Chapter 5:
Green infrastructure

AIM

London will be a National Park City where more than half of its area is green; where the natural environment is protected and the network of green infrastructure is managed to benefit all Londoners.[17]

INTRODUCTION

London's parks, green spaces, and natural landscapes are the places where Londoners can relax, exercise, play and enjoy the capital's natural heritage and culture. They also provide habitat for wildlife, help protect London from the impact of climate change, and help improve London's air quality.

London has a land-use planning framework that protects and conserves the best of this resource. It has served London well by giving opportunities for outdoor services and recreation, and by protecting the heritage of both natural and designed landscapes. It has also provided a guiding set of principles, including standards on access to green space, which are widely understood and supported. These will continue to be at the heart of the Mayor's approach to city planning and inform the policies in this strategy.

The importance of street trees, private gardens and the increasing number of green roofs and walls have not previously been fully appreciated in London. These help to extend and connect this core network. With budgets under pressure the quality and accessibility of open space is increasingly difficult to ensure.

The Mayor will make London a National Park City by applying some of the key principles of National Parks. This means giving everyone opportunities to experience, enjoy and benefit from the natural environment. It would also highlight the uniqueness of the city's green infrastructure. In addition, it would be better managed to benefit people and nature, and the economy of the city on which all Londoners depend.

As London grows, its parks, rivers, canals, trees and other green infrastructure will become ever more vital. It will ensure the health of Londoners is improved, protect the city from climate change and boost London's economic growth. Collectively they comprise a critical green infrastructure (Box 6).

BOX 6: GREEN INFRASTRUCTURE AND NATURAL CAPITAL

Green infrastructure is the network of green and blue spaces (as well as features such as street trees and green roofs) that is planned, designed and managed to:

• promote healthier living

• lessen the impacts of climate change

• improve air quality and water quality

• encourage walking and cycling

• store carbon

• improve biodiversity and ecological resilience

Natural capital describes the economic benefits to people provided by the services the environment provides for free. These include cleaner air, cleaner water, better health, pollination of crops, contact with nature and attractive landscapes.

The UK National Ecosystem Assessment concluded that the importance of green spaces for society's health and general wellbeing is not fully appreciated. This means their potential is not realised. In addition, it found that access to urban green space is essential for good mental and physical health, childhood development, and social cohesion. Urban green infrastructure services could also be significantly enhanced to improve climate change mitigation and adaptation.[18]

The work of the Natural Capital Committee has shown too that there is a very good economic case for investing in green infrastructure. It estimates reduced health treatment costs alone would be £2.1bn.[19]

In London an iTree Eco Assessment has quantified the benefits and services provided by the capital's urban forest (Figure 19).[20] This demonstrated that London's approximately eight million trees provide at least £133m of benefits a year by removing pollution, storing carbon and reducing surface water flooding.

Protecting and enhancing London's natural environment and green infrastructure requires the following actions:
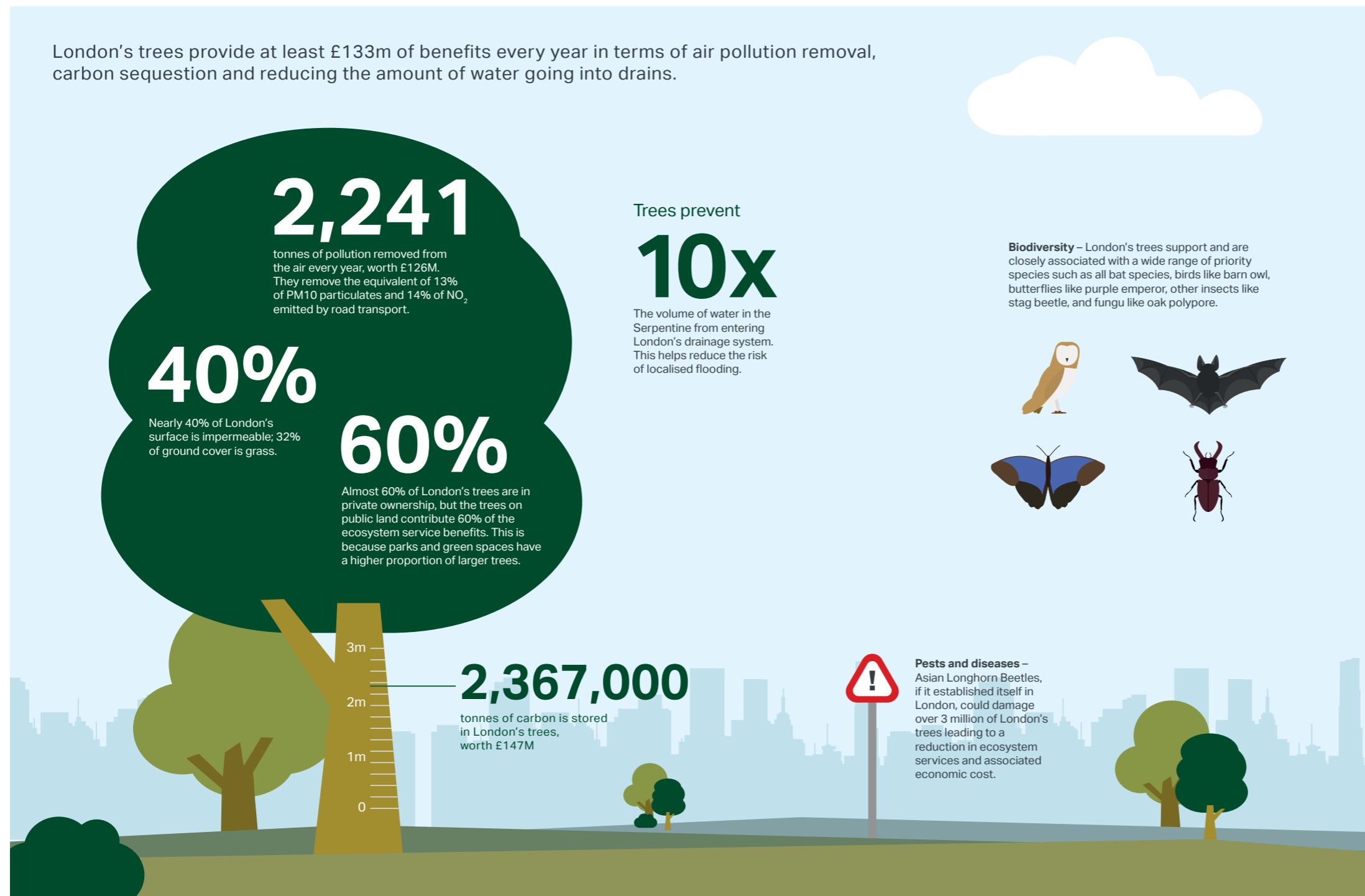
- increasing London's green cover, making more than half of London green by 2050

- conserving and enhancing wildlife and natural habitats

- valuing London's natural capital as an economic asset and greater investment in green infrastructure.

[18] UK National Ecosystem Assessment (n.d.), What is the UK National Ecosystem Assessment? Accessed from: http://uknea.unep-wcmc.org/Home/tabid/38/Default.aspx
[19] Natural Capital Committee (2015), The State of Natural Capital: Protecting and Improving Natural Capital for Prosperity and Wellbeing. Accessed from: www.gov.uk/government/uploads/system/uploads/attachment_data/file/516725/ncc-state-natural-capital-third-report.pdf
[20] Mayor of London (2015), Valuing London's Urban Forest. Accessed from: www.london.gov.uk/WHAT-WE-DO/environment/environment-publications/valuing-londons-urban-forest

Figure 19: The value of London's urban forest

London's trees provide at least £133m of benefits every year in terms of air pollution removal, carbon sequestion and reducing the amount of water going into drains.

2,241

tonnes of pollution removed from the air every year, worth £126M. They remove the equivalent of 13% of PM10 particulates and 14% of NO_2 emitted by road transport.

40%

Nearly 40% of London's surface is impermeable; 32% of ground cover is grass.

60%

Almost 60% of London's trees are in private ownership, but the trees on public land contribute 60% of the ecosystem service benefits. This is because parks and green spaces have a higher proportion of larger trees.

Trees prevent

10x

The volume of water in the Serpentine from entering London's drainage system. This helps reduce the risk of localised flooding.

Biodiversity – London's trees support and are closely associated with a wide range of priority species such as all bat species, birds like barn owl, butterflies like purple emperor, other insects like stag beetle, and fungu like oak polypore.

3m
2m
1m
0

2,367,000

tonnes of carbon is stored in London's trees, worth £147M

Pests and diseases – Asian Longhorn Beetles, if it established itself in London, could damage over 3 million of London's trees leading to a reduction in ecosystem services and associated economic cost.

LONDON'S ENVIRONMENT NOW

The key evidence to support the Mayor's ambitions for London's green infrastructure is summarised below. You can find out more about the evidence behind the policies and proposals in Appendix 2.

EU, UK, and London policy considers that creating a healthy urban environment and articulating the value of green infrastructure are priority areas to stimulate economic growth and improve wellbeing. For more details on the legislative and policy background see Appendix 4, and for information on the main responsibilities of various organisations see Appendix 3.

London's green spaces

Currently about 47 per cent of London is classified as green or blue open space. This is made up of 33 per cent of green space like parks, woodland and farmland and 14 per cent of private, domestic garden green space.[21] This has stayed roughly at the same level since 2002 despite increased growth and development in London.[22]

London compares favourably with other world cities with respect to the amount of green space per head of population (Figure 20). London is ranked tenth amongst 30 global cities – higher than similar cities such as New York, Berlin and Paris.[23]

[21] GiGL (n.d.), Key London Figures. Accessed from: http://www.gigl.org.uk/keyfigures/
[22] Mayor of London (2002), Connecting with London's Nature: The Mayor's Biodiversity Strategy. Accessed from: www.london.gov.uk/WHAT-WE-DO/environment/environment-publications/connecting-london%E2%80%99s-nature-mayor%E2%80%99s-biodiversity

[23] World Cities Culture Forum (n.d.), % of public green space (parks and gardens). Accessed from: www.worldcitiescultureforum.com/data/of-public-green-space-parks-and-gardens.
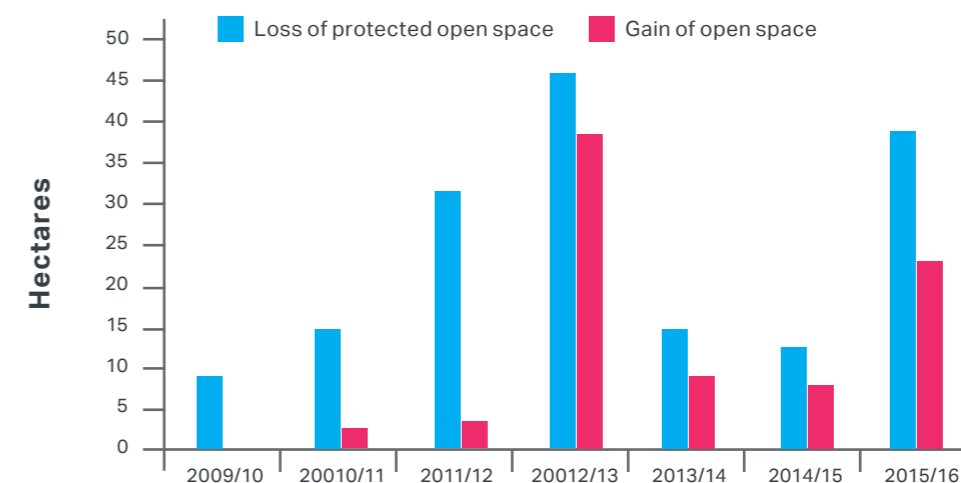
Figure 20: Percentage of public green space in different world cities
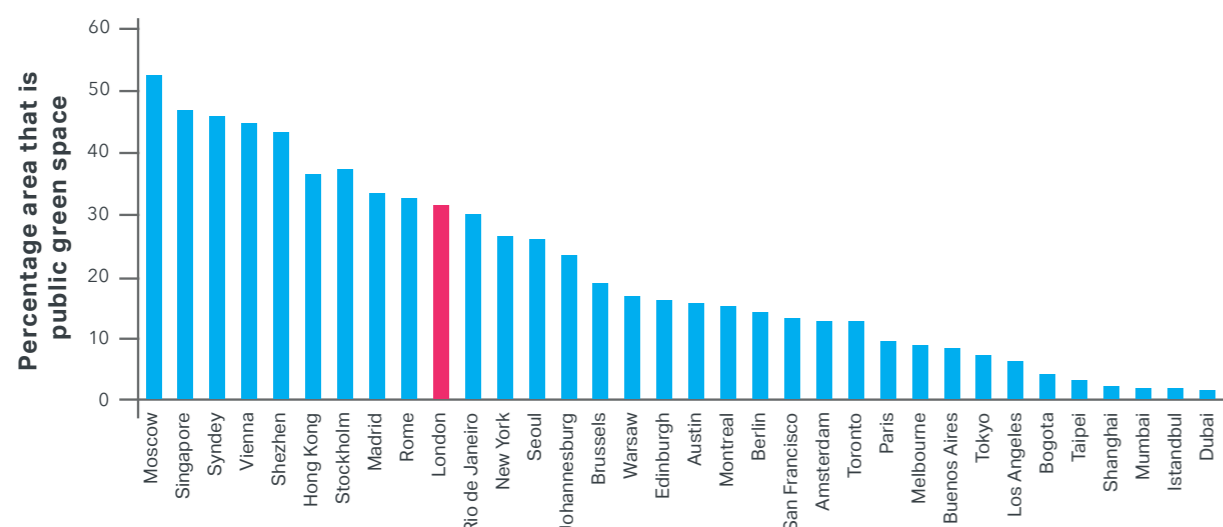
Source: based on World Cities Culture Forum (2017), The percentage of public green space (parks and gardens).

Figure 21: Losses and re-provision of protected open space

Source: based on Greater London Authority (2017), London Development Database.

Although London has relatively high levels of green space, it is still losing green space to new development such as housing, schools, industrial premises and transport infrastructure (Figure 21). However, the losses are relatively small overall, an average net loss of 10-15 hectares a year. However, over time these can begin to erode and further fragment the green infrastructure network if not guarded against.

Access to public open space
Access to green space is valued by Londoners. London's parks are home to many cultural organisations such as the Serpentine Gallery, Regent's Park Open Air Theatre, Opera Holland Park, Kenwood House, and Fulham Palace, not to mention increasing numbers of festivals.

However, only 18 per cent of London's land area is officially public open space. Consequently, parts of the city are classified as Areas of Deficiency in Access in Public Open Space (AoD) where Londoners lack access to local or district parks (Figure 22). This is because some areas of green space are privately owned (for example private gardens and farmland), are inaccessible (like railway line sides) or have only limited access (like reservoirs).

The total amount of AoD has reduced in recent years. This is particularly in areas that have been regenerated like King's Cross rail yards and the Olympic Park in Stratford. Despite this, about 45 per cent of London's land area is still within an Area of Deficiency to local and district parks.

Figure 22: Areas of Deficiency in Access to Public Open Space

Areas of Deficiency in access to local OR district public open spaces.

Areas of Deficiency in access to both local AND district public open spaces
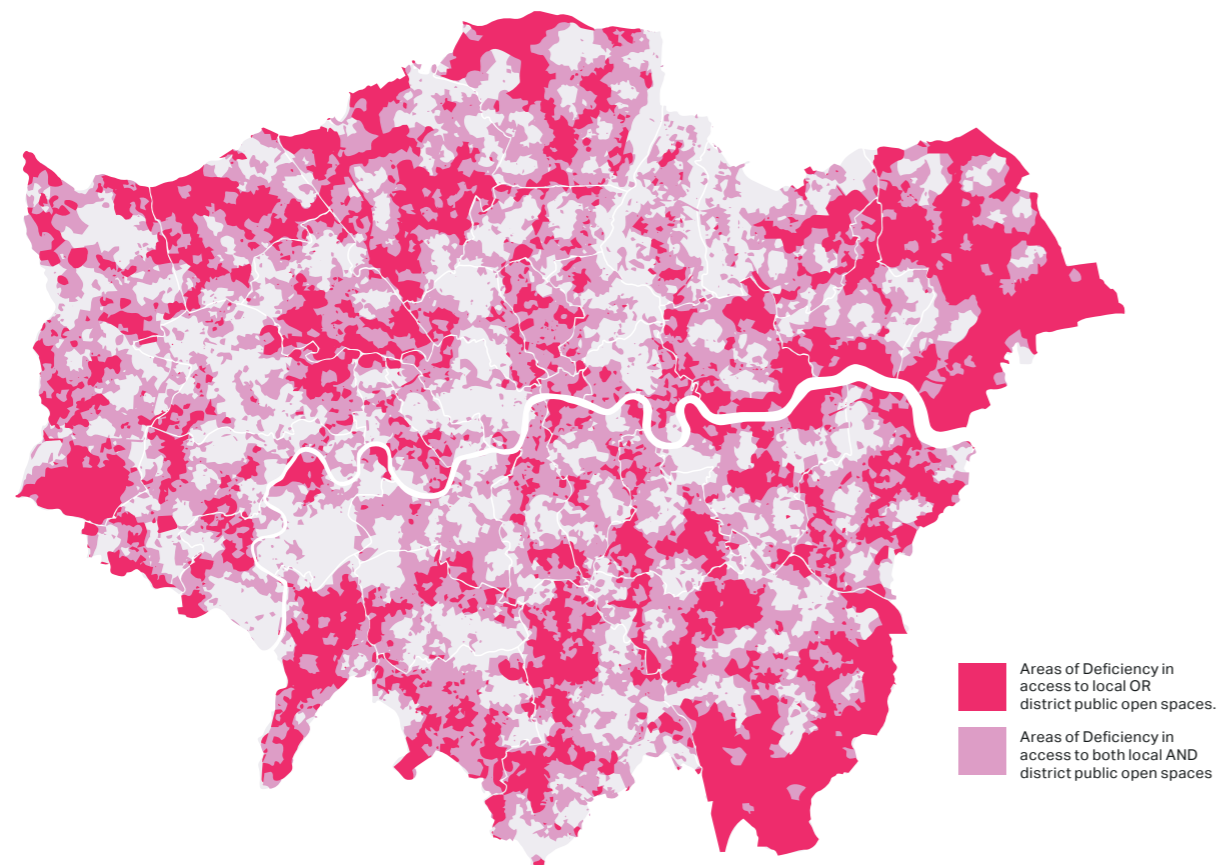
Source: Greenspace Information for Greater London (2017), Areas of Deficienct in access to local or district public open spaces.
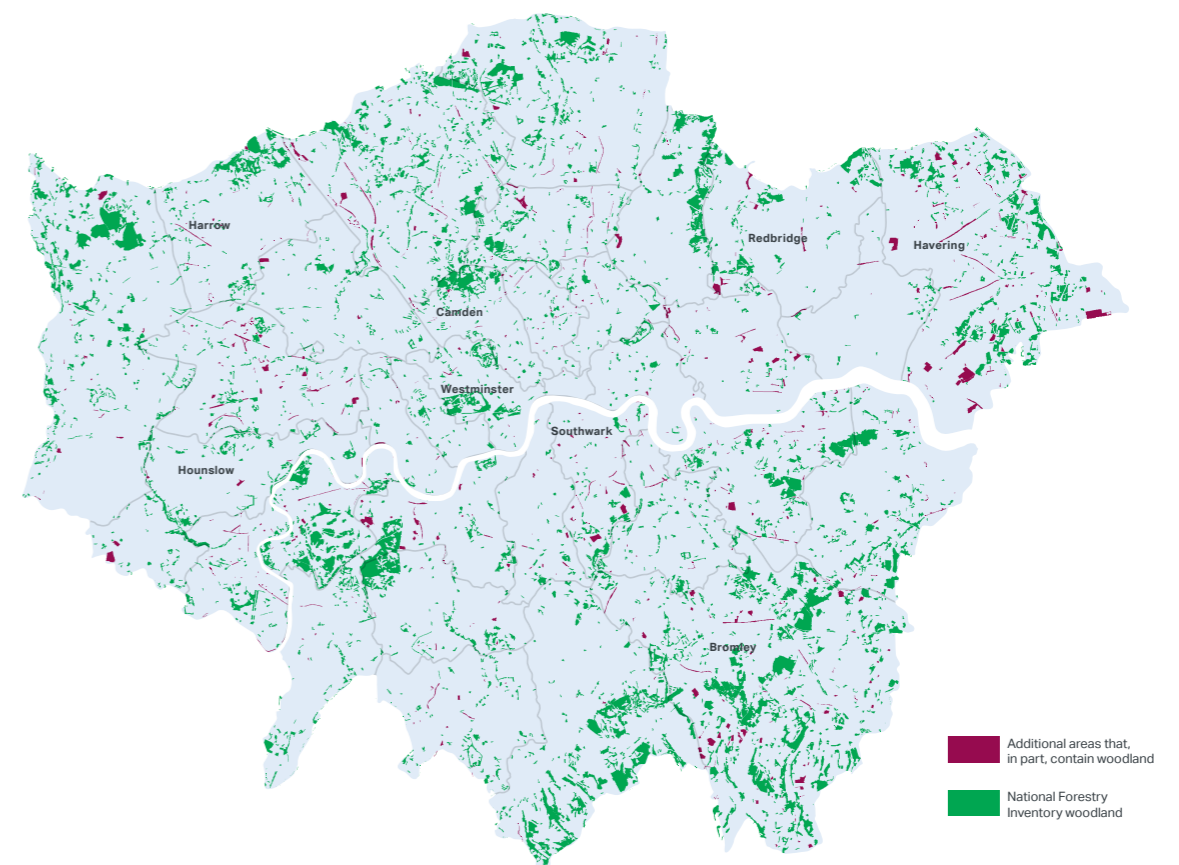
Figure 23: Woodland in London

Additional areas that, in part, contain woodland

National Forestry Inventory woodland

Source: Greenspace Information for Greater London, and Forestry Commission (2015) National Forest Inventory.

Trees and woodlands

There are over eight million trees in London, covering around 20 per cent of London's surface area.[24,25] Most of these trees are in woodlands (Figure 23), parks and gardens, but a significant number are street trees. Assessments by the London Assembly in 2007 and 2011 found there are around 500,000 street trees in London.[26,27] The current London Tree Map gives information about more than 700,000 street trees and the wider public realm.[28] Like the total extent of green space, the total area of tree canopy cover in London has also remained relatively static since 2002.

[24] Mayor of London (2015), Measuring Tree Canopy Cover in London: An analysis using aerial imagery. Accessed from: www.london.gov.uk/sites/default/files/measuring_tree_canopy_cover_2015.pdf
[25] Forestry Commission England (2016), London iTree eco project. Accessed from: www.forestry.gov.uk/london-itree

[26] Mayor of London (2007), Chainsaw massacre: A review of London's street trees. Accessed from: www.london.gov.uk/about-us/london-assembly/london-assembly-publications/chainsaw-massacre-review-londons-street-trees
[27] Mayor of London (2011), Branching Out: the future for London's street trees. Accessed from: www.london.gov.uk/about-us/london-assembly/london-assembly-publications/branching-out-future-londons-street-trees
[28] Mayor of London (n.d.), London Tree Map. Accessed from: www.london.gov.uk/WHAT-WE-DO/environment/parks-green-spaces-and-biodiversity/trees-and-woodlands/london-tree-map

Gardens

Domestic gardens provide many people with daily contact with nature and improve the way residential areas look and feel. In total, they comprise about 38,000 hectares of land, or 24 per cent of the land area of London. However, not all gardens comprise the classic combination of lawns, flowers beds, shrubs and trees. Many now include extensive areas of decking and paving. Consequently, only about 60 per cent of land in London's gardens is actually green – 14 per cent of London's land area.

London: Garden City? – a study done to determine changes to London's domestic gardens – showed that the area of garden vegetation in London declined by over 3,000 hectares between 1999-2007. This was primarily due to permitted development rights which allow activities such as minor extensions and paving of driveways.[29] As permitted development rights were extended in 2015 it is likely this trend has continued.[30]

Green roofs

London has seen a major increase in the installation of green roofs (and other green infrastructure in the built environment, like green walls and rain gardens) since 2008. That is when urban greening policies were included in the London Plan.[31] Across London as a whole

there are now thought to be over one million m^2 (or 100 hectares) of green roofs installed (Figure 25). A City Hall survey highlighted that there are now over 700 green roofs just in London's Central Activities Zone (the area including the City of London, the West End and South Bank). The green roofs here cover an area of almost 20 hectares, the same size as Green Park.

Sites of Importance for Nature Conservation

Almost 20 per cent of Greater London's land area is identified as a Site of Importance for Nature Conservation, or SINC (Figure 24). These sites are locally valued wildlife sites that provide the core framework necessary to conserve London's biodiversity. The total area of SINCs has increased slightly since 2002 from 29,855 hectares to 30,679 hectares.

European and National Nature Conservation Designations

London's most important sites for nature conservation have been recognised at the European and national level and consequently have been given a statutory designation. They include two Special Protection Areas (SPAs), three Special Areas of Conservation (SACs), two National Nature Reserves (NNRs) and 30 Sites of Special Scientific Interest (SSSIs). This protection will continue.

Figure 24: Distribution of SINCs in London

Legend
Sites of Importance for Nature Conservation

- Sites of Metropolitan Importance
- Sites of Borough Grade 1 Importance. Or Not Designated
- Sites of Borough Grade 2 Importance.
- Sites of Local Importance

Source: Greenspace Information for Greater London (2016), Sites of Importance for Nature Conservation.

29 GiGL (n.d.), London: Garden City? Accessed from: www.gigl.org.uk/partnershipcasestudy/garden-research/
30 HMG (2015), The Town and Country Planning (General Permitted Development) England) Order 2015. Accessed from: www.legislation.gov.uk/uksi/2015/596/contents/made
31 Mayor of London (2016), The London Plan: The Spatial Development Strategy for London, Consolidated with Alterations since 2011. Accessed from: https://www.london.gov.uk/sites/default/files/the_london_plan_2016_jan_2017_fix.pdf

LONDON'S BIODIVERSITY

Habitats

To conserve London's precious biodiversity and ensure it is resilient to pressures like climate change, wildlife habitats need to be expanded. They also need to be better connected, through, for example, wildlife corridors. Since 2000 almost 39,000 hectares have been enhanced and over 18,000 hectares have been restored. This includes over 600 hectares of new woodland in Thames Chase, 13 hectares of new reed beds at Stoke Newington and Walthamstow Reservoirs and 45 hectares of new grassland, wetland and woodland habitats in Queen Elizabeth Olympic Park.

Species

London's wildlife is in decline, in common with nationwide trends which show a continual decline in England's wildlife (Box 7).

BOX 7: STATE OF NATURE 2016 (ENGLAND) – KEY STATISTICS[32]

Over the long-term:

- 60 per cent of plant species declined and 40 per cent increased

- 62 per cent of butterfly species declined and 38 per cent increased

- bird species as a whole have declined by six per cent, but farmland bird species have fallen by 56 per cent

- some 12 per cent of rare species are at risk of extinction from the UK

Unsurprisingly, urbanisation has had a big impact on the ecology of London. The increased use of concrete, tarmac, glass and steel creates a unique urban microclimate. The growing population also exerts huge recreation pressure on all green spaces and natural areas.

The British Trust for Ornithology has reported on trends for 33 species in London. While the majority of 33 species have seen big increases, seven – blackbird, grey heron, house sparrow, mistle thrush, song thrush, starling and swift - have declined. This is in line with national trends and is likely due to loss of nest sites in buildings and loss of vegetation in gardens.

Butterflies too have seen a decline.[33] Of 20 species monitored by the London Natural History Society, half have experienced significant declines largely thought to be due to a decrease in the quality of grassland sites and the impacts of climate change. Changes in the population of other pollinating insects (such as bees, moths and hoverflies) are also likely to reflect the trends for butterflies.

Figure 25: Green roofs in the Central Activities Zone[34]
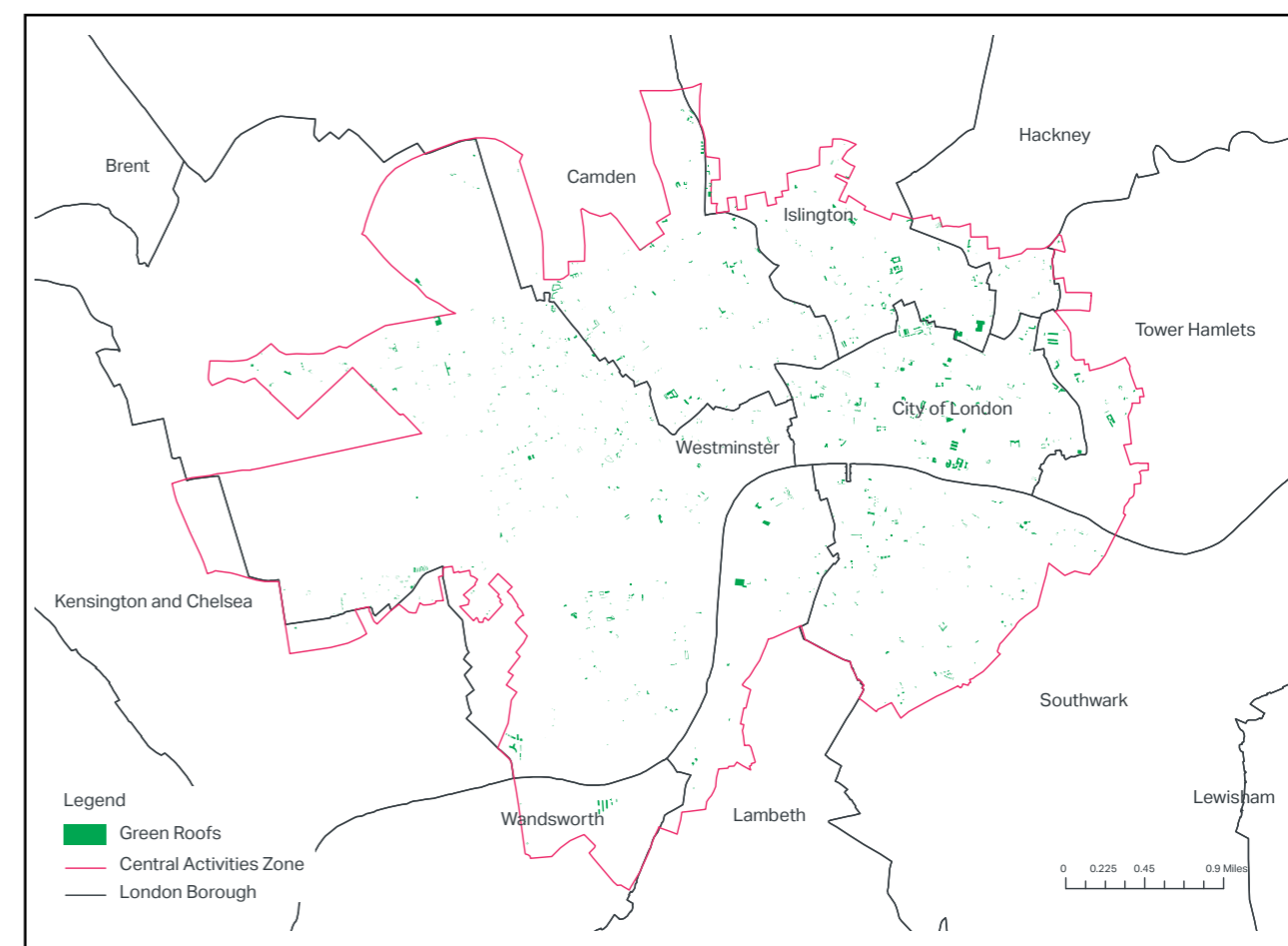
Source: Greater London Authority (2017)

32 The State of Nature Partnership (2016), State of Nature 2016: England. Accessed from: www.wildlifetrusts.org/sites/default/files/stateofnature2016_england_1_sept_pages.pdf

33 London Natural History Society (LNHS) has calculated trends for butterflies in London between 1995-2016
34 Mayor of London (n.d.), Green roof map. Accessed from: www.london.gov.uk/WHAT-WE-DO/environment/parks-green-spaces-and-biodiversity/green-roof-map

ROLES AND LEGAL DUTIES

The Mayor of London has a legal duty to set out policies and proposals in this strategy relating to the natural environment and biodiversity. However, as the GLA is not a major landowner, the Mayor does not have any significant responsibility for the day-to-day management of parks and green spaces in London.

However, the Mayor has influence over green infrastructure and the natural environment through the activities of:

- ensuring that green infrastructure policies are included in other relevant Mayoral strategies, such as the London Plan and the draft Mayor's Transport Strategy

- key departments within the GLA, such as those responsible for housing and land and regeneration

- bodies over which the Mayor has direct influence, such as TfL and Old Oak Park Royal Development Corporation

The Mayor has a significant leadership role and can act as a powerful advocate to highlight issues that require a pan-London approach in order to stimulate effective and coordinated action. The other organisations that have a role to play in protecting and enhancing London's green infrastructure are described in Appendix 3.

GREENING THE PUBLIC REALM TO HELP LONDON BECOME A NATIONAL PARK CITY
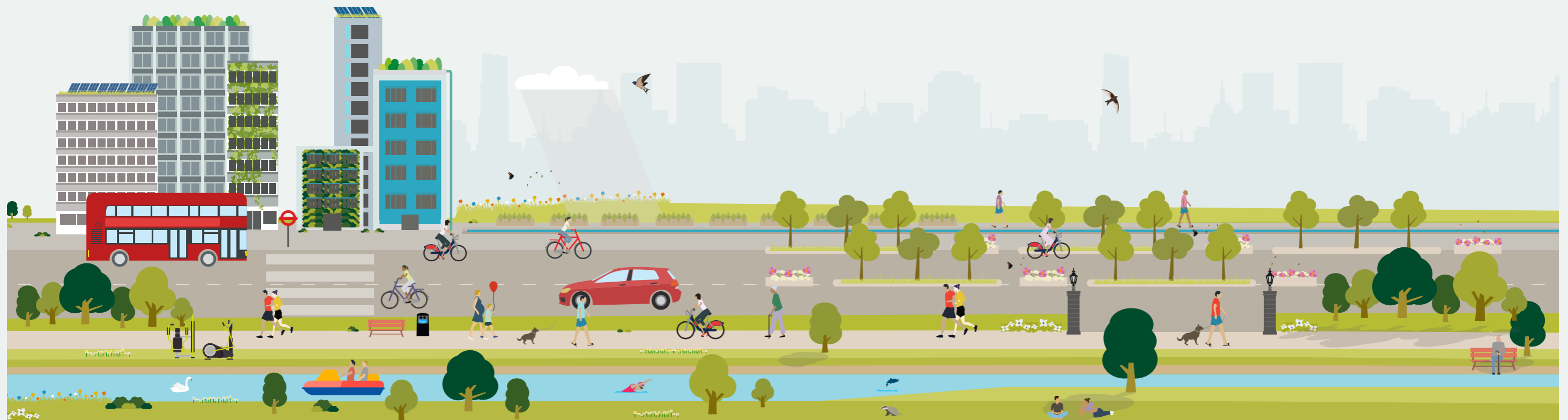
Policy interventions

Green spaces and urban greening designed to hold storm water

Green spaces and urban greening that support biodiversity

Facilities for people to exercise, play and relax

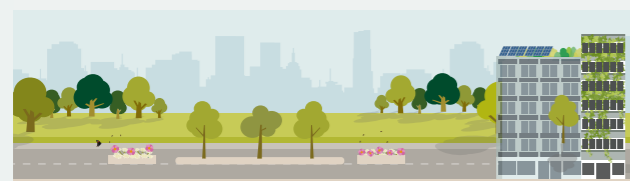Trees, green spaces, green roofs and and green walls to cool the city down
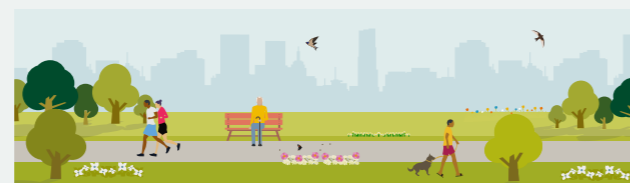

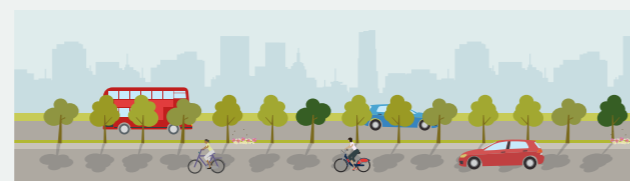## Targets

50% green cover

10% increase in canopy cover

Benefits

Improved mental and physical health and well-being

A cooler city

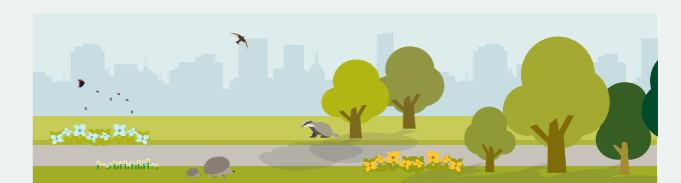Reduced flood risk and improved water quality

Higher biodiversity

Improved air quality and reduced exposure to air pollution

"The Mayor will resist development that results in the loss of Green Belt and Metropolitan Open Land."

Objectives, policies and proposals

OBJECTIVE 5.1 MAKE MORE THAN HALF OF LONDON'S AREA GREEN BY 2050

All cities now recognise that the green infrastructure of parks, green spaces, natural areas, street trees, green roofs and walls are an essential part of city life. This green infrastructure helps to make the city healthy, liveable and economically sustainable. The Mayor wants to increase the area of London's green cover and make sure that it is designed and managed to optimise the services it provides.

Policy 5.1.1 Protect, enhance and increase green areas in the city to provide green infrastructure services and benefits London needs now and in the future

Proposal 5.1.1a Through the new London Plan, the Mayor will protect the Green Belt, Metropolitan Open Land and publicly accessible green space

The Mayor will resist development that results in the loss of Green Belt and Metropolitan Open Land. This will help fulfil their potential as strategic green infrastructure for London. The Mayor will

also work with boroughs, land managers and environmental organisations to identify the incentives needed to improve the quality and function of this strategically important asset.

The London Plan has been effective at protecting the core green space resource and containing sprawl and London's green space must be protected to provide the foundations for a greener city. This promotes a more compact city that helps to minimise London's overall environmental footprint.

As the city grows, it becomes ever more important to protect and improve green spaces in order to secure the benefits provided by green infrastructure. Planning policy for the Green Belt and Metropolitan Open Land can help protect the space from development. However, it does not help to improve the quality or function of green spaces such as, for example, using the Green Belt for creating new woodland. This will be considered as part of valuing London's natural capital which is outlined further in objective 4.3.

Proposal 5.1.1b Through the new London Plan the Mayor will consider policies that ensure any development outside the protected green space network does not lead to an unacceptable loss of the benefits of existing local green infrastructure; the Mayor will also provide advice to householders about how gardens contribute to improving green infrastructure at a local level

The Mayor recognises that much of London's existing green infrastructure lies outside of the protected open and green space network. Areas of amenity green space around housing estates; extensive areas of private garden and the street trees which line so many of London's streets provide many Londoners with significant benefits at the local level.

Consequently, new development proposals should avoid reducing the overall amount of green cover and the benefits this provides. Thoughtful planning and design of new developments should aim to: avoid fragmentation of existing green space; reduce storm water run-off rates by using sustainable drainage and include new tree planting or features such as green roofs to mitigate any unavoidable loss.

"Private gardens make up 24 per cent of London's land area, though only about 60 per cent of their area is green."

Private gardens make up 24 per cent of London's land area, though only about 60 per cent of their area is green. Nevertheless, the total amount of green space in private gardens is equivalent to the total area of public green space in London (some 30,000 hectares). Private gardens not only create leafier neighbourhoods that are good for health but they also provide habitat for wildlife, and increase resilience to climate change. Consequently any reduction will have wider environmental impacts.

The environmental performance of gardens must be improved. For example, by reducing the amount of storm water being discharged to the sewer network, helping to reduce exposure to poor air quality, or creating stepping stones for wildlife to move between areas of semi-natural habitat.[35] Flowery gardens in particular can provide important foraging areas for bees and other pollinators.[36] Box 8 sets out some of the benefits of urban gardens based on research by the Royal Horticultural Society (RHS). The RHS also provides advice to householders on how they can green their front gardens whilst still providing functions such as parking through the Greening Grey Britain campaign.[37]

BOX 8: THE IMPORTANCE OF DOMESTIC GARDENS AS PART OF LONDON'S GREEN INFRASTRUCTURE NETWORK

The Royal Horticultural Society working with the Universities of Reading and Sheffield reviewed academic evidence to consider the potential impacts of domestic gardens on urban quality of life[35]. These include:

- urban garden plants and trees help cool the air in towns and cities, combating heat waves

- garden plants and trees intercept pollutants in the air, reducing exposure to poor air quality

- garden plants and trees intercept intense rain, slowing run-off and so reducing the pressure on urban drains

- soil in gardens naturally absorbs rainwater, reducing the risk of flooding

- some animal species are now more common in cities, and particularly domestic gardens, than in rural areas

- the presence of gardens eases stress and improves psychological wellbeing

- access to gardens encourages sustained exercise and promotes physical health

- some 12 per cent of rare species are at risk of extinction from the UK

[35] Royal Horticultural Society (2011), Gardening matters: Urban gardens. Accessed from: www.rhs.org.uk/science/pdf/climate-and-sustainability/urban-greening/gardening-matters-urban-greening.pdf
[36] The Nature of Cities (n.d.), Can cities save bees? How can urban habitats be made to serve pollinator conservation? How can that story be better told? Accessed from: www.thenatureofcities.com/2016/01/20/can-cities-save-bees-how-can-urban-habitats-be-made-to-serve-pollinator-conservation-how-can-that-story-be-better-told/
[37] Royal Horticultural Society (n.d.), Greening Grey Britain – Community Action. Accessed from: www.rhs.org.uk/communities/campaigns/greening-grey-britain

Proposal 5.1.1c The Mayor aims to improve access to green space and nature by identifying those areas of the city which should be greener and developing green infrastructure programmes and projects especially in major regeneration areas

Despite London's extensive network of parks and open spaces there are parts of the city where local people lack access to green space and the natural environment. These areas tend to be where development is densest, or in areas of deprivation. These are also areas where households are less likely to have access to private gardens. The Mayor aims to improve access to green space and nature for all Londoners, especially children.

Box 9 describes the Mayor's programme for improving access to green space and nature.

BOX 9: THE MAYOR'S PROGRAMME FOR IMPROVING ACCESS TO GREEN SPACE AND NATURE

The Mayor's programme will comprise the following elements:

- community grants for creating greener space – investment in small and medium scale greening projects in green spaces across London

- a Greener City Fund – investment in strategically important green infrastructure projects

- developing a 'greenness index' to target investment in areas that need it most (see below)

- strengthened policy in the new London Plan to ensure an increase in urban greening

- working with urban designers, developers and planners to promote and communicate the benefits of a greener built environment including gardens
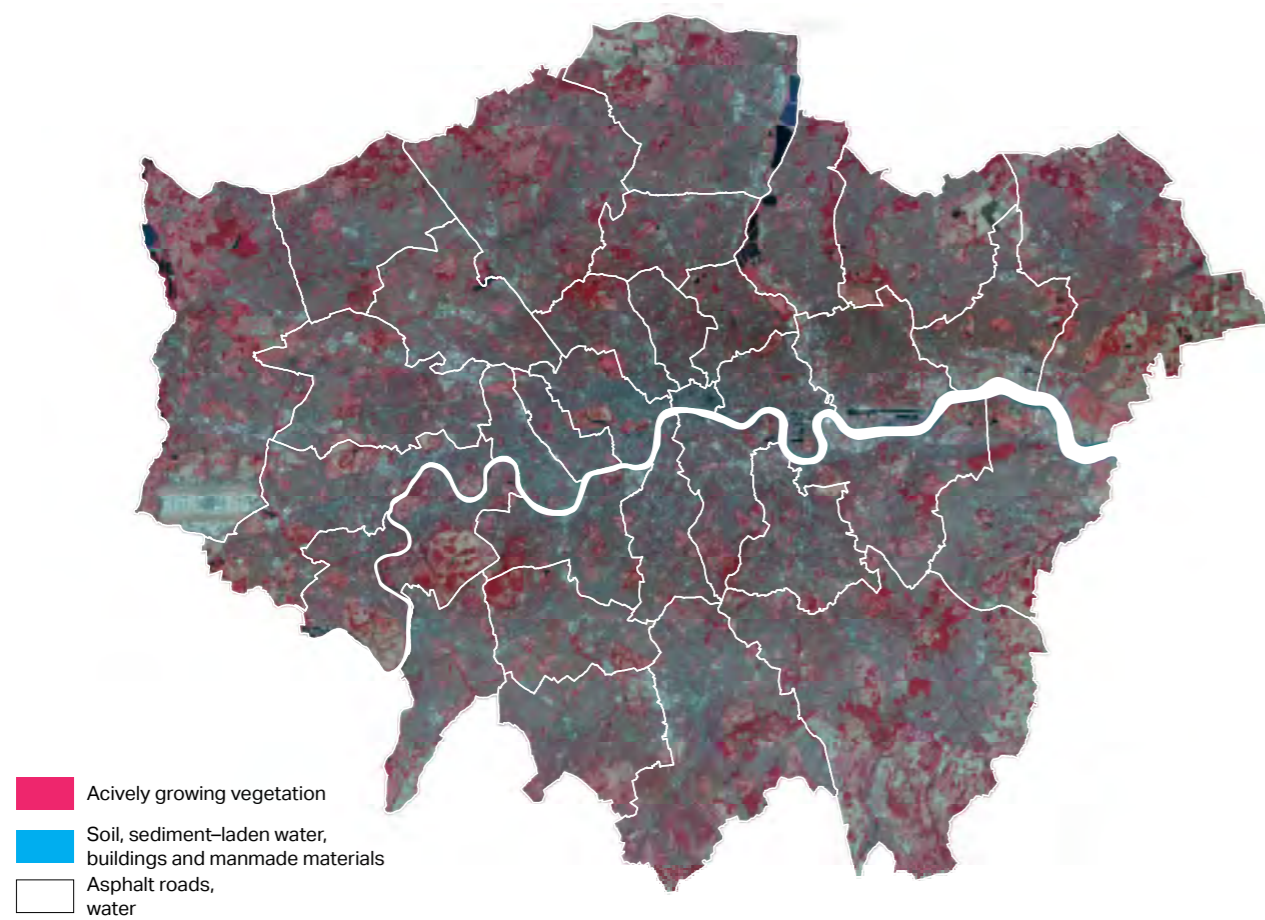
To make sure that all Londoners live in greener neighbourhoods the Mayor will develop a new 'greenness' index. This will identify those areas where green infrastructure and urban greening is most needed. The Mayor will work with TfL, the boroughs and civil society and community organisations to create greener public spaces and healthier streets.

Existing mapping of open space is based on access to parks and green spaces that are formally declared as public open space.[38] The public open space data set is important for land-use planning purpose. However, it does not highlight the more pressing problem of lack of access to green space in parts of London where people lack gardens or where tree cover is below average. New methodologies and mapping can spotlight this issue and help to target action where required. Figure 26 and Figure 27 show an example of a greenness map for London and how the new approach can help target interventions.

"The Mayor's Greener City Fund will invest in strategically important green infrastructure projects."

Figure 26: Variations in green cover across London (red = green cover)

Acively growing vegetation

Soil, sediment–laden water, buildings and manmade materials

Asphalt roads, water

Source: GeoInformation Group (2017), Near infrared aerial imagery.

Figure 27: Relationship between AoD and relative greenness (shows that some AoD are much greener than others)
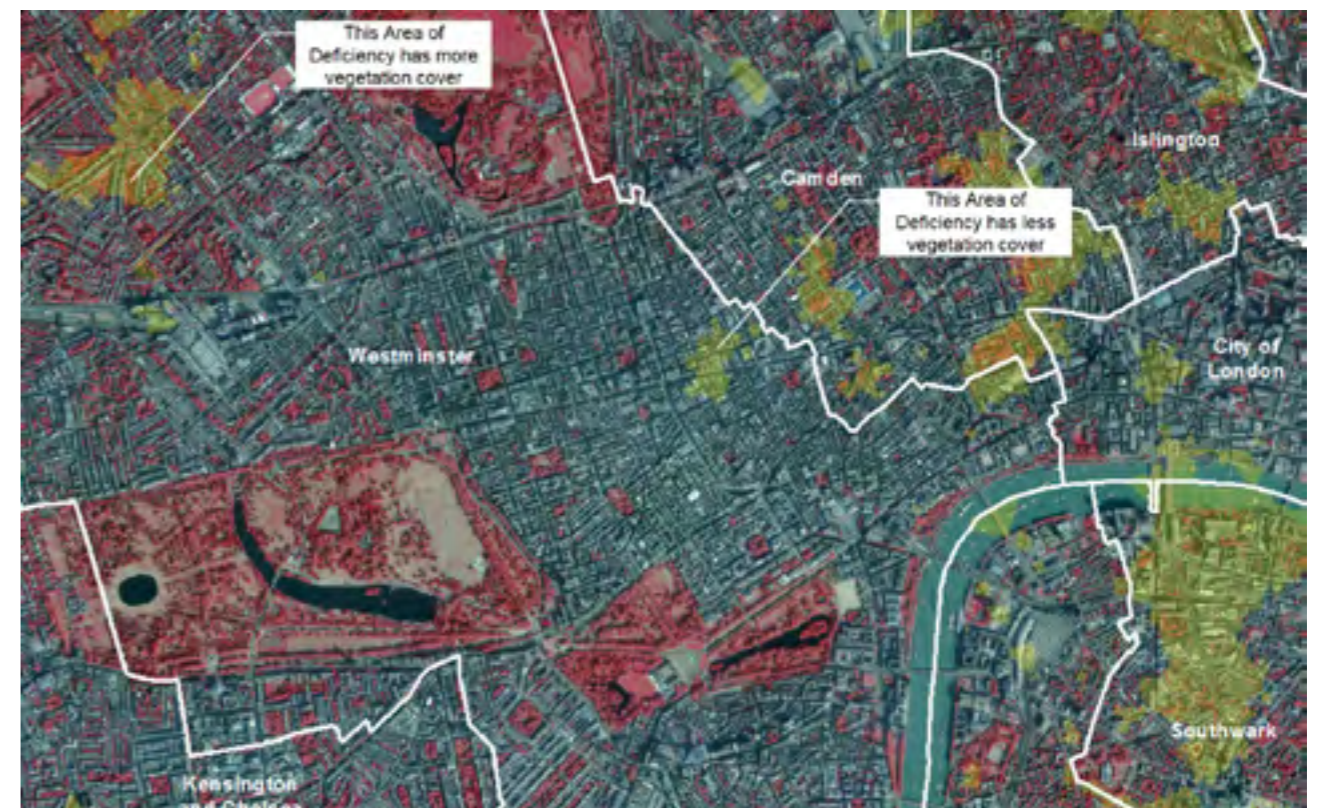
Adapted from GeoInformation Group (2017), Near infrared aerial imagery and GiGL Areas of Deficiency in access to public open space

Given the pressures on land in London, there will be few opportunities to create large areas of new public open space or natural habitats based on traditional parks and nature reserves. Therefore the city must become greener while it also becomes denser and more compact, in order to maintain it as an attractive place to live, work and invest in, and achieve good growth.

It is possible to consider how greener areas can be created in existing areas of public realm. For example, motor traffic could be removed from local streets and replaced by linear parks. Alternatively existing public realm or green spaces could be modified to provide landscapes or features that are more biodiverse or create corridors for wildlife.

Around 12 per cent of London's surface area consists of roads and streets. This amounts to most of the public realm in the most densely developed parts of London. The draft Mayor's Transport Strategy takes the Healthy Streets Approach that prioritises walking, cycling and public transport, which will improve air quality and create a better, greener public realm.

There is also a significant opportunity to increase the amount of new green infrastructure in those parts of London that are subject to major regeneration programmes.

London's Opportunity Areas and Housing Zones are those parts of the city that have large capacity for development. They have large areas of brownfield land or existing development in need of regeneration and renewal. By turning these areas into liveable neighbourhoods there is an opportunity to improve existing, and plan new, green infrastructure. This will be better connected and better integrated into the built environment. This approach is being taken to turn the former Ferrier Estate in south east London into Kidbrooke Village sustainable suburb (Box 10).

BOX 10: KIDBROOKE VILLAGE - ESTATE REGENERATION AND GREENING

After serving as a Royal Air Force base during World War II, Kidbrooke was zoned for development. It became the Ferrier Estate in 1968 and was designed along similar lines to the post-modern brutalist architecture of the nearby Thamesmead estate. By the 1990s the system built precast concrete panels were failing and the estate fell into disrepair.

A regeneration partnership of Greenwich Council, the Mayor of London and Berkeley has started to change the estate into a new sustainable suburb. Here, green infrastructure will be integrated with the built environment. The nearby Sutcliffe Park was also the subject of a major ecological restoration project by the Environment Agency. This created new areas of flood storage, reed-beds and wild-flower meadows which helped provide a landscape-led setting for the regeneration.[39]

[39] RESTORE Partnership (n.d.), Case Study: Sutcliffe Park. Accessed from: https://restorerivers.eu/wiki/index.php?title=Case_study per cent3ASutcliffe_Park

Proposal 5.1.1d Through the new London Plan, the Mayor will consider policies to green streets and buildings including increasing the amount of green roofs, green walls and sustainable drainage

The Mayor will develop a new Urban Greening Factor for London for potential inclusion in the new London Plan. The Mayor will work with a range of stakeholders, including developers, architects and landscape architects, to champion and promote urban greening good-practice.

London Plan policies have led to a step-change in the incorporation of green infrastructure into the built environment. This was notable especially when done through major development or urban regeneration. Furthermore, initiatives such as Greening the BIDs, have helped Business Improvement Districts (BIDs) identify opportunities for urban greening. This shows that a wide range of partners can be engaged in city greening projects.[40]

A number of cities have developed a 'Green Space Factor' policy that provides a methodology and metric for urban greening (Box 11). It can be used to determine how much urban greening should be incorporated into all new high density development. As London grows and densifies the benefits of making the city greener must be maintained.

This might include greener public realm (including green streets), publicly accessible roof gardens or green roofs and space for growing food. It could also mean replacing certain types of grey infrastructure (for example piped surface water drainage) with green infrastructure solutions. There is a particular opportunity to consider urban greening when, for example, a green roof can be installed in combination with solar panels to meet two key policy objectives of this strategy.

BOX 11: THE GREEN SPACE FACTOR IN MALMÖ[41]

The Green Space Factor has been applied to new developments in Malmö, such as Augustenborg and Western Harbour. It is a tool that can be used to secure a certain amount of green cover in every development. It also minimises the degree of sealed or paved surfaces in the development. The system was adapted from Germany, where it is used in Berlin and Hamburg among other cities. Other cities, including Seattle and Southampton, have adapted it for their own planning needs.

The ecologically effective area is defined as the area of a development contributing to ecosystem function through, for example, storm water drainage or habitat provision. Surfaces such as grass, gravel, vegetation, and green roofs are given a score rating based on how much they contribute to ecosystem function. For example, a surface of concrete or asphalt would get a score of 0.0 while a green roof would get a score of 0.7 and a natural surface covered with vegetation would get the highest score of 1.0. This rating is then multiplied by the total area that the feature covers of the development. Adding all these scores together gives you the ecologically effective area. This ecologically effective area is then divided by the total area of the development to give you a final green space factor score.

$$\text{Green Space Factor} = \frac{(\text{area A} \times \text{factor A}) + (\text{area B} \times \text{factor B}) + (\text{area C} \times \text{factor C}) + \text{etc.}}{\text{total development footprint}}$$

[40] Cross River Partnership (n.d.), Greening the BIDs. Accessed from: https://crossriverpartnership.org/projects/greening-the-bids/

[41] GRaBS (2011), GRaBS Expert Paper 6: the green space factor and the green points system. Accessed from: www.xn--malm-8qa.se/download/18.d8bc6b31373089f7d980008924/1491301018437/greenspacefactor_greenpoints_grabs.pdf

Proposal 5.1.1e The Mayor will develop programmes and deliver projects including a major tree planting programme to ensure that London's urban forest is maintained and expanded

The Mayor will do this by:

- running a major programme of tree planting to supplement tree planting by boroughs, environmental organisations and other land-managers (Box 12)

- improving the data required to monitor tree canopy cover and to identify locations for tree planting

- supporting and promoting the work of the boroughs, for example through the London Tree Officers Association and the Trees and Design Action Group to promote best practice in managing and planting trees in the urban environment

BOX 12: THE MAYOR'S PROGRAMME FOR EXPANDING LONDON'S 'URBAN FOREST'

The Mayor's programme will consist of the following parts:

- community grants for tree planting – investment in small and medium scale tree planting projects in green spaces across London

- Woodlands for London – support for large woodland creation projects working with partner organisations

- Street Tree Sponsorship – developing a new online map to enable Londoners and businesses to sponsor street tree planting in their area

- convening a London Tree Partnership to coordinate research and guidance, data sharing and communicating the benefits of trees

"There are around eight million trees covering around 20 per cent of London's land area."

The 'urban forest' is all the trees in London. There are around eight million of them covering around 20 per cent of London's land area. It consists of street trees, garden trees, trees in parks and open spaces, copses, woodlands and extensive areas of semi-natural forest. The Mayor wants to increase this by ten per cent by 2050.[42] As well as protecting the existing resource the rate of tree planting must be increased to create new woodlands for recreation and wildlife habitat.

Increasing London's canopy cover can add to the benefits that London's open spaces and urban forest already provide. Research by the University of Manchester has shown that increasing canopy cover by ten per cent in city areas with the highest density of buildings can help reduce temperatures.[43] The distance over which this cooling is effective increases where tree canopy coverage is most extensive.[44] The planting of trees in streets and parks will also help improve air quality over the long-term.

Proposal 5.1.1f The Mayor will back greater community involvement in the improvement and management of London's green spaces and natural environment

The Mayor will work with boroughs, Parks for London and civil society organisations such as Groundwork London, London Wildlife Trust, and Trees for Cities to provide advice and guidance to local communities.

Local people are the main users of most of the smaller green spaces across London – local parks, pocket parks and amenity green space. It is these spaces that are often given the lowest priority by those charged with managing and maintaining a network of sites.

The State of UK Public Parks published by the Heritage Lottery Fund in 2016 provides an assessment of the funding and investment in the UK's public parks and green spaces.[45] It shows there have been year-on-year reductions to local authority parks budgets since 2010. Three quarters of London boroughs expect further reductions on between 10-20 per cent (or more) up to 2020.

As a result, people and communities increasingly want to take local action to enhance these spaces and the wider natural environment. There are over 600 Friends of Parks Groups across London and over half of the London boroughs have formal Parks Forums. Initiatives to promote food growing and community-managed pocket parks have spawned a number of local projects to make better use of underused or neglected local green spaces. There are now, for example, 2,553 food growing spaces across London.[46]

Traditional models of local council funding are no longer likely to provide enough resources to maintain and enhance the public realm. The Association for Public Service Excellence published a report about this called Park Life, Street Life: Managing demand in the public realm.[47] It explored how local people, businesses and community groups can become more powerful actors within the public realm. They can help to secure not just volunteer hours but access to funding, and play an active role in managing local spaces.

[42] The 'urban forest' currently covers around 20 per cent of London's land area. A ten per cent increase will take this to around 22 per cent by 2050
[43] Gill et al (2007), Adapting Cities for Climate Change: The Role of Green Infrastructure
[44] Doick et al (2016), The impact of greenspace size on the extent of local nocturnal air temperature cooling in London. Urban Forestry and Greening 16: 160-169
[45] Heritage Lottery Fund (2016), State of UK Public Parks 2016. Accessed from: www.hlf.org.uk/state-uk-public-parks-2016
[46] Capital Growth (n.d.) Capital growth: London's food growing network. Accessed from: www.capitalgrowth.org/
[47] Association for Public Service Excellence (2015), Nudge and budge your citizens to reduce demand o hard pressed council services. Accessed from: www.apse.org.uk/apse/index.cfm/news/2015/press-release-nudge-and-budge-your-citizens-to-reduce-demand-on-hard-pressed-council-services/

Many local councils now support and encourage local community groups and civil society organisations to take more responsibility for these locally important spaces (Box 13). A wide range of civil society organisations (including Parks for London, Groundwork London, London Wildlife Trust and the National Trust) can offer local communities support and expertise. However, additional capacity is needed to ensure that locally-based groups have the practical and administrative skills necessary to take 'ownership' of local green spaces.

BOX 13: COMMUNITY PARTICIPATION MODELS

A number of different approaches have been taken by London boroughs to get communities more engaged in local green spaces. Some examples are below.

Havering actively supports a Friends of Parks[48] network that ensures local communities are actively engaged in decisions about managing the borough's parks. This supplements the work of the borough's grounds maintenance team.

Islington has devolved parks maintenance budgets to formally constituted residents associations and friends groups at Arlington Square[49] and Barnsbury Square[50].

Lambeth embarked on its Co-operative Parks[51] initiative in order to identify social enterprise organisations such as Streatham Common Co-operative (SCoop)[52] that could be responsible for not-for-profit led management of borough parks.

OBJECTIVE 5.2 CONSERVING AND ENHANCING WILDLIFE AND NATURAL HABITATS

London's network of parks and green spaces has resulted in a city that is not just green but also relatively rich in wildlife and natural spaces. London's geography helps. The city's wildlife habitats include areas as diverse as chalk grassland, grazing marsh, ancient woodland and heath, and a variety of urban habitats including reservoirs, gardens and parks.

However, in common with nationwide trends which show a continual decline in England's biodiversity, London's ecological health has worsened, caused by urbanisation.

Many Londoners play an important role in maintaining and enhancing the ecology of the city. Gardens are a valuable supplementary habitat for a wide range of wild plants and animals. Gardens and other private green spaces can be managed to improve their value to wildlife, for example through the provision of ponds, nectar rich plants or trees.

"Many Londoners play an important role in maintaining and enhancing the ecology of the city."

[48] Havering Borough Council (n.d.) Friends of parks in Havering. Accessed from: www.havering.gov.uk/info/20037/parks/215/friends_of_parks_in_havering
[49] Arlington Association (n.d.), Home. Accessed from: www.arlingtonassociation.org.uk
[50] Friends of Barnsbury Square Gardens (n.d.), Welcome to the Friends of Barnsbury Square Gardens website. Accessed from: friendsofbarnsburysqgardens.com/
[51] Lambeth Borough Council (2013), Lambeth Cooperative Parks Programme Information Booklet. Accessed from: www.lambeth.gov.uk/sites/default/files/CoopParksInformationBooklet.pdf
[52] Streatham Common Cooperative (n.d.), What is The Streatham Common Co-operative? Accessed from: https://www.sccoop.org.uk/

Policy 5.2.1 Protect a core network of nature conservation sites and ensure a net gain in biodiversity

Proposal 5.2.1a The Mayor will include policies on the protection of Sites of Importance for Nature Conservation (SINCs) and the promotion of wildlife-friendly landscaping in the new London Plan

The land-use planning system provides the primary mechanism for protecting land of ecological value in London. A robust policy framework in the London Plan can ensure land of particular nature conservation value is safeguarded. This can support the enhancement of biodiversity by requiring new development to include new wildlife habitat, nesting and roosting sites and ecologically appropriate landscaping.

The establishment of a SINC network is designed to protect valuable habitats (those which are rare, threatened, fragile or richest in wildlife) from development. By doing this, most of the rarest or most vulnerable species are also likely to be conserved.

With access to nature included in the criteria, the SINC network also ensures as many Londoners as possible can access wildlife rich spaces close to where they live and work.

The procedures in Appendix 5 of this strategy set out the methodology and process by which boroughs should identify SINCs in their Local Plans.

Proposal 5.2.1b The Mayor will seek to implement an approach for London to biodiversity offsetting

The Mayor will work with boroughs, statutory agencies and wildlife organisations to explore the opportunities to establish a new biodiversity offsetting metric for London.

Biodiversity offsets are measurable conservation outcomes resulting from actions designed to compensate for residual adverse biodiversity impacts arising from a development.

Where there is risk of damage to a SINC or harm to a protected or priority species, appropriate planning conditions or obligations can be used to negate or minimise that impact. Where loss is unavoidable, mitigation or compensation should be used. This can lead to the creation, restoration and enhancement of natural habitats, or improved breeding or foraging areas for protected or priority species on the site or elsewhere.

[53] Defra (2014), Evaluation of the Biodiversity Offsetting pilot phase. Accessed from: http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&ProjectID=18229&FromSearch=Y&Publisher=1&SearchText=WC1051&SortString=ProjectCode&SortOrder=Asc&Paging=10#Description.

Defra and Natural England ran six biodiversity offsetting pilot areas from 2012 to 2014 to test various methodologies.[53] The government has not yet translated the results of these pilots into a standard, approved methodology for biodiversity offsetting. It does, however, recognise that biodiversity offsetting is an option available to developers to fulfil their obligations under the planning system's mitigation hierarchy. It therefore encourages local authorities and others to develop appropriate bespoke methodologies.

In London, the Thameslink Programme has conducted a trial of a biodiversity offsetting methodology (Box 14).

BOX 14: THAMESLINK PROGRAMME: A NET POSITIVE BIODIVERSITY OFFSETTING SCHEME

The Thameslink Programme is a £4.6bn rail infrastructure enhancement project running from Bedford to Brighton through central London. It is Network Rail's first project to commit to delivering a net gain in biodiversity. This means the mitigation hierarchy (avoiding and minimising impacts on biodiversity and, as a last resort, compensating for any unavoidable loss) was closely followed. All the sites were assessed using a Defra metric to establish the biodiversity baseline and compensation units. Forty two units requiring compensation were identified as unavoidable losses. These are being addressed through both onsite enhancements and biodiversity offsetting. Thameslink, supported by Parsons Brinckerhoff,

and partners London Wildlife Trust and Lambeth Council are delivering its biodiversity offset at Streatham Common, a Local Nature Reserve in South London. The offset involves new woodland planting and improving existing woodlands. It has been mainly designed to compensate for the greatest biodiversity impact (loss of a railway-locked two hectare area of trees in south London). It will also restore parts of the Great North Wood: a forest that once grew across south London. The offset achieves a net biodiversity gain and adds value for both wildlife and local communities. The Thameslink biodiversity offset has been named by Defra as a UK demonstration project.

Proposal 5.2.1c The Mayor will provide guidance and support to secure better management of existing habitats across London, the creation of new habitats and conserve key species

Working with London boroughs, the statutory environmental agencies and others the Mayor will ensure managers of public land in London can get the best advice on the management or enhancement of land or buildings for nature conservation. New models of delivery will also be explored and recommended.

Planning policy to protect or create areas of nature conservation value is ultimately ineffective if the habitats protected or created are not properly managed. Most habitats will change or deteriorate over time without appropriate management. For some habitats, such as woodland, this is a slow, almost imperceptible process. For others, such as grassland or heathland, changes can be rapid and dramatic.

Many London boroughs and other land managers have access to their own in-house advice on ecology and natural environment issues. But in recent years, particularly as public sector budgets have been prioritised to fund core statutory services, the amount expert advice at the borough level has fallen. Consequently, London-wide forums and advisory services are increasingly needed to share expertise, knowledge and experience.

Despite the extent of green space in London, the existing SINC network is fragmented. Therefore, to further improve ecological resilience more habitats should be created to:

- strengthen wildlife corridors and augment fragile or threatened habitats

- create new landscapes that deliver the most valuable green infrastructure services in a London context. These include flood management, air quality improvement, prevention of water pollution and enhancement of amenity in public parks and green spaces.

A review of habitat targets in the London Plan (2015) in March 2017 showed that several habitat targets have been met. However, for many, it was hard to make strong conclusions because it was unclear if planning policy had been a critical delivery mechanism, and data on them was inconsistent and/or incomplete. For this reason it has been decided that a smaller set of targets will be included in this strategy rather than the London Plan.

Table 1 details the opportunities for habitat creation and restoration. This can be done via existing improvement and funding programmes such as the Heritage Lottery Fund or through the Environment Agency or borough programmes.

Table 1: Habitat creation opportunities for London

Habitat	By 2025 (ha)	By 2050 (ha)
Species-rich woodland	20	200
Flower-rich grassland	50	250
Rivers and streams	10 km	40 km
Reedbeds	5	30

The values in the table are based on research undertaken by the London Wildlife Trust and Greenspace Information for Greater London.

The habitats are:

- **Species-rich woodland**
  There is an existing commitment to increase London's existing tree canopy by five per cent (the equivalent of one per cent of London's total tree canopy cover) by 2050, by creating 2000 hectares of woodland in London's urban fringe. The habitat creation target proposes that a minimum of ten per cent of this woodland planting, i.e. 200 hectares, in the urban fringe is species-rich woodland designed and planted to a higher standard than general woodland planting

- **Flower-rich grassland**
  A target of creating an additional 300 hectares of flower-rich grassland by 2050 would require about one per cent of existing public green space to be improved to provide this additional habitat

- **Rivers and streams**
  The EU Water Framework Directive requires all water bodies (including rivers and streams) to achieve good ecological status. This, alongside more natural approaches to managing flooding, has resulted in schemes and measures to restore rivers to more natural systems. In the capital, this has been catalysed by the London Rivers Action Plan which has led to 17.5 km of river channel being restored since 2008. This sets a target for 2050 taking into account that opportunities for restoration will get harder compared to earlier years

- **Reedbeds**
  Creating reedbeds has been a feature of habitat creation effort in London since the early '90s. It addresses a chronic problem of nutrient enrichment and pollution. It also creates new wildlife habitat in many lakes found in London's parks. This has resulted in new reedbeds in a number of parks including the Royal Parks. The target contributes to the objectives of the EU Water Framework Directive by encouraging reedbed creation

There needs to be more ecological connectivity and wildlife corridors between designated Sites of Nature Conservation Interest and rare or threatened habitats need to be expanded. To do this, opportunities should be sought to create or restore UK Biodiversity Action Plan habitats ('priority habitats') near these designated sites where these habitats are found (Figure 28).

In London these priority habitats are:

- acid grassland

- chalk grassland

- fen, marsh and swamp

- lowland meadows

- coastal and floodplain grazing marsh

- open mosaic habitats on previously developed land

- orchards

Figure 28: Habitat creation opportunity areas – 200m buffer around sites supporting priority habitats

Legend

■ Biodiversity Action Plan (BAP) Haibitats (excl. ponds, and woods < 1ha)

■ 200m buffer

0 1.25 2.5   5 Miles
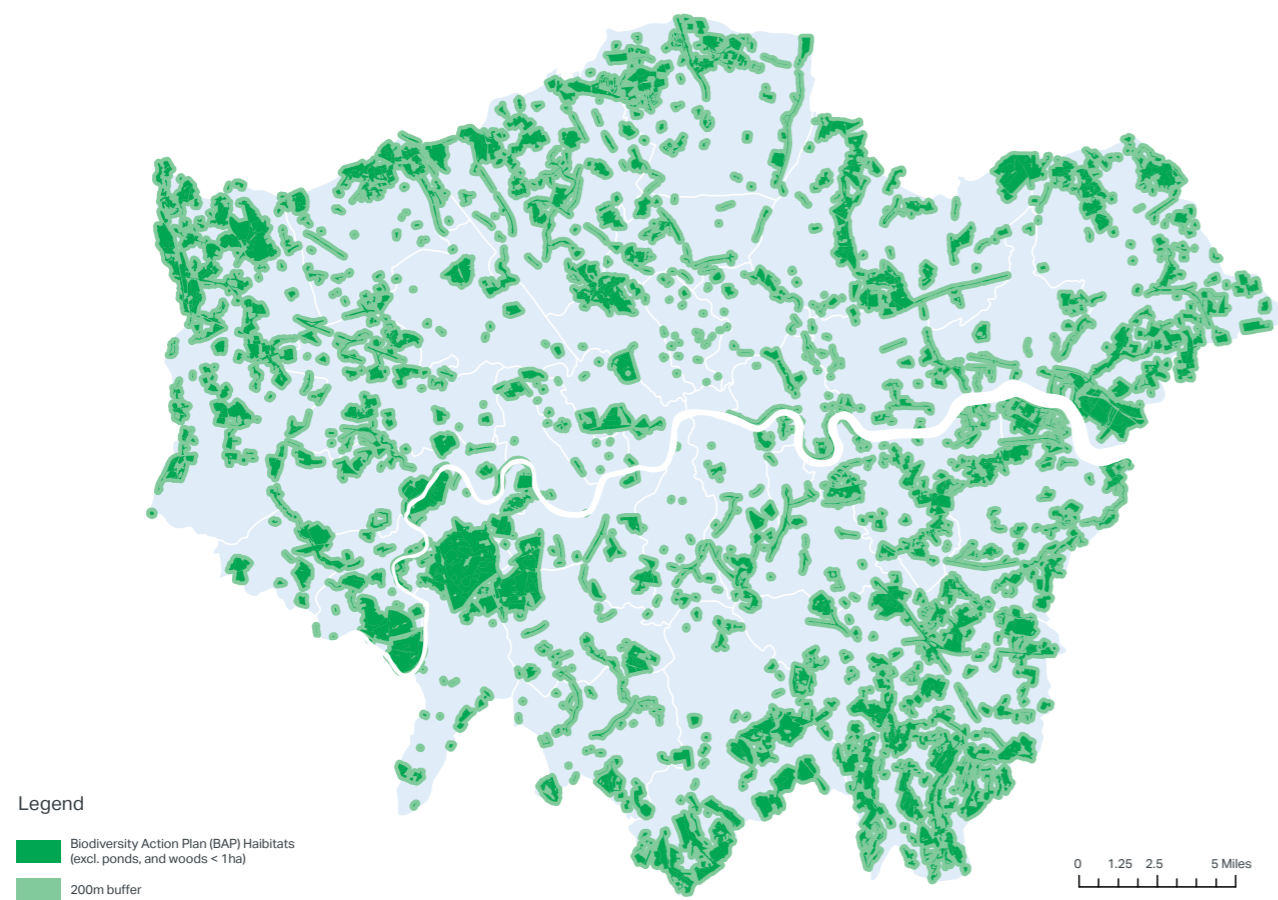
Source: Greater London Autority (2017)

The development of Queen Elizabeth Olympic Park in the run-up to the 2012 Olympic Games provides a case study in habitat creation (Box 15).[54]

BOX 15: SECURING ECOLOGY OBJECTIVES FOR THE OLYMPIC PARK

The London 2012 Olympic and Paralympic Games planning permissions placed an obligation to provide 45 hectares of wildlife habitat. It also required the quality and connectivity of habitat to be improved.[55] The new Biodiversity Action Plan[56] provided a context for this new habitat and showed it can be done for other major redevelopment sites.

The habitat was broken down into target areas and locations for various different habitats within the Park, identified in Habitat Action Plans. Habitats to be created included brownfield (including brown roofs),

species rich grassland, wet woodland and reedbeds. It also identified the quality of the new habitat, including those that support particular species and the establishment of continuous corridors for wildlife migration. Importantly it integrated these habitats with areas of more formal landscaping and ensured where possible that wildlife habitat was also providing other functions such as flood storage. The original Biodiversity Action Plan has been updated for the future development of Queen Elizabeth Olympic Park.[57]

[54] Olympic Delivery Authority (2011), Learning legacy: lessons learned from the London 2012 Games construction project. Accessed from: http://learninglegacy.independent.gov.uk/documents/pdfs/design-and-engineering-innovation/425009-165-promoting-biodiversity-aw.pdf

[55] Peter Neal (2011), Learning legacy. Accessed from: http://learninglegacy.independent.gov.uk/documents/pdfs/design-and-engineering-innovation/425009-165-promoting-biodiversity-aw.pdf
[56] Olympic Delivery Authority (2008), Olympic Park Biodiversity Action Plan. Accessed from: www.queenelizabetholympicpark.co.uk/-/media/lldc/local-plan/local-plan-examination-documents/local-strategy-papers/ls4-legacy-communities-scheme-olympic-park-biodiversity-action-plan-2008.ashx?la=en
[57] London Legacy Development Corporation (2013), Legacy Communities Scheme Biodiversity Action Plan 2014-2019. Accessed from: www.queenelizabetholympicpark.co.uk/-/media/lldc/sustainability-and-biodiversity/legacy-communities-scheme-biodiversity-action-plan-2014-2019.ashx?la=en

The Mayor will work with wildlife organisations to produce an updated list of priority species which are of particular conservation importance in London. All land-managers and landowners should take this into account. This should include, for example, tailoring the management of land to create habitat or features (for example, nesting and roosting sites) which support their conservation.

The ecological resilience of London cannot be maintained simply by the protection of SINCS or using other legal protections. Some species such as bats are legally protected under the Wildlife and Countryside Act 1981.[58] They may also be dependent upon supplementary habitat provided by ecological features

(such as gardens and street trees, for example) that are not safeguarded by being part of the SINC network.

The Natural Environment and Rural Communities Act 2006 lists species that are of principal importance for the conservation of biodiversity ('priority species'). The conservation status of these species must be taken into account by public bodies when making decisions about the use and management of land.[59]

Appendix 2 provides a list of the priority species identified in London. It has information about the types of habitats and features on which they depend and the boroughs where they have been recorded.[60]

Proposal 5.2.1d The Mayor will work with key partners to establish a cost-effective monitoring framework to ensure important natural environment data is collected consistently to inform future decision making

Key data on London's ecology and natural environment will be collected, collated, managed and shared. This will be to monitor ecological trends and to make evidence-based decisions on the use and management of land.

The health of London's natural environment can be measured using variables ranging from the extent and quality of habitats, to the presence and population size of species. It also includes the accessibility of green space and water quality of rivers and water bodies. The 2002 Biodiversity Strategy recommended a ten-year rolling survey of all London's green spaces and habitats. The data to support the monitoring of these indicators is held by a number of bodies including London boroughs, statutory agencies

and environmental organisations. Volunteers and citizen scientists also contribute to the collection of this data. The result is a disparate approach that does not provide a strategic view of the state of London's natural environment. It also demonstrates the need for a robust natural environment monitoring framework. This should identify the most relevant data required to monitor key indicators of the health of London's environment and how to collect it in the most cost-effective way.

The 2002 Strategy also recognised the importance of collating, managing and sharing natural environment data. Consequently, a records centre was created in the form of Greenspace Information for Greater London (GiGL). This monitors the effectiveness and impact of the policies in this strategy by collecting and collating data on a London-wide basis. It also provides a cost-effective mechanism for boroughs and others to maintain their own data.

[58] JNCC (n.d.) Species protection and legislation. Accessed from: http://jncc.defra.gov.uk/page-1747
[59] Natural England (n.d.), Habitats and species of principal importance in England. Accessed from: http://webarchive.nationalarchives.gov.uk/20140605090108/http://www.naturalengland.org.uk/ourwork/conservation/biodiversity/protectandmanage/habsandspeciesimportance.aspx
[60] GiGL (n.d.) London's BAP Priority Species. Accessed from: www.gigl.org.uk/london-bap-priority-species/

"Making London a National Park City brings opportunities to engage Londoners to create a common vision of the environmental, social and economic benefits of London's green infrastructure."

OBJECTIVE 5.3 VALUE LONDON'S NATURAL CAPITAL AS AN ECONOMIC ASSET AND SUPPORT GREATER INVESTMENT IN GREEN INFRASTRUCTURE

Making London a National Park City brings opportunities to engage Londoners to create a common vision of the environmental, social and economic benefits of London's green infrastructure. It provides a framework to promote investment in London's natural capital and green infrastructure. This will ensure effective coordination, better valuation and more innovation from all those involved in protecting and enhancing London's environment.

The Natural Capital Committee's third report to government showed that carefully planned investments in natural capital, targeted at the best locations, will provide huge value for money and generate large economic returns. These are competitive with the returns from more traditional infrastructure investments. In particular, urban green spaces offer significant potential for improvements in

physical and mental health. This will in turn reduce health expenditures and improve labour productivity.

Policy 5.3.1 To address under-investment and improve the management of London's green infrastructure through new business models and improved awareness of the benefits of London's green infrastructure

Proposal 5.3.1a The Mayor will establish a London Green Spaces Commission to develop new models for the delivery and management of London's green infrastructure

The Mayor will work with London Councils, GLA group and civil society organisations to establish a time limited London Green Spaces Commission to explore the best options for the following:

• developing financing frameworks that identify a range of models to generate resources. Also, an investor and fundraising plan to include options for private and voluntary sector contributions and from other sources of public sector finance (for example health)

• organisational models including service transformation variations oncharitable trusts, social enterprise models or other option, which improve the existing institutional landscape for managing parks and green spaces

The functions of green infrastructure are usually optimised by managing these at a location and scale that fits the service provided. For example, flood prevention and management is best done at the river catchment scale, as interventions upstream can have a profound impact (positive or negative) lower down the catchment.

The political boundaries of the city are rarely aligned to the appropriate landscape scale. However, there have been recent examples through sub-regional partnerships such as Wandle Valley Regional Park Trust and the Colne Valley Regional Park Community Interest Company which are based on the geography of London's river valleys. These are starting to illustrate the benefits of planning and working across administrative boundaries.[61,62]

61 Wandle Valley (n.d.), Welcome to the Wandle Valley Regional Park. Accessed from: http://wandlevalleypark.co.uk//
62 Colne Valley Regional Park (n.d.), Colne Valley Regional Park. Accessed from: www.colnevalleypark.org.uk/

Proposal 5.3.1b The Mayor will publish and promote a natural capital accounting framework for London

The Mayor will work with London Councils and other stakeholders to promote and share a London Natural Capital Account and a natural capital accounting framework. The Mayor will encourage its use by London boroughs and other major land-managers.

The government's Natural Capital Committee is creating an accounting framework to address the issue of underinvestment in managing and improving the natural environment and green infrastructure (Box 16).

The newly emerging methodology of Natural Capital Accounting is designed to enable the following:

• better measurement of the value that the natural capital owned or managed by an organisation produces for the organisation itself and society in general (asset values)

• better recording of the costs (liabilities) of maintaining this value

BOX 16: PROVIDING VALUE FOR MONEY FROM NEW WOODLAND PLANTING

Government policy and funding for woodland creation is determined primarily by the value of timber minus the costs to agriculture of foregone production. This results in planting targeted in the uplands (see left hand map) although there is an extra non-market cost of the release of CO_2 resulting from draining peaty soils. For Great Britain as a whole, this produces overall losses in excess of £65m a year.

However, if the economic value of recreation and carbon release is factored in, there should be extensive tree planting in major population centres and where soils store less carbon (see right hand map). Woodland planting of up to 250,000 additional hectares, located near towns and cities would bring net economic benefits of nearly £550m a year across Great Britain.
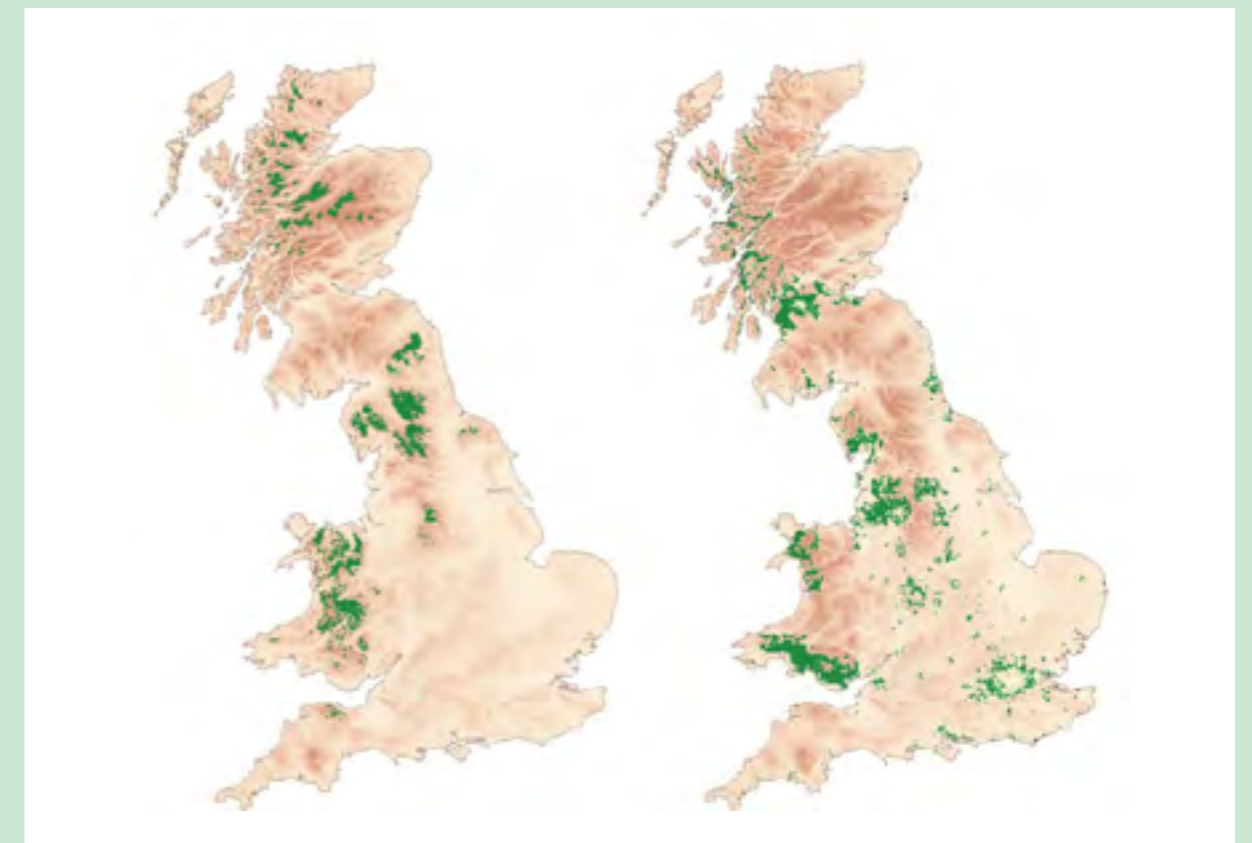
This approach is particularly relevant to informing policy and funding requirements for London's green infrastructure. A Natural Capital Account for London's public parks and green spaces will be published alongside the final version of this strategy. It will reveal the economic value of public parks and green spaces. It will support the business case for investment in these spaces by contrast this with the significant reduction in spending in these vital assets in recent years as a consequence of constraints in sector public funding. Initial conclusions are that London's public green space has a combined asset value in the order of tens of billions.

Proposal 5.3.1c The Mayor will work with a range of stakeholders to help provide a stronger evidence base for green infrastructure programmes, projects and interventions to identify priority areas for green infrastructure

The Mayor will work with stakeholders to review and update the framework provided by the All London Green Grid. An All London Green Grid 'challenge map' will be developed to identify priority areas for green infrastructure investment.

The All London Green Grid is a green infrastructure policy framework set out in Supplementary Planning Guidance (SPG) to the London Plan. It identified the various functions and benefits of green infrastructure. However, it did not prioritise projects and interventions based on what function might be of particular benefit in each location. Since its publication in 2012, more fine-grain digitised spatial and geographic data has become available. This allows a more sophisticated assessment of which green infrastructure interventions might be best suited to particular locations.

Proposal 5.3.1d The Mayor will explore new approaches to investment to make sure that there is financial support for strategic green infrastructure projects

To develop new or improved funding streams the Mayor will work with others to determine how best to access funding. This includes major sources of philanthropic funding, new resources from environmental levies, and charges from further fiscal devolution. The Mayor will also convene annual strategy meetings involving major funding bodies. This will ensure better coordination and targeting of available funding.

There is increasing recognition of the potential economic benefit of investment in green infrastructure. Yet the funding of strategic green infrastructure projects still falls largely to those parts of the public sector and their civil society partners that work on environmental outcomes. An increase in green infrastructure investment will require access to new funding sources, including funding from the private sector, and better use and coordination of existing public and charitable funding streams.

This will include:

- alignment of funding streams and objectives of a wide range of partners, including pooling of funding at sub-regional level or across borough boundaries

- using new resources that have not traditionally been accessible to those delivering green infrastructure projects (for example philanthropic funding)

- resourcing model demonstration projects to showcase best practice and set the standards and practices for future interventions

Proposal 5.3.1e The Mayor will work with civil society organisations to develop a series of campaigns that engage Londoners and enable them to enjoy, participate in and contribute to London becoming a National Park City

The Mayor will support campaigns by civil society organisations that provide information to Londoners on how they can contribute to improving London's green infrastructure.

It is vital that the public engage with and participate in the idea of London as a National Park City. Many of the activities needed to meet National Park City objectives require action by Londoners in and around the places in which they live and work. This is supported by information and guidance like Groundwork London's Climate Proofing Housing Landscapes project (Box 17) and the Royal Horticultural Society's Greening Grey Britain campaign.

The Mayor will work with partners to develop specific campaigns that are likely to resonate with a wide range of Londoners. For example, guidance and advice on how Londoners can reduce their own risk of exposure to poor air quality by appropriate planting in front gardens, or promoting a 'licence to green' which gives residents permission to garden public spaces as has been trialled in Paris.[63,64]

[63] EcoWatch (2016), Paris Becomes One of the Most Garden-Friendly Cities in the World. Accessed from: www.ecowatch.com/paris-urban-gardening-2039785049.html
[64] Mairie de Paris (n.d.), Le permis de végétaliser. Accessed from: www.paris.fr/permisdevegetaliser

BOX 17: CLIMATE PROOFING HOUSING LANDSCAPES

Groundwork London in partnership with Hammersmith & Fulham Council has been working with local residents to design and implement green infrastructure climate change adaptation measures on three housing estates.[65] This was done by:

- light engineering retrofitting solutions in green spaces, to help ease impacts such as flooding and heat. This includes sustainable drainage systems as shown in the photograph below

- working with residents to give them the chance to shape the open space improvements on their estates and promote awareness of climate change impacts and how residents can adapt

- creating training and job opportunities for apprentices and for grounds maintenance contractors to learn how to maintain these measures and to replicate them elsewhere

Q

CONSULTATION QUESTIONS: GREEN INFRASTRUCTURE

1. The Mayor's ambition is to make London a National Park City. What should the attributes of a National Park City be and what would we need to achieve for it to be considered successful?

2. In what ways can the Mayor help to ensure a more strategic and coordinated approach to the management of London's network of parks and green spaces?

🖱 **london.gov.uk/environment-strategy**

3. Do you think the proposed policies and programmes will ensure London's important wildlife is protected and enhanced?

4. Do you think the proposed policies and programmes will be effective in increasing London's tree canopy cover?

5. How best can natural capital thinking be used to secure greater investment in the capital's green infrastructure?

6. Please provide any further comments on the policies and programmes mentioned in this chapter.

[65] Groundwork (n.d.), Climate Proofing Housing Landscapes. Accessed from: www.groundwork.org.uk/Sites/urbanclimateproofing