Sustainability and Social Value

06

A Sustainable Development Framework

A strong sustainability agenda is embedded within the overall vision for the Waterloo and South Bank area and underpins every aspect of the framework. A holistic approach has been applied to address social and economic requirements of the existing and future communities in the area, as well as efficient and effective environmental design. The principles set out within this chapter support a roadmap to a net-zero station and surrounding neighbourhood, in-line with the Lambeth's 'Waterloo and South Bank Future Neighbourhoods 2030 Strategy'.

The following section outlines the emerging sustainability strategy that sets out a roadmap for future developments and pipeline projects, as well as opportunities to maximise the social value impact. The work done to date in support of developing a sustainability vision includes the core imperatives (objectives), the principles and opportunities for the Waterloo area masterplan.

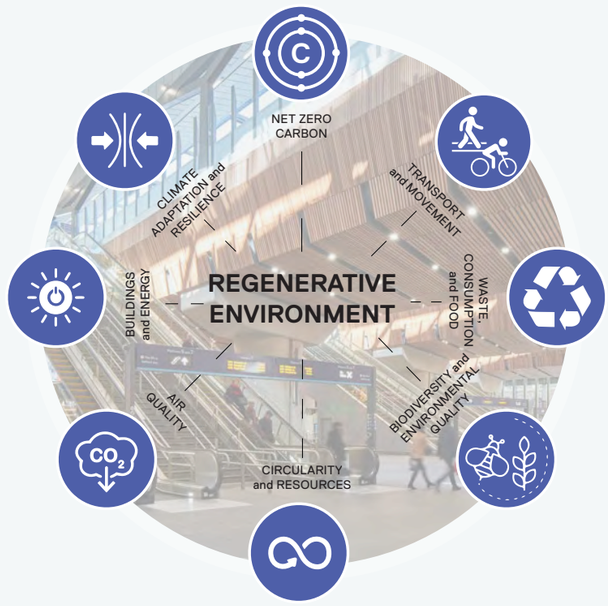
The example of landscape interventions is used to illustrate how these strategies coalesce into a series of co-benefits, supporting multiple environmental and social outcomes.

This chapter also highlights next steps opportunities for the future management and measurement of sustainability outcomes throughout future masterplan stages.

ENVIRONMENTAL SUSTAINA

POLICY AND BEST PRACTICE

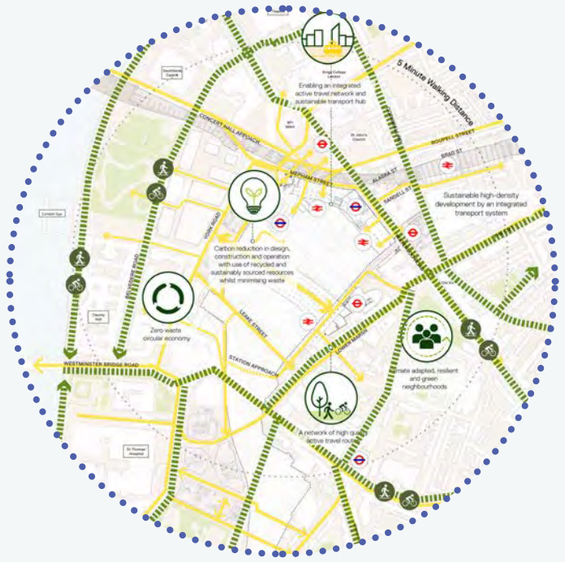
MASTERPLAN PRINCIPLES



CO-BENEFITS THROUGH LANDSCAPE INT

BILITY

MASTERPLAN OPPORTUNITIES AND OUTCOMES



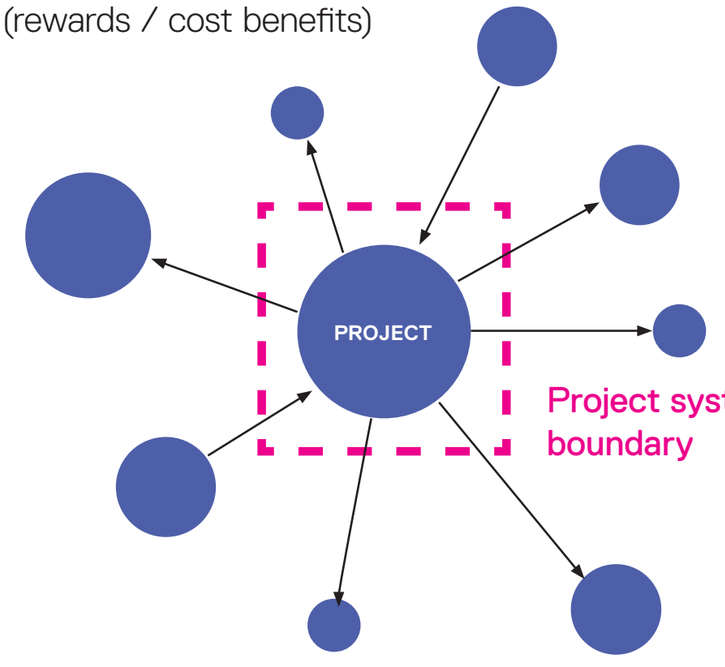
ERVENTIONS

Holistic Sustainability Approach Interconnected Problems Call for Interconnected Solutions

In order to consider if projects can have a net positive impact across scales, we need to progress beyond a transactional system understanding to a reciprocal system understanding - a system understanding which highlights mutual benefit for greater potential and resilience.

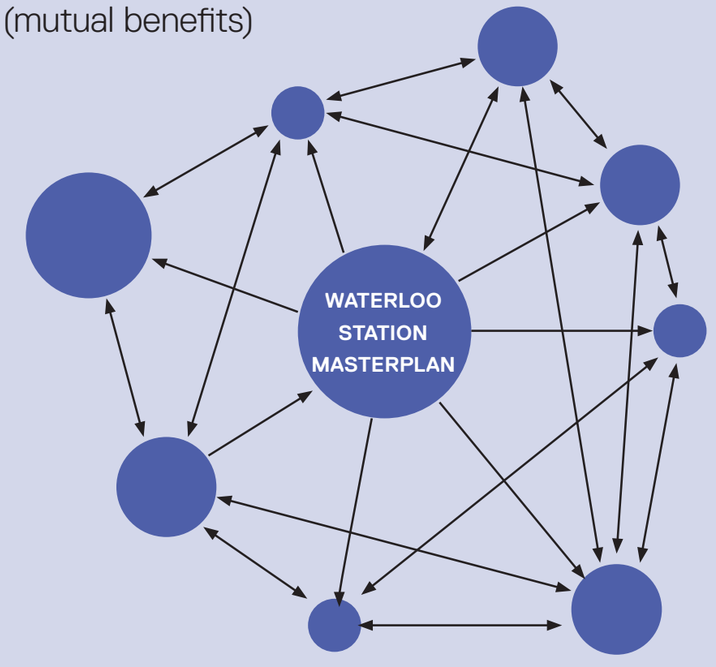
TRANSACTIONAL SYSTEM

Interested parties
(rewards / cost benefits)



RECIPROCAL SYSTEM

Interested parties
(mutual benefits)



Next Stage Opportunities Measuring Impact, Managing and Reporting Outcomes

As the emerging Waterloo and South Bank Social Value Vision moves toward future detailed stages of masterplanning and implementation, the team identified a number of potential outcomes related to each of the six social priorities that could become a focus for measurement and reporting through triple bottom line (TBL) analysis.

Undertaking triple bottom line (TBL) analysis is critical to quantifying the co-benefits of any development opportunities proposed within the masterplan, as people, place and prosperity are dynamically intertwined. TBL analysis therefore attempts to quantify value in economic, social and environmental terms.

Prospective impact measurement best focuses on assessing the potential implications of design interventions on long term outcomes, rather than simply reporting on likely inputs and outputs.

There are a wide range of sustainability platforms and impact frameworks that allow the relationships between long term outcomes to be assessed and visualised, intuitively making it easier to understand interconnections between different outcomes.

Social Priority	Potential Outcomes
Economic Prosperity for All Create inclusive opportunities for skills, training & employment throughout the lifecycle of the masterplan 1	– Number of construction and operational jobs supported (by priority group) – Number of training opportunities – Gross Value Added (GVA) – Employment participation rates among key groups
Resilient and Creative Local Economies Support small businesses, creatives and Volunteer, Community and Social Enterprise (VCSE) groups to contribute to thriving local economies and community amenity 2	– Quantum of space safeguarded for small, local, creative, and Voluntary, Community and Social Enterprise (VCSE) businesses – Quantum of space safeguarded for community amenity – Quantum of affordable workspace – Local economy statistics
Celebrate Local Culture and Identity Co-create opportunities to celebrate culture and identity with local communities and groups with protected characteristics to strengthen a sense of ownership 3	– Number of meanwhile events and uses – Number of community amenities and services – Number of recipients of community services – Quality of life statistics

Social Priority	Potential Outcomes
Support Wellbeing and Healthy Lifestyles Promote healthy choices, active lifestyles, and support wellbeing 4	– Quantum of pedestrianised space – Quantum of sustainable travel infrastructure – Number of pedestrian crossings improved and created – Number of participants attending programming – Number of commuters by mode – Health outcome statistics – Environmental outcome statistics
Local Destinations and Liveable Neighbourhoods Contribute to a unique sense of place and create liveable neighbourhoods that are safe and welcoming for all 5	– Number of design interventions to safeguard residential and community spaces and uses – Number of design interventions to promote safety and accessibility – Life satisfaction and civic pride statistics – Place and neighbourhood belonging statistics – Crime statistics
Green Space and Inclusive Activation Create high quality green spaces which reflect local context and encourage equitable access and participation 6	– Quantum of green space provided, by type – Number of children's play spaces – New tree plantings – Usage of green spaces – Biodiversity statistics

Policy and Best Practice Review

Drivers is a broad term referring to legislative and voluntary requirements set at the global, national, regional and institutional level. Through the review of policy and best practice, a series of shared key drivers have been identified that have informed the vision for the masterplan.

Summary of Policy Drivers

- Build Net Zero developments to future proof investments and reduce costly retrofits
- Plan for resilience, mitigation and adaptation to a changing climate
- Sustainable use of resources during construction, operation and deconstruction implementing circular economy and adaptive reuse
- Create low traffic neighbourhoods with active travel, good air quality and green infrastructure
- Use renewable energy, including on site solar and heat networks, to decarbonise the energy grid
- Support reuse, recycling and sharing economies
- Follow certifications and standards, such as PAS 2080 and RSSB Sustainable Rail Strategy Prototype, to drive future masterplan stages and align with best practice
- Highlight areas of co-benefits and systems thinking, such as the London Sustainability and Wellness Measures

Local | LBL Climate Action Plan and FN 2030

Regional | GLA, Thames Vision, Freight and Pier Strategies

National | Rail

National Policy

Standards and Certification

Grimshaw, Gbolade Design Studio, WSP, Exterior Architecture, Hatch, Savills, Turner & Townsend, Iceni

Lambeth Climate Action Plan and Future Neighbourhoods 2030

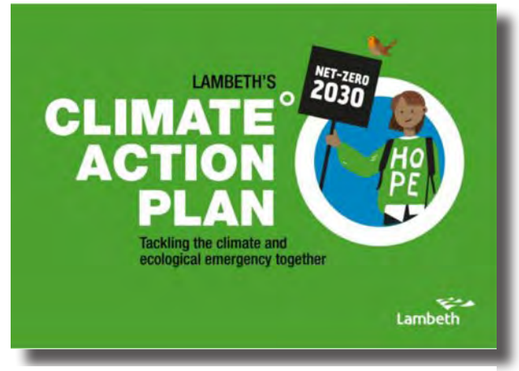
Summary of Policy Drivers from Lambeth Climate Action Plan and Future Neighbourhoods 2030

Targets

- **By 2030, Net Zero** in council estates and operations and a net zero Waterloo and South Bank
- **10% of all rainwater** on impermeable surfaces **sustainably managed by 2030**
- **100% of energy from zero carbon**, renewable sources
- By 2030, **reduce consumption** based emissions by two thirds
- By 2030, **4 in 5 journeys walked, cycled** or via public transport and **27% reduction in car use**
- New developments to **improve biodiversity by 10%**, including no pesticide use
- **30% of open land and waterways naturalised** to benefit wildlife

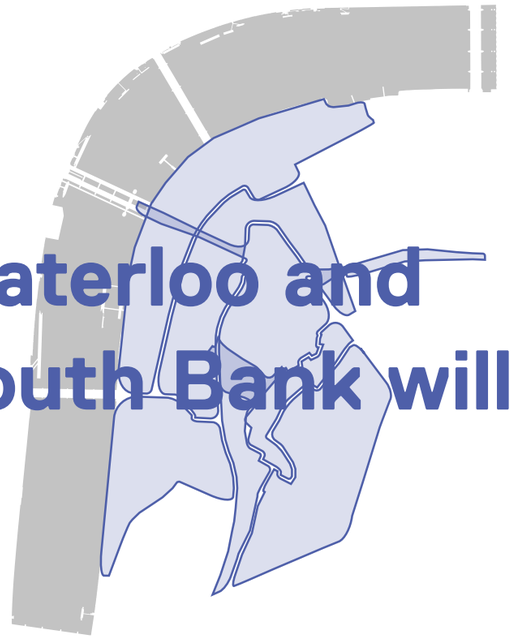
Objectives

- **Resilience to extreme weather**, including flooding and urban heat islands
- New buildings constructed to exemplary standards, **meeting zero carbon requirements**
- **Safe and attractive public realm**, with high quality and accessible green spaces for all
- **Mobility Hubs** to facilitate multi modal journeys
- Support reduce, reuse, recycle, upcycling, repair cafes and **sharing economies**, including ending single use plastics
- **High quality green infrastructure and improved biodiversity** to enhance health, wellbeing, air quality and equity, and supporting habitat connectivity
- **Urban food** growing to support healthy, planet friendly diets



Environmental Principles

This page illustrates a series of masterplan environmental principles, drawn out through a review of local policy and best practice to support the roadmap to delivering net-zero carbon station and surrounding neighbourhood by 2030. Across the following pages, these are supported by a series of opportunities and outcomes against each principle, providing a framework to support and shape next stages of the masterplan - particularly the future management and measurement of sustainability outcomes, in addition to the integration and collaboration with the Future Neighbourhoods 2030 strategy.



Waterloo and South Bank will...

Net Zero

... support net zero neighbourhoods and development by 2030 that reduce London and Lambeth's carbon footprint

Climate Adaptation and Resilience

...adapt to a changing climate and support a resilient and safe public realm promoting access to nature and leisure

Buildings and Energy

... call for buildings and retrofits that are net zero and all electric, that prioritise circularity and address whole life carbon, and that support health and wellness outcomes

Air Quality

... have cleaner air though reducing road freight, promoting public and active mobility, and increasing green infrastructure

Transport and Movement

...prioritise people, accessibility, active and sustainable travel on healthy streets at a key London gateway

Waste, Consumption and Food

... reduce consumption based emissions and support healthier, planet friendly diets

Biodiversity and Environmental Quality

...have a public realm that is climate resilient, safe and promotes wellbeing and nature

Circularity and Resources

... optimise how materials will be reused and create spaces for the sharing economy

Net Zero

Scope 1 and 2 emissions for developments

London and LBL target is 2030, UK legal obligation is 2050

LETI target is 2025

Climate Adaptation and Resilience

Adaptation and resilience to extreme weather

Mitigation of urban heat island effect

Minimising flood risk and maximising resilience

Sustainable use and reuse of water

Buildings and Energy

Whole life carbon

Energy hierarchy

Consideration of construction, operation and deconstruction

Air Quality

Air quality positive approach

Improving local air quality

Impacts during construction, operation and deconstruction

Transport and Movement

Improve active travel and public transport networks

Cycle and micro-mobility infrastructure

Reduction in freight on road networks

Car free development

Waste, Consumption and Food

Zero waste community

Recycling, reuse, repair and sharing facilities

Urban food growing

Biodiversity and Environmental Quality

Green and blue infrastructure

High quality, safe and accessible public realm

Plant and wildlife habitat connectivity and ecological enhancements

LETI target is 2025

Circularity and Resources

Circular economy

Reuse of materials and planning for end of life

Adaptive reuse

Prefabrication and DfMA

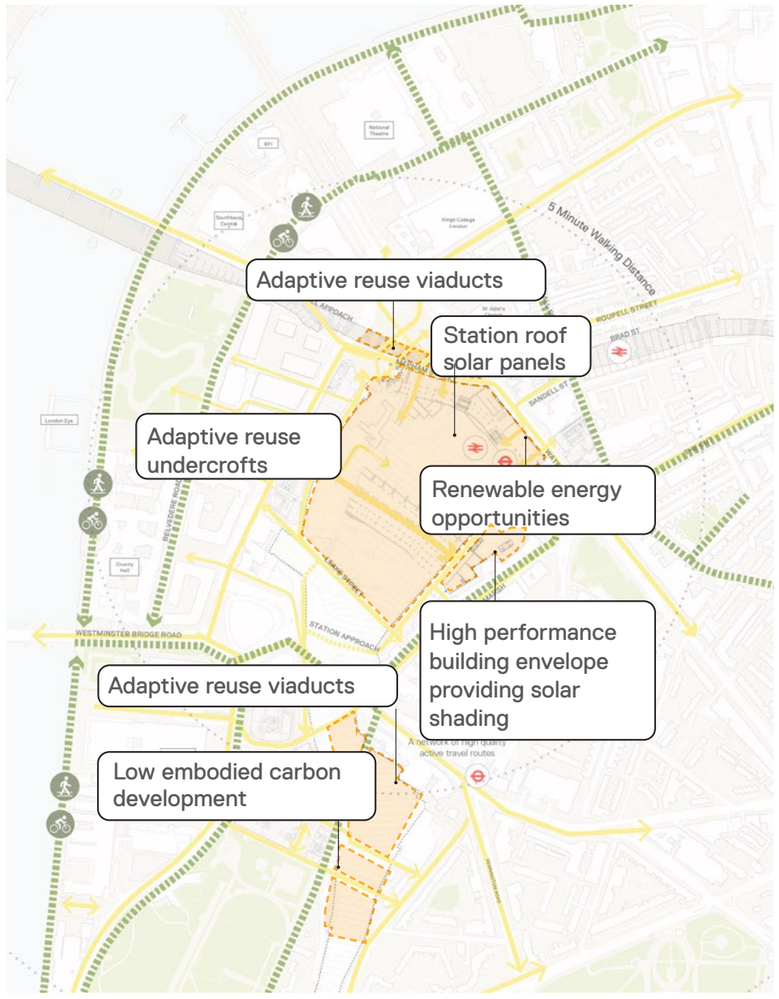
Separate waste streams

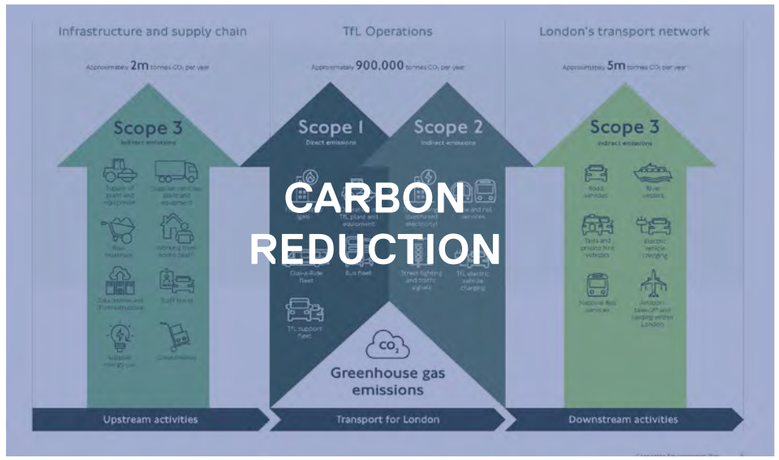
Environmental Opportunities and Outcomes

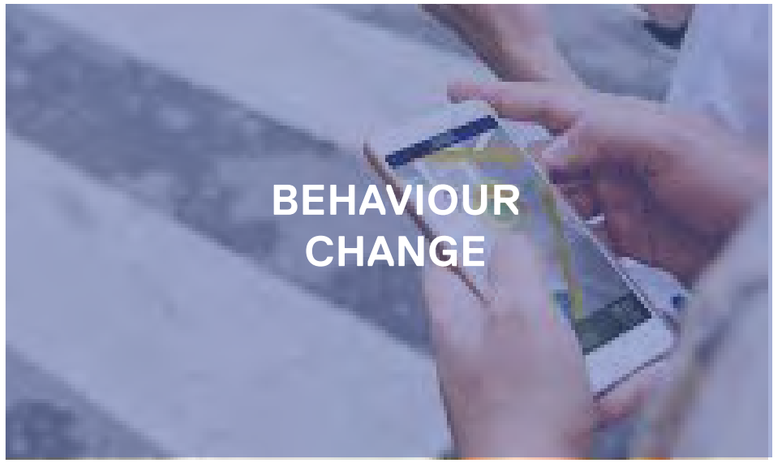
NET ZERO

Objective: Support net zero neighbourhoods, development and transport that reduce London and Lambeth's carbon footprint

Primary Opportunity / Outcome: Carbon reduction, behaviour change







Target climate positive measures that go beyond net-zero

Operational Carbon: Address scope 1, 2 and 3 operations, to achieve zero-carbon emissions. Operational energy saving measures shall be incorporated across future masterplan stages and emerging project/development pipelines, including:

- Optimising access to natural daylight
- High performance building envelopes providing solar shading
- Natural ventilation and free cooling
- Lighting strategies including efficient fixtures, integration with natural daylight potential and best practice controls.

Embodied energy and carbon impact of the materials and components for the masterplan buildings shall be reduced to as low as practicable and investigated in detail as part of a project life-cycle energy and carbon analysis.

Use of technology to support net-zero including (but not limited to) heat networks, electricity networks, solar PVs, electric vehicle charging, smart building fabrics, heat pumps, and smart heating controls.

SMART development - SMART (encompassing 'Internet of Things' enabled technologies) building and development infrastructure such as meters, building management systems (BMS) and energy storage systems

SMART meter installation, measurement and reporting Measurement and reporting frequency of developments

Accelerating modal shift to public and active transport

- Enhancing the experience of public transport and active travel
- Net zero station designed for the passenger
- Helping reduce carbon footprint with the support of technology, using private cars differently and minimising shorter local journeys made by car through increasing walkability and behaviour change

Behaviour change using technology

- Utilise digital interventions to promote a step-change in travel behaviour, reducing reliance on single occupancy private vehicles.
- Ensure recharging and refuelling infrastructure meets local needs, review parking quantums (whilst safeguarding blue badge locations), congestion management policies, initiate demand responsive travel.

Promoting and supporting positive behaviour change through communications and education

Carbon off-setting must be considered a last resort for future developments in Waterloo, focusing firmly on minimising carbon to set operation and embodied targets before considering offsetting of any residual carbon that remains.

CLIMATE ADAPTATION AND RESILIENCE

Objective: Adapt to a changing climate and support a resilient and safe public realm promoting access to nature and leisure

Primary Opportunity / Outcome: Develop a network of high quality, multi-functional green and open spaces to establish a crucial component of urban infrastructure to address environmental challenges.

Plant more trees and vegetation
Help sequester carbon and improve air quality.

Implement green infrastructure
Rain gardens and bioswales, can capture and store carbon in the soil. Extend and connect existing green infrastructure links.

Encourage a collaborate approach
Achieving carbon sequestration requires a comprehensive and collaborative approach involving stakeholders and disciplines to create a resilient urban environment.

Integrate plant species diversity and support biodiversity net gain across both flora and fauna
Enhance spatial diversity patterns and ecosystems services to create a healthy, resilient, and sustainable urban environment and habitats.

Champion climate-resilient species
Careful plant species selection that are able to cope with extreme temperature variations, potential flooding, drought and variable rainfall levels.

Select hardy species that are disease resistant through diversity of species selection
Review unique soil conditions and micro-climate to place the correct plant in the correct location to achieve success.

Incorporate plant diversity into building design
Introduce elevated green interventions where possible to provide additional opportunities for plant species diversity.

Improved human health and comfort
Due to reduced heat-related illness and air pollution levels, resulting in lower healthcare costs.

Increased tree canopy coverage
Reduces temperatures and provides wellbeing benefits.

Promote sustainable methods of transport
Encourage walking, biking, and public transport to reduce number of vehicles.

Reduced infrastructure costs
Green infrastructure mitigation strategies can reduce the need for costly grey infrastructure, such as stormwater systems.

Water management
Replace concrete and asphalt with permeable pavement or vegetation where possible, as part of a wider water drainage strategy including use of SuDS
Vertical green walls and roofs, and water capture and attenuation/storage systems
Increase water saving efficiency and reuse systems including circular water harvesting to reduce consumption and improve resilience
Reduction in water pollution
Increasing quality and access to water

Increase high-quality green infrastructure and canopy cover
Introduce quality green infrastructure that will absorb pollutants, provide shade, reduce energy consumption, and capture carbon dioxide.

Reducing vehicular dominance and congestion
Provide high quality public transport and an enhanced pedestrian and cycle network.

Educate the public
Raise awareness among the public about the health risks and encourage individual actions to reduce emissions.

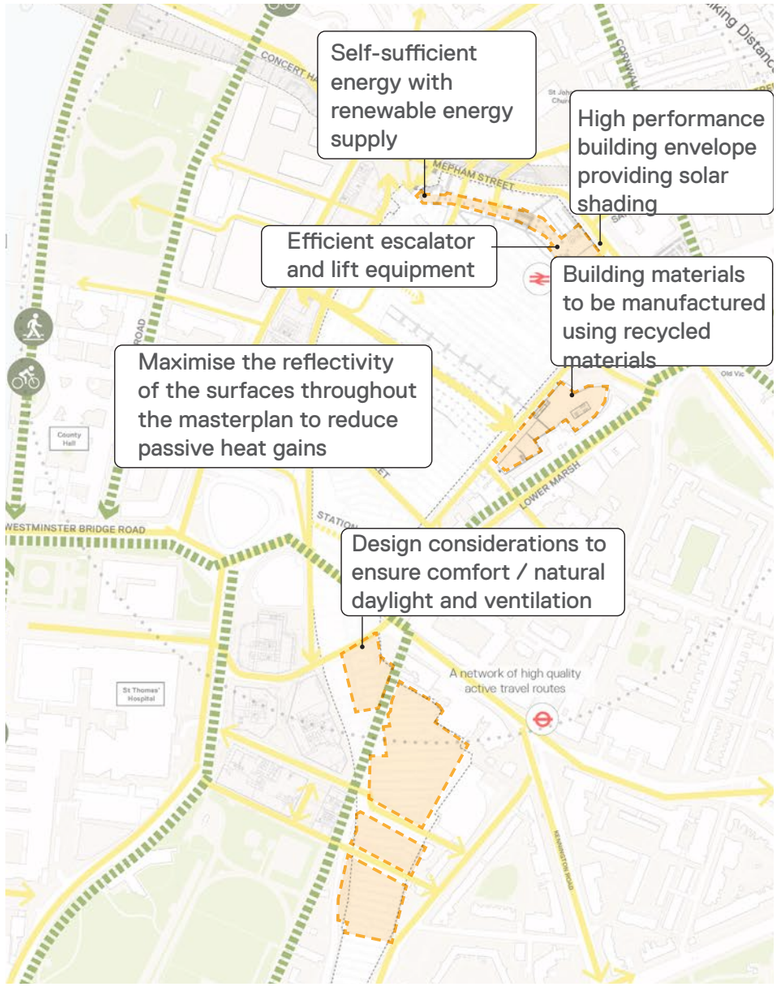
Monitor air quality
Use systems to identify areas with poor air quality and implement targeted strategies for improvement.

Environmental Opportunities and Outcomes

BUILDING AND ENERGY

Objective: Call for buildings and retrofits that are net zero and all electric, that prioritise circularity and address whole life carbon, and that support health and wellness outcomes

Primary Opportunity / Outcome: Carbon reduction, behaviour change



Adaptive buildings and infrastructure - Carry out an Embodied and Whole Life Carbon Assessment using an IMPACT compliant tool. This data can be used to manage out carbon during the design stage. Post construction the data can be aggregated to provide a benchmarking database for futre developments in Waterloo. This aligns with the UKNZCBS and LETI ambitions.

Responsible Materials

- Materials used within developments that are designed for reuse at the building's end of life by 2030
- Use of locally sourced materials
- Use of prefabrication and design for manufacture and assembly (DfMA) to minimise waste

Maximise construction waste diverted from landfill through reuse and recycling

ENERGY EFFICIENCY

All new developments within the masterplan shall comply with the UK net zero carbon buildings standard (UKNZCBS)

Adopt Energy Hierarchy

35% reduction beyond Building Regulations 2021

15% over Part L from energy efficiency measures

Planning for grid integration, energy storage, and electric vehicles

Implementation of District Heating | London Heat Network

Forms of energy generation (water, ground, air source heat pumps, tidal, wind, solar, kinetic, London Underground)

Maximise the station's potential to generate local energy

Solar PVs on large roof area

Capturing waste heat from underground e.g. Bunhill 2 Energy Centre, Northern Line

CERTIFICATIONS

EPC C or above

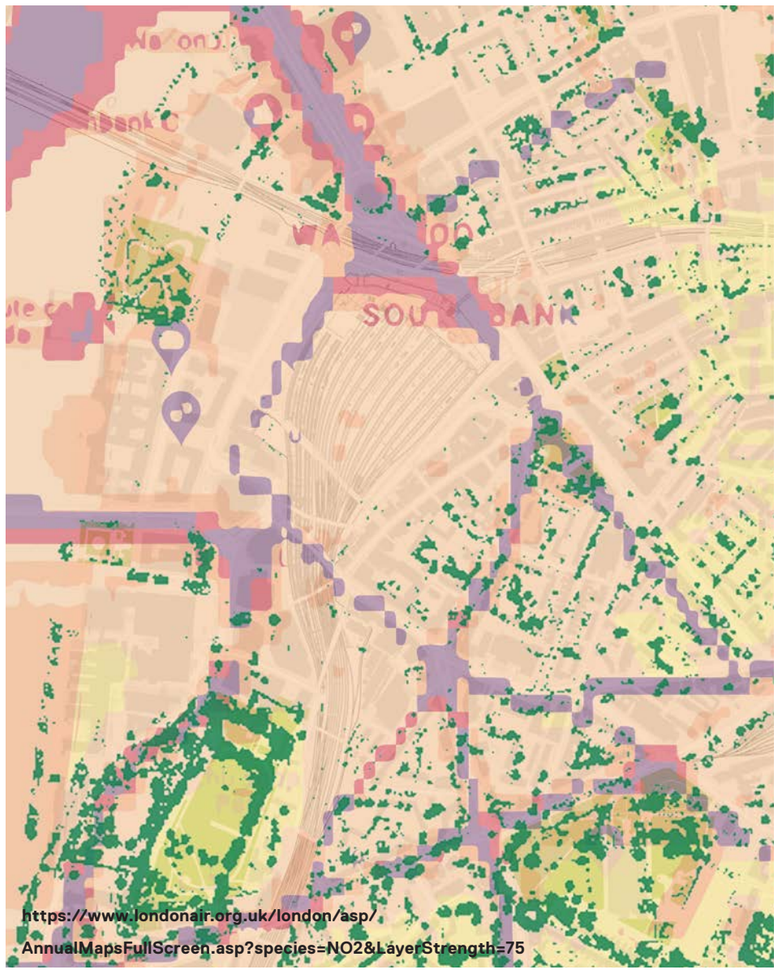
BREEAM (target excellent as a minimum with landmark buildings required to achieve outstanding) / LETI / Passivehaus guidelines

CLOCS and FORS or equivalents

AIR QUALITY

Objective: Improve air quality through reducing road freight, promoting public and active mobility, and increasing green infrastructure.

Primary Opportunity / Outcome: Introduce interventions to clean air such as biodiversity and ecological resilience, promote healthier living environments for city dwellers and minimise the effects of climate change.



https://www.londonair.org.uk/london/asp/AnnualMapsFullScreen.asp?species=NO2&LayerStrength=75

Protect and link habitats and create biodiversity net gain across plant and wildlife species Support and extend existing habitats to create ecological resilience and deliver biodiversity net gain. Habitat links provide pathways for pedestrians and cyclists, promoting active travel.

Absorb air pollutants Trees and plants can help reduce the concentration of air pollutants, targeting high traffic areas, in particular around Waterloo station.

Climate adaptive plant species selection Plant robust, climate resilient species that can withstand disease and extreme weather conditions to increase chances of survival.

Connection to nature Develop connection to nature to encourage positive behaviours towards the environment and habitats, integrate planting within streetscapes that attract insects/birds/polinators in addition to bug hotels, bird boxes, and swift bricks. Capitalise on high footfall and visitor numbers to visibly promote and showcase local nature-based and healthy streets interventions.

Encourage sustainable methods of transport
The most effective way to reduce emissions is to reduce the source. Creating more legible routes and a comfortable walking environments will encourage active and sustainable transport methods and minimise the use of private car use.

Improved mental and physical well-being
Improved air quality can reduce the frequency and severity of respiratory symptoms and encourage exercise outdoors. Creating a pleasant outdoor environment promotes social interaction and sense of belonging.

Encourage people to shop 'local'
Walking to local facilities reduces individuals carbon footprint, supports local community, creates local jobs and develops sense of belonging.

Minimise air pollution sources In addition to encouraging the use of active and sustainable travel, other sources of pollutants such as idling vehicles, freight and construction sites for example should be minimised.

Sequester carbon dioxide from the air Implement green infrastructure measures such as ecological corridors, climate-resilient planting, adaptive management strategies, and bioswales.

Reduce impact of severe weather events Improved air quality reduces the risk of greenhouse emissions, reducing cloud formation, ozone depletion, and reducing the urban heat island effect.

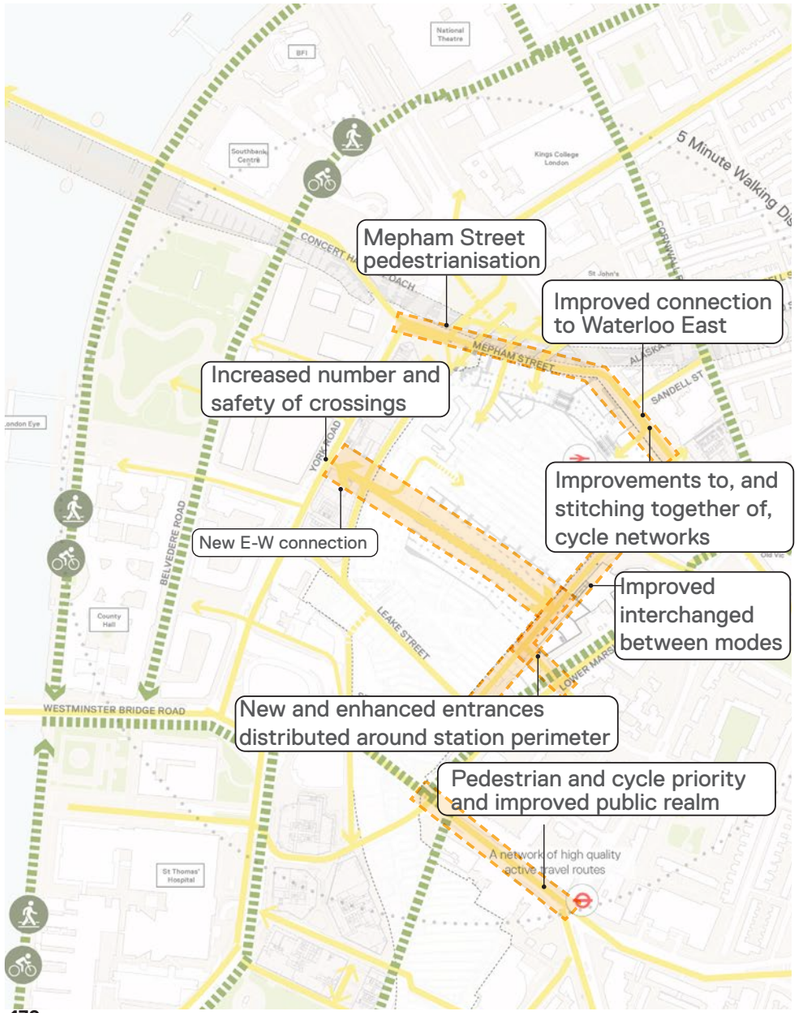
Provide sustainable urban drainage systems Minimise impermeable areas and encourage infiltration where appropriate. Design SuDS for wildlife and amenity value, connecting green and above ground SuDS. Reduce surface water runoff rates to the greenfield runoff rate equivalent and improve water quality.

Environmental Opportunities and Outcomes

TRANSPORT AND MOVEMENT

Objective: Prioritise people, accessibility, active and sustainable travel on healthy streets at a key London gateway.

Primary Opportunity / Outcome: Promote and encourage use of active and sustainable travel and shared mobility, reduce vehicle use, improve air quality



Increasing the station's permeability: New E-W connection across the station. New and improved station entrances, supported by activation.

Pedestrian friendly public realm: Design encouraging of mass transit use and is integrated into pedestrian friendly public realm, designed/configured to provide convenient inter-modal connections, promoting walking.

Prioritising pedestrian and cycle access by removing traffic dominance: Increased regularity and safety of pedestrian crossings on key desire lines. Pedestrianisation of key public realm around the station - Mepham Street and Cab Road.

Uplifting the cycle parking provision: Providing dispersed cycle parking at station entrances with 4,500 dedicated cycle hub spaces, 600 spaces in the public realm around the station perimeter, and 875 Sheffield stand or TfL cycle hire spaces across the wider Waterloo area. Repurposing of parking spaces increases local cycle and micro mobility parking in response to the LBL Kerbside Strategy.

PROMOTING SHARED MOBILITY

Increased quantum and accessibility of e-bike and cycle hire docking spaces.

Taxi ranking to support integrated rapid charging.

Capitalise on Waterloo as major transport node: with improved walkability, accessibility and active travel connections.

Freight management: Incorporation of freight consolidation centres across large or retail developments to reduce trips - during both construction and operation. Potential opportunity for rail freight hub at Lambeth North site using old rail spur to support last mile deliveries with e-cargo bikes - reducing road freight.

Reallocate space dedicated to parking for private vehicles: Minimise private parking, with provision as necessary for blue badges and EVs. Reallocate space for local community benefit - LBL Kerbside Strategy.

Allow for electric vehicles and bikes to minimise air pollution: Charging infrastructure to be incorporated across the masterplan area - LBL Kerbside Strategy.

IMPROVING AIR QUALITY

Reducing car and wider vehicle dominance and congestion by providing high quality public transport, an enhanced pedestrian and cycle network, and consolidating freight.

Reducing air pollution and noise.
Increased greening and biodiversity.
Technology and fuel switching.

WASTE, CONSUMPTION AND FOOD

Objective: Reduce consumption-based emissions, construction materials and connect landscape elements to local policies. Encourage circular economy principles at the heart of Waterloo's development.

Primary Opportunity / Outcome: Unlock and utilise underused spaces for sustainable urban food production based on permaculture principles. Encourage re-use and recycling of building 'waste' materials.

Unlocking underutilised spaces
Utilise neglected, vacant spaces of land for social, economic, and environmental benefits, such as meanwhile use.

Community gardens
Engage local communities and teach them how to grow their own food. The benefits of food growing can increase participation and support for urban farming and community cohesion. e.g. building on FN2030 proposals for food garden in Archbishop's Park.

Edible landscapes
Incorporate edible plants such as fruit trees, herbs, or berry bushes into public spaces such as streetscapes or parks. This can provide a source of food for the community.

Permaculture design
Encourage a holistic approach to agriculture that mimics natural ecosystems that can create sustainable food systems in an urban context.

Promote sharing economy models Encourage the sharing of products and services such as car sharing, co-working spaces, and bike-sharing over private ownership

Implement waste reduction strategies Such as composting, recycling, and upcycling to minimise waste and promote the reuse of resources.

Promote local production Encouraging the support of goods and services can reduce transportation emissions and promote the use of local resources.

Educate consumers Encourage consumers to learn about the benefits of sustainable consumption and provide information on how to make more sustainable choices.

Design for replaceability Designing products and buildings to facilitate easy removal and upgrade in elements such as cladding, windows etc.

Design for disassembly Designing products and buildings for disassembly makes it easier to recover and re-use materials at the end of their lifecycle.

Design for longevity The products or buildings have been designed to avoid a premature end of life for all components (maintenance and durability).

Encourage repair and refurbishment Extend a material or products lifecycle and reduce the need for new resources.

CIRCULAR ECONOMY

Circular economy approach for construction
Encourage green building schemes and regulations to minimise waste and energy consumption.

Adopt modular methods of construction Constructing buildings and product components off-site, which can reduce waste and promote resource efficiency. Opportunity for electric Non-Road Mobile Machinery for construction (NRMM).

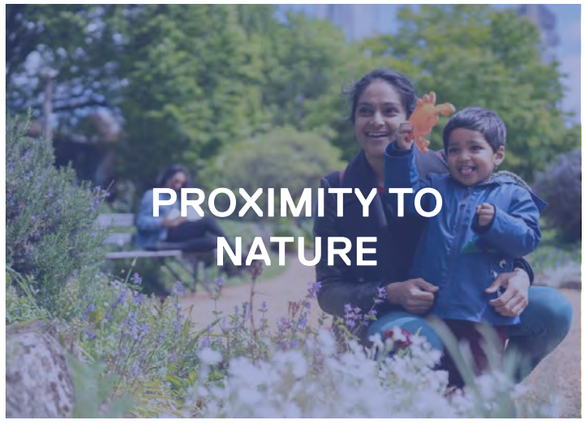
Promote material re-use and sustainable consumption Create closed-loop systems can promote the recovery and re-use of resources. Promote bio-based materials and low-carbon cement that can reduce the environmental impact of construction.

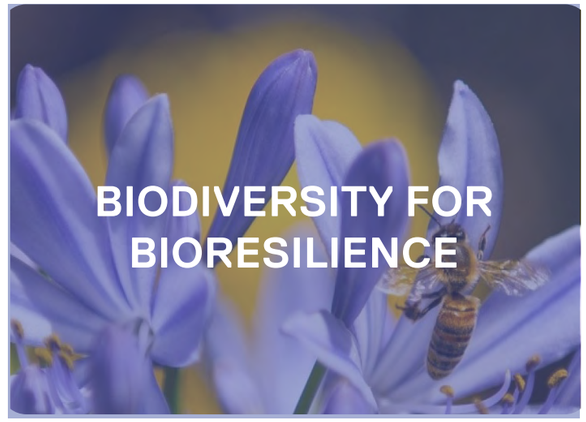
Environmental Opportunities and Outcomes

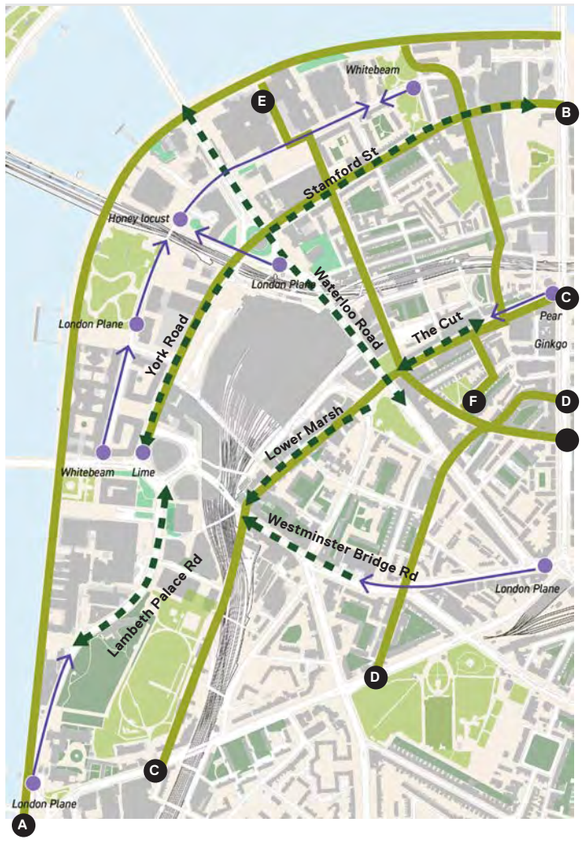
BIODIVERSITY AND ENVIRONMENTAL QUALITY

Objective: Deliver a balance and flexibility of open green spaces to deliver a thriving urban ecosystem for site users and their needs.

Primary Opportunity / Outcome: Climate adaptive marker trees and green infrastructure to aid wayfinding, natural navigation, and bio-resilience. Greater diversity of public space typologies and connected ecological ecosystems for biodiversity and bio-resilience.







Nature recovery areas Adopt local nature recovery strategy principles to protect and increase connectivity between existing habitats, and create new habitats and features for wildlife including measures to support pollinators, insects and birds such as bird boxes, swift bricks and bug hotels.

A variety of public, high-quality green spaces Understand the supply and demand of open spaces. Provide a balance of public realm places for residents and transient population, for all ages. Longevity of meanwhile use and value to the community.

Deliver multi-functional spaces Design flexibility into public open spaces, allowing for a variety of activities.

Feature integrated play opportunities Majority of play spaces are destination play. Provide additional play typologies such as doorstep play, incidental play, sensory play etc. that are multi-generational and accessible.

Healthy Streets approach Create high-quality environments, utilising Healthy Streets as a human-centred framework for a comfortable street environment.

Kerbside spaces Conversion of vehicle space to community green spaces through pavement buildouts and parklets

Improved mental health and wellbeing
Access to green spaces can help reduce stress, anxiety, and depression, and improve overall mental well-being.

Improved physical activity and social connections
Provide opportunities for social interactions and community building, leading to improved social connections and sense of community. Living near parks or natural areas can encourage people to engage in outdoor activities

Increased biodiversity, habitat connectivity and ecological enhancements
Support a wide range of plant and animal species, contributing to urban biodiversity and increase the ecological value.

Economic benefits
Access to green spaces can increase property values and attract businesses, leading to economic benefits for cities and their residents.

Protect, connect and enhance in the delivery of a net gain in biodiversity across Waterloo

Improved ecological ecosystems Implement a number of green infrastructure measures such as ecological corridors, climate-resilient planting, adaptive management strategies, and bioswales. Additional measures including bug hotels, bird/bat boxes, swift bricks should be incorporated to support insects, birds and pollinators. These will support bioresilience, increase and connect habitats and promote biodiversity net gain.

Utilise Natural Capital Accounting Protocol As a best in practice tool through design stages to drive and maximise the ecosystem services benefits of proposed schemes and map and measure the changes in stock and condition of existing and emerging ecosystems in the area.

Support Local Biodiversity Action Plans Conform to Lambeth's Biodiversity Action Plan reports and select planting species that support wildlife species to create more habitats.

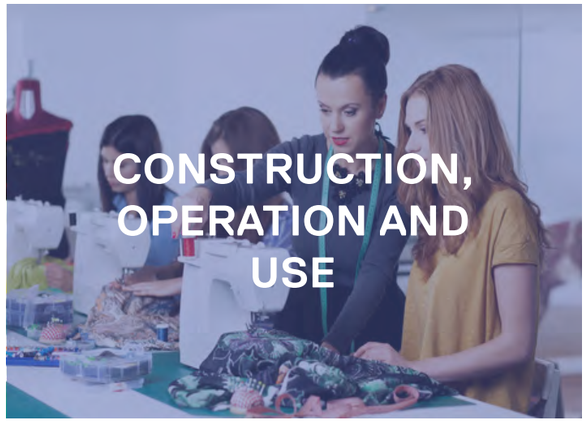
Incorporate climate-smart design features Adopt measures such as green roofs and SuDS that can help manage stormwater, reduce heat island effects, and provide habitat for wildlife.

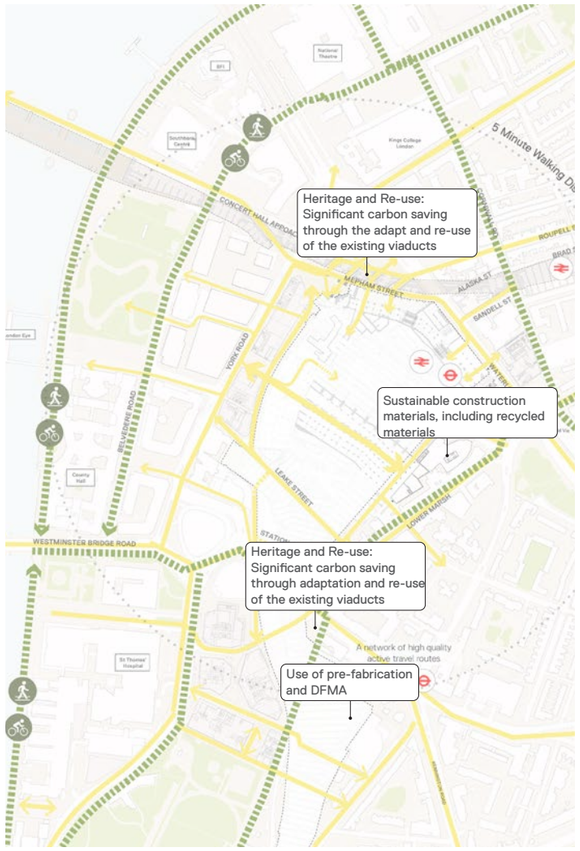
Minimise any negative impacts on local ecology derived from construction and development

CIRCULARITY AND RESOURCES

Objective: Optimise the reuse and recycling of materials and create spaces for the sharing economy

Primary Opportunity / Outcome: Maximise the use of technology and innovation throughout design, construction, operation and in use phases to minimise waste and encourage reuse and recycling





Optimise resource use in design and construction

Areas of dedicated storage of general and recyclable waste

Promote flexibility, modularity and durability

Minimise waste and maximise recycling during construction

Promotion of waste hierarchy to optimise reuse and recycling options

Where demolition is to occur, use of urban mining bank to ensure there is a bank of materials

Off-site fabrication and use of design for manufacture and assembly (DfMA)

Promote the reuse and sharing of household items and business assets through community sharing platforms

Self sustained communities including food production, and job generation

Past and real-time data to predict demand and manage inventory, minimising waste and enhancing sustainable operations

Re-manufacture and re-use of end-of-life consumer products

Preserving and enhancing renewable resources

Co-benefits Through Landscape Interventions

Overview

Landscape interventions are often viewed through an environmental lens, with a focus on improving biodiversity and mitigating the impacts of climate change. However, these interventions also have the potential to deliver significant social benefits.

This section explores some of the social co-benefits of landscape interventions and the social and environmental value they can generate.

Co-benefits

Biodiversity and Environmental Quality

- Green and blue infrastructure
- High quality, safe and accessible public realm
- Habitat connectivity and ecological enhancements

Climate Adaptation and Resilience

- Resilience to extreme weather
- Mitigation of urban heat island effect
- Sustainable use and reuse of water

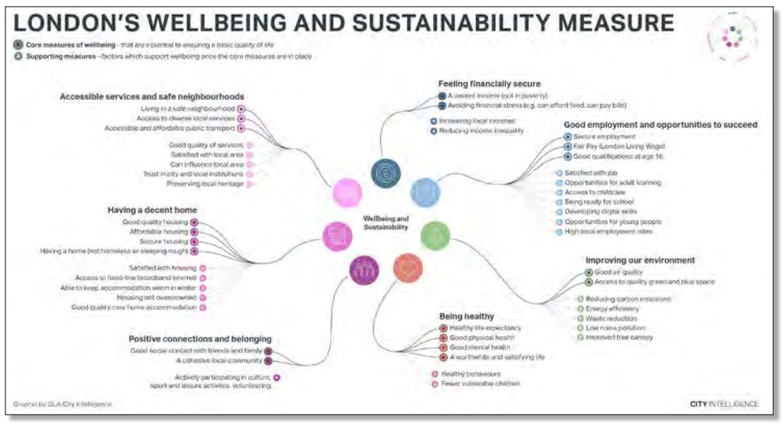
Transport and Movement

- Improve active travel and public transport networks
- Reduce freight on road networks by facilitating freight consolidation
- Car free development

Waste, Consumption and Food

- Zero waste community
- Recycling, reuse, repair and sharing facilities
- Urban food growing
- Freight consolidation linked to most intensive uses of servicing e.g. consolidation centres

QUANTIFYING CO-BENEFITS



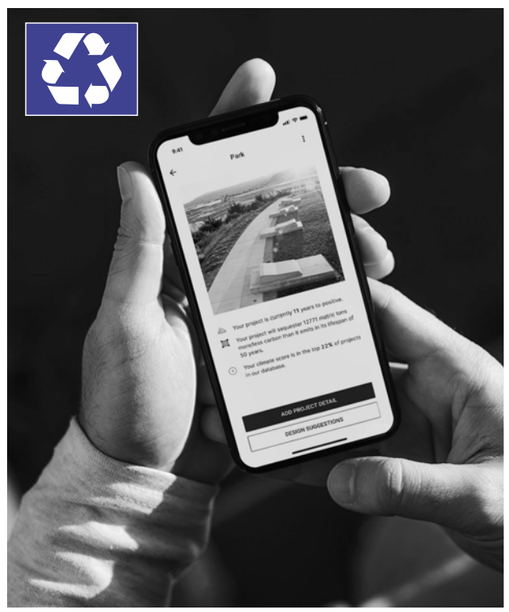
Climate Adaptation and Resilience

Urban Farming - Utilising Estate Land for Urban Farming

Elevated Nature Based Solutions

Meanwhile Uses

Collective Circular Economy



Landscape Co-Benefits Effects of Climate Change, Behaviours & Systems

Overview

To align with the Mayor of London's Targets for Net Zero Neighbourhood by 2030, the effects of climate change and current behaviours and systems need to be inspected and changed.

There are negative repercussions of low canopy coverage in Waterloo, rising temperatures and poor air quality, with direct impact on climate vulnerability.

Air Quality

Air quality is a particular concern for Waterloo with areas where the World Health Organisation limits are being exceeded. DLD College and London College of Printing & Distributive Trades exceed the NO2 legal limit. The whole neighbourhood is within the ultra-low emission zone with particular focus on Waterloo Road which is a designated Air Quality Focus Area (AQFA).

Areas with the poorest air quality are major arterial roads with an impermeable tarmac surface.

Relevant Documents

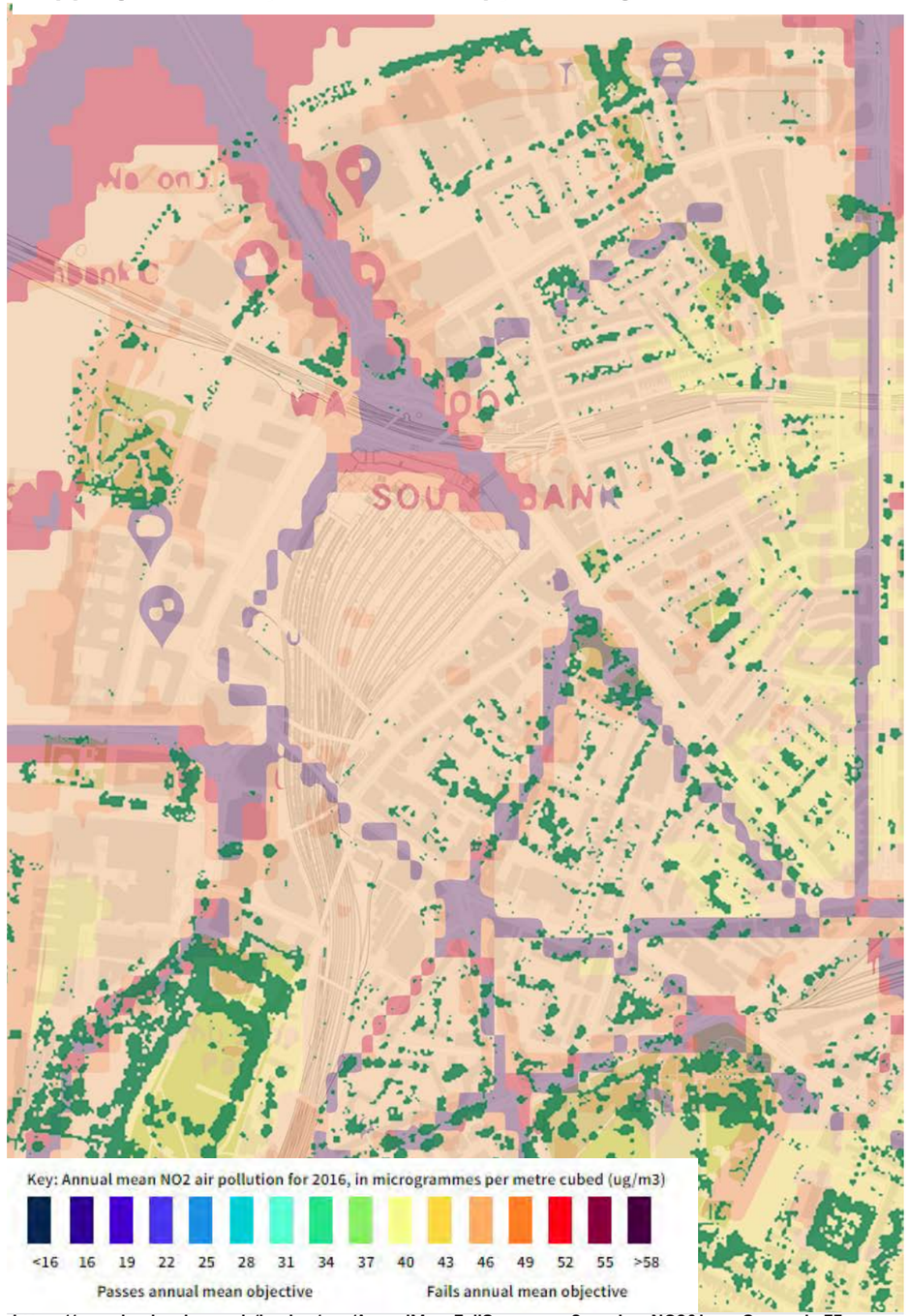
Decarbonising heat in Lambeth - Carbon Trust

- Identifies measures that can be implemented to decarbonise heating in buildings and the costs and benefits of the measures.
- Identified potential zones for heat networks in the Borough.
- Assesses pathways to heat decarbonise for the Borough to 2030 and 2050.

Air Quality Action Plan

- Actions to improve air quality and protect vulnerable residents from pollutants exposure.

Mapping Air Quality and Tree Canopy Coverage



https://www.londonair.org.uk/london/asp/AnnualMapsFullScreen.asp?species=NO2&LayerStrength=75

Landscape Co-Benefits Climate Vulnerability

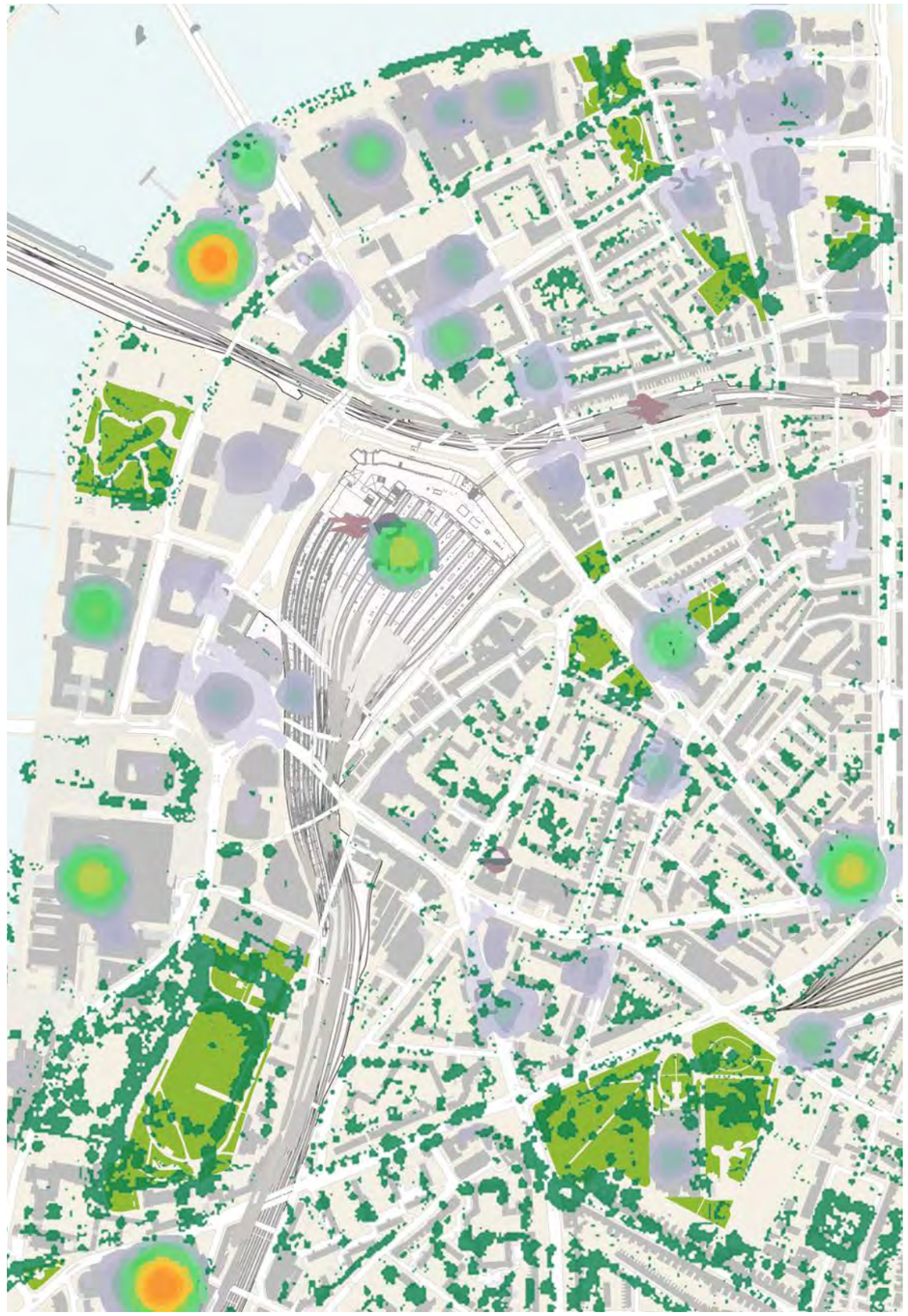
Overheating

There is an opportunity to introduce integrated sustainable drainage systems and soft landscape solutions to alleviate the urban heat island effect and alternative ways to collect surface water run-off.

Relevant Documents

Decarbonising heat in Lambeth - Carbon Trust

- Identifies measures that can be implemented to decarbonise heating in buildings and the costs and benefits of the measures.
- Identified potential zones for heat networks in the Borough.
- Assesses pathways to heat decarbonise for the Borough to 2030 and 2050.



Heat map displaying areas of heat demand in red. Areas with a high density of heat demand will appear more opaque. Areas of zero heat demand will appear transparent.

Landscape Co-Benefits Climate Vulnerability

Flooding Risk

London has been impacted by multiple sources of flooding and the risk is increasing with climate change. Surface water flooding is the main risk to London.

Surface water can be positively managed and reduced though SuDS. A London Sustainable Drainage Proforma will be mandatory for all referable planning applications as of April 2019.

SuDs can create more pleasant landscapes, streets and settings for London's residents and environment. The key is to identify when and where other planned maintenance, repair or improvement works are scheduled and then to identify opportunities to retrofit sustainable drainage as part of those works.

New public realm interventions should also be assessed for their capacity to integrate a variety of SuDS features during early stages of site analysis. Features including a range of permeable surface types, rain gardens, wet/dry depressions in larger green spaces, and water filtration should be considered within future proposals.

Relevant Documents

London Sustainable Drainage Action Plan

- Identifies measures that can be implemented to manage rainwater as a valuable resource rather than a waste product.
- Suggests sustainable drainage systems that mimic the way nature manages rainwater.
- Recommends embedding these methods into national and local planning systems including the Mayor's London Plan.

https://www.floodmap.net/?gi=2643741

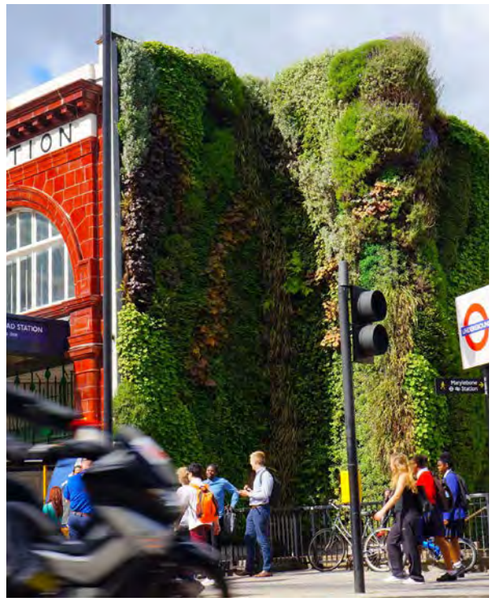
Landscape Co-Benefits Green Infrastructure

Key Findings

- Green infrastructure provides accessible and inclusive public spaces that promote social cohesion and community engagement.
- Development of meaningful landscape-led strategies that are robust and long lived.
- Creation of high-quality green spaces network within walking distance of homes for well-being to deliver a thriving urban ecosystem.
- Climate adaptation and resilience can help to mitigate climate change risks. Arguably the most important action is to take action and encourage communities to mitigate the damage, and prevent the climate and ecological emergencies from getting worse.
- Green infrastructure can provide new job opportunities, particularly in the areas of planning, design, and maintenance of green spaces.

Biodiversity Net Gain & UGF

- These mitigation methods are quantified and can be used to aid metrics such as biodiversity net gain and urban greening factor in new developments, to assess the value of a project or development to wildlife.

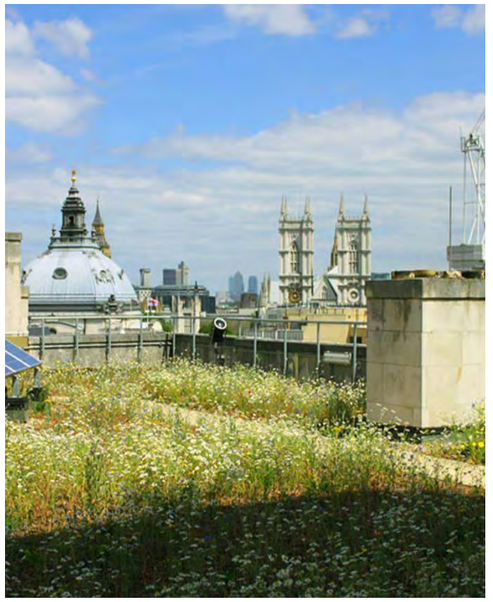


Living Wall (Edgeware Station, London)

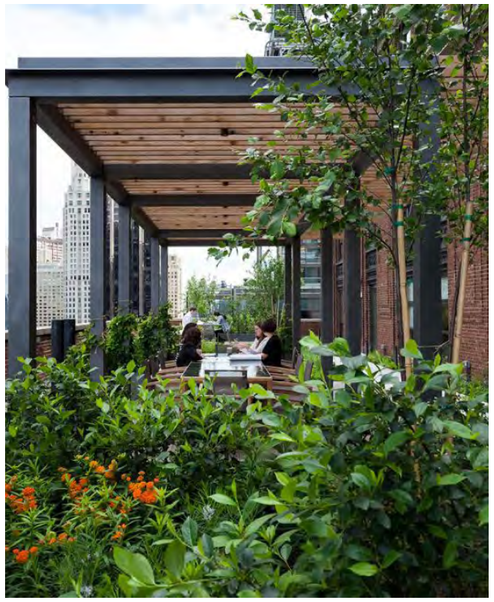
Verdant elevated walkways and pocket gardens (Bagley Walk Kings Cross, London)

Sustainable urban drainage systems (Grey to Green Scheme, Sheffield)

Communal Courtyard



Biodiverse green roof



Communal roof terrace

Landscape Co-Benefits Plant and Tree Species Diversity

Existing low species richness results in less productive ecosystems, supports fewer wildlife species and results in an inability to withstand environmental stresses. To develop a resilient and climate adaptive tree palette, species selection is of high importance.

The introduction of a climate-adaptive tree replacement strategy and diversity age and species composition of urban trees in Waterloo is imperative.

Trees reduce the amount of carbon in the atmosphere by sequestering carbon in new growth every year. The trees listed on this page could form the backbone of a carbon sequestering scheme.

A diverse tree canopy also creates a more aesthetically pleasing and distinctive urban environment, contributing to a sense of place and pride in the local community.

Best Trees for Sequestering Carbon

Acer pseudoplatanus, Sycamore 200-300 years

Gingko biloba, Maidenhair Tree 500-1000 years

Liriodendron tulipifera, Tulip Tree, 200-300 years

Carpinus betulus, Hornbeam 200-300 years

Quercus ilex, Holm Oak 500-1000 years

Taxus baccata, Yew, 500-600 years

Fagus sylvatica, Beech, 300-400 years

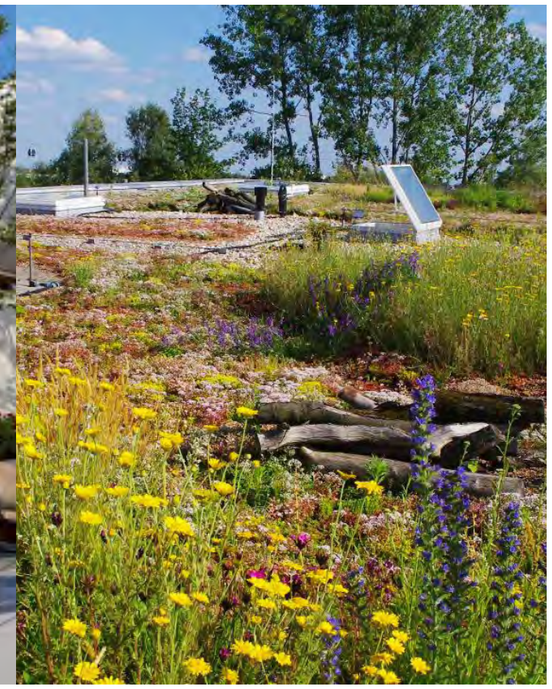
Juglans nigra, Black Walnut, 200-300 years

https://www.rhs.org.uk/plants/types/trees/for-climate-change

Landscape Co-Benefits Elevated Nature Based Solutions

Green Walls and Podiums

- Communal podiums and roof spaces provide opportunities for residents to gather and socialise, building a sense of community and connection among neighbours.
- Elevated landscape spaces are essential to greening in urban environment, utilising vertical surfaces and podiums for planting and amenity.
- Roof and podium spaces can include ecologically-focused planting areas, biodiverse green roofs and bug hotels. This will reduce temperatures in cities, absorb pollutants, create habitats, and improve well-being.
- Build on new techniques that integrating green infrastructure into the urban fabric (biosolar roofs, intensive, blue roofs, slowing water). Undulating substrate depth creates space for gravel beds, while shallow water depressions provide resting spots for wildlife.
- This also presents opportunities for urban food growing on roofscapes.



Landscape Co-Benefits Urban Farming and Community Cohesion

Waterloo has the potential to become a beacon of sustainable urban food production based on permaculture principles that encourage self-sufficiency.

Urban farming provides opportunities for residents to come together and work towards a common goal, building a sense of community and connection among neighbours.

Relevant Documents

London's Food Footprint, ReLondon (2021)

- An analysis of material flows, consumption-based emissions, and levers for climate action.

The Skip Garden, Kings Cross

Garden of Earthly Delights, Hackney

Good to Grow Day 2022

Landscape Co-Benefits Utilising Estate Land for Urban Farming

There is an opportunity to utilise estate land for urban farming and support sustainable living and hands-on education for communities. This could unlock the underutilised space and increase its value, due to the aesthetic and social benefits that urban farming provides.

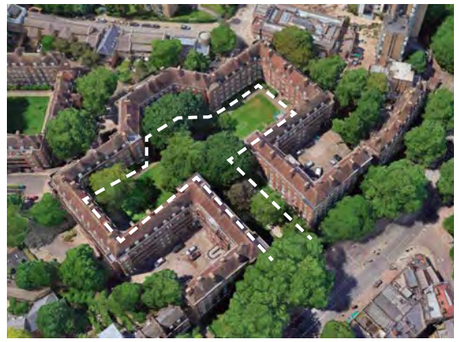
Microclimate is a key consideration to these areas, utilising sun/shade and local conditions.

Existing Condition

Stamford Street, Peabody

Webber Row, Peabody

Wellington Mills Cooperative



China Walk

Legend

1. Colin Street Community Builders
2. Duchy of Cornwall Estate
3. Stamford Street, Peabody
4. Lambeth Estate
5. Wotton Street
6. Mitre Road & Ufford St
7. Webber Row, Peabody
8. Webber Row, LCC
9. Wellington Mills Cooperative
10. Lambeth Towers
11. China Walk

Estates

Open Space Opportunity

Public Realm Connection

Resident Activation

Potential Food Network

'Good to Grow' Sites

Landscape Co-Benefits Urban Farming and Community Cohesion

Development sites in London are vacated months, if not years before construction begins, and on larger sites some parts remain empty until the last phase of development. In these instances, temporary landscapes can promote social equity by providing additional communal spaces and recreational opportunities in underserved and marginalised communities.

Encouraging developers to utilise vacant land as temporary homes, pop-up businesses or 'meanwhile' schemes can realign perceptions and encourage social benefits.

Relevant Documents

Meanwhile, in London: Making use of London's empty spaces by Centre for London

- Identifies key hurdles on why vacant land is underutilised
- Recommendations of Meanwhile uses

Meanwhile Use London: Research Report for The GLA

- Identifies key hurdles on why vacant land is underutilised
- Recommendations of Meanwhile uses

The Skip Garden, Kings Cross

The Platform Project, turned unused railway building into a startup business hub, Loughborough Junction, Lambeth Council and Network Rail.

Railway Arches activation by Meanwhile Use

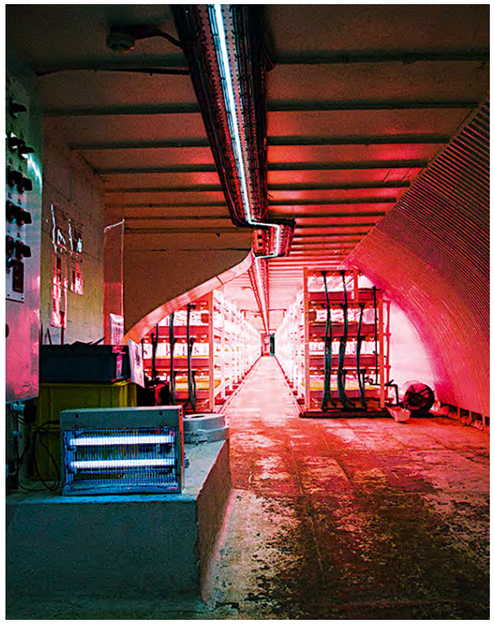
Landscape Co-Benefits Unlocking Underutilised Spaces

Urban Farm Recommendations

The Skip Garden

King's Cross

The sustainable community garden from Global Generation. A moveable vegetable garden built in skips has moved around King's Cross as it has been developed. Each time, growing in scope and scale. A mission to connect people to nature in the middle of the city.



Growing Underground

Clapham Common

Air-raid tunnel converted into a year-round salad factory. These greens are sold at Borough Market suppliers, and online through the free delivery service Farmdrop. The farm aims to reduce food miles, spoilage and imported foods.

Spitalfields City Farm

Spitalfields

Opened farm in 1978 when local allotment gardens were demolished. Site is filled with herbs and produce. Visitors can purchase seasonal produce.

The GrowUp Box

Marlborough Playground

Part greenhouse and upcycled shipping container, this invention features an aquaponic ecosystem. This is a prototype for future sustainable urban farms.

Landscape Co-Benefits Skills and Knowledge Sharing

‘Good To Grow’ Initiative

- Map of green skills education providers to understand where employers can find people and share knowledge. Identify cultural groups and include plants that are representative of local communities and are climate resilient (food growing opportunities)
- Opportunities to fill any gaps
- Need for collaboration, better promotion and programming
- Community involved in planting days and maintenance
- Placemaking / educational initiatives / social cohesion


St John’s Churchyard Community Garden


Charles Dickens Forest School Garden and Nursery


Blackfriars Road Community Garden


Diversity Garden


Archbishop Sumner Primary school Eco Garden


The Garden Museum

Landscape Co-Benefits Collective Circular Economy

Circular Economy Social Impact

- A collective circular economy promotes social equity by providing access to resources, shared services and economic opportunities to marginalised and low-income communities.
- By promoting resource efficiency and reducing waste, a circular economy can increase the resilience of communities and businesses, making them more resilient to environmental and economic shocks.

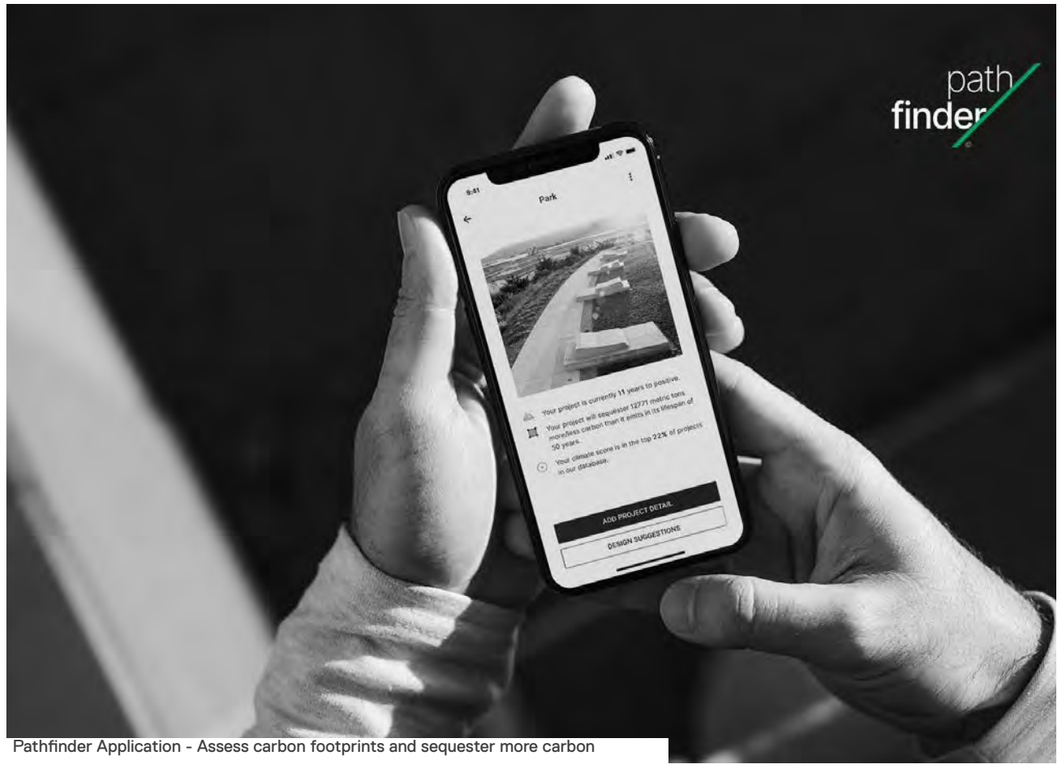
Emerging Sustainability Strategy

- An assessment of the method of materials and their source needs to take place, and alternative solutions need to be provided.
- The use of supplier information on embodied carbon can be used to assess carbon quantums.
- Utilising applications such as 'Pathfinder', combined with 'embodied and whole life carbon assessments can quantify the environmental impact of a development. Metrics such as this have the opportunity to be included in policy.
- Innovative and creative re-uses of disused materials can assist with circular economy targets.

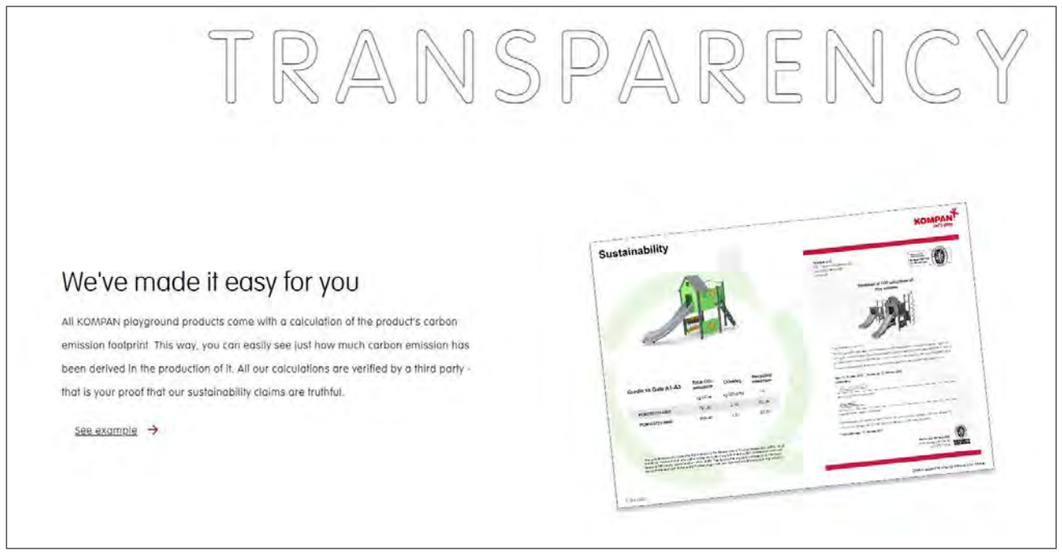
Relevant Documents

London Environment Strategy (2010)

- Vision for improving London's environment, from cleaning up the toxic air to creating new green spaces.
- Implementation plan outlining actions by the Mayor and priorities over the next 5 years



Pathfinder Application - Assess carbon footprints and sequester more carbon



Kompan Play Equipment supplier - Screenshot of Carbon emissions footprint document

Developing a Social Value Vision for Waterloo and South Bank

This chapter considers how to integrate social value into the masterplan process from the earliest stages.

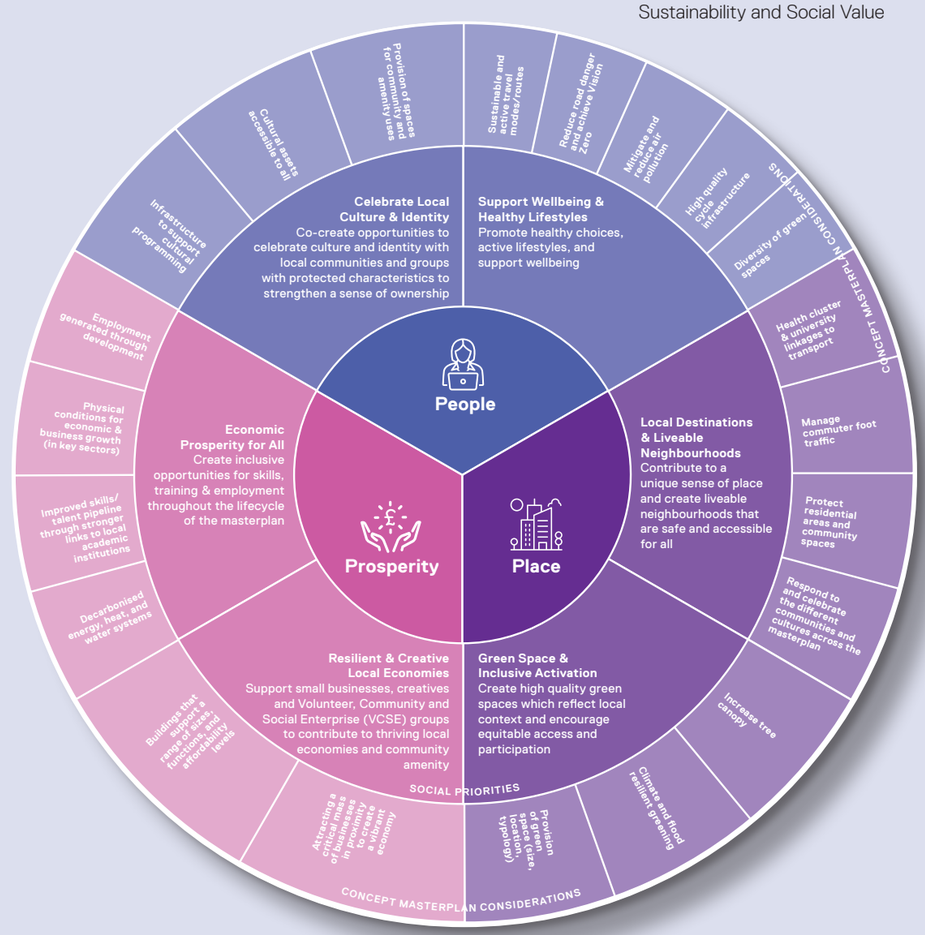
This section presents the Social Value Vision for the masterplan in alignment with current best practice, such as the UK Green Building Council's Framework for Social Value.

The framework emphasises the importance of defining important social value outcomes at an early stage through an iterative process that considers purpose, stakeholder and beneficiary groups, and seeks to understand local need in an evidence-based way.

In developing this vision, the team has carefully considered strategic policy drivers, socio-economic baseline conditions, and stakeholder views and insights, developing priorities and outcomes structured across three core themes: 'Prosperity, People and Place'.

A holistic view of social value seeks to harmonise outcomes for people, place and prosperity, for all. The social value wheel examines key social priorities that have emerged from the evidence base and masterplanning process, aligning each with a series of potential masterplan considerations and responses.

These social priorities are a guiding framework for social value across the masterplan lifecycle. At concept stage, the social priorities helped guide design decision-making as well as facilitated review of implications across stakeholders and user groups.



Celebrate Local Culture and Identity

- Celebrating and enhancing the unique identities of different character areas including gateways to destination streets such as South Bank, Lower Marsh, The Cut and Leake Street
- Supporting creative and cultural businesses and affordable maker-spaces
- Creative branding, signage and wall murals aiding wayfinding and highlighting heritage and creative Waterloo identity
- Identifying meanwhile, flexible and permanent spaces to support community activity and amenity

Supporting Wellbeing and Healthy Lifestyles

- Station threshold public realm improvements that prioritise pedestrian safety
- Improvements to Lambeth North area with pedestrian and cyclist priority
- New permanent and temporary green infrastructure, community agriculture and food growing
- New cycle parking and connected, high quality cycling infrastructure and routes including 5,100 new spaces around the station

Economic Prosperity for All

- Development of new commercial and retail space, supporting employment opportunities, including in the Station area, the Undercrofts, Lower Marsh, The Sidings, and Lambeth North
- New commercial space adjacent to transport, cultural, health, and university clusters provides conditions for economic growth and success
- Affordable and community spaces safeguarded within new development street frontage

Resilient and Creative Local Economies

- Adaptive reuse of viaducts, undercrofts, and vacant land for new SME business or community spaces
- Improvements to Lambeth North neighbourhood through public realm and connections, safeguarded spaces for communities and local maker-spaces
- Supporting and strengthening the gateways to Lower Marsh, increasing footfall and onward connections
- Improved connections and accessibility to cultural assets for all

Local Destinations and Liveable Neighbourhoods

- Pedestrian and vehicular traffic calming measures and defensible space improvements for Mepham Street and Cab Road
- New public realm provision that is safe and accessible (including for those with sight or hearing problems and people with reduced mobility) and diversified to appeal to all ages
- Through-station connections and increased walkability, accessibility and safety

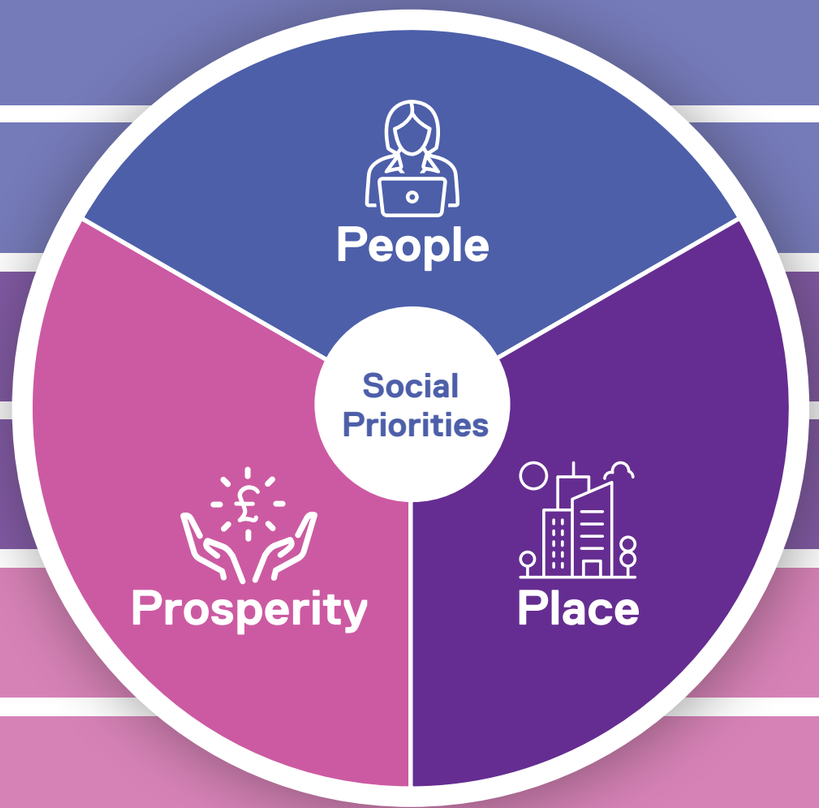
Green Space and Inclusive Activation

- Transformative new pedestrian only routes, green infrastructure and public realm interventions
- Increased access to green open spaces and new green routes running through the masterplan area
- New spaces to dwell with shading and seating, and new and enhanced playspaces
- Meanwhile-use strategies, arts and heritage trails


Varied new retail spaces in Southern Concourse supporting employment and community offerings
New through-station connections and legible walking routes with clear wayfinding signage
New accessible and multi-generational public realm spaces
Improved connections to cultural assets
Station threshold improvements for pedestrian safety and accessibility
Adaptive reuse of Lambeth North viaducts for new SME business or community spaces
Branding for Waterloo's rich heritage identity
Creative wayfinding and activation of 'inbetween spaces' connecting South Bank with the Spine Route
Improvements to existing community green spaces and new green routes
Celebrating gateways to destination streets e.g. Lower Marsh, The Cut and Leake Street
New distributed cycle parking and connected cycle routes
Commercial space by transport nodes for economic growth to fund community improvements
Community agriculture and horticulture facilities, and new children's play spaces

Distilling Social Priorities From Alignment Between Policy, Evidence, and Stakeholder Engagement

Drawing on a robust evidence base, social priorities have been distilled to align strategic policy drivers, socio-economic baseline conditions, and stakeholder views and insights, ultimately organised under the key themes of ‘People, Prosperity and Place’.



	Policy Context	
Support Wellbeing and Healthy Lifestyles	Create **safe, healthy and liveable environments** which tackle local environmental issues	
Celebrate Local Culture and Identity	Co-create opportunities to **celebrate culture, identity and heritage** with local communities and groups with protected characteristics	
Local Destinations and Liveable Neighbourhoods	Promote and celebrate **local destinations and neighbourhoods**	
Green Space and Inclusive Activation	**Provide** and **activate** public realm and green spaces with **equitable access**	
Economic Prosperity for All	Create **economic prosperity** and **equal opportunities** for all	
Resilient and Creative Local Economies	**Support business resilience and growth** in priority sectors	

Socio-Economic Evidence				Stakeholder Engagement
Healthy life expectancy lower than regional and national averages at 60	High levels of pedestrian/ vehicle conflict	Widespread living environment deprivation	Poor air quality	Active and sustainable travel Increased walkability Sustainability and climate action
Large proportion of non-white residents	Large LGBTQ+ population	Stagnant employment in arts, entertainment and recreation	Above-average population of students and early career starters	Fostering a sense of ownership and pride Celebrating local identity, culture and diversity Community participation
High living environment deprivation including road danger and poor air quality	Diverse mix of resident and transient communities	5th decile 'Access to Healthy Assets Index', particularly for access to retail and poor air quality	High crime rate with particular challenges around anti-social behaviour	Public safety and antisocial behaviour Air quality and pedestrian/vehicle conflict Concern residents being pushed out / developments not for them
Poor green space provision (by asset size and quantity) 46% closer	46% closer walking distance to nearest park compared to London average	87% smaller average size of nearest park compared to London average	7.1m^2 per resident average green space per LSOA, 63% lower than London average	Green spaces and trees Welcoming, safe, inclusive, and accessible spaces Diversity of spaces for children and young people as well as older residents
Low educational attainment for KS2 and KS4 students	High claimant counts in Lambeth	Broader Lambeth success in economic inclusion	Above-average population of students and early career starters	Employment and training opportunities Supporting small, local businesses and maintaining/increasing footfall Affordable/free workspaces for local artists
Waterloo is an economic engine for Lambeth	Low proportion of micro and small businesses	Nascent low-carbon sector	Low carbon, creative and digital, and life sciences priority sectors	Safeguarding, and increasing the quantum of, and access to community amenities and facilities