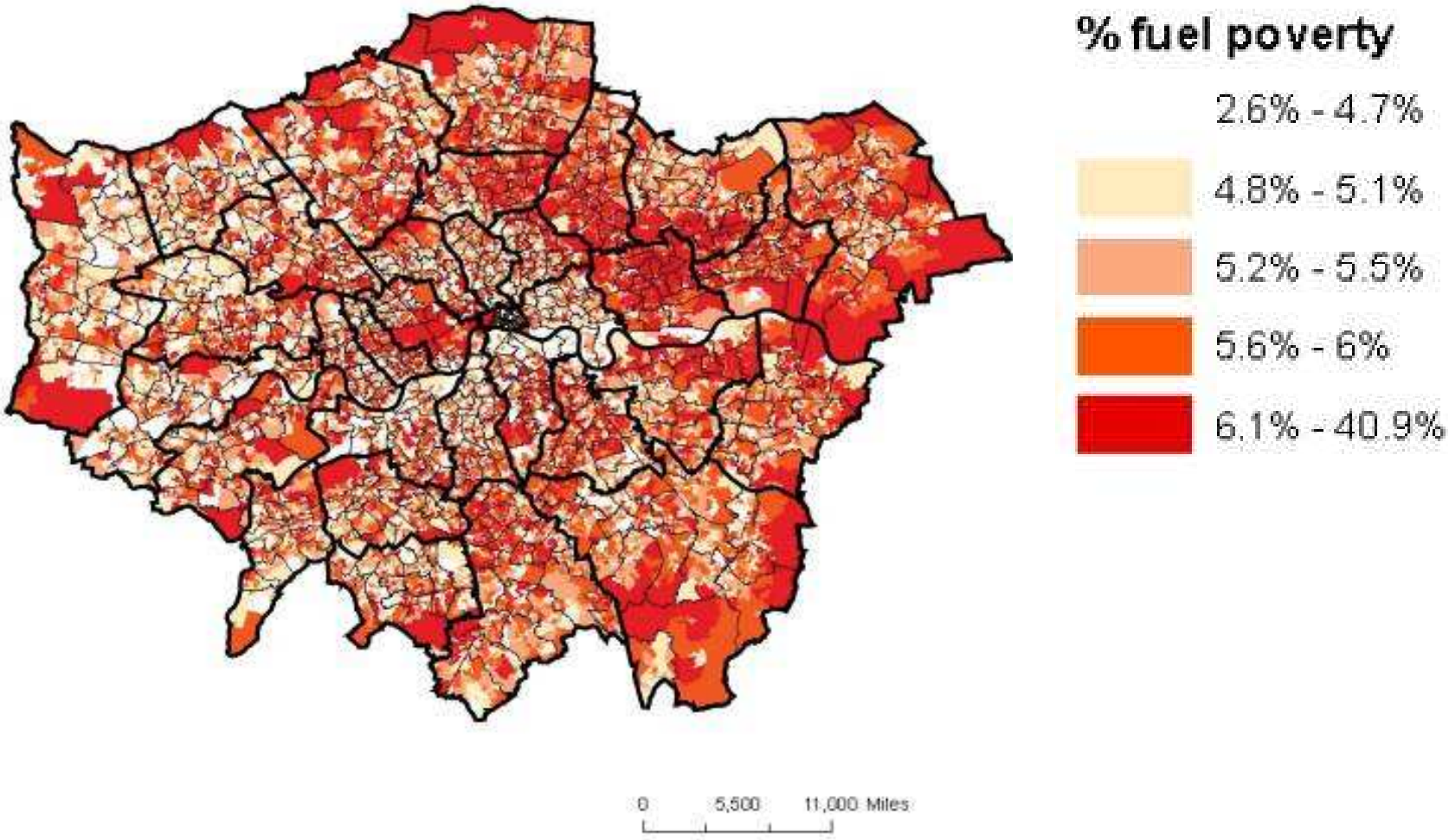
London's heat load density distribution



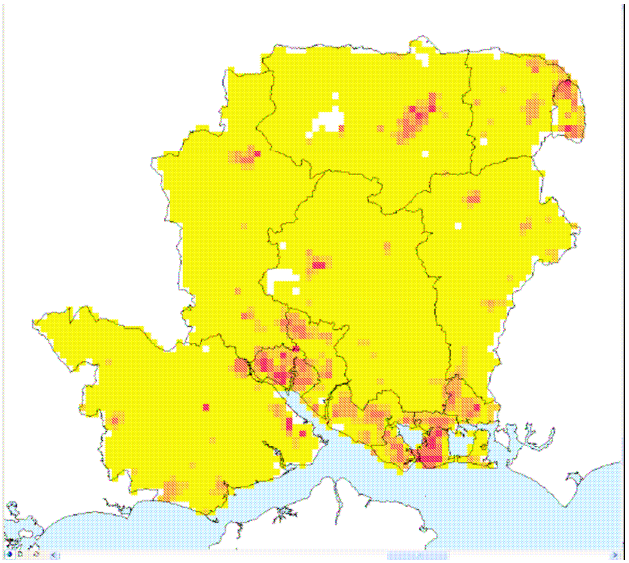
(Source: The London Plan)

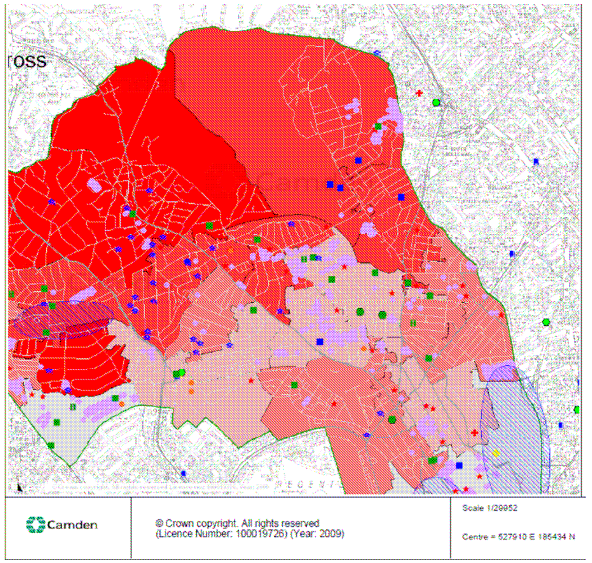
Fuel-poverty needs to be addressed

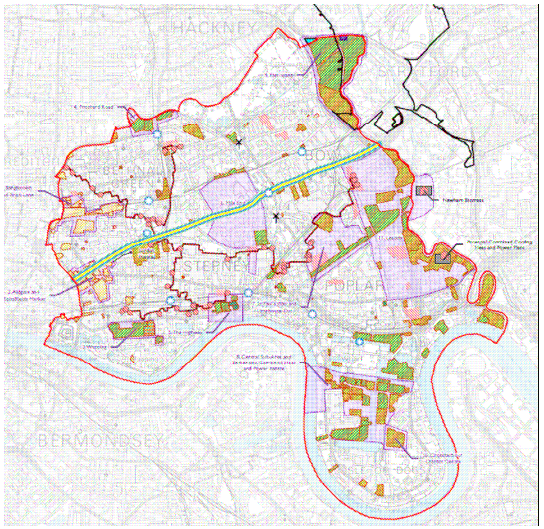
Levels of Fuel-poverty* in London Boroughs, 2008

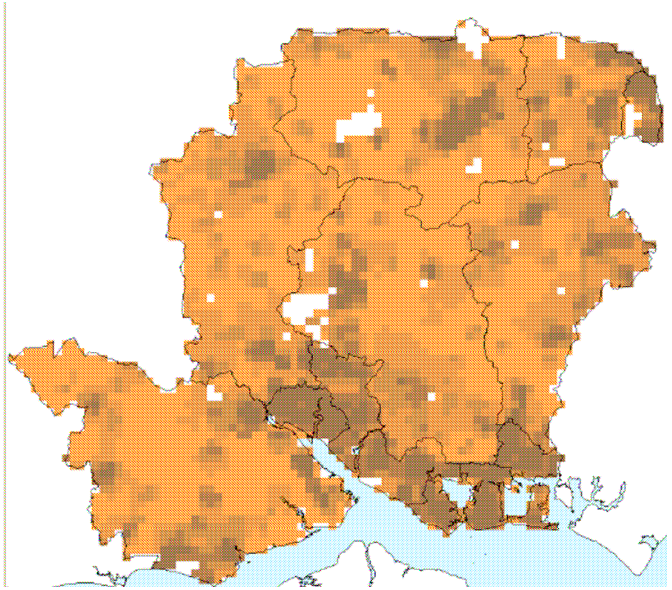


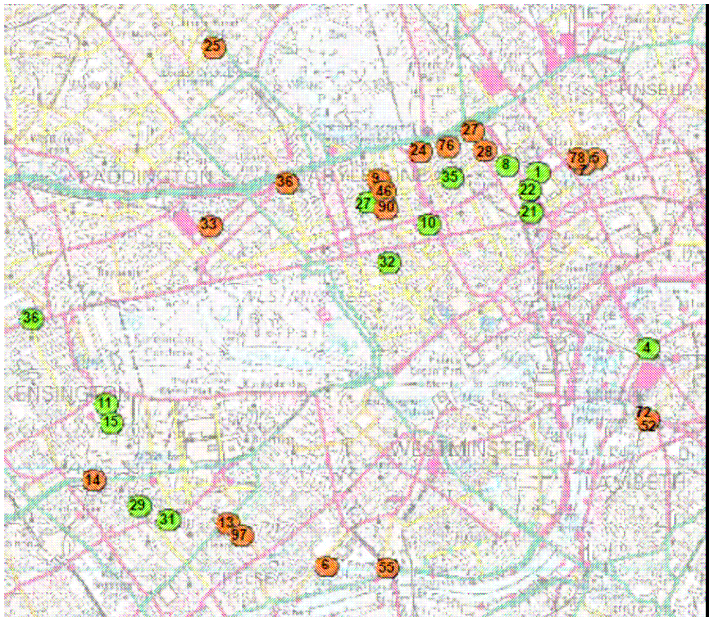
Energy Master Plan for London





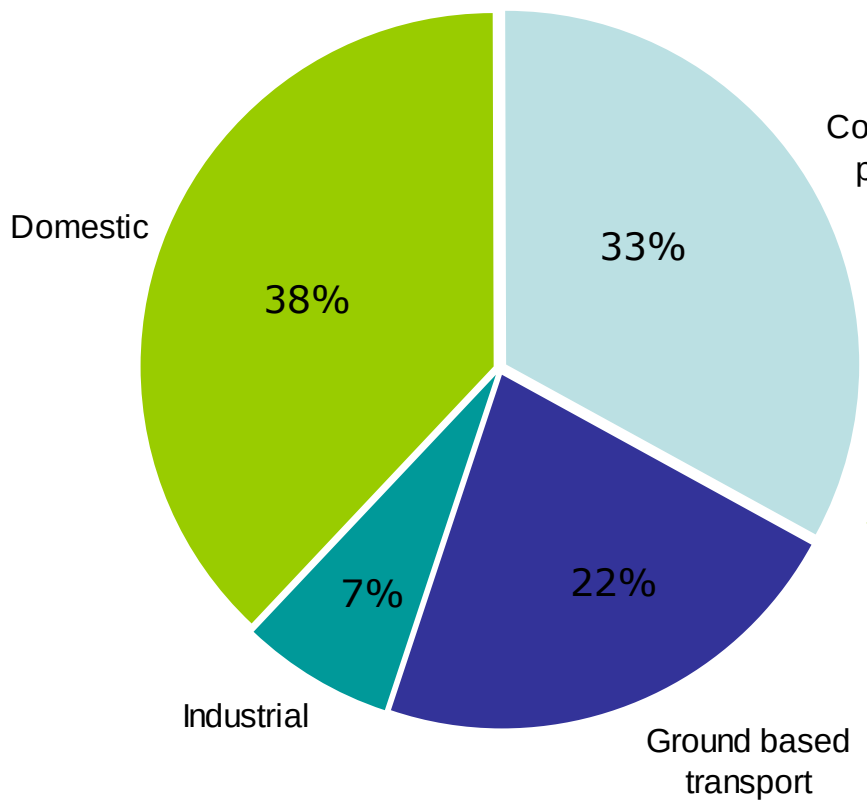






Why do we need to retrofit

The commercial and public sector is a significant contributor to London's carbon dioxide emissions – mostly from heating and lighting



36% Heating

26% lighting

11% catering

7% hot water

6% cooling

4% computing/IT

10% other

Public sector: Health 23%, Education 47%, Offices 30%

London emissions all sectors: 44.3m CO2 (t)

Commercial and public sector: 18m CO2 (t)

GLA (2006 & 2007)

Green500

- Unique combination of carbon management service plus performance based annual awards
- Focus is on continuous, practical improvement in the carbon footprint of the organisation (not goods/ services supplied)
- Set a target, agree a plan, implement the plan, annual assessment

Better Buildings Partnership

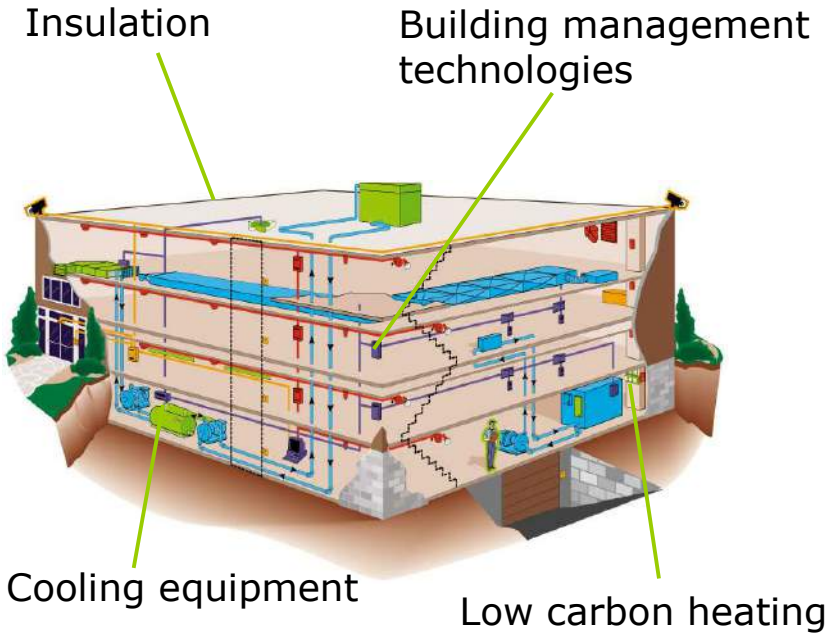
- Comprising major commercial property owners
- Commits members to remove existing barriers
  - Leases
  - Agents
  - Valuation
- Carbon benchmarks for all members on their London portfolios
- Annual public awards by the Mayor for reaching the agreed benchmark

Building Energy Efficiency Programme?

It is a cost neutral means to reduce energy bills and carbon footprint of your buildings

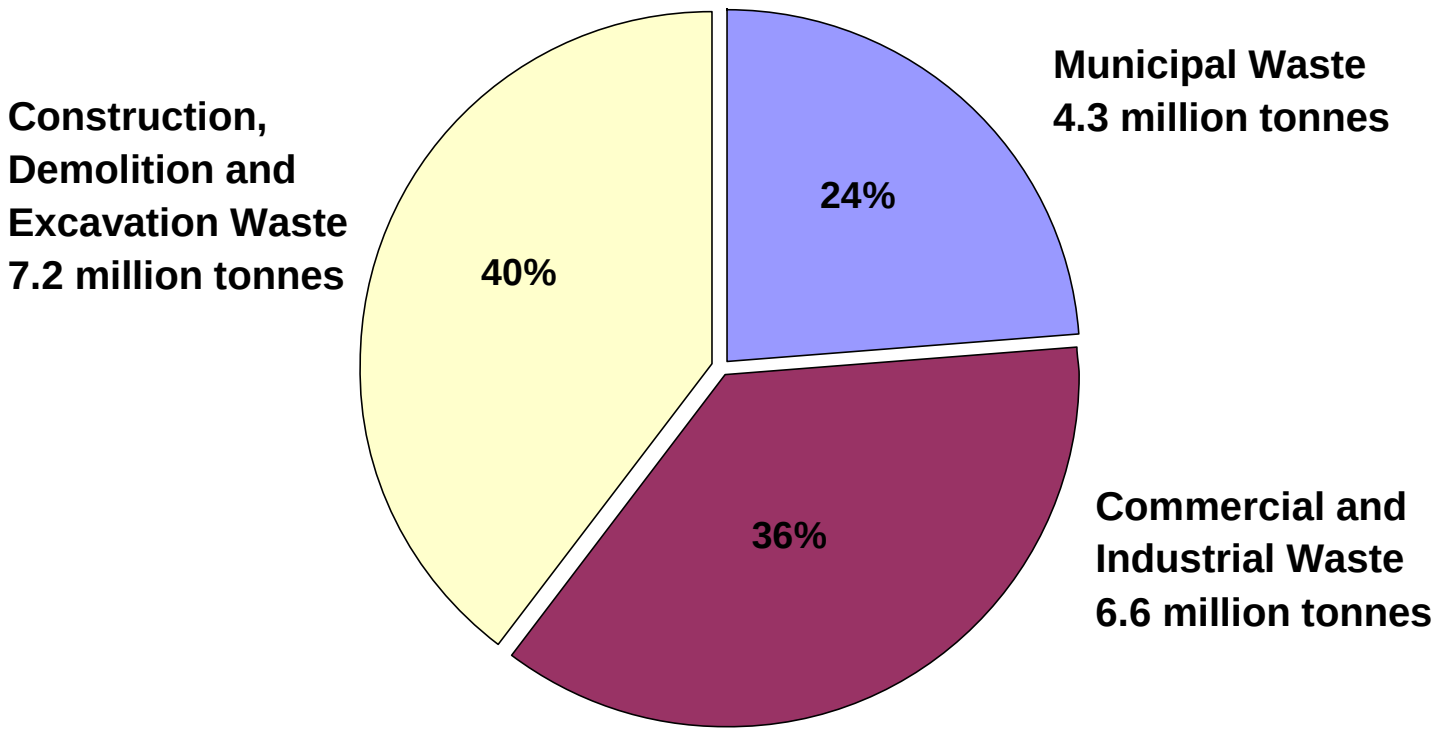
- **Energy service companies** (ESCOs) guarantee a set level of energy savings - therefore financial saving - over a period of years

- **This guarantees a future income stream** to fund investment in improvements



- If all municipal buildings, schools, universities and hospitals were retrofitted, could save 1m tonnes CO2 and represents 2% of London's CO2 emissions

Waste to Renewable Fuels – Waste Produced in London



18.1 million tonnes total waste produced in London (2003)

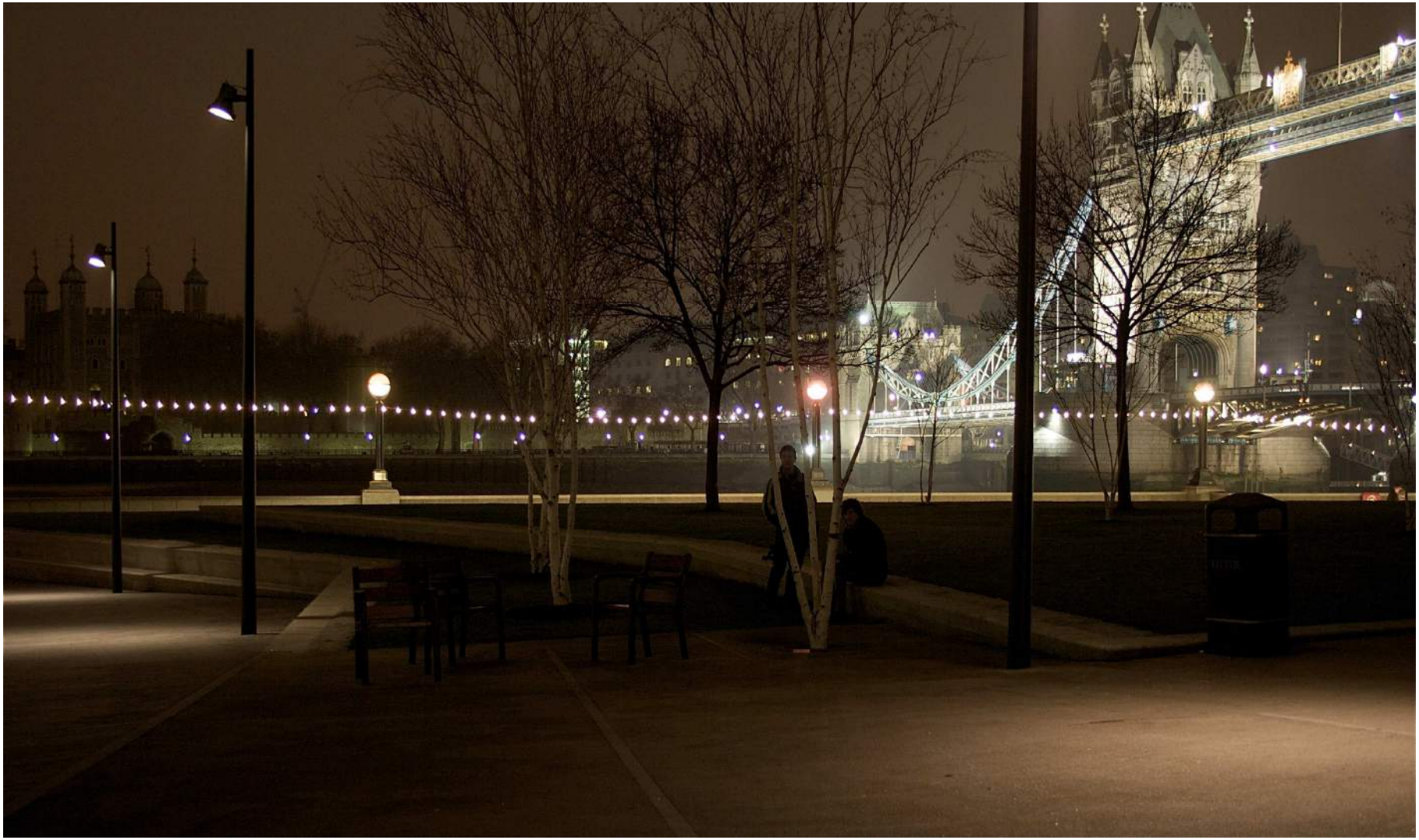
Emissions from Road Lighting

- Estimated that UK has over 5 million road lighting points
- CO_2 Emissions for UK 2 million tonnes
- London estimated to account for 12%
- LED street lighting in London could save over 150,000 tonnes CO_2 p.a.

Micro Generation – PV Demonstration Project

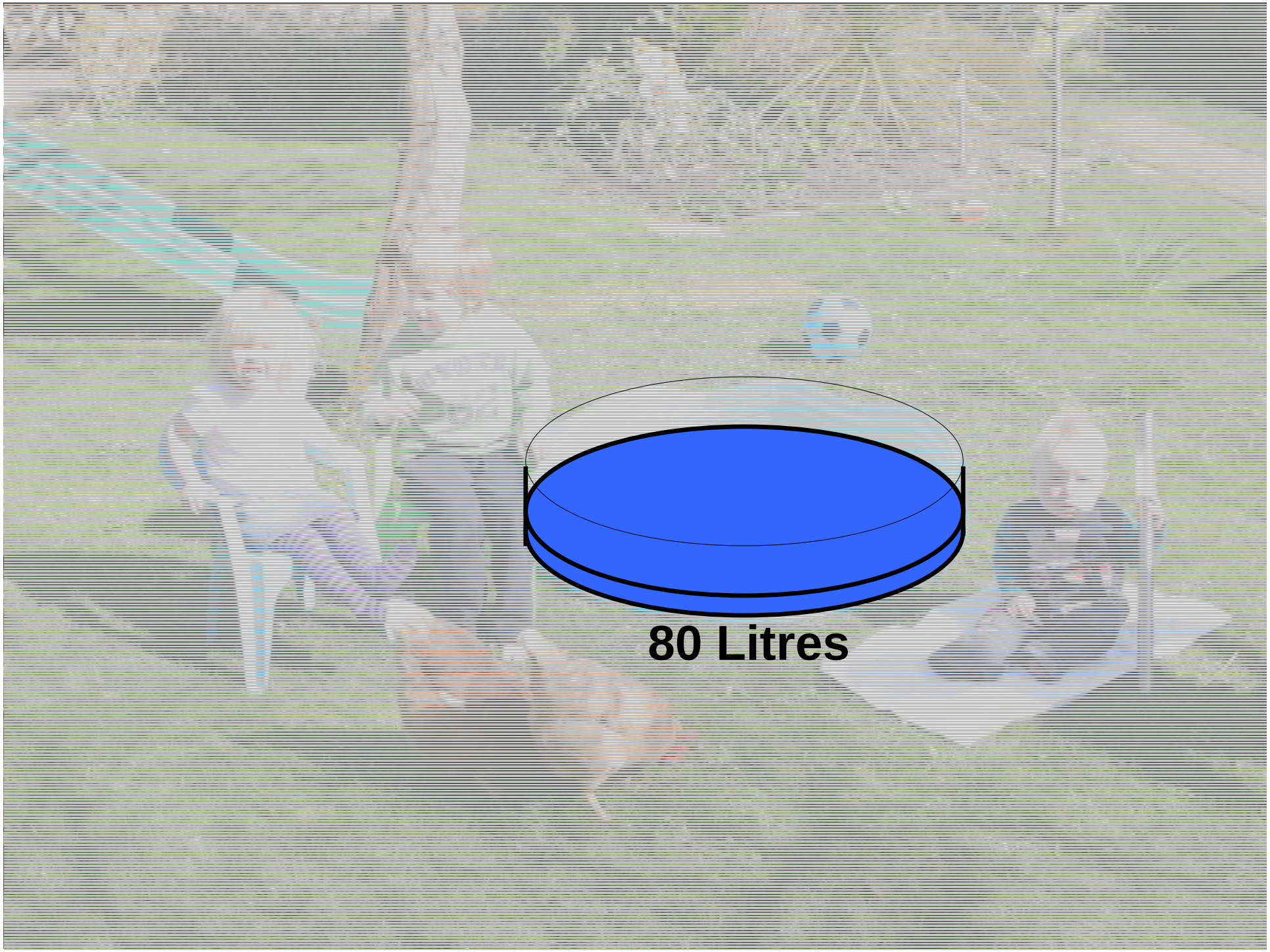
5

The Beautiful City

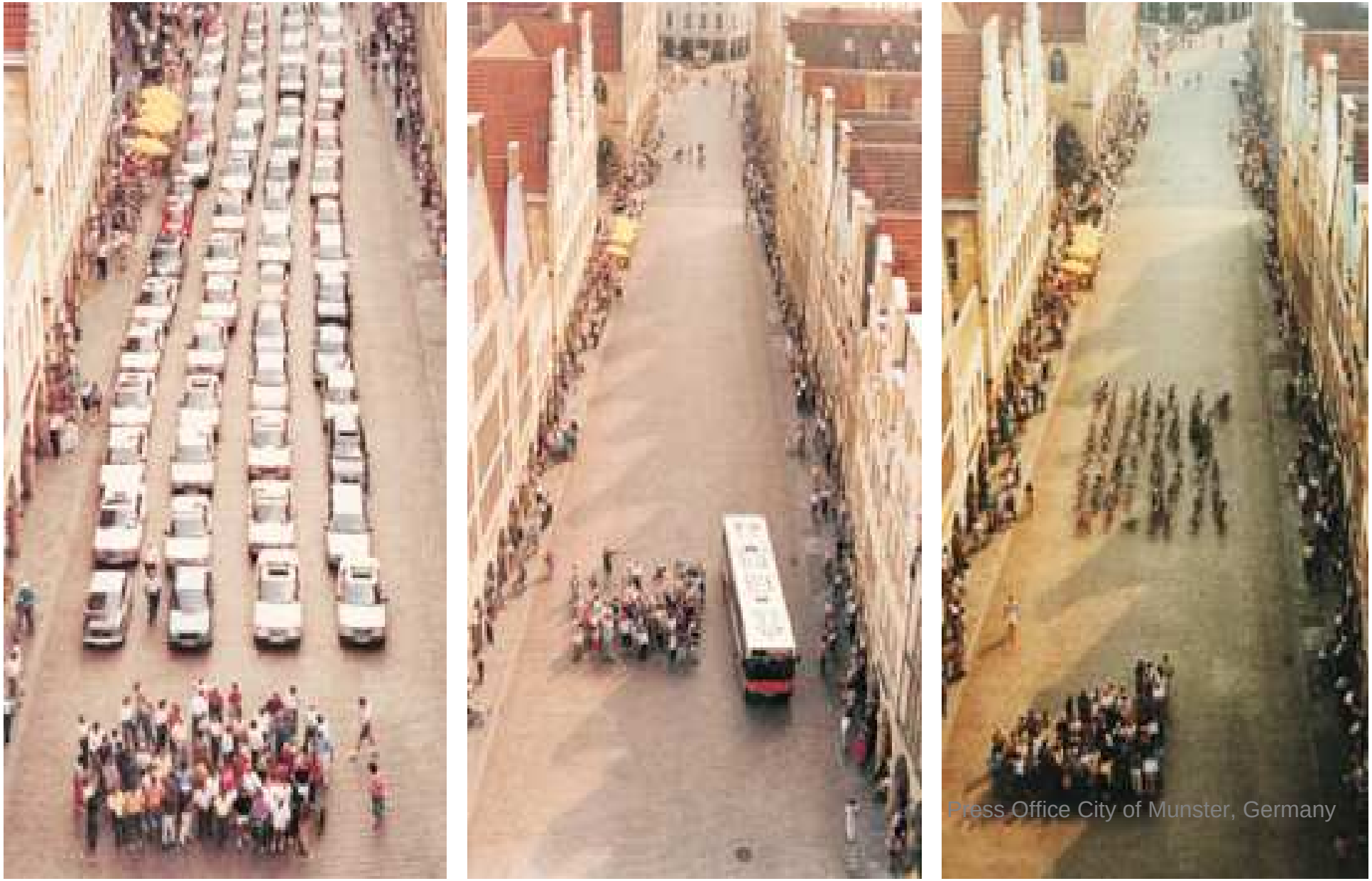


Potters Fields - Before

Potters Fields - After


80 Litres

Resource Efficiency



London’s Facts

- The ecological footprint of Londoners is about 50 million (gha), which is 42 times its biocapacity and 293 times its geographical area. This is roughly the same size as Spain.

- From 2000 - 2006 the Thames Barrier was raised 56 times to prevent flooding, compared with just 3 times in the first 6 years after its construction in the 1980s.

- Over 150 km (sq) of London lies below high tide level, putting the homes of 750,000 Londoners at risk of flooding.

- If all the London waste that currently goes to landfill were utilised, it could generate enough electricity for up to two million homes, and heat for up to 625,000 homes

- If every light bulb in every London home was energy efficient, it could save 575,000 tonnes of CO2 and £139 million per year

- Air traffic accounts for 34% of London's carbon footprint

Summary

- London has set some challenging targets
- A mix of Interventions is required to deliver these targets
- Varying models of delivery is essential for success
- Cities have the most to do and the most to gain
- All cities are different but the challenges are the same
- We can learn by replicating what is successful and mindful of the right delivery mechanism

End of Part 1

- Part 2 talks about:
  - HOW we solve the problem
    - With particular reference to Energy Supply

- In the intermission tell me –
- How do you solve an economic problem?