APSE Climate Change and Renewables Network

Climate Change Adaptation and Mitigation – An Integrated Approach
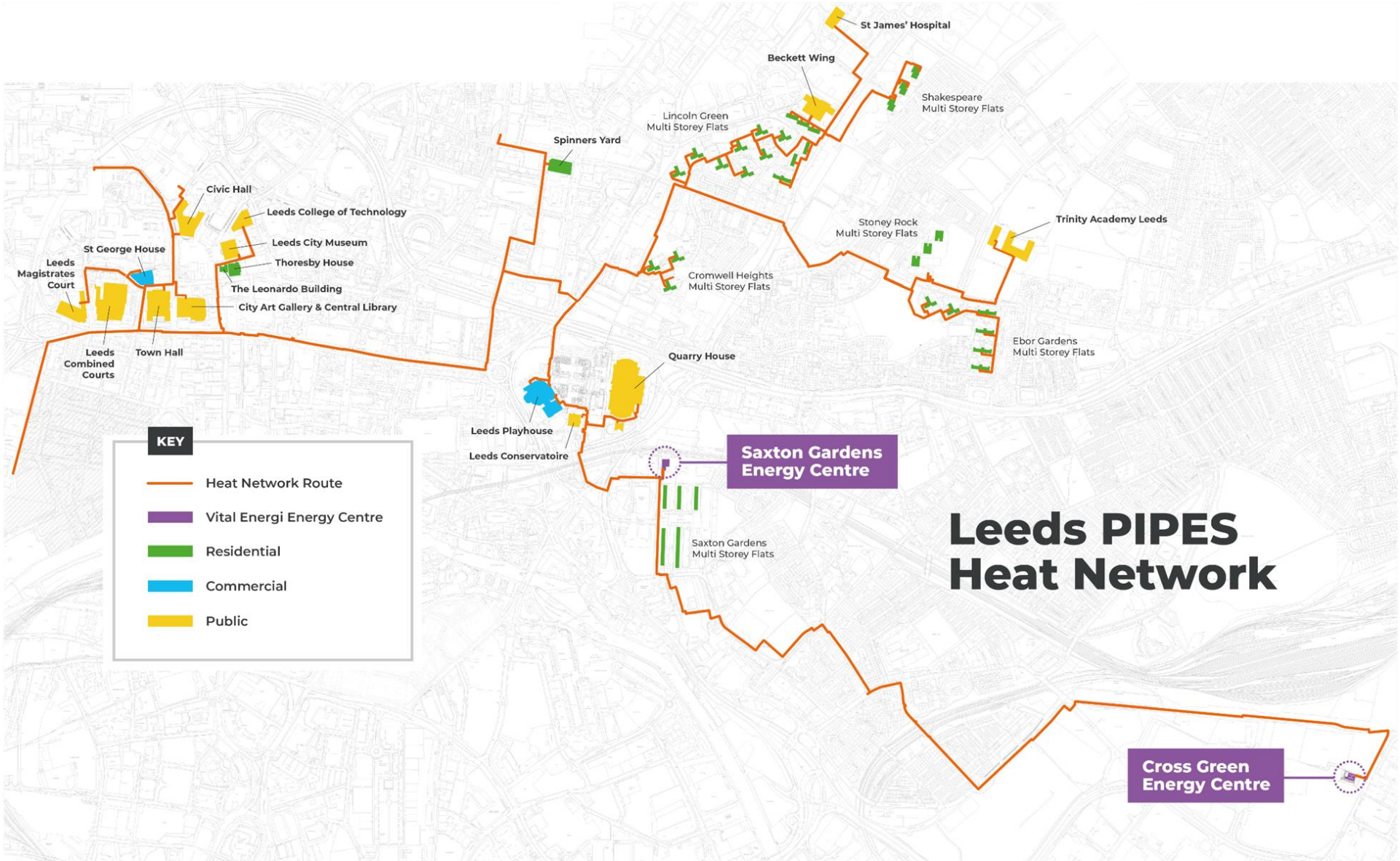
Timothy David Crawshaw MIED MRTPI FRSA

Associate Consultant APSE Energy

Chair of the Tees Valley Nature Partnership

Renewable and Low Carbon Energy

KEY

——	Heat Network Route
■	Vital Energi Energy Centre
■	Residential
■	Commercial
■	Public

St James' Hospital

Beckett Wing

Shakespeare
Multi Storey Flats

Lincoln Green
Multi Storey Flats

Trinity Academy Leeds

Spinners Yard

Stoney Rock
Multi Storey Flats

Civic Hall

Leeds College of Technology

Leeds City Museum

St George House

Thoresby House

Leeds
Magistrates
Court

The Leonardo Building

City Art Gallery & Central Library

Cromwell Heights
Multi Storey Flats

Ebor Gardens
Multi Storey Flats

Leeds
Combined
Courts

Town Hall

Quarry House

Leeds Playhouse

Leeds Conservatoire

Saxton Gardens
Energy Centre

Saxton Gardens
Multi Storey Flats

**Leeds PIPES
Heat Network**

Cross Green
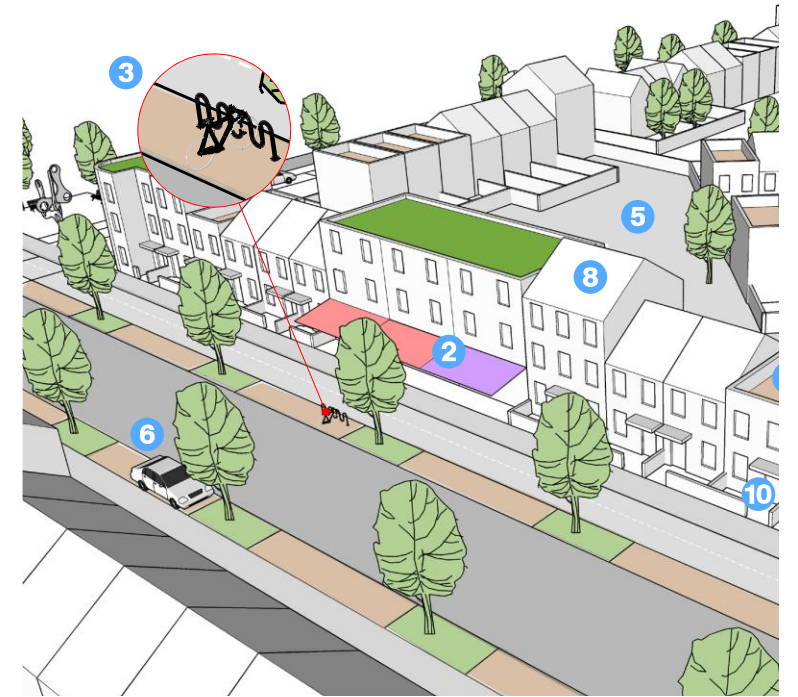Energy Centre

Energy Efficient Buildings

Multi-Functional Green Infrastructure

Sustainable Transport and Active Travel
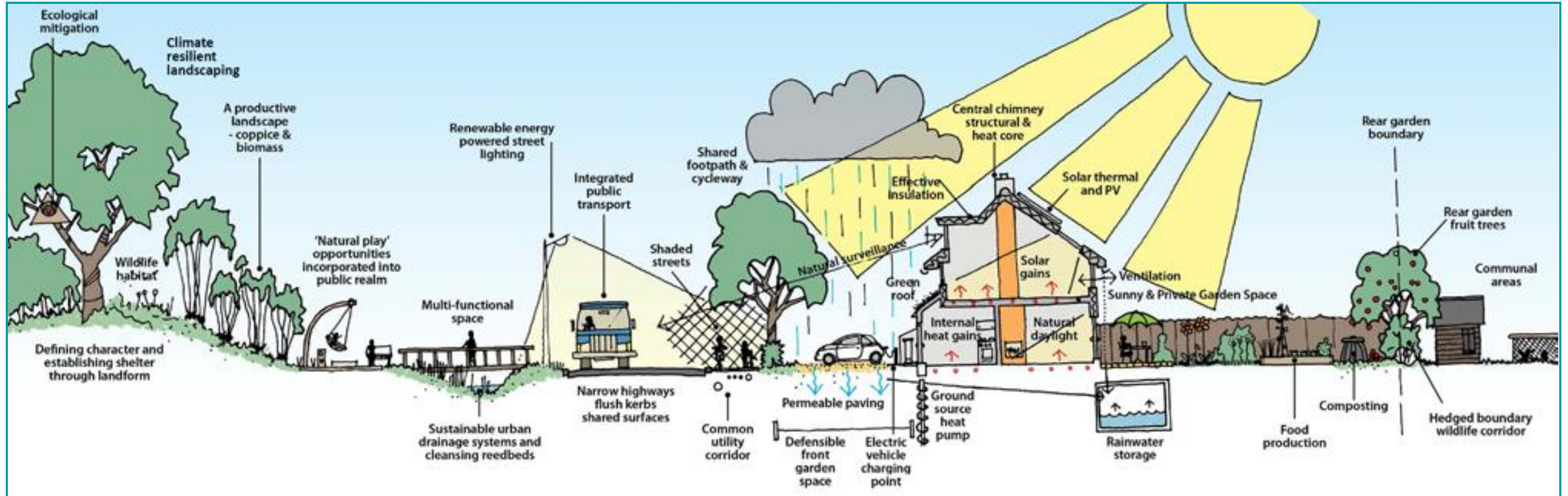
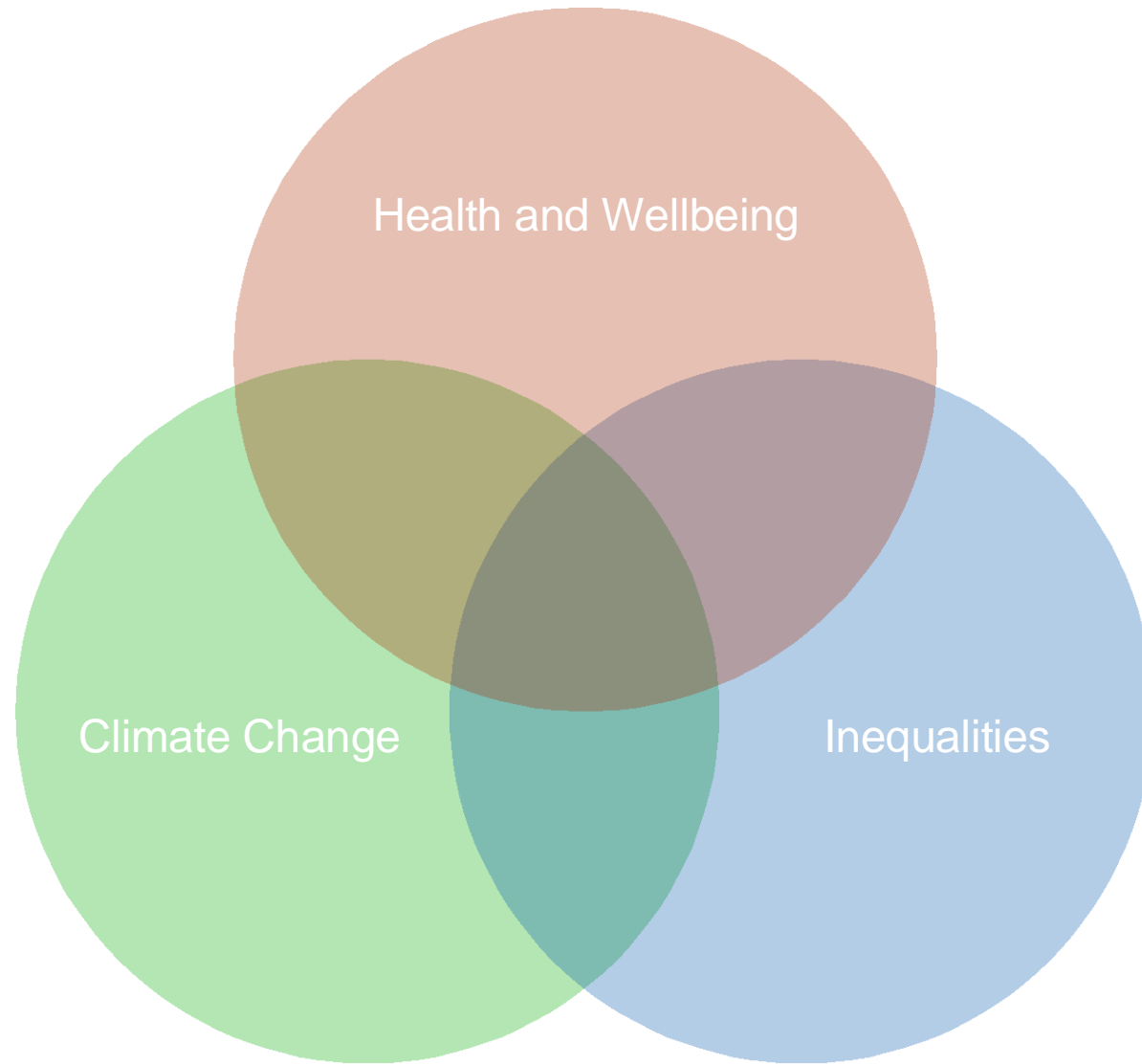# Compact and Smart Growth

Waste and Recycling

Climate Change Adaptation

Bringing it All Together

Built up areas with less green space get hotter

Heat hazard scores in Brent, London

Built up residential area

Tree cover

5

1

Jorda's neighbourhood

Roundwood Park

100m
500 ft

Microsoft

1 — Cooler areas   2   3   4 5
                                    Hotter areas →

Note: The higher your heat hazard score, the more likely it is that your area will experience high temperatures during hot weather, compared with other areas in your neighbourhood. A score of one means the postcode was in the lowest 40% of areas, while a score of five means it was in the top 1%.

Source: 4 Earth Intelligence

BBC

Bodies of water also have a cooling effect

Heat hazard scores in Cardiff, Wales

Built up residential area

Sevenoaks park

4

River Taff

2

Andrea's neighbourhood

1

100m
500 ft

Microsoft

1 — Cooler areas   2   3   4 5
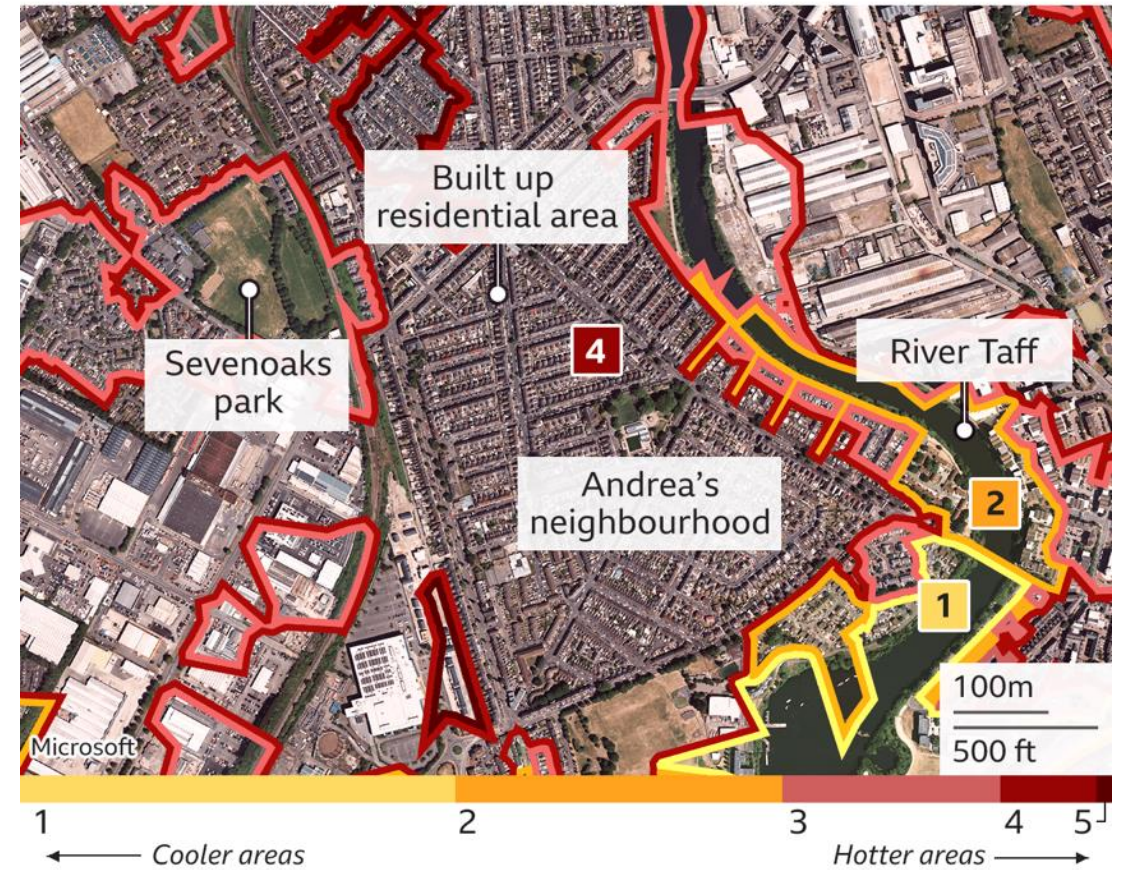   Hotter areas →

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BBC

Consequences

- Climate change will have deadly effects on physical and mental health if nations fail to take steps to mitigate the "emerging reality" of global warming, a new report from the UK Health Security Agency has claimed.

- Annual UK deaths caused by extreme heat could more than double to 10 000 by the 2050s, mosquito-borne diseases like dengue fever could come to the UK, and costs from heat related deaths linked to climate change could rise to almost £15bn a year in the 2050s

Health and Wellbeing

HEALTHY NEW TOWNS - DESIGN PRINCIPLES

Transport and Movement

• Transport, access and movement must be planned with the following hierarchy:
1. **Walking**
2. **Cycling**
3. **Public transport**
4. **Rail**
5. **Private cars, taxis and motorcycles.**
• Facilities for those on foot or cycle must be provided in new developments and supported in existing neighbourhoods such as benches, cycle parking and adequate signage.
• Connectivity and safe, well lit, routes between neighbourhoods, local services and schools must be provided for new developments.

Green Infrastructure

New developments must protect, enhance and create multi-functional green-blue infrastructure to support human and natural life contributing to combatting the urban heat island effect, tackling air pollution, improving water quality and reducing flood risk. In providing green infrastructure, which should constitute 40% of the developable area the following hierarchy must be observed:
1. **Habitats and Ecology**
2. **Flood and Water Management, and Air Quality**
3. **Access Recreation and Movement**
4. **Play and Education**
5. **Amenity and Landscaping**
Local food provision and sports facilities are to be allocated separately

Social Infrastructure

• Healthcare, leisure, playing pitches, local services and retail must be clustered together into nodes with adequate public transport connections in local centres identified in the Local Plan
• Local services, social infrastructure and local facilities must be provided in the first phases of development to establish a sense of community
• The public realm must be high quality, benefit from natural surveillance and be means to connecting communities to each other and to facilities.
• Developments above a threshold of 100 units must demonstrate that there are local services and access to community facilities within 400-800 m (or 5-10 minutes walk) or that these will be created.

Healthy Food Choices

• New developments must provide adequate opportunity for local food production either through the provision of private gardens, communal spaces or where there is a lack of provision identified.
• The establishment of hot-food takeways will be controlled in areas of over-concentration and where close to schools.
• The change of use of existing buildings to facilitate innovative approaches to local food production and distribution will be actively supported.
• Developments above a threshold of 100 units must demonstrate that there are local services and access to healthy food choices within 400-800 m (or 5-10 minutes walk).

Economy

• New developments must ensure that there is access to good links to employment opportunities and that these are integrated into mixed-use areas wherever possible.
• New employment sites must be well connected to the walking and cycling network and the public transport system.
• New developments must take the opportunity to employ local labour and provide training and skills through their construction.
• Local and town centres should be supported to ensure that the local population can be served, with an emphasis on local centres providing for community needs.
• Flexibility should be built-in to new local centres to allow change of use to commercial over time.

Placemaking

• New developments must provide a legible and permeable environment that is easily understood and has clear signage and wayfinding*.
• Existing neighbourhoods and the historic environment must be conserved to ensure that local landmarks and key buildings and features can be used to orientate and be familiar*.
• Public spaces, streets and greenspaces must benefit from natural surveillance with a lack of clutter*.
• Car parking is to be accommodated in such a way so it does not interfere with walking and cycling*.
• The density of development must support good access to shops and services within 400-800 (or 5-10 minutes walk)*.

* Denotes measures that support a Dementia Friendly Environment

Healthy New Towns

County Durham and Darlington NHS
NHS Foundation Trust

NHS England

The greenest building is the one that already exists

Carl Elefante
Former president of the American Institute of Architects

THE CASE FOR RETROFIT

Achieving net zero emissions is a global priority, and retrofit can play a vital role in this process.

DIFFERENT LEVELS OF RETROFIT

FINANCIAL SUPPORT FOR RETROFIT

Towards Net Zero

Attenuation

Infiltration

Soil Stabilisation

Interception

Evapotranspiration

Shade
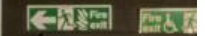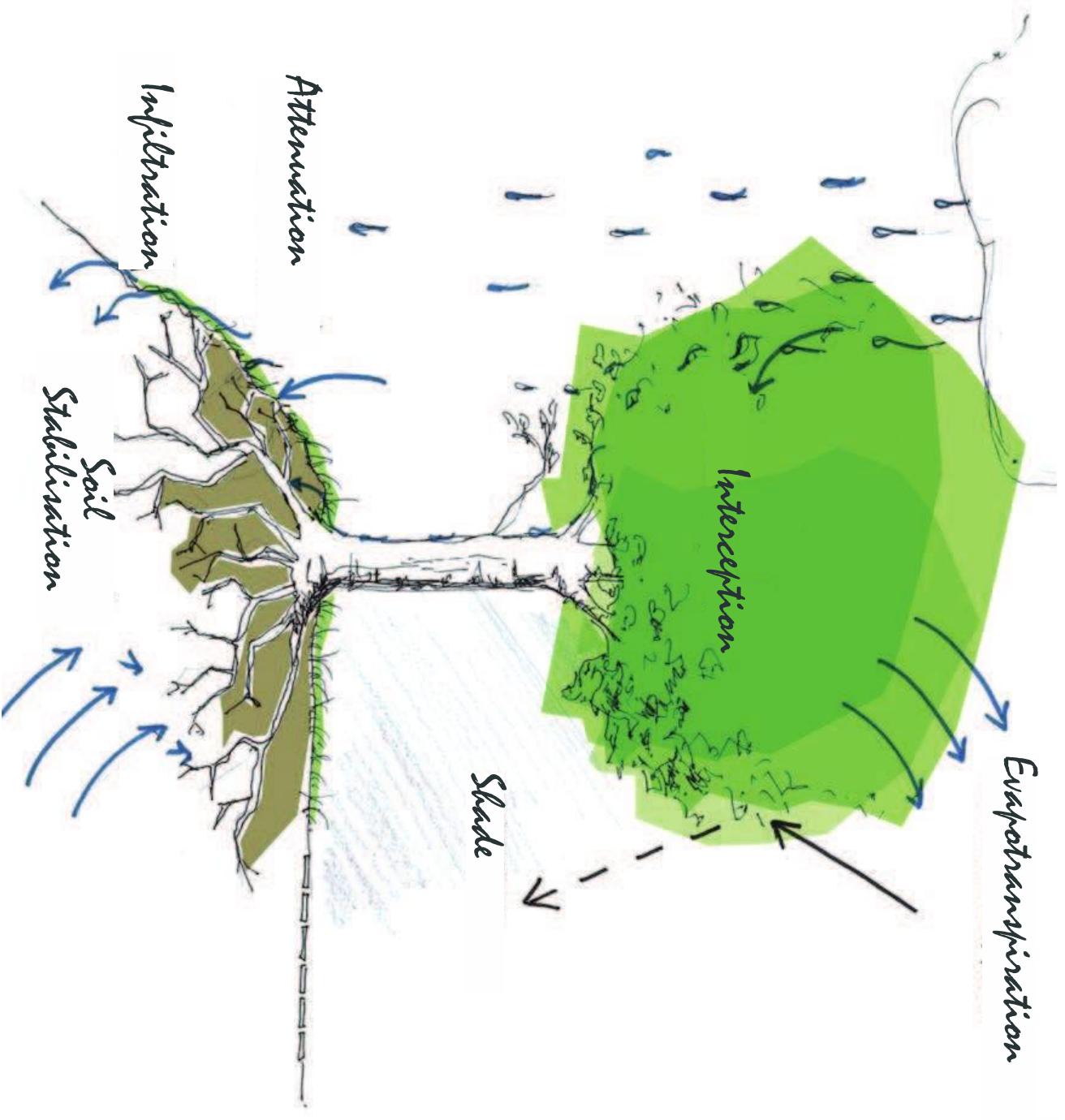
One adult tree = five air conditioning units working 20 hours/day = 11.4kWh of energy saved per day, amounting to 500 euros of energy cost saving per year (assuming a yearly energy consumption of 1000 kWh/yr)

Sources of Guidance

apse energy

Planning for our Future

Embedding energy and climate change into local plan policies

- Local Plan Policy Development
- The role of design guidance and SPD's
- Planning positively for renewable energy
- Energy masterplanning
- Case studies and exemplar projects

Sources of Guidance

- Linking green infrastructure to climate change, biodiversity and nature recovery
- Active travel and placemaking opportunities
- Design to mitigate and adapt to climate change
- The use of data and insights

Thank You!

Questions and Comments