Westminster Green Infrastructure Audit
Westminster City Council

Final report
Prepared by LUC
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LUC

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Contents

**Understanding
Westminster's
Existing Green
Infrastructure**

Chapter 1
An Introduction to GI

Green infrastructure (GI) forms an essential part of healthy communities and ecosystems across both rural and urban contexts. It is a fundamental component of sustainable growth and is widely recognised as a key tool in enabling both local and global communities to tackle environmental, societal and economic challenges.

1.1 In December 2018, both the London Assembly and the Mayor of London declared a climate emergency, setting a target for the whole of London to achieve net zero carbon by 2030. Westminster City Council (hereafter referred to as 'WCC') followed suit in September 2019 and set a target to achieve net zero emissions by 2030 and for the City of Westminster to achieve this by 2040. The commitment to a future GI Strategy for Westminster is also set out in the Green and Resilient City Priority within the Westminster Climate Emergency Action. These targets and the need for bold action form the key drivers for this GI Audit. The declaration of an Ecological Emergency in September 2023 further strengthened Westminster's pledge to ensure its housing estates, parks and open spaces are more hospitable to both people and nature.

1.2 LUC and Bosky Trees Ltd. were commissioned by WCC in April 2023 to undertake the GI Audit for the borough.

> The aim of the GI Audit is to produce a robust evidence base of Westminster's green assets which will support the implementation of the City Plan[1]. The findings will inform the future GI Strategy.

1.3 The outputs of the GI Audit will be used to develop policy and to aid decision making across WCC's departments, including Active Communities, Climate Emergency, City Highways, Development, CIL / Section 106 (s106), Housing and Place Shaping. It is also intended to support WCC's partners and various stakeholders, including Business Improvement Districts (BIDs) and private landowners, in the delivery, enhancement and maintenance of GI across Westminster.

1.4 The GI Audit builds on the Open Space Audit[2] undertaken in 2015 by focussing on all aspects of GI, whilst also integrating subsequent updates to national policy and drivers, including Biodiversity Net Gain (BNG), as well as any additional work undertaken by WCC, such as flood risk assessments.

Structure of this GI Audit

1.5 This GI Audit is structured as follows:

Chapter 1 – Introduction

1.6 Outlines how the GI Audit should be used, what GI is, why we need a GI Audit and a summary of Westminster's existing GI context. The roadmap for the delivery of GI through the preparation of a future GI Strategy is also discussed.

Chapter 2 – Methodology and the Themed Approach

1.7 Provides an overview of the GI Audit method, including stakeholder consultation, and the approach to identifying and using GI themed to organise information.

Chapter 3 – Policy Context

1.8 Summarises the national, regional and local policy context that applies to Westminster's GI.

Chapter 4-8 – GI Themes

1.9 Explores Westminster's existing GI network, including assets, issues and opportunities, organised into five key themes to reflect the 2023 Natural England GI Framework (see later subheading 'What is GI?'):

- ■ Theme 1 – Nature rich beautiful places;
- ■ Theme 2 – Active and healthy places;
- ■ Theme 3 – Thriving and prosperous places;
- ■ Theme 4 – Improved water management; and
- ■ Theme 5 – Resilient and climate positive places.

Chapter 9 – Summary of Current GI and Local Needs

1.10 Summarises the five theme chapters into a succinct overview of Westminster's current GI network, including an evaluation of the network's overarching assets.

Chapter 10 – Priority GI Recommendations

1.11 Provides a summary of the future need for GI within Westminster and outlines priority GI recommendations for siting, designing and delivering GI across Westminster utilising the outputs of the GI Audit.

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[1] City of Westminster (2021). City Plan 2019-2040. Available at: https://www.westminster.gov.uk/sites/default/files/media/documents/City%20Plan%202019-2040%20-%20April%202021.pdf

[2] Groundwork (2016). City of Westminster Open Space Strategy Mid-Point Update: Site Audits, Survey & Consultation Report. Available at: https://www.westminster.gov.uk/media/document/en-env-008---audit-of-open-spaces

1.12 Outlines recommendations for the future delivery of GI across Westminster, including guidance on the scope for the future GI Strategy.

Appendices

- **Appendix A – Glossary;**

- **Appendix B – Consultation Record; and**

- **Appendix C – SINC Report.**

What is Green Infrastructure?

1.13 The term GI is now widely adopted and used to describe the network of natural and semi-natural features, including 'blue' assets such as rivers, canals and ponds, and 'urban greening' assets such as green walls, green roofs, street trees and Sustainable Drainage Systems (SuDS). GI is not limited to traditional green spaces such as parks and can include various assets which thread nature into streetscapes or to increase connectivity between assets at from the strategic down to the estate-scale. The National Planning Policy Framework (NPPF) 2021 defines GI as:

> *"A network of multi-functional green and blue spaces and other natural features, urban and rural, which is capable of delivering a wide range of environmental, economic, health and wellbeing benefits for nature, climate, local and wider communities, and prosperity."*

1.14 In London's urban context, the Mayor of London[3] defines GI as:

> *"A network of parks, green spaces, gardens, woodlands, rivers and wetlands, as well as urban greening features such as street trees and green roofs, that is planned, designed and managed to:*
>
> - *promote healthier living, providing spaces for physical activity and relaxation;*
>
> - *cool the city and absorb stormwater to lessen the impacts of climate change;*
>
> - *filter pollutants to improve air and water quality;*
>
> - *make streets clean, comfortable and more attractive to encourage walking and cycling;*
>
> - *store carbon in soils and woodlands; and*
>
> - *create better quality and better-connected habitats to improve biodiversity and ecological resilience."*

1.15 The concept of GI continues to strengthen in national and regional policy, including through its promotion in the 2018 25 Year Environment Plan (YEP)[4], the 2018 London Environment Strategy[5], and the 2021 London Plan[6]. In February 2023, Natural England launched the GI Framework[7], a major new tool to support both authorities and developers to deliver well planned, designed and maintained GI. Made up of GI Mapping, Principles, Standards, A Design Guide and Process Journeys, the Framework is a commitment within the 25 YEP and places GI at the top of the planning agenda. The Framework highlights the important role of GI in delivering multiple benefits across health and wellbeing, climate, biodiversity and economic targets. Furthermore, it provides a key link between other ongoing initiatives, including Biodiversity Net Gain (BNG), Local Nature Recovery Strategies (LNRS) and natural capital.

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[3] Mayor of London (no date). Green Infrastructure. Available at: https://www.london.gov.uk/programmes-and-strategies/environment-and-climate-change/parks-green-spaces-and-biodiversity/green-infrastructure
[4] Defra (2018). A Green Future: Our 25 Year Plan to Improve the Environment. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/693158/25-year-environment-plan.pdf

[5] Greater London Authority (2018). London Environment Strategy. Available at: https://www.london.gov.uk/sites/default/files/london_environment_strategy_0.pdf
[6] Greater London Authority (2021). The London Plan. Available at: https://www.london.gov.uk/sites/default/files/the_london_plan_2021.pdf
[7] Natural England (2023). Introduction to the Green Infrastructure Framework. Available at: https://designatedsites.naturalengland.org.uk/GreenInfrastructure/Home.aspx

The GI assets considered for the purpose of this GI Audit are listed below and displayed visually in **Figure 1.1**.

Managed and natural green space

1   Public parks and gardens, including water features;

2   Formal and informal open space, including civic spaces, amenity green spaces, play spaces and outdoor leisure facilities;

3   Nature conservation sites, including Sites of Importance for Nature Conservation (SINCs);

4   Tree cover; and

5   Allotments, community gardens, city farms and orchards.

Linear linkages and corridors

6   Footpaths, towpaths, promoted walking routes and cycle infrastructure;

7   Railway lines; and

8   River and canal corridors.

Elements of the built environment

9   Roadside verges;

10   Street trees, trees in gardens and hedges;

11   Urban greening features, including green walls, green roofs, parklets and planters;

12   Sustainable Drainage Systems (SuDS), for example rain gardens and swales; and

13   Private gardens, including square gardens, educational institutions, pseudo-public spaces, places of worship and housing estate land.

Figure 1.1: Components of Westminster's GI Network
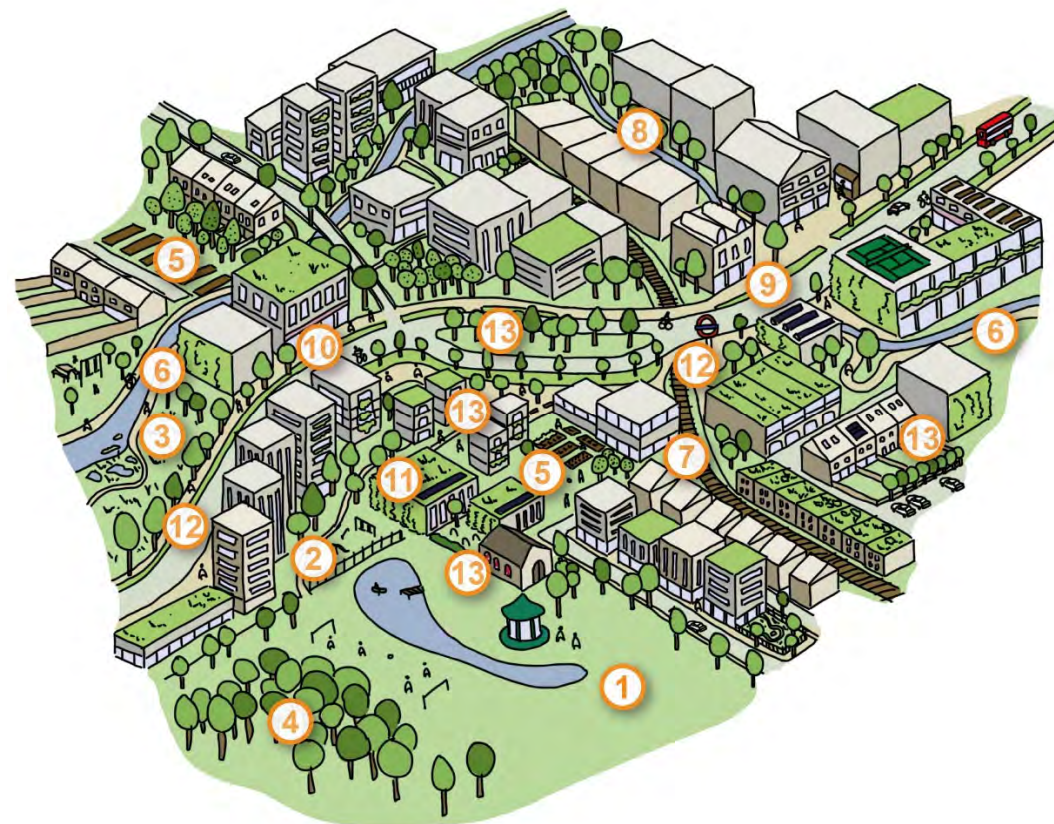
What is a Green Infrastructure Audit?

A GI Audit is:

"The accurate mapping, description and analysis of all existing green infrastructure (GI) features within a defined study area. It outlines the functional benefits of GI and identifies opportunities for improving existing GI and for the creation of new GI. The improvement and increase of GI within an area will provide multi-functional benefits to people, the economy and the environment."

Green Infrastructure Audit, Best Practice Guide – Victoria BID[8]

1.16 The GI Audit is intended as a first step towards the successful delivery of GI across Westminster, as illustrated in **Figure 1.2**. A subsequent GI Strategy and Action Plan will be needed to identify GI projects and initiatives, and to plan for their successful delivery and ongoing stewardship. The GI Audit identifies priority GI recommendations and principles based on the robust evidence base gathered. However, it will be the role of subsequent strategies and action plans to set out how GI will be integrated into planning policy and delivered to support multiple benefits. An overview of WCC Directorates and documents of relevance to the GI Audit is provided in **Figure 1.3**.

A GI Strategy is:

A plan of action designed to achieve a long-term goal or overall aim of protecting and enhancing GI within the borough.

Figure 1.2: Proposed delivery roadmap

The scope of this document

Development of a GI Audit
Evaluating the performance of the GI network

| Collate mapping and review the GI evidence base | Undertake gap analysis to identify areas of GI needs and deficiencies | Identify processes and mechanisms for delivery |

Development of a GI Strategy and Action Plan
Developing a vision to guide the planning and future delivery of the GI network

| Identify GI priority opportunities | Support planning updates and the development of strategic objectives | Identify spatially specific interventions |

Support implementation of the City Plan

[8] Victoria Business Improvement District (no date). Green Infrastructure Audit: Best Practice Guide.
Available at: https://www.london.gov.uk/sites/default/files/bestpracticeguide_a4-10.pdf

Figure 1.3: WCC Directorates and documents of relevance to the GI Audit

Westminster City Council Directorates of relevance to the GI Audit

Adult Social Care & Health	⟷	Environment, Climate & Public Protection	⟷	Regeneration, Economy & Planning	⟷	Innovation and Change

Delivery documents of relevance to the GI Audit

Kensington and Chelsea and Westminster's Health and Wellbeing Strategy	City of Westminster Biodiversity Strategy (in development)		City Plan (2019-40)
	Climate Adaptation Plan		Environmental SPD
	Sustainable Transport Strategy		Westminster Way – Public Realm Strategy SPD
	Air Quality Action Plan		Historic Parks and Gardens SPG
	Climate Emergency Action Plan		Creating a Fairer Westminster Delivery Plan
			Environmental Justice Measure
			Active Westminster Strategy

1.17 The importance of developing a robust evidence base to underpin plans, projects, programmes and policies is set out within the Natural England GI Framework's 'How' Principles[9].

Principle 2 'Evidence' states:

"Use scientific evidence, and good land use practices when planning and enhancing green and blue infrastructure. Understand the evidence for the benefits of current GI assets; and data on environmental, social and economic challenges and needs in the area."

1.18 The overarching objectives of the GI Audit are to:

- Consolidate and review datasets and mapping to understand the quantity, quality, accessibility, and value of the existing GI network across Westminster. Provide an update in relation to trees and the SINC network, as well as identifying any further critical evidence gaps.

- Set out the wider benefits of GI for Westminster's residents, businesses and visitors, including environmental, health, social, economic and biodiversity benefits.

- Understand the future need for and provision of GI across Westminster. Develop recommendations within a strategic context to inform policy development and the development of a future GI Strategy and Action Plan. This will include identifying spatial deficits, opportunities for green corridors and sites for BNG.

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9 Natural England (2023) 'How' to Plan, Design, and Nurture Green Infrastructure. Available at:
https://designatedsites.naturalengland.org.uk/GreenInfrastructure/Principles/HowPrinciples.aspx

How to use this Document

1.19 This document should be used to guide the identification, planning and design of GI opportunities within Westminster (see **Figure 1.4**). It is intended for a range of users both embedded within and independent of the planning system. This includes for policy developers and decision makers, for example WCC teams including Active Communities, Town Planning, Climate Emergency, City Highways, Development, CIL / s106, Housing, and Place Shaping. It is also intended for use by Westminster's partners and stakeholders, including developers, private landowners, estates and BIDs.

Why do we need Green Infrastructure?

1.20 GI is defined by its multi-functionality. A single green asset is recognised to have the ability to provide several benefits to people, wildlife and the wider environment. It is this variety of societal, environmental and economic benefits which make GI such a fundamental component of sustainable growth. Furthermore, in most cases nature-based solutions are mutually supportive of other benefits, meaning one goal does not have to suffer at the expense of another.

1.21 The range of ecosystem services which can be delivered by the GI network are summarised below in **Figure 1.5.**

1.22 A natural capital approach to GI attempts to assess the monetary value of natural assets.

1.23 Although this Audit does not comprise comprehensive natural capital 'accounts' for Westminster, it provides an insight into the significant economic benefits afforded by a good quality, cohesive GI network and therefore builds a strong case for future investment.

Figure 1.4: Document user guide

Embedding GI delivery in the planning system

Delivery of GI independent of the planning system

Policy makers and planners

Developers

Strategic partners & landowners

Appraise development proposals to promote a 'GI-led' design approach

Incorporate planning 'hooks' into the City Plan and strategies from across all WCC departments **(see GI Audit)**

Identify developer contributions **(see future GI Strategy)**

Update subsequent Strategy and Action Plan as a live resource

Identify existing GI assets **(see GI Audit)**

Review GI recommendations **(see GI Audit)**

Integrate GI in initial design work

Develop design with input from stakeholders

Finalise proposals

Identify GI to protect and enhance **(see GI Audit)**

Identify opportunities for GI on landholdings **(see future GI Strategy)**

Share GI opportunities with partnership agencies **(see future GI Strategy)**

Ensure that all stakeholders are working towards the same overarching vision

Successful delivery of GI within Westminster

Figure 1.5: Ecosystem Services

1.24 In recognition of these benefits and to support the push for GI up the planning agenda, Natural England has developed the GI Framework, a commitment made within the 25 YEP. The 'GI Principles Wheel', which forms part of the GI Framework, outlines 15 principles needed to promote the successful delivery of GI (see **Figure 1.6**). These 15 principles are comprised of the following:

- Five 'Benefits of GI' – these five principles form the themes by which this Audit is structured (**Themes 1-5**);

- Five 'Descriptive Principles' – these five principles will be used to assess the function and value of the existing GI network, as well as be used as a basis for future recommendations; and

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[10] Department of Levelling Up, Housing and Communities (2019). Planning Practice Guidance: Natural Environment. Available at: https://www.gov.uk/guidance/natural-environment

■ Five 'Process Principles' – these five principles have informed how this Audit has been undertaken. They will also form the basis of future delivery recommendations for GI.

1.25 The five 'Benefit Principles' summarise the role GI can play in the creation of high-quality attractive places, providing a setting for health, and active day-to-day living. These five principles form the themes by which this GI Audit is structured (**Themes 1-5).** They are listed below and illustrated in **Figures 1.7 – 1.11**.

Nature rich beautiful places

GI supports nature to recover and to thrive everywhere from cities to countryside, conserving and enhancing natural beauty, wildlife and habitats, geology and soils, and our cultural and personal connections with nature.

Active and healthy places

Green neighbourhoods, green / blue spaces and green routes support active lifestyles, community cohesion and nature connections that benefit physical and mental health, wellbeing, and quality of life. GI also helps to mitigate health risks such as urban heat stress, noise pollution, flooding and poor air quality.

Thriving and prosperous places

GI helps to create and support prosperous communities that benefit everyone and adds value by creating high quality environments which are attractive to businesses and investors, create green jobs, support retail and high streets, and to help support the local economy and regeneration.

Improved water management

GI reduces flood risk, improves water quality and natural filtration, helps maintain the natural water cycle and sustainable drainage at local and catchment scales, reducing pressures on the water environment and infrastructure, bringing amenity, biodiversity, economic and other benefits.

Resilient and climate positive places

GI makes places more resilient and adaptive to climate change and helps to meet zero carbon and air quality targets. GI itself should be designed to adapt to climate change to ensure long term resilience.

Figure 1.6: 'GI Principles Wheel', as developed by Natural England
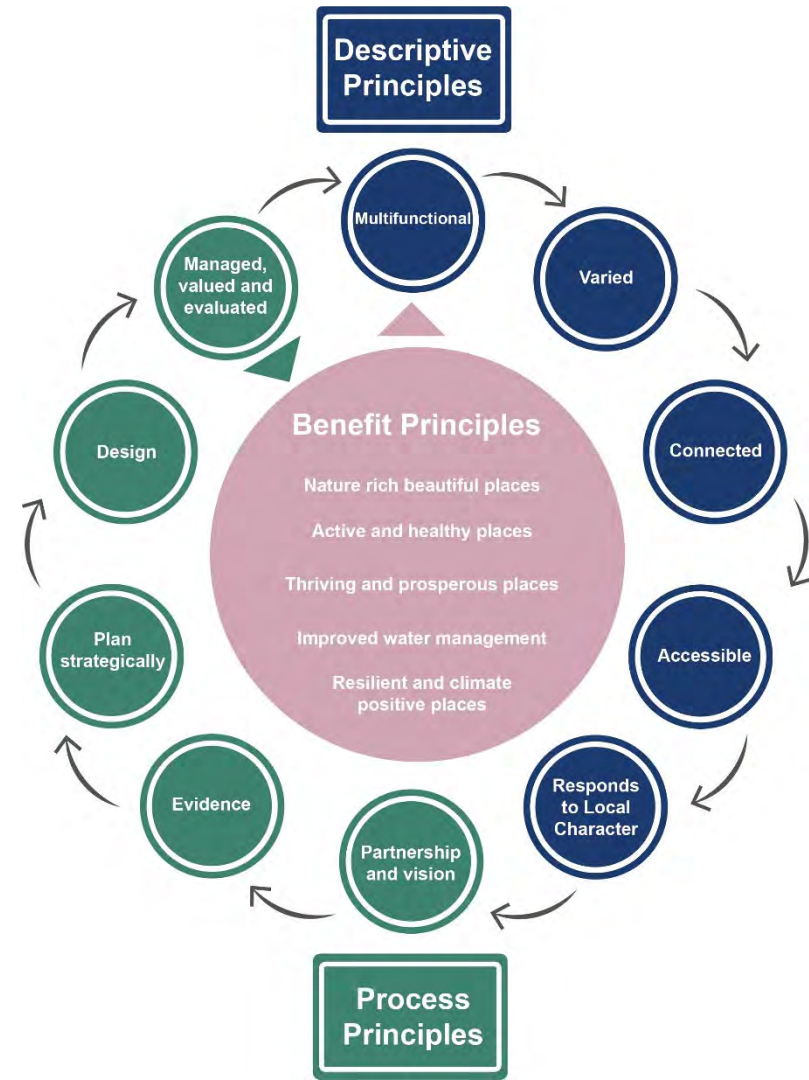
Descriptive Principles

Multifunctional
Varied
Connected
Accessible
Responds to Local Character

Managed, valued and evaluated
Design
Plan strategically
Evidence
Partnership and vision

Benefit Principles

Nature rich beautiful places

Active and healthy places

Thriving and prosperous places

Improved water management

Resilient and climate positive places

Process Principles

1 Trees and vegetation within a landscape offer a wide range of habitat benefits. For example, one mature oak tree can support over 280 different species of insect[11] and is a vital feeding, sheltering and breeding place for a colossal 2,300 different wildlife species[12].

2 Studies in South Carolina showed that after 18 years, connected wildlife networks had, on average, 200 more species than fragmented areas[13].

3 Urban areas host approximately 20% of avian biodiversity worldwide[14].

4 Suburban gardens support a range of species – studies in Sheffield found 61 gardens hosted 4,000 invertebrates, 80 species of lichen and more than 1,000 types of vegetation[15].

5 In England, nature-based tourism in urban areas accounts for 42% of Natural Capital Value[16].

6 Introduction of a bee-friendly seed mix into woodland glades and yellow rattle into course grasses increased bumblebee numbers by 37% at two Thames Water trial sites[17].

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[11] Friends of the Earth (2020). What's so good about trees? Available at: https://friendsoftheearth.uk/nature/whats-so-good-about-trees
[12] Woodland Trust (no date). Oak Trees and Wildlife. Available at: https://www.woodlandtrust.org.uk/trees-woods-and-wildlife/british-trees/oak-tree-wildlife/#:~:text=Renowned%20in%20history%20and%20legend,to%20eat%2C%20shelter%20and%20breed.
[13] European Scientist (2019) Reconnecting Fragmented Habitats Could Help Restore Biodiversity. Available at: https://www.europeanscientist.com/en/environment/habitat-connectivity-and-biodiversity/

[14] TCPA (no date) PERFECT Fact Sheet 8: Green Infrastructure and Biodiversity. Available at: https://www.tcpa.org.uk/wp-content/uploads/2022/03/Factsheet-2.pdf
[15] UNEP & UN-HABITAT (2005) Ecosystems and Biodiversity: The Role of Cities. Available at: https://www.uncclearn.org/wp-content/uploads/library/unhab40.pdf
[16] DEFRA (2023) Nature at work for people and the economy. Available at: https://randd.defra.gov.uk/ProjectDetails?ProjectId=21190
[17] DEFRA (2014) The National Pollinator Strategy: for bees and other pollinators in England. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/794706/national-pollinator-strategy.pdf

Figure 1.8: Global examples of how GI can deliver benefits which can help to achieve *Active and Healthy Places*

1 Trees have a positive impact on health – a 10% increase in urban green space can postpone the onset of health problems by up to 5 years – conditions affected include asthma, skin cancer and stress-related conditions[18].

2 Street trees and vegetation can improve air quality – particulate levels can be reduced by up to 60% on tree lined streets compared to those without any canopy coverage[19].

3 Outdoor activities such as therapeutic gardening can improve mental health. 90% of people who participated in Mind's green exercise activities commented that the combination of nature and exercise was important in determining mood[20].

4 Access to good quality green space reduces the financial pressure on the NHS by £2.1 billion in the UK[21].

5 Trees can aid concentration and enhance learning skills/social functioning in children[22].

6 Road-side planting encourages careful driving and reduces incidences of speeding[23].

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[18] GreenBlue Urban (2016). A Guide to the Benefits of Urban Trees. Available at:
https://www.greenblue.com/wp-content/uploads/2016/05/Book-1-A-Guide-to-the-Benefits-of-Urban-Trees.pdf
[19] GreenBlue Urban (2016). A Guide to the Benefits of Urban Trees. Available at:
https://www.greenblue.com/wp-content/uploads/2016/05/Book-1-A-Guide-to-the-Benefits-of-Urban-Trees.pdf
[20] Forest Research (2010) Benefits of Green Infrastructure. Available at:
https://cdn.forestresearch.gov.uk/2022/02/urgp_benefits_of_green_infrastructure_main_report-1.pdf

[21] Public Health England (2020) Improving Access to Green space. Available at:
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/904439/Improving_access_to_green space_2020_review.pdf
[22] GreenBlue Urban (2016). A Guide to the Benefits of Urban Trees. Available at:
https://www.greenblue.com/wp-content/uploads/2016/05/Book-1-A-Guide-to-the-Benefits-of-Urban-Trees.pdf
[23] GreenBlue Urban (2016). A Guide to the Benefits of Urban Trees. Available at:
https://www.greenblue.com/wp-content/uploads/2016/05/Book-1-A-Guide-to-the-Benefits-of-Urban-Trees.pdf
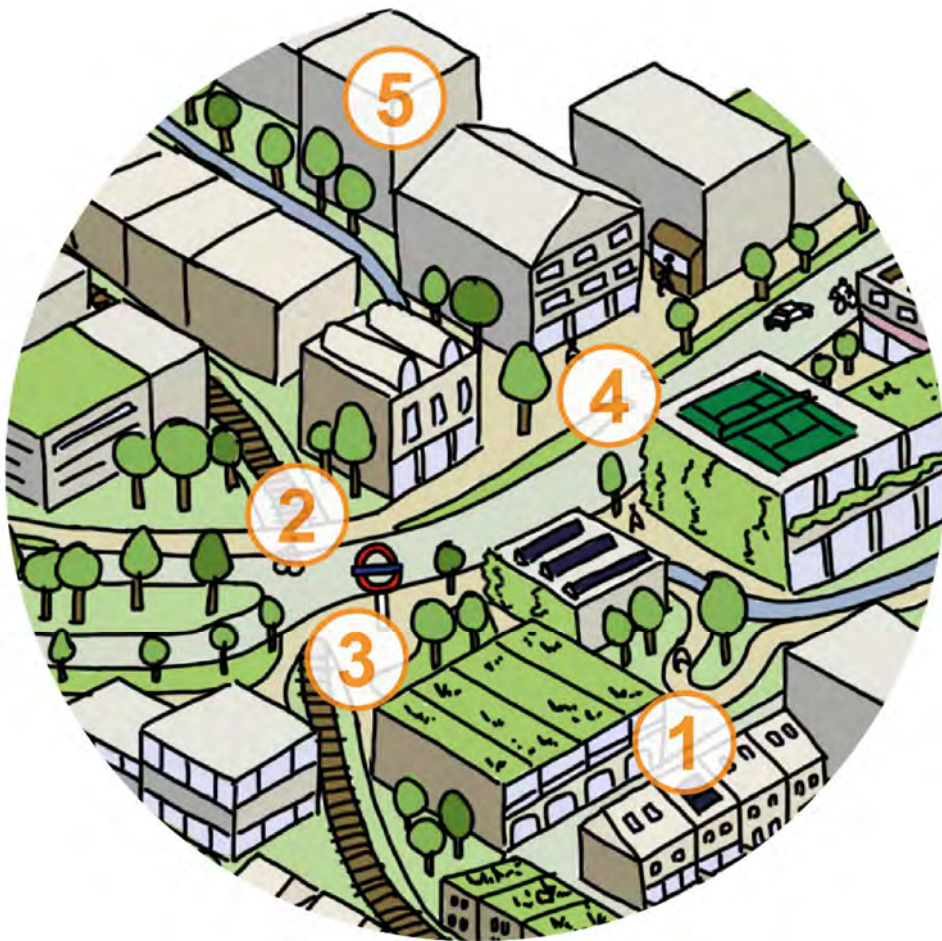
Figure 1.9: Global examples of how GI can deliver benefits which can help to achieve *Thriving and Prosperous Places*

1 GI can enhance the setting of places and make them more attractive for investment. Tree-lined streets have proven to increase house prices by as much as 15%[24].

2 Every £1 spent on tree planting could save £7 of expenditure in other areas[25].

3 Numerous studies have shown that urban green areas support the inclusion of disadvantaged groups, including migrants and asylum seekers by enhancing social cohesion[26].

4 Some studies have shown that incorporating GI into public open spaces in city centres can improve commercial trading by 40%[27].

5 Researchers in Chicago found that apartment blocks surrounded by mature trees experienced 52% fewer reported crimes than those without greenery[28].

[24] Treeconomics (2015). Results of the London i-tree Eco Project - Valuing London's Urban Forest. Available at: https://www.treeconomics.co.uk/wp-content/uploads/2018/08/London-i-Tree-Report.pdf
[25] Greenleaf (no date). A guide to the Benefits of Urban Trees. Available at: https://cms.esi.info/Media/documents/77739_1378722931893.pdf

[26] Heritage Fund (2021) Why Should we Invest in Parks? Evidence From the Parks for People Programme.
[27] UK Green Building Council (2015) Demystifying Green Infrastructure.
[28] Kuo, F. E. & Sullivan, W. C. (2001). Environment and Crime in the Inner City: Does Vegetation Reduce Crime? Available at: https://journals.sagepub.com/doi/abs/10.1177/0013916501333002
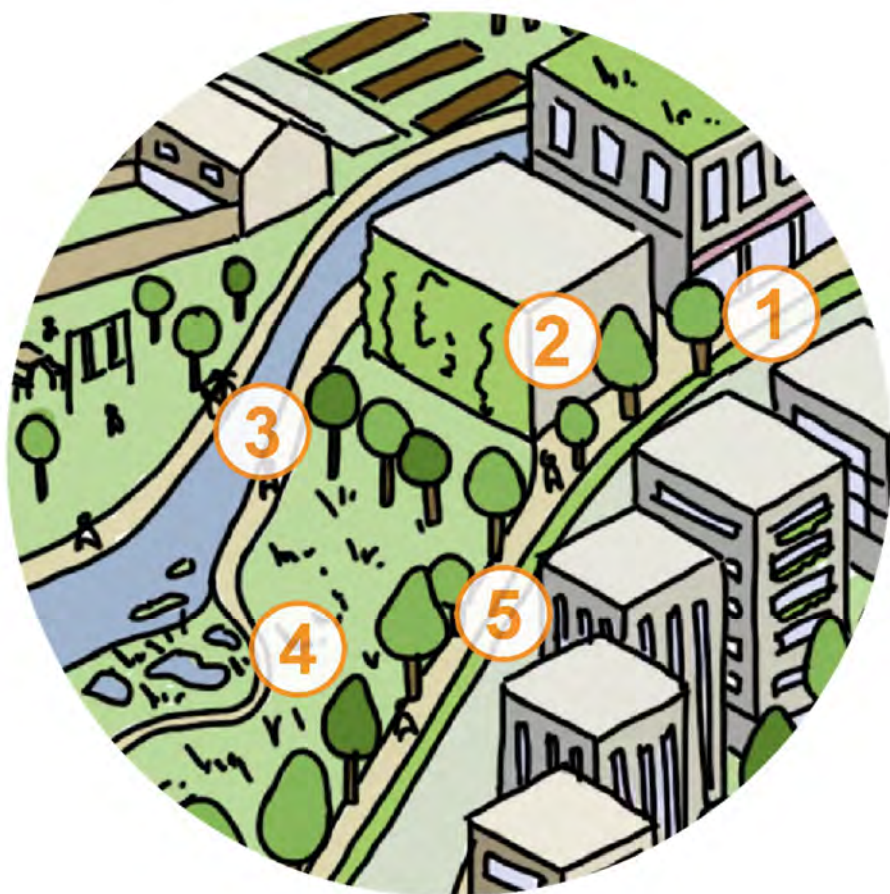
Figure 1.10: Global examples of how GI can deliver benefits which can help to achieve *Improved Water Management*

1 Approximately 1,000m^3 of run-off can be retained by a rain garden of 0.5ha size[29].

2 A typical medium-sized deciduous tree can intercept over 10,000L of rainfall per year, helping to reduce surface water flooding[30].

3 Wetlands and water environments are vital for the survival of 100% of amphibians, 50% of birds and 30% of rare and endangered flora[31].

4 Freshwater wetlands promote biodiversity, recreational benefits, improve aesthetic amenity and provide water quality improvements. These services have been valued at £1,300 per hectare per year[32].

5 Trees buffer storm water and prevent erosion – 100 mature trees can capture as much as 1,137,500 litres of rainwater each year[33].

6 Findings from an 8-month study at wetlands in Enfield concluded that wetlands reduced phosphate levels by 78% and ammonia by 92%[34].

[29] TCPA (no year) PERFECT Factsheet 3: Green Infrastructure and Climate Change. Available at: https://www.tcpa.org.uk/wp-content/uploads/2022/03/Factsheet-3.pdf
[30] Centre for Urban Forest Research (2002). Fact Sheet #4: Control Stormwater Runoff with Trees. Available at: https://www.fs.usda.gov/psw/topics/urban_forestry/products/CUFR_182_UFfactsheet4.pdf
[31] TCPA (no year) PERFECT Expert Paper 5: Green Infrastructure and Biodiversity. Available at: https://www.tcpa.org.uk/wp-content/uploads/2022/03/Paper-5.pdf

[32] Scottish Environmental Protection Agency (2016) Natural Flood Management Handbook.
[33] GreenBlue Urban (2016). A Guide to the Benefits of Urban Trees. Available at: https://www.greenblue.com/wp-content/uploads/2016/05/Book-1-A-Guide-to-the-Benefits-of-Urban-Trees.pdf
[34] Russell, I., Pecorelli, J. and Glover, L. (no year) Urban Wetland Design Guide. Available: https://www.cranevalley.org.uk/wp-content/uploads/2022/02/2021_Urban-Wetlands_FINAL.pdf

Figure 1.11: Global examples of how GI can deliver benefits which can help to achieve *Resilient and Climate Positive Places*

1   Carbon sequestration of vegetation helps to mitigate the causes of climate change. It is estimated that one mature tree sequesters 21.6kg of CO_2 each year[35].

2   Urban greening interventions provide a notable cooling effect, for example a park is estimated to cool temperatures by 1.5 – 3.5℃[36].

3   In order to meet government climate targets, the use of private vehicles will need to reduce by between 20 and 60%. GI can be used to promote active travel and reduce the reliance on cars[37].

4   GI offers insulating effects which reduce the need for heating and air conditioning. It is estimated that the sheltering effect of trees could save 3-9% of energy bills in the UK[38] and that one mature tree has the same cooling effect as 10 room-sized air conditioners[39].

5   The results of modelling have shown that greening roofs across urban centres could decrease temperatures by more than 7oC[40] .

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[35] GreenBlue Urban (2016). A Guide to the Benefits of Urban Trees. Available at: https://www.greenblue.com/wp-content/uploads/2016/05/Book-1-A-Guide-to-the-Benefits-of-Urban-Trees.pdf
[36] Natural England (2020) A Rapid Scoping Review of Health and Wellbeing Evidence for the Framework of Green Infrastructure Standards. Available at: https://publications.naturalengland.org.uk/file/5992890930298880
[37] Sustrans (2020) A Green and Just Recovery: Healthier Places and Better Transport. Available at: https://www.sustrans.org.uk/policy/life-after-lockdown/2020/briefing-paper/a-green-and-just-recovery-healthier-places-and-better-transport

[38] TCPA (no year) PERFECT Factsheet 3: Green Infrastructure and Climate Change. Available at: https://www.tcpa.org.uk/wp-content/uploads/2022/03/Factsheet-3.pdf
[39] GreenBlue Urban (2016). A Guide to the Benefits of Urban Trees. Available at: https://www.greenblue.com/wp-content/uploads/2016/05/Book-1-A-Guide-to-the-Benefits-of-Urban-Trees.pdf
[40] Gill, S. E., Handley, J. E., Ennos, A. R. and Pauleit, S. (2007). 'Adapting Cities for Climate Change: The Role of the Green Infrastructure', Built Environment, 33(1) pp.115-133. Available: https://www.researchgate.net/publication/253064021_Adapting_Cities_for_Climate_Change_The_Role_of_the_Green_Infrastructure

Westminster's Green Infrastructure Context

1.26 As a densely populated and highly urbanised central London borough, GI performs a key role in enhancing the setting of built features within Westminster, whilst complementing the network of existing semi-natural features. It is important to bear in mind that GI is what it is, and where it is, because of the historical development of the borough. From the earliest interactions of humans with their environment, the area's natural topography, vegetation and watercourses shaped where agriculture and settlement took place. These patterns and decisions were carried through into later eras of development, building upon and evolving what came before; for example, as housing development spread out from the City in the post-medieval period, isolated fields became preserved as open space, and the formerly rural routes between them became roads and streets.

1.27 The unique character of Westminster's GI is therefore closely related to historically derived patterns of land use, land management and tree cover. All GI features have an element of time-depth. Understanding this developmental context helps us make informed, place-specific recommendations.

1.28 Public open space within the borough is dominated by the five Royal Parks which comprise 80% of green space within Westminster – Hyde Park, Green Park, Kensington Gardens, St James' Park, and Regent's Park. Across the borough, of the over 80 parks, a total of 30 achieve Green Flag status and 23 are designated as historic parks and gardens. Furthermore, the majority of the 33 SINC have free public access. This includes St John's Wood Church Grounds which is a Local Nature Reserve (LNR).

1.29 Open water assets in Westminster are provided by the borough's position bordering the River Thames, as well as its (now largely lost) tributaries the Tyburn and Westbourne, the Grand Union Canal, and ornamental lakes within the Royal Parks.

1.30 Trees occur in a range of settings or environments within Westminster and form an integral component of the borough's GI network. Many of the borough's open spaces and historic London Squares include populations of large trees. A large proportion of mature trees in the borough are located within The Royal Parks. As with many London boroughs, mature London Plane forms a large proportion of the street tree population (accounting for +20% of

Westminster owned tree stock). The dense pattern of development and built heritage considerations in some locations present a range of constraints on tree growth, therefore the extent and nature of tree cover varies considerably between different areas of the borough.

Overview of Existing GI Projects within Westminster

1.31 There are a number of existing projects and established groups working to improve GI in Westminster. Key interventions are detailed below.

- **Wild West End:** A partnership of large property owners within London's West End with a shared vision for creating a resilient network of connected green spaces to provide environmental, economic and social outcomes. Since 2016, water attenuated on roofs has increased by 13%, green roof coverage has increased by 16% and the amount of accessible green space has increased by 77%[41].
  The partnership also undertakes data collection and monitoring on green space, its condition, habitats and species records. They share this information, and information on the value of green space, with the public and the business community to encourage wider investment.

- **Greening Westminster:** A programme of annual grant funding aimed at improving and increasing open space and GI (previously Open Spaces, Greener Places Programme). To date, 19 projects have been completed, including at St John's Wood, Queen's Park Gardens, Shrewsbury Green, Baker Street, Leicester Square and Pimlico Gardens[42].

- **The Phoenix Garden**: A volunteer-run community garden offering an important space for urban wildlife as well as an escape for local communities to retreat from city-life[43].

Key Areas of Need

1.32 Green space is regularly cited as something residents value. 80% of Westminster's residents live within easy reach (circa 5 minutes) of a public green space and 94% visit green spaces often (40%) or some of the time (54%)[44]. Those with low life satisfaction are less likely to access open spaces regularly, and there is a noticeable deficit in access to wildlife and public green space in more deprived areas of the city.

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[41] Wild West End (no year) Monitoring Available: http://www.wildwestend.london/monitoring
[42] More info: https://www.westminster.gov.uk/place-shaping/greening-westminster

[43] More info: https://www.onewestminster.org.uk/directory/10695
[44] Westminster City Council (unpublished and now redundant) Greening Strategy

1.33 Westminster has some of the worst air pollution in the UK – this remains a high priority for WCC. In 2013, average measures of nitrogen dioxide in Westminster reached 50.2μg/m3, above both the London average of 30.6μg/m3 and the World Health Organisation's (WHO) recommended limit of 40μg/m3. 30% of Westminster's residents cite poor air quality as an issue in their area overall – reaching 61% (Vincent Square), 52% (Marylebone and Queen's Park) and 46% (Harrow Road) in certain wards. Increased vegetation can reduce air pollutants, whilst improved walking and cycling routes can offer alternatives to transport by car, lowering the source of air pollution. Enhanced, more equitably distributed GI can help reduce air pollution, as well as support other aspects of climate resilience, such as reduced flood and heat risk.

1.34 Westminster's Environmental Justice Measure assesses the impact of different environmental factors, such as flood risk, heat risk, air quality and access to open spaces, across different demographic groups and deprivation levels within Westminster. Areas with less access to public open spaces include areas to the west of Abbey Road, land to the north of Little Venice, West Marylebone, Pimlico North and portions of Belgravia. The deficit in open space includes more deprived areas of the City, where the health and social benefits afforded by open spaces may be more acute.

Sites of Importance for Nature Conservation (SINC) within Westminster

1.35 There are 33 SINC sites in Westminster, covering 521.62 ha and accounting for 23.7% of the borough's land. From those:

- Five are Metropolitan SINCs representing 20.9% of the area. Metropolitan SINCs include the Royal Parks: Hyde Park, Kensington Gardens, Regents Park, St James Park, Green Park, and Buckingham Palace Gardens. Each park has a customised Management Plan, Survey, and Monitoring Plan, ensuring their role in the SINC network and broader ecological resource is well-maintained.

- Five Borough Grade I and eight Grade II SINCs, which constitute 1.6% of the borough's land. These sites protect rare habitats such as species-rich grassland. Notable examples include St John's Wood Church Grounds, or the London Zoo.

- 15 Local SINCs, making up 1.2% of Westminster. Capturing assets of SINC status and supporting the higher grade sites as key stepping stones, expanding and connecting the wider network.

1.36 The borough's SINC network has been reviewed as part of this GI Audit[45], including the 33 existing SINCs and 10 potential future pipeline sites.

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[45] LUC (2023) SINC Network Review

Chapter 2
Methodology and the Themed Approach

This chapter describes the approach to the GI Audit, including stakeholder consultation and the development of the themes.

Our Approach

2.1   The GI Audit has involved four distinct stages, which are summarised below and illustrated graphically in **Figure 2.1**.

2.2   This stage underpins the quantitative and qualitative baseline assessment of the existing network of GI within Westminster and its value to local stakeholders and communities. GIS data was collated on existing assets from various sources, including WCC and other public bodies such as Green space Information for Greater London (GiGL), the Greater London Authority (GLA), and Natural England.

Stage 2: Analysis and Assessment of the Existing Network

2.3   This stage encompasses the detailed analysis of the existing GI network within Westminster, including a more detailed focus on the SINC network and on trees. Following the gathering of spatial, quantitative, and qualitative information, a review of the existing GI network was undertaken. The extensive and multi-functional nature of GI means significant amounts of information can be gathered on its functions and benefits. To help organise this large amount of data, the analysis and assessment was broken down into five themes which use Natural England's GI Framework Principles to shape them (see **Themes 1-5**). More information on the themed approach can be found at the end of this chapter. The thematic analysis is structured to include discussion of the key GI assets within Westminster, of relevance to each particular

theme. Key issues and drivers, identified as those factors influencing local need and the successful delivery of GI, are also outlined.

2.4   This stage considers the future pressures, drivers and changes within Westminster which may have an implications on the borough's GI network and the need for GI. Shifts such as population growth, changes in demographic profiles, regeneration, development, and issues associated with climate change, such as extreme weather, air pollution, plant diseases, future pandemics, and sea level rise, were all examined to determine implications for future GI. This stage was also informed by a process of ground-truthing to confirm the accuracy of the data collation exercise and provide site-specific detail to support the analysis. The outputs of this holistic analysis informed the creation of a list of priority GI recommendations (see **Chapter 10**).

Stage 4: Reporting

2.5   This report, and supporting technical appendices and addendum, present the outputs of the above stages.

Stakeholder and Community Engagement

2.6   Three main engagement techniques were adopted throughout the project process and were used to gather essential information about Westminster's GI network and its use from key stakeholders and members of the community. The three main engagement methods included:

- Targeted stakeholder conversations;
- Online public consultation hub; and
- Technical stakeholder workshops.

Targeted Stakeholder Conversations

2.7   Targeted conversations were had with key stakeholders in Stage 1 and continued throughout the whole project process, including both WCC representatives and external organisations. These conversations primarily focussed on gathering information and datasets on the current GI network across Westminster. It was not possible to make contact with all stakeholders and where this was the case, recommendations have been made in **Chapter 10**

for additional stakeholders to consult with during the development of the subsequent GI Strategy.

Online Public Consultation Hub

2.8   As part of Stage 2, an online public consultation hub was used to gather community-scale detail on Westminster's GI network. This consultation provided an opportunity to understand any ongoing initiatives, aspirations and ideas for future GI projects from Westminster's community to inform our baseline understanding. The hub included both an interactive map and online survey to gather feedback. A summary of key findings from public consultation are included within **Themes 1-5.**

2.9   Launched in July 2023, the consultation hub remained 'live' until October 2023 in an attempt to maximise the number of responses. The platform was actively promoted by WCC. A total of 95 responses were received to the survey and 44 comments were added to the interactive map. It is recommended that additional consultation is carried out during the development of the subsequent GI Strategy to ensure a representative range of views are considered.

Technical Stakeholder Workshops

2.10   Occurring in Stage 2, two online workshops with technical stakeholders were hosted to explore the future of Westminster's GI network. This included exercises to identify initial GI opportunities, as well as future needs, pressures and drivers of change. The workshop attendees included a mixture of external organisations and representatives from various WCC teams, considered technical experts in the planning and delivery of different GI assets (such as parks) and/or functions (such as flood management).

2.11   A full record of stakeholders who were engaged, workshop outputs and a summary of the consultation hub outputs can be found in **Appendix B.**

Figure 2.1: Project Approach

Stage 1 — Understanding Westminster's GI Context

- Task 01 — Inception Meeting
- Task 02 — GIS Data Exchange
- Task 03 — Desk-Based Review
- Task 04 — Assess the value of GI to Westminster
- Task 05 — Identify GI Themes

Stage 2 — Analysis and Assessment of the Existing Network

Occurring concurrently as an iterative process

- Task 06 — Technical Stakeholder Workshops
- Task 07 — Assessment of Current GI and Local Need
- Task 08 — Online Public Consultation
- Task 09 — Assessment of the Existing Tree Network
- Task 10 — SINC Review - Assessment
- Task 11 — Targeted Stakeholder Consultation

Stage 3 — Analysis and Assessment of the Proposed Network

- Task 12 — Assessment of Future GI Provision and Need
- Task 13 — Ground Truthing
- Task 14 — Feasibility and Holistic Analysis
- Task 15 — Assessment Summary and GI Opportunities

Stage 4 — Reporting

- Task 17 — SINC Review - Site Evaluation
- Task 18 — Compilation of the Draft Report
- Task 19 — Final Reporting and Presentation

A Themed Approach

2.12 The second 'How' principle within the Natural England GI Framework highlights the importance of gathering and using evidence to underpin GI plans, projects, programmes and policies. Furthermore, it reinforces the need to gather evidence based around the benefits that GI provides, including looking at GI through the lens of health and wellbeing, nature, climate resilience and prosperous communities.

2.13 To establish a comprehensive baseline, a 'themed' approach was adopted for the GI Audit to explore the existing GI assets and considerations within Westminster. Five themes were agreed with WCC to provide a holistic view of the GI network. These reflect the Natural England GI Framework to support consistency in GI planning and delivery across authority boundaries, toward a common national network.

2.14 The five 'Benefit Principles' contained within the GI Principles Wheel summarise the role GI can play in the creation of high-quality attractive places, providing a setting for healthy, active day-to-day living. These five 'Benefit Principles' have been used to inform and structure the 'thematic approach' to the GI Audit.

Nature rich beautiful places

This theme explores areas requiring protection, connection, creation and enhancement, providing a framework for resilient networks of habitats and nature recovery.

Active and healthy places

This theme examines how GI assets can provide health and societal benefits, including connections to nature and high-quality open space for both residents and visitors. The theme will also explore the permeability of Westminster for movement of people by active travel.

Thriving and prosperous places

This theme explores Westminster's distinctive townscape character, including the interaction of physical, cultural and perceptual influences. It also examines how GI can be used to enhance visitor experience and contribute towards the economic prosperity of a place.

Improved water management

This theme examines how Westminster's network of watercourses and sustainable drainage systems can provide habitats but also nature-based solutions to issues such as flooding and water quality.

Resilient and climate positive places

This cross-cutting theme explores how GI can be used for the sensitive and sustainable incorporation of development into Westminster, and the appropriate retrofitting of it into the existing townscape to provide resilient communities of the future.

Trees as a key component of Westminster's GI

2.15 Due to the multiple functions and wide range of benefits provided by trees (as illustrated in **Figures 1.7 to 1.11**), these assets are considered as an integral and connecting thread through each of the GI themes set out in this document. Aspects of the tree population as a key asset, key characteristics, issues and opportunities are considered under the relevant themes. Several key data sets have been drawn upon to understand the characteristics and extent of tree cover within Westminster.

GLA canopy cover data

2.16 The GLA holds data that provides a measure of canopy cover across London.[46] Canopy cover is defined as the area of the above ground parts of the tree (leaves, branches, stems of trees) when viewed from above. Canopy cover is an area measurement, often defined as a percentage coverage of a defined area (such as a local authority area, ward, or development site). Canopy cover is a two-dimensional metric providing an assessment of the area coverage of tree canopy across the borough, regardless of ownership & location, but does not consider qualitative aspects or details of the type of tree cover (age, species, condition etc). Measuring the extent of tree canopy cover is understood as a useful and easy to understand way of comparing relative tree cover across different areas.

2.17 Whilst the GLA tree canopy cover layer was made available in 2018 it is derived from high resolution colour infrared aerial imagery that was collected in September 2016. The tree canopy cover layer is derived from machine learning and image processing techniques. The GLA data source states the data is within 94% accuracy. As the source data is from 2016 it should be assumed that there have been some changes in tree canopy cover in the intervening period, however, the use of this data allows a consistent approach to assessment of canopy cover across the capital. The London Urban Forest Plan (Under Goal 8) sets out an action to undertake a London canopy cover assessment every five years, which would provide an opportunity to undertake repeat assessment and track changes in canopy cover over time.

Tree Equity Score

2.18 Launched in winter 2023 by American Forests, the Woodland Trust and the Centre for Sustainable Healthcare, the Tree Equity Score seeks to identify the areas in greatest need of people-focused investment in trees within the UK. The map-based application examines disparities in urban tree distribution and measures how well the benefits of trees are reaching communities living on low incomes and others disproportionately impacted by extreme heat, pollution and other environmental hazards. Westminster is allocated a composite score of 85, demonstrating a moderate overall assessment of tree equity in the borough. However, this figure masks a complex variation in tree equity scores across the Lower Super Output Areas (LSOAs) of the borough. Five LSOAs within Westminster (Covent Garden, Mayfair, Fitzrovia, Paddington and Marylebone) lie within land defined as high priority for tree planting. Tree equity is achieved (i.e. score of 100) within 15 LSOAs within the borough.

Other tree data

2.19 The GI Audit also draws on other tree data that has been made available by WCC and The Royal Parks, as two key landowners / managers within the study area. This comprises tree survey data providing information on tree species, size, age and location. Whilst this data has been useful in characterising some of the tree population within Westminster, it should be recognised this does not provide comprehensive coverage and therefore there are gaps in the available information. Trees managed by others, where this more detailed information is not available, includes trees which may be owned and managed by:

- Transport for London (including highways trees that are not managed by WCC)

- The Crown Estate

- A number of London's Great Estates including Portman Estate, Grosvenor Estate, Howard de Walden Estate, Church Commissioners etc.

- Other private residents (e.g., trees located in residential gardens).

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[46] https://data.london.gov.uk/dataset/curio-canopy

2.20 The GLA tree canopy cover layer has been cross referenced with several data sets to provide a summary of percentage canopy cover that can be attributed to different land ownerships / management.

2.21 **Table 2.1**: indicates that around 40% of canopy cover within Westminster is associated with The Royal Parks. 8% is associated with WCC managed parks and open spaces and 4% with housing estates. Around 18% of tree canopy cover is within private gardens, with other areas (including highways and public realm) accounting for around 30% of tree canopy cover. This indicates that tree canopy cover associated with WCC owned and managed tree stock likely accounts for the smallest proportion of tree cover in the borough.

2.22 Detailed tree data set out in later sections of the audit (including size, species etc.) has only been obtained for The Royal Parks and WCC tree stock, and therefore only represents a sample of the tree population in the borough.

Table 2.1: GLA tree canopy cover layer % by land ownership / management

Land ownership	% of GLA tree canopy cover layer	Notes
WCC managed parks and open spaces	8%	% of GLA canopy cover layer that intersects with WCC parks and open space data set.
Housing estates	4%	% of GLA canopy cover layer that intersects with WCC housing estate data.
The Royal Parks	40%	% of GLA canopy cover layer that intersects with all areas of the Royal Parks within Westminster.
Private gardens	18%	% of GLA canopy cover layer that intersects with all private gardens in Westminster indicated on OS Master Map.

Land ownership	% of GLA tree canopy cover layer	Notes
All other areas – including highways*	30%	% of GLA canopy cover data that intersects with all other areas in Westminster not covered by the data sets listed above.

*A percentage of this category will include WCC owned and managed trees along highways.

Consultation

2.23 Considerations relating to trees have been included in all aspects of consultation and engagement as part of the GI Audit. Direct communication with other stakeholders such as The Royal Parks and WCC's Arboricultural Service has also been undertaken.

Chapter 3
Legal and Policy Context

This chapter provides a summary of the key legal and policy drivers which are likely to impact on the delivery and protection of good quality GI in Westminster.

3.1 The chapter covers all relevant policy and legislation at a national, regional and local level (see **Figure 3.1**). This includes policies and legislation already in place and refers also to new plans likely to be developed during the lifespan of Westminster's future GI Strategy.

3.2 **Table 3.1** provides an overview of the relevant national, regional and local policy, including its relevance to Westminster's GI network and relationship with the five GI themes identified within **Chapter 2**:

- Nature rich beautiful places;

- Active and health places;

- Thriving and prosperous places;

- Improved water management; and

- Resilient and climate positive places.

Figure 3.1: Legal and Policy Context within Westminster

NATIONAL

- UK 25 Year Environment Plan
- National Planning Policy Framework
- Natural England GI Framework
- Environment Act

REGIONAL

- London Plan
- London Environment Strategy and Implementation Plan
- Natural Capital: Investing in GI for a Future London
- Urban Greening Factor (London Plan Guidance)
- All London Green Grid SPG
- London Health Inequalities Strategy

BOROUGH

- Westminster City Plan
- Environmental SPD
- Westminster Way – Public Realm Strategy SPD
- Historic Parks and Gardens SPG
- A Partnership Approach to Open Spaces and Biodiversity in Westminster
- Creating a Fairer Westminster Delivery Plan
- Climate Emergency Action Plan
- Active Westminster Strategy
- Kensington & Chelsea and Westminster's Health and Wellbeing Strategy
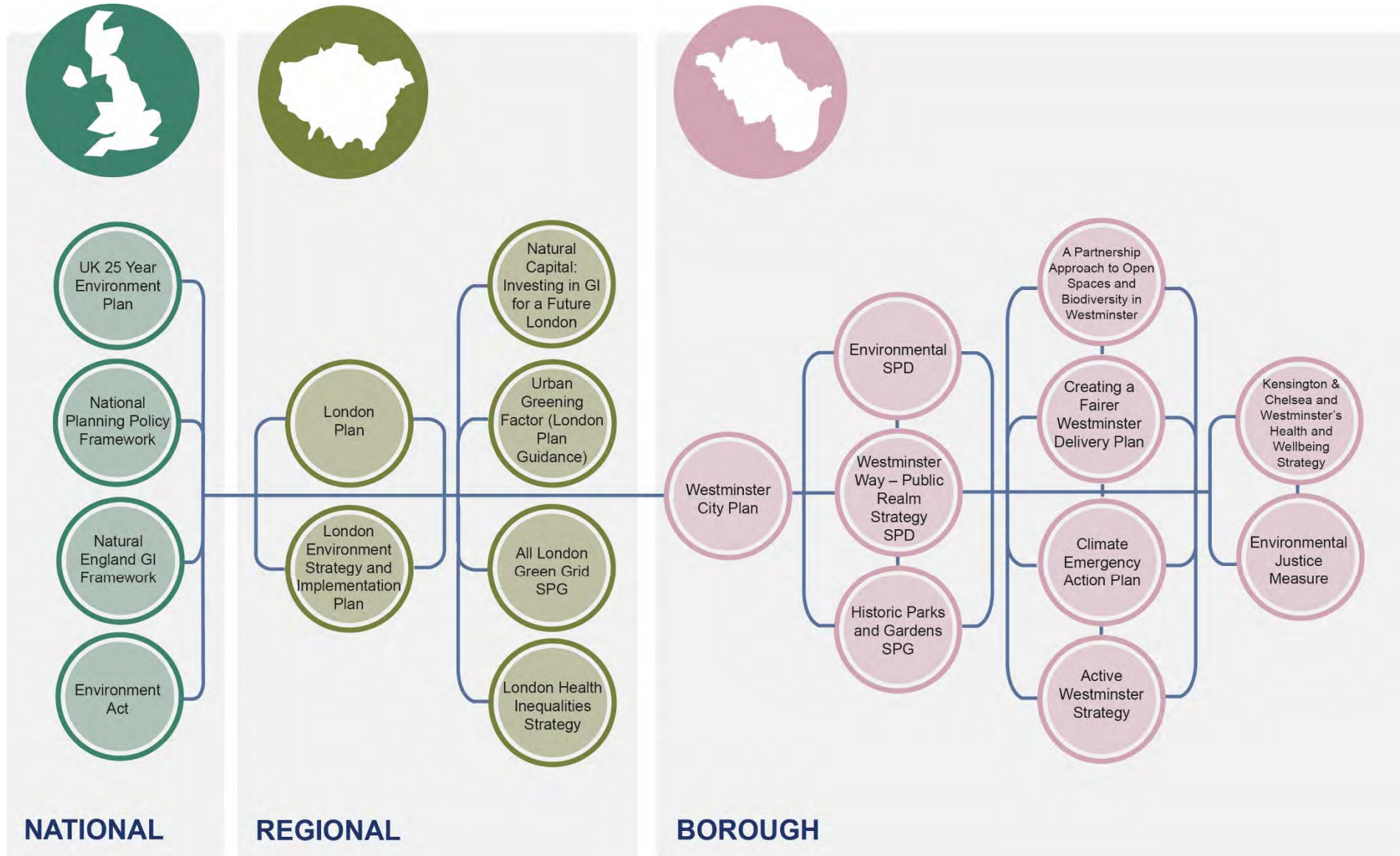- Environmental Justice Measure

Table 3.1: Summary of policy context

Policy and purpose	Level	Key relevance to Westminster GI
National		
2023 Natural England GI Framework – assists planning authorities and developers to meet the GI requirements of the NPPF	National	■ Provides guidance on the principles of 'good quality' GI and sets out standards on the quantity, quality and accessibility of GI which should be provided in an area to meet these principles; ■ Includes a mapping tool to support standards and target locations for creation or improvement of GI; and ■ GI planning and design guide provides advice on good quality design and GI process journeys provide guidance on the application of all products in the framework.
2023 Levelling Up and Regeneration Bill – bill to make provision for the setting of levelling-up missions and reporting progress in delivering them	National	This bill, which received Royal Ascent in October 2023, makes significant changes to the planning system. With regard to the provision of GI the following changes are important: ■ Requirements for design codes to accompany Local Plans; ■ Strengthening protection of the historic environment through the planning system, including giving registered parks and gardens the same statutory protection as conservation areas; and ■ Place more weight on neighbourhood plans in decision making.
2023 Environmental Improvement Plan - builds on the 25YEP vision, setting out how government, landowners, communities and businesses to deliver each goal for improving the environment, matched with interim targets to measure progress	National	The delivery of GI will contribute to the delivery of several of the updated targets the EIP sets against the 25YEP's 10 goals. The headline targets within the EIP which GI will contribute to include: ■ Habitat restoration and enhancement; ■ Improving air quality by tackling NO2 hotspots; ■ Reducing nutrient pollution in waterways; ■ Contributing to climate mitigation and adaptation; ■ Reducing flood risk; ■ Meeting greenspace access targets ensuring everyone has access to greenspace within a 15 minute walk of their home; and ■ Improving active travel and increasing the number of journeys cycled or walked to 50%.

Policy and purpose	Level	Key relevance to Westminster GI
2021 Environment Act – sets out government actions over the next 25 years for the environment and nature recovery and transcribes key components of the 25 Year Environment Plan into law	National	■ Requires local authorities to review all nature conservation policies every five years; ■ Makes reference to new Local Nature Recovery Strategies to establish priorities and map proposals for cross boundary actions to drive nature recovery and realise wider environmental benefits based on identified need. They will provide a framework for developing and applying GI policies to promote urban nature conservation, meet local biodiversity priorities and support delivery of BNG; and ■ Requires the implementation of BNG to ensure all new development delivers a measurable enhancement of biodiversity of at least 10%. A biodiversity metric is available to help local authorities and developers calculate BNG requirements for a particular development.
2021 National Planning Policy Framework – provides guidance to planning authorities on the plan making process and is a material consideration in planning decisions	National	■ Emphasises that GI is a strategic priority and requires planning authorities to take a landscape-scale approach to planning for the maintenance and enhancement of GI networks, including cross-boundary enhancement of natural capital; ■ Requires that all new development should have sufficient provision of new GI; ■ Makes reference to safe and accessible GI to facilitate active, healthy lifestyles; ■ Stipulates the requirement for open space needs assessments; ■ Emphasises that GI should be used as part of climate change mitigation methods in new development and air quality enhancement; ■ Highlights the need for mapping of ecological networks to inform biodiversity and geodiversity protection and enhancement; and ■ Outlines mechanisms for the protection of green spaces through designation and conditions through which development on open space could be permitted.
2018 UK 25 Year Environment Plan – sets long-term targets for national environmental improvements	National	■ Specifies requirements for habitat creation, multi-functional SuDS and semi-natural places close to where people live; ■ Commits to establishing a nature recover network (delivered through Local Nature Recovery Strategies (LNRS)) and the GI Framework; and ■ Embeds the principle of Biodiversity Net Gain for new developments and commits to exploring its implementation.
Regional (city-wide)		
2023 Urban Greening Factor (London Plan Guidance) – provides guidance on the application of the UGF in London	Regional	■ Promotes UGF as a tool to evaluate the quantity and quality of green space within new development and a method to direct and assess the design of these green spaces; ■ Includes guidance for developers on how to determine the GI priorities based on the context of the development site and of the borough and its potential role within the wider GI network. Requirement to prioritise the design according to the greening types set out in GI Strategies, Biodiversity Action Plans, Tree strategies, and other guidance developed by the boroughs;

Policy and purpose	Level	Key relevance to Westminster GI
		◼ Makes reference to management and maintenance plans and how they should be used to ensure greening measures are maintained and planning conditions or section 106 agreements may be used to support the monitoring of these measures; ◼ Highlights that UGF target scores should be set out in individual Local Plans and the LPG provides guidance on how to establish this through defining a GI baseline, including the identification of areas of need and greening priorities and the identification of opportunities for new greening through development; and ◼ Emphasises that boroughs are expected to test and monitor and review the implementation of their target score.
2021 London Plan – spatial development strategy for London which sets out integrated economic, environmental, transport and social framework for the development of London over the next 25 years	Regional	◼ Requires the preparation of GI strategies by each borough to ensure the optimisation of GI; ◼ Outlines Metropolitan Open Land (MOL) designation as a mechanism to protect open spaces; ◼ Requires open spaces needs assessment, including assessment of the quality, quantity and accessibility of existing open space; ◼ Promotes use of Urban Greening Factor to determine level of green space provision in new development; ◼ Requires the protection of SINCs and the identification of these and ecological corridors; ◼ Promotes protection and expansion of London's urban forest including the retention of trees of value within new development wherever possible or suitable replacements; ◼ Requires protection of existing allotments and encourages provision of space for urban agriculture within new development or as meanwhile use on vacant sites; ◼ Promotes natural flood management methods including sustainable drainage systems should be incorporated into development proposals due to their multiple benefits; ◼ Emphasises the strategic role of waterways in providing GI should be considered in waterway strategies; and ◼ Requires that GI should be integrated into building designs in order to manage heat risk, reduce urban heat island effect and improve air quality and reduce negative health impacts associated with heat risk and poor air quality.
2018 London Environment Strategy and Implementation Plan – sets out key actions of the GLA to improve London's environment	Regional	◼ Highlights that GI should be protected, enhanced and increased to maximise services. Including protection of designated green spaces, targeted improvements to increase access; ◼ Focuses on the integration of greening into existing public realm, street greening, green walls/roofs and SuDS considering urban constraints of new green spaces;

Policy and purpose	Level	Key relevance to Westminster GI
		■ Promotes the protection of SINCs and RIGS and increase of SINCs in local plans. Adoption of BNG for London to promote wildlife-friendly landscaping in new development. Provides guidance and support on the management and creation of priority habitats, conservation of priority species and establishment of wildlife corridors; and ■ Improve investment in management of GI through new business models and raising awareness of benefits. Including an update to All London Green Grid SPG to provide stronger evidence base.
2018 London Health Inequalities Strategy – aims to tackle health inequalities at a London level	Regional	■ Recognises that determinants of health and wellbeing can be delivered through strategically planned GI; ■ Emphasises that London should be a greener city where all Londoners have access to good quality green and other public spaces; and ■ Includes support to create a London wide GI network and the integration of urban greening interventions to provide benefits where urban constraints restrict the provision of new parks.
2015 Natural Capital: Investing in Green Infrastructure for a Future London – report by GLA's GI task force which sets the vision for the GI of the future city, based on previous London Plan	Regional	■ Recognises that investment in GI needs to be considered alongside investment in other infrastructure and recognise the environmental, social and economic sustainability benefits of doing this; and ■ Delivery of the vision 'for a high quality and well-maintained GI to help keep London healthy, happy, moving and functioning. By 2050, all neighbourhoods will be able to benefit from, enjoy and take pride in London's GI.
2012 All London Green Grid SPG – policy framework for the design and delivery of GI across London and sets a vision and spatial framework for London wide GI. Predates the current London Plan.	Regional	■ Identifies 13 key functions of the ALGG with aims to: • Protect and enhance strategic network of GI to connect everyday life of city to a range of experiences and landscapes; • To encourage greater use of and engagement with London's GI through greater appreciation and access to promote a sense of place; and • To use GI as a crucial component of urban infrastructure to address climate change. ■ Identifies strategic GI opportunities in Westminster including; linear park along Thames, reinforcement of Royal Parks as key heritage destinations for activities for the promotion of health and wellbeing and biodiversity, mitigation of surface water flooding through green cover, new pockets parks, and promotion of temporary green spaces.
Borough		
2019-2049 Westminster City Plan – statutory development plan, setting out vision and	Borough	■ Highlights that all new development is required to contribute to the overall greening of Westminster, including the provision of open space, play, tree canopy cover and green features such as green roofs, green walls and SuDS and rain gardens;

Policy and purpose	Level	Key relevance to Westminster GI
strategy for development in the borough		■ Recognises that all new development is also required to achieve biodiversity net gain wherever feasible, with a focus on areas of existing nature deficiency (helping to achieve the standard set for the accessibility of open space within a 5 minute walk for every resident) and the creation of habitats for priority species; and ■ Affords protection to all open spaces, their ecological value and features which includes specific protections to the Royal Parks and their character through heritage metropolitan open land designations, SINCs and trees of amenity, ecological and historic value and which contribute to townscape character.
2023-24 Creating a Fairer Westminster Delivery Plan – sets out proposed actions to achieve vision of tackling inequalities in communities, housing, economy, environment and council in Westminster	Borough	■ Under the fairer environment ambition, several actions relate to GI: ■ Improve air quality; ■ Increase opportunities for active travel; ■ Increase canopy cover; and ■ Help community groups improve their local green spaces through funding and support.
2023-33 Kensington and Chelsea and Westminster's Health and Wellbeing Strategy – sets the vision and aims to achieve good health and wellbeing which is equitable	Borough	Aims to develop the borough's healthy environments; ■ Recognises improving active travel as having mutual benefits for physical health and air quality; and ■ Encourages investment in public spaces to ensure they are green and biodiverse, active, accessible, and inclusive and ensure equitable access to green and open spaces.
2022 Environmental SPD – provides guidance for developers on meeting the environmental policies in the City Plan	Borough	■ Recognises that due to urban constraints the creation of new green spaces is likely to be through linear spines and networks between existing spaces as well as the protection and enhancement of existing green spaces and the integration of green roofs and walls; and ■ Emphasises Urban Greening Factor as the mechanism by which the level of GI within new development should be determined, but with the intention to develop a locally specific UGF using the Wild West End Matrix and informed by this GI audit.
2022 Climate Emergency Action Plan – establishes a framework for collective action on climate change across Westminster to achieve net zero emissions by 2040	Borough	■ The expansion of active travel is promoted through a new travel hierarchy which places walking and then cycling/electric bikes at the top. ■ The action plan priorities for a green and resilient city are to ■ Protect and enhance Westminster's green space; ■ Safeguard Westminster from the impacts of climate change; and

Policy and purpose	Level	Key relevance to Westminster GI
		■ It aims to do this through increasing canopy cover, greening the public realm, and trial innovative approaches to the expansion of GI in the city.
2022 Environmental Justice Measure – mapping tool to support ambition for a fairer environment	Borough	The Environmental Justice Measure is framework which supports Westminster's ambition for a 'Fairer Environment', a pillar within the Fairer Westminster Strategy (2022). The tool aims to: ■ Highlight differences in how people are impacted by their environment and climate change; ■ Show the distribution of green, sustainable resources and spaces across the city; ■ Empower residents with information they need to reduce negative environmental impacts; and ■ Inform us about where and how we invest in the local environment. ■ The tool is already in use by the council to inform decisions on where to make improvements.
2019 A Partnership Approach to Open Spaces and Biodiversity in Westminster – strategy for open spaces and biodiversity outlining plans to work with partners to protect and improve open spaces and biodiversity in Westminster	Borough	Priorities include: ■ Delivery of GI, through partnership working with Wild West End, BIDs and community groups should be targeted at areas of deficiency; ■ Delivery of space for play, targeted in areas of deficiency, particularly for older children and through pilots of 'play streets'; ■ Promotion of walking in and around open spaces, including the promotion and waymarking of walking routes, improving accessibility and providing attractive connections between spaces through the greening of streets; and ■ Enhancement of biodiversity, through bringing partners together to deliver priority outcomes, supporting pollinators and expanding existing biodiversity approach including wildlife education.

2018-22 Active Westminster Strategy – highlights opportunities to become more physically active through leisure and sport to support good health and well-being	Borough	■ In addition to new sporting facilities the strategy promotes incidental opportunities for physical activity. This includes:
		   • Using the planning system to influence development which integrates active design principles;
		   • Maximising the use of parks and open spaces for physical activity, leisure, and sport;
		   • Develop and implement active streets (including play streets); and
		■ Promote outdoor learning opportunities including forest schools.

2015 WCC Environment Policy – aims to protect and improve the	Borough	The strategy sets out the following environmental policy and objectives with relevance to GI:

Policy and purpose	Level	Key relevance to Westminster GI
environment by defining WCC's commitment to good environmental practice and innovation		■ climate change – minimise carbon impacts, and make adaptations to reduce climate change effects ■ Air – reduce air pollution including through promotion of low-emission methods of transport ■ Transport, access & mobility – maximise accessibility while reducing environmental impact ■ Noise, - contain, control and reduce noise ■ Waste – preventing water pollution ■ Lan & landscapes – including the protection and improvement of landscape and open spaces ■ Biodiversity – safeguard & improve habitats and create new habitats and manage activities to reduce their impacts on biodiversity
2011 Westminster Way – Public Realm Strategy – Design Principles and Practice SPD – guides design and maintenance of new and existing public spaces – precedes current City Plan	Borough	■ Provides guidance on the types and siting of greening, tree management and open spaces which are appropriate to the character and heritage; ■ Makes specific consideration of the historic townscape and focuses on the enhancement of historic garden squares, reclaiming these for people, as opposed to street greening through tree planting. Where street trees are deemed appropriate planting clearances are provided to ensure no interference with pedestrian movement. Guidance on species selection is also provided with the intention if increasing plant diversity and drought tolerant species; and ■ Promotes the use of open spaces and green roofs, roof gardens and play areas in new development to contribute to the borough's open space network as well as increasing biodiversity.
2004 Historic Parks and Gardens SPG – provides information on the parks and gardens in Westminster and explains relevant legislation – predates City Plan and other supplementary guidance	Borough	■ Recognises 18 Parks and Gardens in the City of Westminster under The National Heritage Act 1983 – The Register of Historic Parks and Gardens. This listing acts as a material consideration in the determination of planning applications within or affecting the park or garden. It also means that The Garden History Society and English Heritage become statutory consultees; and ■ Highlights that almost all the squares in Westminster are also protected under The London Squares Preservation Act (1931) and limits the use of these squares to 'ornamental pleasure grounds or grounds for play, rest and recreation' and permits buildings and structures only when they support this use or the maintenance of the squares.

Chapter 4
Theme 1 – Nature-Rich Beautiful Places

This theme explores areas requiring protection, connection, creation and enhancement, providing a framework for resilient networks of habitats and nature recovery.

Introduction

4.1   The foremost function of GI listed in Natural England's GI Framework is to deliver 'Nature-Rich beautiful places'. A richly biodiverse environment not only delivers a range of ecosystem services that underpin healthy, happy communities and support a thriving economy, but is of inherent ecological value. The network of habitats across the borough – now and that may be recovered in the future – contributes to an ecosystem that supports a range of flora and fauna including those that are rare and fragile, as part of the wider Greater London Local Nature Recovery Strategy (LNRS). A biodiverse borough, recognised for the quality, extent and connectivity of its ecological assets, is better able to deliver nature recovery in a way that is both resilient and adaptable to climate change.

In September 2023, WCC declared an Ecological Emergency in the City of Westminster, "recognising the devastating effects of climate change and development on our natural environment as well as committing the council to further action to protect wildlife and improve biodiversity. As a result, WCC has committed itself to make its housing estates, parks and open spaces more hospitable to a wide range of plants and animals, and will work with local schools, businesses, and community groups to advise on protecting and enhancing habitat."

Targets

National

4.2   The Government's 25 Year Environment Plan sets long-term goals and ambitions for environmental improvement. Legally binding targets of the Plan, taken forward in the 2021 Environment Act, that relate to biodiversity are summarised as:

- Restore or create in excess of 500,000ha of a range of wildlife-rich habitat outside protected sites by 2042, compared to 2022 levels, with interim targets set in the 2023 Environment Improvement Plan (EIP) for 140,000ha by 2028;

- Increase total tree and woodland cover from 14.5% of land area now to 16.5% by 2050, with interim targets set in the 2023 EIP to increase this by 0.26% by 31 January 2028;

- Reduce nitrogen (N), phosphorus (P) and sediment pollution from agriculture into the water environment by at least 40% by 2038, compared to a 2018 baseline;

- Halt the decline in species populations by 2030, and then increase populations by at least 10% to exceed current levels by 2042; and

- Improve the Red List Index for species extinction risk by 2042, compared to 2022 levels.

4.3   The 2021 Environment Act requires a minimum of 10% Biodiversity Net Gain (BNG) on all new development, delivered with a minimum 30-year legacy period.

Regional: Greater London

4.4   The emerging **Greater London LNRS** is one of 48 which will cover England to collectively restore, create, and connect habitat. LNRS are required under the Environment Act 2021 and the Responsible Authority for the Greater London LNRS is the GLA. The first Steering Group meeting was held in October 2023. WCC will contribute to this city-wide Strategy, ensuring this reflects the local character and opportunities of the borough, as part of a wider, thriving network which can be delivered through local policies and action.

4.5   **London Plan (2021)** policies pertinent to biodiversity are summarised as:

- Policy G5 Urban Greening: target Urban Greening Factor (UGF) scores of 0.4 for predominately residential developments 0.3 for predominately commercial are recommended, although boroughs may develop bespoke, appropriate urban greening requirements. Guidance for the establishment of new borough targets is set in the London Policy Guidance **2023 Urban Greening Factor**[47]. It should be noted that the UGF and the requirement for BNG are distinct mandates, and developers should provide evidence of meeting both UGF and BNG targets. However, because both necessitate early consideration in the design process, and share a focus on GI, they offer opportunities to deliver them hand by hand. In that regard, guidance has been produced by the mayor[48].

- Policies G6 and G7 require the protection of, and identification opportunities to enhance and/or increase, trees, woodlands, biodiversity and access to nature. Specific examples include the identification of coherent ecological networks and opportunities for tree planting in strategic locations.

4.6   Within the **2018 London Environment Strategy** the aim to recognise London as a National Park City where is supported by the target for a 10% increase in canopy cover with more than 50% green cover overall. GLA mapping (**Figure 4.1**, 2019) illustrates that green cover currently accounts for 32% (687ha) of the borough. Additionally, blue infrastructure accounts for 4% (97ha). This, collectively, ranks the City of Westminster 28 out of the 33 London boroughs, reflecting the constraints that a densely populated borough with extensive historic built townscape faces, and the importance of maximising the quality and coverage of biodiverse habitats to maintain a functional network of ecosystems.

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[47] Urban Greening Factor LPG (london.gov.uk)

[48] Urban_Greening_and_BNG Design_Guide. March_2021 (london.gov.uk)

Figure 4.1: Westminster's Green Cover (source: Mayor of London[49])

4.7 The 12 key goals of the **2020 London Urban Forest Plan** protect irreplaceable assets (e.g., veteran trees); increase street and park tree numbers; maximise the benefits of, and engagement with, woodlands for people and wildlife; improve resilience against pests and diseases; support boroughs in creating Local Urban Forest Plans and urban forest professionals in best practice and research. Each five-year goal is supported by high-level actions and subject to annual monitoring.

Borough

4.8 The **City of Westminster Biodiversity Strategy** (in progress) replaces the 2019 borough Biodiversity Action Plan (BAP) (no longer pursued) as the focus for biodiversity action across the borough. The 2019 BAP does not provide analysis or actions in terms of ecological sites, habitats or species. Work toward the future GI Strategy by WCC and its biodiversity delivery partners will bring this in line with best practice and with the emerging LNRS, thereby enabling streamlining of targets as well as allocation of resources to delivery action/s.

4.9 The national requirement for BNG as part of all new development is set in the 2021 Environment Act and the mechanisms for its successful, coordinated implementation is being addressed at both the Greater London and borough levels. WCC is developing a policy addressing to be in place later in 2023. Targets for BNG are set by each authority but must meet the requirement for a minimum 10% to be delivered over a minimum 30-year legacy. Where planned development is positioned on sites of negligible ecological value (such as previously built sites) the %BNG increase will be similarly negligible. In such cases, higher %BNG targets are appropriate to deliver tangible gain toward nature recovery.

4.10 Environment policies within the **2019-2040 Westminster City Plan** include the following commitments to biodiversity:

- Opportunities to enhance existing habitats and create new habitats for priority species should be maximised. Developments within areas of nature deficiency should include features to enhance biodiversity, particularly for priority species and habitats; and

- The planting of trees to optimise canopy cover will be encouraged in new developments.

4.11 To safeguard from the impacts of climate change, the Green and Resilient City Priority within the **Zero Carbon 2040 Westminster Climate Emergency Action Plan** identifies the following actions in relation to biodiversity:

- Leverage local investment to expand the network of local green spaces and enhance biodiversity, building on the successful 'Wild West End' model; and

- Maintain, plant and protect council trees to support a long-term increase of 10% in tree canopy cover by 2050 (in line with GLA targets).

4.12 Regarding biodiversity, the **2015 WCC Environment Policy** commits to:

- Safeguard and improve habitats as havens for wildlife and create new habitats; and

- Manage activities to minimise their impact on biodiversity.

Key Assets

4.13 Green and blue cover accounts for 785ha (36%) of the total area of the borough[50]. A substantial portion – approximately 49% - is accounted for by the Royal Parks, as well as other parks, biodiverse recreation grounds, living walls and green roofs. Urban greening through the townscape expands as part of redevelopment and as retrofit. Nature-rich beautiful places are essential to Westminster to deliver bold nature recovery and climate change adaptation as part of the highly valued historic townscape.

Designated Site Network

4.14 Designated sites form the core of the nature network. Westminster's designated site network is illustrated in **Figure 4.2**. Sites of Importance for Nature Conservation (SINC) represent the best wildlife habitats in London. The borough accommodates 33 SINCs which account for 522ha (24% of the borough). The largest SINCs in the borough are the Royal Parks – Regent's Park, Hyde Park, St James's and Green Park – which collectively contribute 397ha. The Royal Parks are typically and tightly fronted by the built development and infrastructure of the borough; the severance between Hyde Park and Green Park / Kensington Gardens despite their proximity, for example, remains stark.

4.15 One SINC – St John's Wood Church Grounds in the north of the borough – is also designated as a Local Nature Reserve (LNR) in recognition of its value to peoples enjoyment of and education in wildlife.

4.16 The **2016 Borough Open Space Strategy Update**[51] identified six additional sites for consideration as future SINC designation: Lauderdale & Castellaine Roads, Lillington & Longmore Gardens Estate (except for food growing and sports areas), Queens Gardens, Sussex Square, Sutherland North and Warwick Square.

Current Status of the SINC Network

4.17 The Royal Parks[52] in Westminster characterise a substantial portion of the borough's SINC network. These include the two largest SINCs in the borough: Hyde Park and Kensington Gardens (250ha) and Regents Park (132ha). Each site is subject to a bespoke Management Plan, Survey and Monitoring Plan and Annual Biodiversity Reporting which ensure this substantial portion of Westminster's SINC network, and indeed overall ecological resource, are maintained in favourable condition. Their extensive area of diverse habitat accommodates nocturnal and crepuscular (twilight) species within the well-lit city, and species dispersal in response to seasonal and climatic change. The Royal Parks are substantial assets in climate change adaptation through carbon storage, air and water regulation, in addition to supporting biodiversity: the parks support diverse wildlife species and create corridors for movement, contributing to increased biodiversity across the city.

4.18 A review of the borough's SINC network has been undertaken as part of the GI Audit[53]. 43 sites were surveyed and assessed, comprising the 33 existing SINCs and ten potential future pipeline sites.

- Five Metropolitan SINCs, spanning multiple borough boundaries, cover 21% of the borough, including Hyde Park, Kensington Gardens, Regents Park, St James Park, Green Park, and Buckingham Palace Gardens.

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[50] London's green cover is centrally mapped and available at: https://apps.london.gov.uk/green-cover/
[51] 4.19   Groundwork London (2016) City of Westminster Open Space Strategy Mid-Point Update: Site Audits, Survey & Consultation Report - Summary & Analysis of Audit Data

[52] Hyde Park (140ha); St. James's Park (23 ha) and Green Park (19 ha) which, connected by Queen Victoria Gardens, and managed as a single unit; Kensington Gardens (98 ha); and Regent's Park (partly within the City of Westminster) (166 ha).
[53] LUC (2023) SINC Network Review

LUC

Figure 4.2: Designated site network
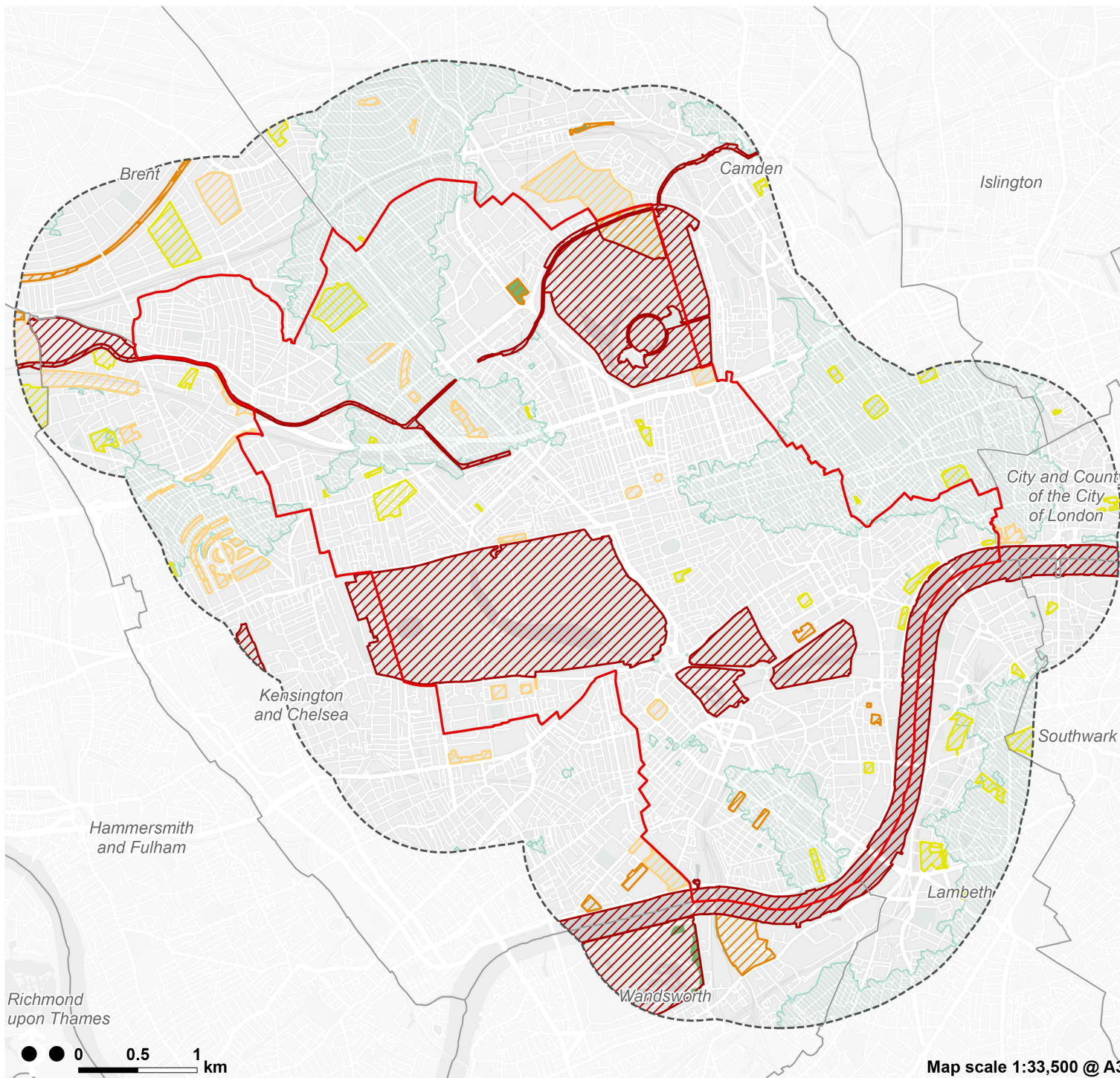
Legend

- City of Westminster boundary
- City of Westminster 1km buffer
- Neighbouring London borough
- Local Nature Reserve (LNR)
- Area of deficiency in access to nature

Site of Importance for Nature Conservation (SINC)

- Metropolitan
- Borough grade I
- Borough grade II
- Local

Designated site	Total area (ha) within 1km buffer	Total area (ha) within the borough only	% of borough land within designa-tion	Number of sites within the borough
SINC (all)	917.93	521.62	23.70%	33
Metropoli-tan	698.92	460.79	20.90%	5
Borough (I and II)	144.21	35.14	1.60%	13
Local	74.85	25.57	1.20%	15
LNR	5.2	1.99	0.10%	1

Area of deficiency in access to nature is mapped and defined by GIGL as areas where people have to walk more than 1km to reach an accessible SINC of Metropolitan or Borough importance.

GiGL

EB:shayler_h
LUC 12403_000_MainReportMaps
21/11/2023

Map scale 1:33,500 @ A3

0   0.5   1 km

- Five Borough Grade I and eight Borough Grade II SINCs make up 1.6% of the land distributed across 13 sites, protect rare habitats like species-rich grassland (e.g., St John's Wood Church Grounds, London Zoo).

- The 15 Local SINCs, 1.2% of the borough, capture assets of SINC status as well as meeting community and educational criteria.

4.19 The SINC network review found overall good status, except for one site, Talbot Square, at risk due to habitat decline from visitor pressure.

Planning for a Robust SINC Network Long-Term

4.20 Recognising the need to address the ecological emergency through nature recovery, to deliver climate change adaptation and to provide for the needs of a growing population to access nature, the 2023 review assessed opportunities for expansion of the SINC network. In response, the 2023 SINC review included the exploration of the following key principles for delivering the borough's nature recovery network:

- Expanding and enhancing existing SINCs;

- Identifying future pipeline SINCs; and

- Enhancing broader habitats to create connections and stepping stones within the larger nature recovery network.

4.21 New sites under consideration can include a broad spectrum, from those already of higher ecological value in current condition to longer-term candidates identified through high-level review of spatial data as having suitability for habitat restoration, enhancement and creation such that SINC status can be met. The term 'future pipeline SINC' refers to the group of sites that have potential for future designation following successful implementation of habitat restoration, enhancement and/or creation. **Figure 4.3** illustrates how future pipeline SINCs support future expansion of the SINC network.

Figure 4.3: Long-term planning for a robust SINC network

Sites of Importance to Nature Conservation (SINC)

Areas of land chosen to represent the best wildlife habitats in London and areas of land where people can experience nature close to where they live and work

Proposed SINC (pSINC)

Qualifying sites awaiting completion of the adoption process (Local Plan Reg 18)

Future Pipeline SINC

Sites with potential future value, following successful habitat creation and / or enhancement, sufficient to meet SINC criteria. Such sites provide opportunity for recovery or expansion of the SINC network, therefore contributing to the future LNRS. Such sites may be suitable recipients of BNG secured in perpetuity.

4.22 The summary of changes proposed in the 2023 SINC review include:

- The extension of four sites, adding 4.7ha to the network (0.9% increase): Lisson Garden; Little Venice Garden, Winston Garden and The Crescent Garden; Park Square Gardens; and Westbourne Green Meadow

- Opportunities for future upgrade:
  - Belgrave Square has opportunity for future upgrade in designation from Borough Grade II to I, following implementation of BNG enhancements for Grosvenor Estate.
  - Hyde Park and Kensington Gardens: Opportunity for extension along Park Lane (up to 9ha).

- At Risk: Talbot Square Local SINC needs prompt action for habitat restoration.

- Proposed SINC (pSINC): five sites recommended for Local SINC designation, adding 17.6ha (3.4% increase). These sites are Churchill Gardens Housing Estate, Formosa Garden, Grosvenor Square, Lillington and Longmoore Gardens Estate, Victoria Tower Gardens.

- Four sites for potential future designation (5.8ha), offering opportunities for ecological connectivity: Cavendish Square Gardens, Duke of Wellington Arch, Westbourne Green, and Warwick Estate, Soho Square Garden.

4.23 The proposed extension of SINCs and designation of pSINCs would increase the network by 22.3ha (4.3%).

Notable and Priority Habitats

Irreplaceable Habitats

4.24 'Irreplaceable habitats' are described in the NPPF as "*Habitats which would be technically very difficult (or take a very significant time) to restore, recreate or replace once destroyed, taking into account their age, uniqueness, species diversity or rarity"*. These habitats often have complex ecological interactions, making their protection a priority. Within Westminster, these include ancient[54] and veteran[55] trees. Across the public realm, the ancient tree inventory[56] lists five in the borough, all within the Royal Parks. The majority of recorded veteran trees also stand within the Royal Parks.

Table 4.1: Ancient and veteran trees

Managing organisation	Ancient	Veteran
WCC	-	2
The Royal Parks	5	47

Priority Habitat Inventory (PHI)

4.25 The national PHI maps the extent of habitats of 'principal importance'[57]. **Figure 4.4** illustrates the area and distribution of PHI across Westminster. Crucially, approximately 94% of the priority habitats in Westminster are safeguarded by SINC designation.

4.26 PHI habitats mapped across Westminster are characterised as follows:

- Wood-pasture and parkland is the dominant priority habitat type, totalling 313ha across Hyde Park, Green Park and St James's Park. This is a mosaic of habitats valued for their

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[54] Ancient tree: A tree that is remarkably old for its species (the age of an ancient tree therefore may vary considerably dependent on species).
[55] Veteran tree: A tree with identified 'veteran features' including decay, hollows / cavities, aerial dead wood, crevices which increase the diversity of wildlife supported by the tree. All ancient trees are veterans, but not all veteran trees are ancient.

[56] https://ati.woodlandtrust.org.uk/ The ancient tree inventory lists other veteran trees in the borough which are largely located on private land.
[57] As listed in the 2006 Natural Environment and Rural Communities (NREC) Act 2006, s41

Figure 4.4: Priority and notable habitats
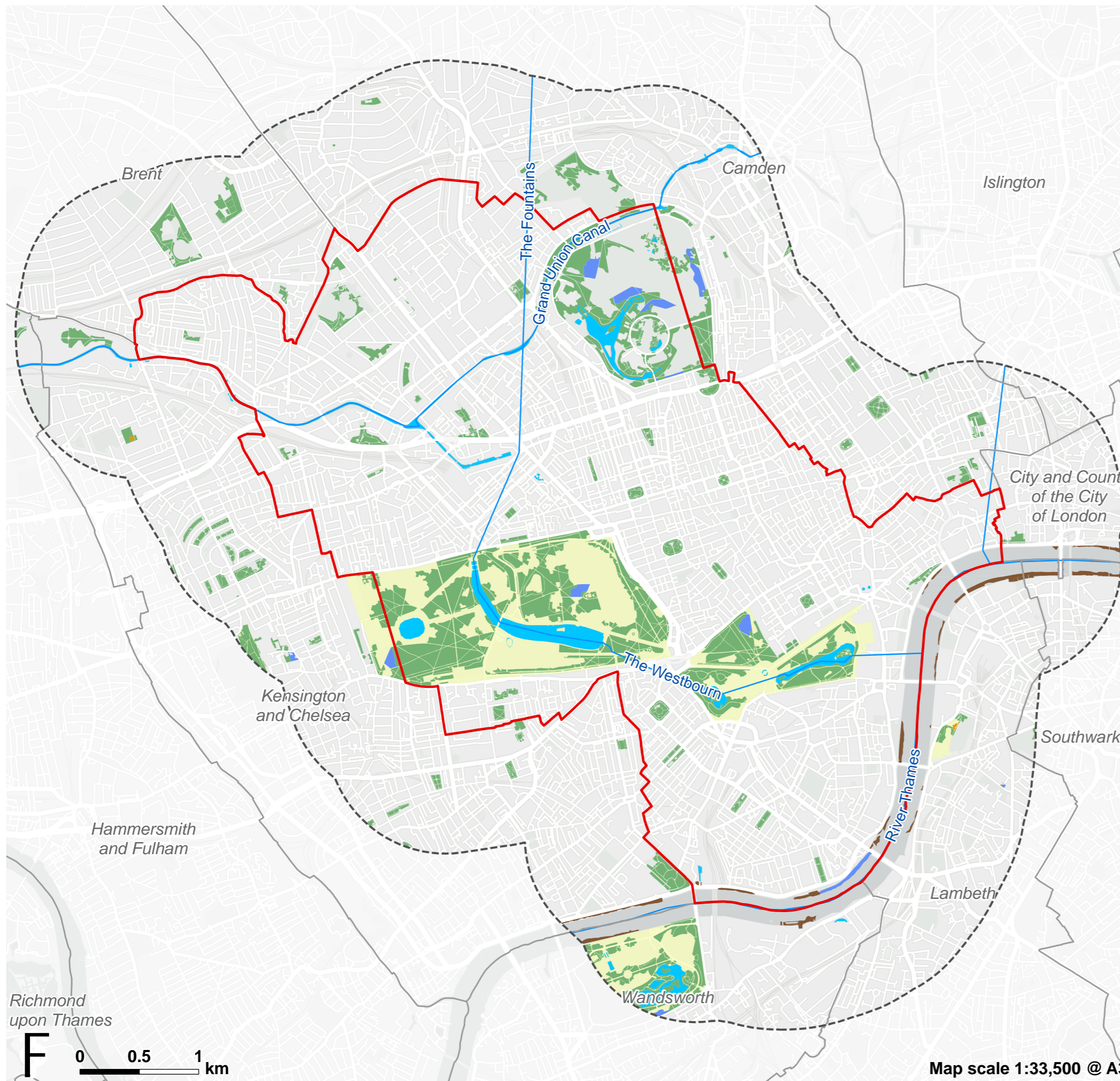
Brent
Camden
Islington
The Fountains
Grand Union Canal
City and County of the City of London
Kensington and Chelsea
The Westbourn
Southwark
River Thames
Hammersmith and Fulham
Lambeth
Richmond upon Thames
Wandsworth

Legend

- City of Westminster boundary
- City of Westminster 1km buffer
- Neighbouring London borough
- River
- Surface water
- Wood pasture and parkland

Priority Habitat Inventory
- Deciduous woodland
- Mudflats
- No main habitat but additional habitats present
- Traditional orchard

Priority Habitat	Area within the borough (ha)	Area within the SINC network (ha)	% within SINC network
Wood Pasture and Parkland	312.55	288.91	92%
Deciduous Woodland	197.34	183.86	93%
Mudflats	2.95	2.95	100%
No main habitat but additional habitats present	9.70	9.69	100%
Waterbodies (lakes, surface water)	43.37	42.79	99%
Rivers and canals	15765.3 (m)	10983.84 (m)	70%
total extent of priority habitat (ha)*	407.03	369.88	91%

Map scale 1:33,500 @ A3

0   0.5   1 km
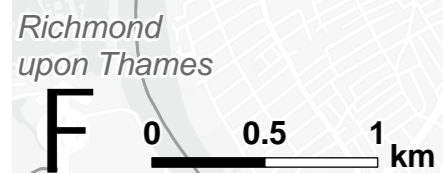
EB:shayler_h
LUC 12403_000_MainReportMaps 21/11/2023

trees, notably veteran and ancient, and grasslands of value. Located entirely within the Royal Parks, their protection and long-term management is secure.

■ Out of the 197ha of deciduous woodlands, a significant 93% are safeguarded within the SINC network, and 81% located within the Royal Parks. The presence of a substantial tree canopy across Westminster (as detailed in the section on Woodland, Trees, and Associated Habitats), facilitates a degree of connectivity among these woodlands. However, it is important to note that the positioning of the majority of these woodlands within larger parks exclusively results in habitat fragmentation.

■ No PHI grassland or heathland types are mapped in the borough. Valued grasslands do occur through the SINC network and these are described under the later subheading of 'Grasslands and Heathlands'.

■ Mudflats occur in association with the River Thames and Tidal Tributaries, totalling 3ha. This rare habitat is, collectively, well-represented in the borough and the small land parcels contribute to the wider catchment resource.

■ The PHI category of 'no main habitat type' (9.7ha) captures areas where priority habitats are present but which could not be defined to a single habitat type i.e. occur in mosaic. Within Westminster, these scattered parcels primarily consist of different grassland types and isolated trees located within the Royal Parks. Furthermore, there is a segment of wetland habitat adjacent to the Thames, between mudflat habitat, which strategically contributes to the connectivity of the wetland habitat mosaic.

4.27 The PHI database does not include open water habitats. Ordnance Survey mapping, waterbodies (lakes and ponds) cover 43ha and 1.5km of linear rivers and canals. Whilst no PHI reedbeds are mapped in the borough, it is recognised that the small and/or linear habitat areas (as reedbeds often occur) are under recorded within the PHI dataset.

London BAP Habitat Suitability Mapping

4.28 In the context of the London boroughs, the London BAP Habitat Suitability Mapping[58] emerges as the more suitable resource compared to Natural England's Habitat Network mapping[59]. While the Habitat Network datasets offers consistent suitability assessments across LPA boundaries on a national scale, the London BAP Habitat Suitability Mapping provides a finer resolution that better aligns with the specific urban landscape. Consequently, this more refined resource is preferred for informing the future GI Strategy.

4.29 Note that this dataset will be updated by GIGL as part of the LNRS and the future re-publication should be included in the future GI Strategy and/or review cycles. This will not however include condition data, which will remain the responsibility of each borough to compile. In particular, woodland opportunity mapping (in collaboration with CPRE) is due for publication in the latter part of 2023.

4.30 The London Habitat Suitability is a valuable tool for identifying areas with the highest potential to enhance biodiversity through the implementation of nine BAP priority habitats in London. This resource plays a crucial role in informing land use planning and management for nature recovery, particularly beyond the designated network, which already benefits from recent habitat surveys and site-specific management plans. In broad terms, biodiversity enhancement within the Habitat Suitability dataset encompasses:

■ Woodlands, trees and associated habitats: create/restore relict wood. Associated species include, for example, bats, stag beetle, mistletoe.

■ Grasslands and heathland: create/restore relict acid grassland, meadow and heath; maintain chalk grassland. Associated species include, for example, reptiles.

■ Wetlands: create/restore relict floodplain, pond, and reed habitats. Associated species include, for example, grey heron.

4.31 Depending on the size, quality, etc of habitat and history of land use, other habitats may be considered local conservation priorities within the borough. This may include habitats considered common and widespread in the national landscape but which are uncommon and of

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[58] Dataset available at BAP Habitat Suitability Data - GIGL

[59] The Habitat Network mapping is a nation-wide resource which derives areas suitable for habitat creation, restoration and expansion consistently across LPA boundaries to inform land use planning and management. Dataset available at Habitat Networks (England) - data.gov.uk

importance to the urban ecological mosaic (such as structurally and/or species diverse scrub) and habitats that may not exemplify optimal assemblage but which are rare or locally representative within the city (such as acid grasslands or fen). Review of the local conservation priorities within the borough will be undertaken as part of the City of Westminster Biodiversity Strategy (in progress).

4.32 The Royal Parks has developed a systematic approach to the identification of key or characteristic assets which may usefully inform this process. The approach includes broader considerations such as 'a habitat which supports many different key or characteristic species' (deadwood associated with ancient and veteran trees, native scrub, ponds and ditches), 'A sensitive indicator of environmental change' (dragonflies and damselflies, fish, lichens), 'A habitat integral to the character and landscape' (horticulture, lakes, mature parkland trees). The supporting analysis of species records may reflect the methods emerging in support of the LNRS, as part of a consistent approach to optimising management of, and monitoring change in, the nature recovery network

Wider Ecological Assets

4.33 There are two strategic datasets of importance for the future GI Strategy, although these are not currently available / available in a level of detail that is useful to understanding the existing baseline. These – the London Ecological Network and the national Living England Maps – are summarised below. Thereafter, habitats across the brough are addressed as broad habitat groups.

GIGL Ecological Network Mapping

4.34 Ecological Network Mapping (ENM) for Greater London will be used to underpin the emerging LNRS. The methodology (developed by GIGL and the London Biodiversity Partnership) utilises habitat and land use data, combined with the distinctiveness scoring system of the BNG metric, to assess the ecological value of different habitats across the city. It identifies ecological networks, pathways of high-value and low-value habitat connections, and areas of opportunity for improving habitat connectivity, which can inform land management,

habitat expansion decisions, and local nature conservation efforts. Once fully available, ENM data will form an important part of the future GI Strategy baseline.

Natural England Living England Mapping

4.35 The Living England Map[60] provides full national coverage by automatically classifying habitats from satellite images to inform nature network mapping across LPA boundaries. Updates to the initial 2022 dataset will bring greater accuracy as the method continues to be refined and tested against field survey. Future iterations of this dataset may therefore usefully contribute to ecological network mapping across the city and should be considered in future development of a GI Strategy.

Urban Rewilding

4.36 Based on the 2023 GLA Rewilding Task Force Report, for the purpose of this audit, rewilding is defined as follows:

> ■ Rewilding is the reinstatement of natural processes and, where appropriate, missing species, allowing nature to provide wider benefits for wildlife and people.
>
> ■ In the urban context, the spectrum of rewilding may range from activities that result in some benefit for nature, however small, to large-scale rewilding.
>
> ■ Successfully rewilded spaces conserve and restore wildlife, and supporting nature-based solutions for some of the climate and ecological challenges we face.

4.37 The largest areas available for rewilding within the borough lie within The Royal Parks, where rewilding as part of wider habitat restoration, enhancement and creation is prescribed within each park management plan. Smaller-scale opportunities include the restoration or creation of areas that, for example, provide structurally complex (or 'messy') habitats for wildlife to nest, burrow, breed, forage and disperse can be created at smaller scale within the wider mosaic of a green space.

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[60] Living England: From Satellite Imagery to a National Scale Habitat Map - Natural England (blog.gov.uk)

GiGL Habitat Survey

4.38 The GiGL habitat dataset is a comprehensive repository of habitat and open space information in Greater London. Its origins date back to the mid-1980s, and over the years, this dataset has evolved with the incorporation of updated methodologies. This dataset stands as the future of London's habitat data management and informs the habitat assets review presented in this Audit, serving as the foundational baseline.

4.39 **Figure 4.5** illustrates the extent of London's habitats. The GiGL dataset was cross-referenced with OS green space data to identify potential sites for biodiversity enhancement beyond the dataset's scope. Additionally, the inclusion SINC boundaries offers insights into the habitat baseline already accounted for in designated areas. The following sections utilise this and complementary datasets to evaluate habitat assets in Westminster.

Summary of findings from the online public consultation hub

Over 75% of respondents to the online public consultation survey reported the provision and quality of 'wildlife areas' in Westminster as 'weak'. This was higher than for any other GI typology presented in the survey. In comparison, quality and provision of green spaces was rated as 'strong' by 35% of respondents. The importance of well-maintained, large open spaces was highlighted. However, none of the comments directly associated these spaces with wildlife value, albeit the need to support habitats outside of the formal park areas was recognised.

Woodland, Trees and Associated Habitats

4.40 The woodlands and tree population within Westminster supports 'nature-rich and beautiful places' and often provides the most visually dominant natural asset across a range of settings.

4.41 In regard to the woodland coverage, the available datasets present a contrasting picture, influenced by factors such as data resolution and data source (whether obtained remotely through automated processes or via on-site field surveys). The PHI identifies approximately 97ha of deciduous woodlands, predominantly located within The Royal Parks. However, the GiGL Habitat survey offers a contrasting view, revealing that these areas encompass a blend of non-native woodlands, amenity grass, isolated trees, and shrubbery. This discrepancy underscores the importance of site-specific survey data and effective site management plans. It is noteworthy that woodlands occur mostly within managed sites, meaning that their longevity should be safeguarded and biodiversity opportunities optimised. Enhancing connectivity between these sites and other canopy cover, such as street trees, is an area where the GI strategy can play a pivotal role in expanding and reinforcing the woodland network.

4.42 Across Westminster's SINC network, the majority of woodland habitats, comprise secondary planted broadleaved woodlands containing mature and young stands of mixed broadleaved trees. Mature and veteran trees and secondary woodland form an important element of the parkland landscapes at Regent's Park, Hyde Park and Kensington Gardens, St James' Park and Green Park. The most commonly occurring tree species across Westminster's SINC sites is London plane. Other commonly occurring species include pedunculate oak, common lime, sweet chestnut and horse chestnut.

4.43 In addition, smaller SINC sites supporting broadleaved tree canopies, which have developed a woodland character such as at St John's Wood Church Grounds, comprises a mixed broadleaf assemblage including pedunculate oak, London plane, beech, sycamore, and ash with a well-developed ground flora comprising various ferns, herbs, grasses and nettles. Deadwood habitat is present throughout many of the parks and gardens across the SINC network in the form of large timber log piles which, in addition to the presence of veteran trees, offer opportunities for saproxylic invertebrates. Other important species assemblages of woodland and parkland habitats in London include lichens, fungi, mosses and rare woodland bird assemblages.

Westminster Green Infrastructure Audit
Westminster City Council

LUC

Figure 4.5: Widespread biodiversity assets

City of Westminster boundary
City of Westminster 1km buffer
Neighbouring London borough
Open space not captured in GiGL Habitat Survey

Habitat baseline (GiGL Habitat Survey)

Habitat (over 90%)

Allotments
Amenity grass
Bare artificial
Bare ground
Fresh water
Non-native wood
Roughland
Semi-improved grass
Nature wood
Intertidal
Not available/other

Predominant habitat (40-90%)

Allotments
Amenity grass
Bare artificial
Bare ground
Fresh water
Non-native wood
Roughland
Semi-improved grass
Felled wood
Ruderal
Scat trees
Scrub
Shrubbery

Habitats occur in mosaics with no single dominant habitat comprising more than 40%

Brent
Camden
Islington
City and County of the City of London
Kensington and Chelsea
Southwark
Hammersmith and Fulham
Lambeth
Wandsworth
Richmond upon Thames

GiGL

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Map scale 1:33,500 @ A3

0   0.5   1
km

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4.44 GLA canopy cover data[61] measures overall canopy cover in Westminster at 16.17% of the total area. Whilst this is lower than average canopy cover of London as a whole (21.0%), it may be expected for an inner London borough that, outside of The Royal Parks, is densely built-up. In contrast, this sits slightly above the estimated average of 15.8% canopy cover for urban areas in England in urban areas (Doick et al, 2017) although it should be noted the methodology employed for estimating canopy cover differs between the data sets.

4.45 Trees that make up overall canopy cover may be described as the 'urban forest', noting that this term captures the identification of tree groupings (based on species, age, setting or position within the ecological mosaic) that may be recommended management prescriptions, much as the coupes within a traditional forest. Broad categories of canopy cover within the borough include (the latter two are principally considered under the later subheading 'Urban Greening'):

- Trees in parks, open spaces, garden squares and cemeteries;
- Trees on housing land (including council owned housing land);
- Street trees; and
- Trees on private land, including private gardens.

4.46 Trees within larger open spaces within Westminster are integrated in a range of ways such as trees within woodland (as part of communities of accompanying understory and scrub), specimen parkland trees and informal groups in grassland and more formal avenues (often single species avenues).

4.47 Trees with veteran features provide significant wildlife value through the provision of dead wood, cavities, hollows and other habitat niches. These are discussed earlier, under 'Irreplaceable habitats'. More broadly, trees can support foraging, shelter and dispersal for wildlife, notably as habitat at height through built up areas where there is a paucity of other vegetation and intensity of disturbance at ground level.

**4.48** The ecological value of a tree population will vary depending on species mix, for example:

- Flowering trees provide pollen and nectar for pollinators, often at times of year when other sources are unavailable.
- Trees support a range of herbivores, including insect herbivores, that are sometimes dependent on specific tree species.
- Trees provide structural above ground habitat for nesting (mammals, birds etc)
- Trees provide dead and moribund wood (standing and fallen), which is an integral part of the lifecycle of many invertebrates.
- Trees and shrubs also provide food and habitat for other organisms such as fungi, mosses, lichens, and may support a range of priority species or species which are subject to legal protection e.g. bats.

4.49 **Figure 4.6** illustrates the composition of the tree stock in the borough (combined WCC and Royal Parks data - the available data). The available data indicates a large proportion of these trees are within the Rosacea family (forming the most abundant group overall at 22%), which includes many flowering species that are beneficial to pollinators. London Plane is the second most abundant species), which has little wildlife value associated with it. However, numerous other abundant species within the WCC & Royal Parks tree stock are noted to be beneficial to pollinators[62] this includes lime (within Malvaceae), and maples (within Sapindaceae).

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[61] https://data.london.gov.uk/dataset/curio-canopy

[62] Treeconomics (2015) Valuing London's Urban Forest: Results of the London i-Tree Eco Project

Figure 4.6: WCC & The Royal Parks owned / managed Trees, described by family group
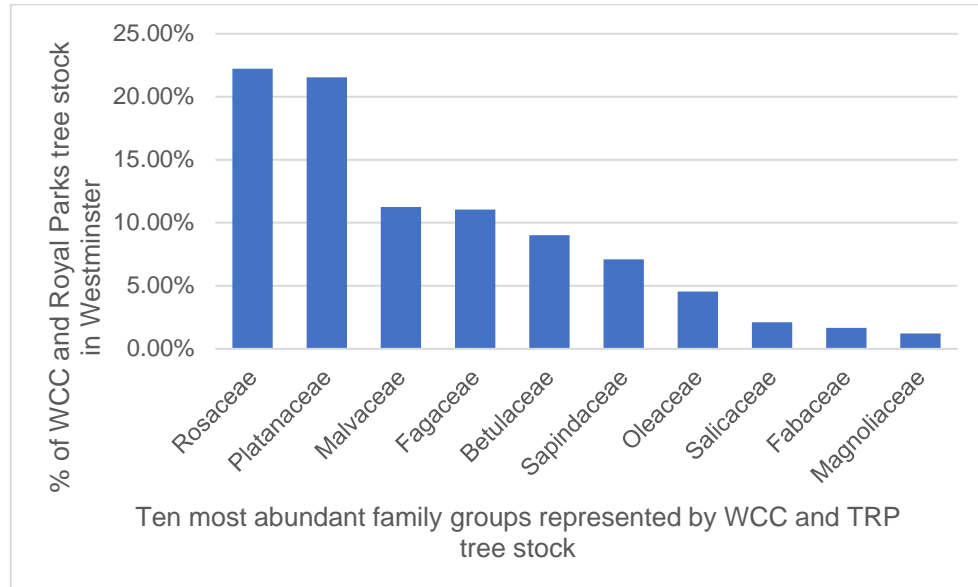
Scrub is an important habitat, particularly in the urban context where this is structurally and species diverse. It is not 'common and widespread' within the borough but typically occurs in mosaic with other habitats. It can effectively buffer, connect and provide patches safe from disturbance for birds to nest, mammals to burrow, etc. Scrub is for example recognised in the Kensington Garden and Hyde Park Management Plans.

4.51 The hedgerow network can connect between woodland and scrub habitats, as well as providing an important habitat outright. In general terms, hedgerows are of greater ecological value where these are species-diverse, intact and of generous height and width, and occur in conjunction with associated features such as verges and ditches. It is recognised that hedgerow data is currently difficult to draw from the borough-wide data with any consistency.

4.52 The 2016 Open Space Audit identified opportunities for tree planting and hawthorn thickets at Paddington Recreation Ground, and for hedgerows within Edbrooke Garden.

Grassland and Heathland

4.53 Grasslands form the most extensive habitat across Westminster's SINC network with a large proportion and variety of grassland assemblages present within The Royal Parks, including neutral meadows, which are managed through rotational meadow cuts to create longer permanent meadow areas at Regent's Park. Immediately adjacent to Regent's Park and just north of the City of Westminster, Primrose Hill supports a small area of acid grassland and heath habitat. Although outside the borough, there is ecological connectivity with Primrose Hill via Regent's Canal and London Zoo, which both lie along the northern boundary of Westminster.

4.54 Within Hyde Park and Kensington Gardens, management has been undertaken over the last few years to increase species richness and expand remnant acid grassland and small pockets of remnant heath. Additionally, small wildflower meadows have been established within areas of previous amenity grassland across smaller SINC sites including St Marys Churchyard and Paddington Green and Westbourne Green Meadow in order to increase available foraging habitat for pollinators and birds. Annual biodiversity monitoring by the Royal Parks reports the presence of neutral and acidic grassland types within Hyde Park and within Kensington Gardens, and acid grassland also at Primrose Hill[63], and provides recommendations for its longevity.

4.55 It is recognised that deer grazing pressure has an impact on the ecological value of parks and other green spaces. The London Deer Strategy is currently in progress led by the London Wildlife Trust.

4.56 The 2016 Open Space Audit identified opportunities for acid grassland restoration within Kensington Gardens, for creation of species-rich lawns within Edbrooke Garden and

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[63] Note that Primrose Hill lies just north of the City of Westminster. However, it is considered part of Regent's Park though and adjoins the borough and ecologically connected with SINC network.

Paddington Recreation Ground, and for creation of wildflower meadow from improved grassland at Whitehall Ext. / Victoria Embankment South. Wildflowers for pollinators were recommended at St Marys Churchyard and St Marys Square, and a 'visitor statement' similar to that at Tower of London was recommended at Speakers Green, House of Parliament.

4.57 Examples of grassland enhancement and creation within smaller spaces, more disperse through the borough include the Castlereagh Street Pocket Meadows.

Wetlands

4.58 The range of wetland habitats across the borough includes reedbeds, standing water (ponds, lakes, and canals), and the tidal Thames. The standing lakes of The Royal Parks and the Thames account for the majority of this area but it is recognised that the small and seemingly diminutive percentage cover of wet marginal vegetation and intertidal mud bring important and locally uncommon diversity to the wetland mosaic.

4.59 Westminster lies on north bank of the River Thames, which forms a Metropolitan SINC. The borough therefore supports several open water and wetland habitats including lakes, ponds, reedbeds and marginal vegetation. The majority of open water habitats lie within the other four Metropolitan SINCs, Regent's Park, Hyde Park and Kensington Gardens, St James' Park, Green Park and Buckingham Palace Gardens. The Serpentine and Long Lake at Hyde Park and Kensington Gardens, collectively form one of Central London's largest bodies of open water, attracting large numbers of waterfowl, contributing to the ecological value of Hyde Park and Kensington Gardens within the SINC network. Regent's Park SINC also supports an extensive lake system, comprising Ornamental Water and the Boating Lake. The islands within Ornamental Water are known to support one of London's largest breeding heronries.

4.60 In addition, to the large waterbodies and supporting aquatic vegetation communities, there are several smaller ponds present across the SINC network including ephemeral ponds within the wildlife gardens at Regent's Park, and the series of ponds within the Wildlife Garden at Paddington Recreation Grounds, which was created for educational use and pond dipping activities by local school groups. The 2016 Open Space Audit identified opportunities for reedbed expansion at Kensington Gardens Long Water, and within St James Park. Wetland habitat creation at the Serpentine is currently progressing through design phase.

4.61 Whilst linear canals and rivers connect through the borough, associated natural floodplain habitats, such as wet grassland and grazing marsh types, are uncommon across the borough given the highly constrained watercourse channels as a result of built development. Habitat creation along and extending from the watercourse network, offers opportunity to increase permeability through the built environment for nature.

4.62 The rivers Westbourne and Tyburn form part of London's 'lost rivers' network. Once open these have lost the natural structure of the channel, marginal and surrounding habitats as development of the city left them culverted and enclosed. Initiatives for the restoration and uncovering of the lost rivers collectively contribute to a catchment-led approach to nature recovery.

4.63 **Theme 4** describes wetlands habitats further as part of 'Improved Water Management', including water quality information where this is available.

Urban Greening

4.64 For the purposes of this GI Audit, urban greening is defined as:

Public landscaping and urban forestry projects that create mutually beneficial relationships between city dwellers and their environments.

The UGF is complementary to BNG and seeks to deliver benefit to biodiversity on those sites where a negligible baseline value would not invoke tangible %BNG gain. When integrating urban greening into the design process, developers are asked to determine the GI priorities based on the context of the borough, taking into account the greening types set out in Biodiversity Strategies, Tree Strategies, and other relevant borough guidance.

Street Trees

4.65 Street trees, trees within hard landscape and other public space often comprise the only natural asset within the most densely developed areas and can form integral links in the canopy network between deciduous woodland, open spaces and private gardens. This interconnected arrangement facilitates the dispersal of species. When positioned away from artificial lighting, tree canopies create relatively undisturbed habitat important for nesting, foraging, and dispersal.

4.66 Street tree coverage is particularly low around Soho, Mayfair and Marylebone, resulting in poorer connectivity and fragmentation of habitat areas which occur in the small open spaces in this area of the borough.

Green Roofs and Walls

4.67 Westminster accommodates several green roof clusters, with an estimated coverage of 0.33m^2 of green roof per person[64]. The trend of increasing green roof and green wall cover reflects that of the borough as a whole; green roof cover across London was estimated in 2017 at 9.34ha, a 54% increase since 2016[65]. During 2023, elsewhere in London, the first application of a green roof for SINC status was made.

4.68 Roof types range from wildflowers and grassland to sedum, from raised beds and planters to wetland or ponds, such as at Buckingham Gate and the V&A Wetland Rood. As part of the 2016 Open Space Audit, the condition of green roofs across the borough were assessed. Sites sampled were rated for their benefit to biodiversity and overall the majority were found to have a positive impact. A slight majority of sites were rated as having 'high' provision for pollinators. Half the sites had 'average' species richness and none were regarded as having 'low'. All sites were considered to have low vulnerability to climate change although, depending on their design, can incur high water demand. Specific recommendations were made to diversity habitat structure and, where appropriate, incorporate rainwater harvesting (SuDS).

4.69 Retrofitting of green roofs can be a positive intervention to benefit both climate and biodiversity objectives on public and community buildings. Widespread uptake is however heavily reliant on uptake by the private sector, such as the Embankment station green wall at delivered through partnership by TfL and the BID. Partnerships such as the Wild West End can together deliver larger scale change than would otherwise be possible within spatially constrained sites (see **Theme 3** - Thriving and Prosperous Places). Examples from other cities include the green roofs delivered across University of Manchester buildings that flank Oxford Road, providing an array of stepping stone habitat arrays that connect between the adjacent parks.

4.70 As part of the work supporting the LNRS and in developing BNG monitoring, GIGL continues to develop the accuracy of city-wide green roof mapping.
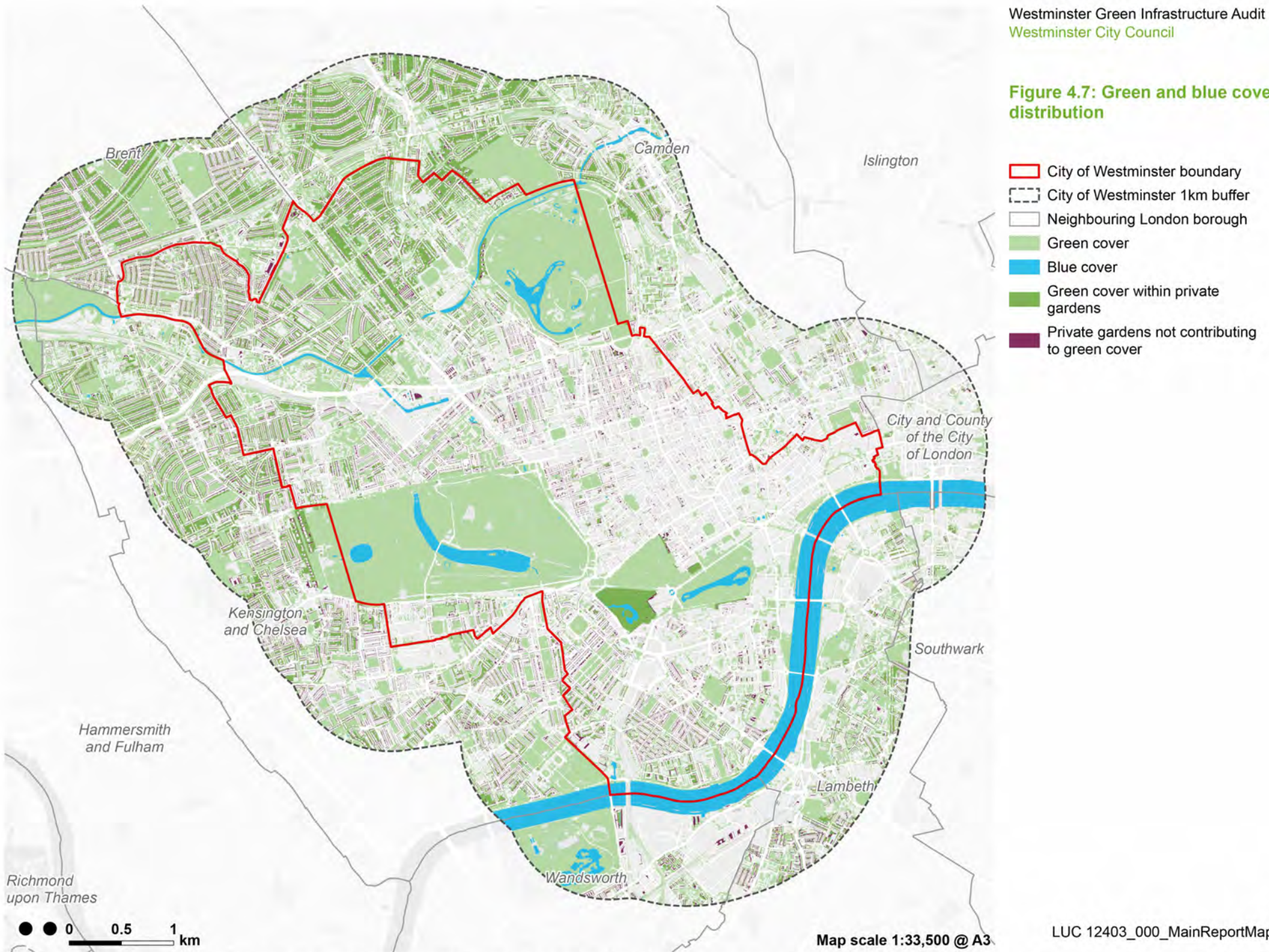
Private Gardens and Horticulture

4.71 It is widely recognised that private gardens offer substantial ecological resource across the borough, ranging from shared community gardens to individual residents. Whilst the lack of assurance in quality or condition long-term makes this resource difficult to accurately quantify, its inclusion in the baseline is important. By way of initial data gathering, **Figure 4.7** provides an initial snapshot, mapping the extent of private gardens together with known tree cover to illustrate the canopy cover across and beyond the garden network. This figure represents the potential green and blue assets that could be operationalised as opportunity for biodiversity enhancement and community engagement, serving to connect core biodiversity areas.

4.72 Optimising ecological value traditionally requires prioritisation of native species for habitat creation. It is recognised that adaptation to the changing climate reasonably requires consideration of a wider range of locally appropriate species or varieties which are tolerant to more extreme ranges of temperature and rainfall. The broader spectrum of species also extends the period of flowering, nectar and berry production to support foraging animals. London's Tower in Bloom is one example of wildflower selection to great effect. Monitoring before, during and after of associated bird and invertebrate life revealed notable improvement in

[64] Green roofs in Westminster https://livingroofs.org/london-map-green-roof-boroughs/london-borough-westminster/

[65] Mayor of London (2019) Living Roofs and Walls, from policy to practice: 10 years of urban greening in London and beyond:

Figure 4.7: Green and blue cover distribution

Legend:
- City of Westminster boundary
- City of Westminster 1km buffer
- Neighbouring London borough
- Green cover
- Blue cover
- Green cover within private gardens
- Private gardens not contributing to green cover

Brent

Camden

Islington

City and County of the City of London

Kensington and Chelsea

Southwark

Hammersmith and Fulham

Lambeth

Richmond upon Thames

Wandsworth

0   0.5   1
km

Map scale 1:33,500 @ A3

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the site, associated with an increase in floristic diversity[66]. Hyde Park and the wider 'Parks for London' provides a source of local centre of excellence for horticulture. Horticulture is discussed further under **Theme 5 - Resilient and Climate Positive Places.**

4.73 More widely across the borough, allotments, where managed for biodiversity and productivity in tandem, can effectively meet a number of GI functions. Allotments are discussed further in **Theme 2 - Active and Healthy Places.**

Sustainable Urban Drainage Systems (SuDS)

4.74 Naturalised surface level SuDS retrofit initiatives underway in the borough, include those designed for bioretention, and for education purposes. These are fully explored in **Theme 4 - Improved Water Management.**

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[66] Historic Royal Palaces: Tower of London. Preliminary Ecological Appraisal: Legacy Phase Monitoring Report, LUC (2023)

Drivers and Issues

Ecological Emergency

4.75 Unprecedented rates of habitat loss and fragmentation, damage and disturbance have squeezed global biodiversity to an increasingly precarious position. Healthy functioning of ecosystems is essential to provide society with the goods and services needed to prosper. Over the past 50 years, urban expansion has been the fifth greatest pressure on wildlife, due to habitat loss, both in extent and quality, which occurs most rapidly near urban populations [67,68].

4.76 Landscape scale connectivity is key to create a living landscape or 'parkscape' within the borough. Prioritisation of bold interventions will need to be made possible through greater collaboration between key stakeholders. These must include departments within WCC, external organisations and neighbouring authorities.

Climate Emergency

4.77 In the context of areas rich in natural resources, the establishment of a resilient GI network has the potential to alleviate projected climate change impacts for wildlife. This is achieved by forming networks of ecosystems that enable species survival and movement, effectively countering the risk of local extinctions. At the heart of the GI network lies the SINC network. Ecosystems can attain resilience only when their size and interconnectivity permit species to endure within the landscape. Consequently, the increasing, improving and connecting the SINC network hold further importance in the climate change context. Connectivity can be enhanced through the strategic placement and management of habitat patches beyond the SINC network, encompassing entities like pocket parks, private and public gardens, street trees and habitats within open green spaces.

Recreational Pressure: Existing and Future Population

4.78 GI in Westminster delivers health and wellbeing to residents and visitors. In Westminster, publicly accessible parks account for 392ha (18%) of the borough. This ranks Westminster 14th out of the 33 London boroughs in terms of the percentage of accessible green space.

Areas of Deficiency (AoD) in Access to Nature

4.79 The GI network serves an important function to the health and wellbeing of Westminster residents and visitors. GIGL's spatial mapping of AoD over 1km walking distances from accessible SINCs of borough-grade or above[69] reflects access to areas of higher ecological value and associated ecosystem service benefits. This is not included within the Environmental Justice Measure (see **Theme 2**). Illustrating deficiencies in provision and access to natural spaces, the AoD to nature can effectively be used to prioritise areas within which enhancement and expansion of the SINC network to address inequality within the borough (see 2023 Westminster SINC Review).

Balancing Different GI Functions

4.80 It is however recognised that nature-rich spaces must make provision for wildlife to thrive throughout the seasons and lifecycle. Adequate provision of spaces away from disturbance is essential to safeguard sensitive habitats and vulnerable wildlife, particularly during critical breeding and nesting periods. It helps protect endangered species, preserve fragile ecosystems, and ensure the success of habitat restoration projects.

4.81 Stakeholder workshops held as part of the audit highlighted the role that green spaces can play in facilitating a healthier lifestyle and that there should be a greater emphasis on developing spaces where people and nature can coexist. However, recreational activities in natural areas can cause wildlife displacement as a consequence of human and pet presence[70].

[67] Hayhow, D. B., Burns, F., Eaton, M. A., Al Fulaij, N., August, T. A., Babey, L., Bacon, L., Bingham, C., Boswell, J., & Boughey, K. L. (2016) State of Nature
[68] Net gain impact assessment (publishing.service.gov.uk)

[69] AoD to nature is mapped and defined by GIGL as "areas where people have to walk more than 1km to reach an accessible SINC of Metropolitan or Borough Importance" (source: Areas of Deficiency in Access to Nature - GIGL).
[70] Dertien JS, Larson CL, Reed SE (2021) Recreation effects on wildlife: a review of potential quantitative thresholds. Nature Conservation 44: 51-68. https://doi.org/10.3897/natureconservation.44.63270

High levels of recreational use, notably during the Covid-19 pandemic, puts significant pressure on green spaces in the borough, which has led to biodiversity harm.

4.82 By implementing flexible access measures (spatially or temporally) in specific areas, London can strike a balance between conservation goals and public enjoyment of nature while minimising harm to its natural heritage.

Expansion of Built Development and Infrastructure

4.83 Challenges in increasing the area of green space across the borough include its densely urban landscape, high population density and the need to balance preservation of historic sites with modern development. As set out in the introduction of this chapter, several policies, environmental targets and initiatives collectively work to balance the need for urban development with the preservation of green land and open spaces in London, contributing to the borough's sustainability, liveability, and landscape permeability for species movement. Notably, these include the LNRS, BNG and UGF.

Future Population Growth

4.84 Stakeholder workshops held to inform the development of this GI Audit emphasised the importance of meeting future GI requirements into new developments; residential, infrastructure and commercial. Effective stakeholder collaboration and fostering community connections were highlighted important to a successful design process and to long term management, allowing local communities to enjoy the natural environment without inadvertently causing harm.

Light Pollution

4.85 Light pollution can cause habitat disturbance and loss. The generally high levels of artificial lighting within urban environments are a well-evidenced cause of behavioural disruption and physiological stress in animals, and is thought to be a major factor in the disappearance of insect and bird populations worldwide. The City of Westminster counts with a Light Pollution Strategy whereby he Royal Parks and the Thames have the lowest level of illumination. Light types, colour and intensity are all factors in the nature and extent of impact and whilst sensitive

design/redesign of lighting is important, retention of unlit spaces and dark corridors, such as the parks and Thames, for wildlife to thrive through daily and seasonal rhythms is critical.

Positive Land Management

4.86 Positive land management is fundamental to achieving nature-rich and beautiful places long-term, particularly where such spaces serve a number of GI functions, such as access to nature. A high proportion of the green spaces, in the borough, and all of greatest ecological importance, are secure under long term management, such as The Royal Parks and WCC Parks Team. Review of the WCC managed sites which require update or inclusion of ecological objectives within their respective management plans would ensure the estate is in optimal condition and provide inspiration and confidence for people to get involved[71].

4.87 Additional spaces are managed through the BIDs and other private or community organisations. Continued engagement with these and expansion of best practice examples to the remaining portion of GI assets not under positive management would ensure the GI network as a whole is best able to meet its nature-rich function.

Invasive Species, Pests and Diseases

4.88 London has a coordinated approach to the collation of invasive non-native species (INNS) records centralised through the London Invasive Species Initiative (LISI), which helps to underpin coordinated (e.g. catchment-scale) action. INNS pose substantial threat to our native wildlife and costs the economy £1.8 billion per year[72]. In addition, introduced pests and diseases are predicted to increase with climate change. Examples of recent history now established in Greater London include ash dieback (caused by a non-native fungus) and the invasive oak processionary moth, both of which have economic and ecological impacts.

4.89 Planning and design of GI that is more resilient to introduced pests and diseases is part of climate change adaptation. Considerations include, for example, species diversity, resistant plant varieties, biosecurity to reduce contamination, pest management practices to minimise the use of pesticides, monitoring protocols, supply chain management / local production and education.

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[71] Cambridge.gov.uk. Parks-and-open-spaces-biodiversity-toolkit.pdf

[72] Invasive species (parliament.uk)

Flooding

4.90 As will be further explored in **Theme 4 - Improved Water Management,** surface flood risk in Westminster (illustrated in **Figure 7.3**) is a growing concern. In that regard, initiatives aimed at addressing this risk are actively pursued as presented in Chapter 7, aiming for the strategic placement of wetland and habitat creation initiatives within flood-prone areas. This aligns with climate change adaptation efforts.

4.91 This dual-purpose approach not only mitigates flood risk but also presents a unique opportunity for enhancing biodiversity. By carefully selecting locally appropriate species for these interventions, Westminster can not only fortify its resilience to flooding but also create thriving ecosystems that enrich the urban environment and support wildlife. Such interventions represent a harmonious synergy between flood risk management and the preservation of natural habitats.

Current Initiatives

Initiative	Description
Canal and rivers network foci	A suite of small canal side projects for which GLA Green Resilient Funding has been secured by WCC Regeneration Team and supported by the Canal & Rivers Trust. These also present wider opportunities for biodiversity: - Harrow Road - Queens Park Canal Side and floating ecosystems - Westbourne Green Open Space - Delamere Terrace

Initiative	Description
Greening Westminster Fund	Annual grant funding programme to improve and increase GI and open spaces in Westminster, available for community groups, neighbourhood forums, BIDs and internal Council departments to apply for. To date it has funded 27 projects including the following which have contributed to enhancing biodiversity: ■ St John's Church, Kensal Rise ■ Tree planting across Vincent Square Ward ■ Baker Street Station greening
Mission Invertebrate[73]	One of the numerous significant initiatives developed by The Royal Parks aims to increase park resilience against climate change across various aspects and foster lasting habitat preservation. A five-year, PPL supported project, including a range of interventions - expanding wildflower meadows for pollinators and wildlife, restoring significant environments like acid grassland and wetlands, managing trees and ancient woodlands, creating wildlife corridors, and improving pollinator-friendly planting. Other such initiatives include Help Nature Thrive and The Richmond Park and Bushy

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[73] Available at <u>London Invasive Species - GIGL</u>

Initiative	Description
	Park Restoration Project, backed by participants of People's Postcode Lottery.
New to Nature	National Lottery Heritage program run to September 2024 that provides paid work placements for at least 95 people from diverse backgrounds to undertake a range of environmental roles.
Wild West End	Partnership of Central London's largest property owners working in combination to deliver biodiverse habitats across a larger scale than can be achieved alone - examples include green roofs and phased tree planting – and people's connections with nature. Latest published data, 2018: http://www.wildwestend.london/map

Chapter 5
Theme 2 – Active and Healthy Places

This theme examines how GI assets can provide health and societal benefits, including connections to nature and high-quality open space for both residents and visitors. The theme also explores the permeability of Westminster for movement of people by active travel.

Introduction

5.1   The second principle of GI within Natural England's GI Framework is 'Active and Healthy Places.' This recognises the role that green and blue spaces can have in supporting physical and mental health and wellbeing by facilitating active lifestyles. It also acknowledges the function of GI in mitigating the negative health effects which can arise from urban heating, poor air quality, flooding and noise pollution.

5.2   An essential requirement for WCC is ensuring that all communities in the borough have equitable access to the health and wellbeing benefits associated with the provision of and access to GI and this is a key consideration in this analysis.

Targets

National

5.3   The Natural England GI Framework includes an Accessible Green space Standard (AGS) which specifies that everyone should have access to a local natural green space of at least 10ha within 1km (or a 15 minute walk) of their home. Accessibility standards for different types

of green space are also identified. Furthermore, requirements for local authorities to specify a quality standard for their green spaces is described, using a measure such as the Green Flag Award Criteria, and for a capacity criterion of 3ha of publicly accessible green space provision per 1,000 population[74].

5.4   Regarding air quality, the UK government's 25YEP sets high level targets for improvement, including reducing emissions of five damaging air pollutants, to halve the effect of air pollution on health by 2030. The 2021 Environment Act also requires the government to set specific targets relating to air quality within the National Air Quality strategy and local authorities are required to produce action plans, which aim to reduce PM2.5 levels below 10μg per m3 as well as exposure to PM2.5.

Regional: Greater London

5.5   The London Plan standards have an enhanced accessible green space standard of a district scale park of at least 20ha within 1.2km[75]. There is an expectation that specific standards at a local level, which consider local context, will be set by each local authority.

5.6   The London Mayor's Transport Strategy aims to increase the number of journeys taken by sustainable travel (walking, cycling and public transport) in London to 80% by 2041[76]. The City of Westminster's Walking Strategy aims to increase the number of 'walkable' journeys taken on foot from 84% to 92% by 2027 through the creation of attractive walking environments[77].

Key Assets

Parks, Open Space and Recreation Provision

5.7   In general terms, there is good provision of parks and open spaces in Westminster, totalling over 80 of varied scale, including five Royal Parks. Parks, square gardens, pocket parks, playgrounds, green gyms and cemeteries all form a component of the green and open

space offer[78]. 30 of the parks achieve Green Flag status and are valued and well used by residents, as demonstrated by the results of the 2021 City Survey[79]. The findings indicate that 94% of residents regularly visit green spaces (40% often and 54% some of the time). The parks and open spaces are also reasonably well protected, with Metropolitan Open Land designations for the Royal Parks and 23 parks also listed on the Historic Parks and Gardens register. Although not providing statutory protection, these form a material consideration in the determination of planning applications.

Play

5.8   Play is essential for children's social, emotional, intellectual and physical development and a fundamental human right as outlined in the UN's Article 31 of the Convention on the Right of the Child[80]. Within Westminster, there is good provision of play facilities across much of the borough including in areas which have higher levels of deprivation, contrary to the overall pattern of access to open spaces. However, areas of poor access to play do exist within the east and south of the borough.

Heritage

5.9   Green spaces in Westminster are often heritage assets in their own right, or contain or form the setting to heritage assets. The historic character and associations of green spaces are important to Westminster's distinctiveness and can act as a major draw for their use. The borough benefits significantly from the presence of heritage assets within them and the historical character of the green spaces themselves, which contribute to economic, social and environmental value in addition to cultural heritage. Alongside the principal green spaces, such as the Royal Parks and Embankment, most streets and places have a green space element with an historical dimension, such as landscaping or street trees. The importance of green spaces for human health and quality of the environment have long been recognised, such as through the 1931 London Squares Preservation Act, which continues to protect the

[74]https://designatedsites.naturalengland.org.uk/GreenInfrastructure/downloads/Green%20Infrastructure%20Standards%20for%20England%20Summary%20v1.1.pdf
[75] https://www.london.gov.uk/programmes-strategies/planning/london-plan/past-versions-and-alterations-london-plan/london-plan-2016/london-plan-chapter-seven-londons-living-spac-20
[76] Mayor of London (2018) Mayor's Transport Strategy
[77] Westminster City Council (2017) Westminster Walking Strategy (2017-2027)
[78] https://www.westminster.gov.uk/westminster-parks-and-open-spaces
[79] Westminster City Council (2021) 2021 City Survey
[80] https://www.playengland.org.uk/charter-for-play

undeveloped character and contribution of historic squares across Westminster, including Paddington Green, Bessborough Gardens and Leicester Square Gardens.

Active Travel

5.10 Existing urban constraints and dense development can often restrict the successful delivery of new green spaces within the borough. Therefore, the provision of safe and attractive green routes that accommodate active travel to existing spaces are essential to improving access. Westminster has over 30 designated cycle routes, many of which provide good overall connectivity between green spaces and surrounding neighbourhoods. These often utilise canal towpaths and many 'on-road' routes are protected from traffic, increasing their safety and encouraging use. This provision was enhanced through a number of temporary cycle lanes integrated during the COVID-19 pandemic, the majority of which have now been made permanent after consultation during 2021. Furthermore, WCC is making efforts to improve overall cycle infrastructure across the borough. This includes mechanisms to increase the number of cycle hangars by 120 over 2022- 2023, provide additional cycle stands across the borough and deliver cycle training services to children and adults to increase confidence[81].

5.11 Beyond the designated cycle network, extend further routes that support active travel, such as the 16km 'Quietway' along the canal from Paddington to West Drayton which provides important longer distance connectivity and is cognisant of local character. Active travel access through Paddington will also be enhanced through the delivery of the Paddington Place strategy which aims to break down the barriers between neighbourhoods created by major infrastructure by providing safe and legible movement for pedestrians and cyclists while enhancing the overall public realm[82]. This project will be delivered incrementally over the next 10 years.

5.12 WCC's High Street Investment Programme is likely to fund new active travel projects on and around the borough's main high streets. Specific consultation on active travel projects is likely to follow initial consultation to generate broad ideas which took place over the summer of 2023.

Summary of findings from the online public consultation hub

In general, respondents to the online survey considered the network of play areas, footpaths and cycle routes to be performing well, with approximately 70% of participants stating that this provision was either 'strong' or 'moderate'. However, the potential for enhanced connectivity of cycle routes and play facilities were noted as a key area for improvement.
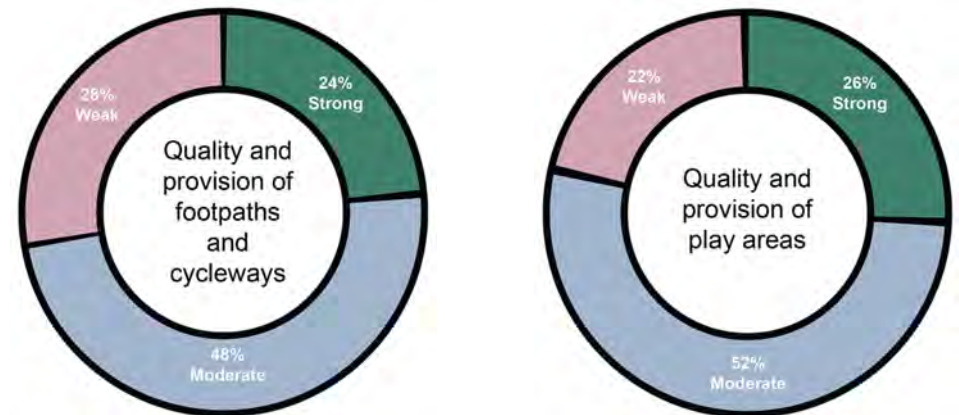
Greening Westminster

5.13 The Greening Westminster programme was initiated in 2017 but recently rebranded to Greening Westminster. The programme offers grants of up to £50k towards greening projects in the borough and is open to community groups, Local Authority and private sector led projects, although the primary focus is on community led projects. 27 projects have been funded to date with 15 new projects funded in latest round. Previously funded projects include St John's Church Garden, Selby Square, Barkour Park, Lisson Green and Pimlico Gardens and have

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[81] https://www.westminster.gov.uk/news/council-makes-active-travel-priority-launching-final-cleveland-st-cycleway-route-consultation

[82] City of Westminster (2023) Paddington Public Realm Strategy

included community gardens, allotments, parklets, tree planting and enhanced greening of playgrounds and the wider public realm.

5.14 The Environmental Justice Measure developed by WCC will be an important tool in assessing future applications to the fund to ensure that projects are targeted to areas of greatest need.

Volunteer and Community Programmes

5.15 As well as the provision of enhanced functionality and quality, activities which activate green spaces are essential to facilitating use by a wider range of people. The Royal Parks run a volunteer programme, which includes a variety of different activities, and several of the larger parks have active 'friends of the park' groups who arrange activities such as community gardening sessions[83].

5.16 Community led projects such as the community gardens at Queens's Park Gardens are an effective way to increase access to green spaces while also building community cohesion and empowerment. However, it is important that these projects have ongoing support where limited capacity within a community group to lead on projects could cause them to fail.

Temporary Meanwhile Spaces

5.17 Meanwhile uses for vacant buildings and sites encourage temporary activity which generate social value and can bring economic, social of environmental benefits for local communities. Common meanwhile uses for sites include community gardens and allotments. The meanwhile gardens on Kensal Road are a good example of this where the community has used a vacant site as a community garden for over 40 years and runs a wide programme of activities which bring communities together and create community cohesion[84]. A meanwhile space, including a playground was also discussed during the regeneration of the Ebury Bridge estate[85].

Partnership Working

5.18 In the context of multiple health challenges and limited funding, partnership working between organisations and agencies is important to maximise outcomes. Examples of past and present good practice partnership working by WCC is demonstrated by the partnerships established for the Health and Wellbeing Strategy, Biodiversity Action Plan and Wild West End.

Drivers and Issues

Inequalities and Health Outcomes

5.19 Westminster's Environmental Justice Measure assesses the impact of different environmental factors, such as flood risk, heat risk, air quality and access to open spaces, across different demographic groups and deprivation levels within Westminster. This tool is discussed within **Theme 5 - Resilient and Climate Resilient Places.**

5.20 The borough exhibits a number of health inequalities, strongly correlated to levels of deprivation (see **Figure 5.1**). The life expectancy for men who live in deprived areas in the north of the borough is 18 years lower than for men who life in the most affluent areas, the largest life expectancy gap in England[86]. Furthermore, there is also a pattern of health inequality relating to ethnicity with, people from a Black, Asian and Minority Ethnic background (who make up 39% of the borough's population) more likely to experience illnesses and diseases such as cancer and heart disease, as well as having higher prevalence of childhood obesity[87]. These inequalities were exacerbated during the COVID-19 pandemic, particularly in relation to mental health. It is well evidenced that access to green space can improve mental and physical health outcomes.

Access to Green space

5.21 Westminster has relatively good access to green space, with over 80% of residents having access to green space within a 5 minute walk of their home. However, areas of green

[83] https://www.queenspark.org/gardening-sessions/friends-weekend-gardening-sessions/
[84] https://meanwhile-gardens.org.uk/
[85] https://www.westminster.gov.uk/sites/default/files/190116_ebury_bridge_community_futures_group_meeting_20_notes_-_finalised_on_28th_january_2019.pdf

[86] https://www.westminster.gov.uk/health-and-social-care/public-health-strategy-policies-and-reports/joint-health-and-wellbeing-strategy-2017-2022
[87] https://www.kingsfund.org.uk/publications/health-people-ethnic-minority-groups-england#overall

LUC

Figure 5.1: Indices of multiple deprivation, open space deficiency, and areas with lowest canopy cover
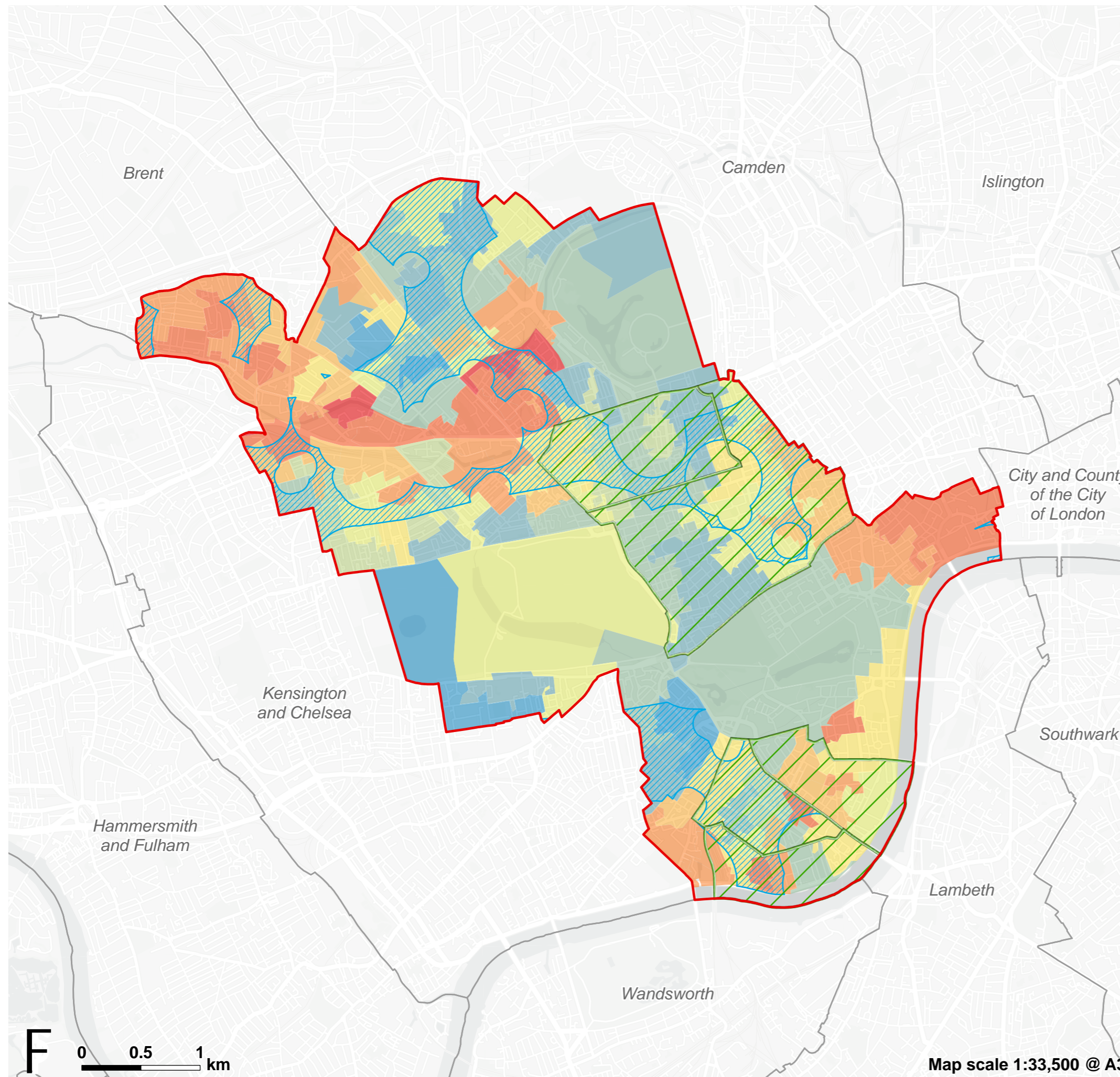
City of Westminster boundary

Neighbouring London borough

Area deficient in open space

Ward with 10% or less canopy cover

Indices of Multiple Deprivation (IMD) 2019

IMD decile

- 0 - 10% (most deprived)
- 10 - 20%
- 20 - 30%
- 30 - 40%
- 40 - 50%
- 50 - 60%
- 60 - 70%
- 70 - 80%
- 80 - 90%
- 90 - 100% (least deprived)

Brent

Camden

Islington

City and County of the City of London

Kensington and Chelsea

Southwark

Hammersmith and Fulham

Lambeth

Wandsworth

0   0.5   1 km

Map scale 1:33,500 @ A3

EB:shayler_h

LUC 12403_000_MainReportMaps 21/11/2023

space deficiency have been identified in the north west and south east of the borough (see **Figure 5.2**). In some areas this overlaps with areas which have a low percentage canopy cover (e.g. Marylebone Ward, West End Ward, Pimlico North & South Wards) and high levels of deprivation (e.g. areas in Pimlico South Ward, Church Street Ward). This is having a consequential impact on use by more deprived groups with those with low life satisfaction reporting they are less likely to access open spaces regularly. This pattern is further exacerbated by the location of cycle routes in Westminster, with obvious gaps in the cycle route network towards the north west of the borough where access to green space is low.

Accessibility of Green spaces

5.22 Not only is easy access to green space important but the accessibility of that green space is also essential to ensure all users are able to benefit from the health and wellbeing benefits associated with the use of green spaces. Accessibility can relate to both the suitability of surfacing, removal of obstacles and provision of adequate street furniture which make spaces accessible for disabled users, older people and those with young children. In addition, the quality of a green space includes factors such as perceptions of safety or poor maintenance which can become a particular deterrent to use. Accessibility can also be improved through the provision of appropriate facilities and activities which attract different user groups to those spaces.

Safety for Women and Girls

5.23 The Green Strategy currently in development by WCC includes actions to improve the safety of women and girls in Westminster's parks. The Green Flag award scheme has also recently issued guidance on how to create safer parks for women and girls[88]. A summary of the key factors likely to increase the perception of safety for women and girls is provided below:

- To increase the number of other users, focussing on facilities and activities to attract more users into the park;

- To improve visibility within the park, helping women see and be seen through measures such as lighting, wayfinding and considering the location and management of planting to ensure visibility is maintained; and

- To increase inclusion, making women and girls feel like they belong by removing barriers such as involvement in park design and management, provision of facilities and activities that are specific to women and ensuring that access is not a barrier.

Private Communal Gardens

5.24 Whilst overall green and blue coverage across the borough is high, not all of these spaces are publicly accessible. Many of the borough's 70 garden squares are semi-private and only open to the immediate properties surrounding them, preventing wider health and wellbeing benefits of these green spaces. Examples of these private communal gardens include Crescent Gardens, Formosa Gardens, Triangle Gardens and Prince's Gate[89]. Residents living in areas of the borough with higher levels of deprivation, particularly in the north-west, are also much less likely to have access to private garden space.

Allotments and Community Gardens

5.25 The provision of allotments and opportunities for community food growing have wide ranging benefits; including health advantages from exercise and increased access to fresh and healthy produce, promoting health eating. Westminster manages allotments at Warwick, Lillington and Longmoore Gardens and Mozart Estates, all of which are currently leased due to popular demand and there is a waiting list of several years. There is a reasonable provision of smaller community growing sites. However, WCC outlines targets in the Open Space Strategy[90] to increase the number of community food growing sites, especially around housing estates and schools to promote healthy eating and tackle childhood obesity.

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[88] https://www.makespaceforgirls.co.uk/resources/safer-parks-for-women-and-girls-guidance#:~:text=Guidance%20produced%20by%20the%20University%20of%20Leeds%2C%20West,form%20supplementary%20guidance%20for%20Green%20Flag%20Award%20judges.

[89] http://transact.westminster.gov.uk/spgs/publications/Historic%20parks%20and%20gardens.pdf
[90] https://www.westminster.gov.uk/sites/default/files/draft_strategy_for_open_spaces_and_biodiversity.pdf

Figure 5.2: Open space and access

Legend:

- City of Westminster boundary
- Neighbouring London borough
- Area deficient in open space
- National Cycle Network
- TFL cycle route

Open space - primary typology (PPG17)

- Amenity
- Cemeteries and Churchyards
- Children and Teenagers
- Civic Spaces
- Green Corridors
- Natural and Semi-natural Urban Greenspace
- Outdoor Sports Facilities
- Parks and Gardens
- Other

Brent
Camden
Islington
City and County of the City of London
Kensington and Chelsea
Southwark
Hammersmith and Fulham
Lambeth
Wandsworth

0   0.5   1 km
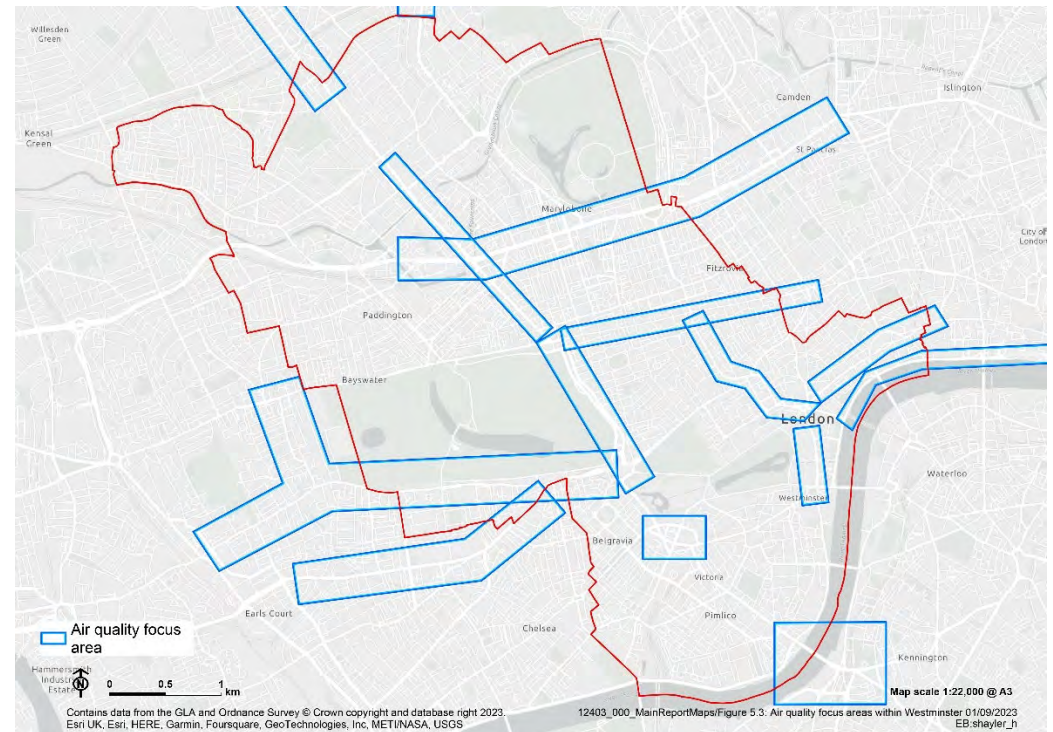
Map scale 1:33,500 @ A3

GiGL

Noise Pollution

5.26 Westminster experiences ambient noise levels from road traffic, other transport such as trains, commercial trade, business and residential impacts, which exceed UK averages and World Health Organisation guidelines[91]. High noise levels can have significant impacts on health and wellbeing affecting sleep and overall quality of life. GI in the city is important in the provision of more quiet and tranquil places. Given the dense urban nature of the borough, there is very little tranquil space, particularly to the south. This should be considered in the design of these spaces, ensuring that planting is selected and located to maximise its use as a barrier.

Air Quality

5.27 Poor air quality is the largest environmental risk to public health, causing premature death through cardiovascular disease, lung cancer and respiratory diseases. It is a significant issue in the borough, caused largely by high amounts of traffic and forms a top priority for residents[92]. As indicated in **Figure 5.3**, the GI Focus Map (published by the GLA) identifies the locations within the borough where poor air quality is most acute (areas that exceed annual mean limits for NO_2 and are locations with high human exposure). Likewise to other London areas this is notable along major transport corridors, but there are notably higher number of focus areas in Westminster and other central London boroughs that the wider London area. Based on air quality and other social and environmental indicators, the data indicates that GI interventions are most required within the west and the southern portions of the borough, the two most densely populated areas of Westminster.

Figure 5.3: Air Quality Focus Areas within Westminster[93]

Contains data from the GLA and Ordnance Survey © Crown copyright and database right 2023. Esri UK, Esri, HERE, Garmin, Foursquare, GeoTechnologies, Inc, METI/NASA, USGS

12403_000_MainReportMaps/Figure 5.3. Air quality focus areas within Westminster 01/09/2023
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5.28 The borough is wholly encompassed within a designated air quality management area, attributable largely to high amounts of traffic. However, the Ultra Low Emissions Zone (ULEZ), which imposes a tax on the use of high pollution vehicles, is having a significant impact on reducing the number of older, more polluting vehicles and the levels of harmful air pollution that

[91] https://www.westminster.gov.uk/planning-building-and-environmental-regulations/planning-policy/supplementary-planning-documents-and-guidance/new-supplementary-planning-documents-spd

[92] https://www.westminster.gov.uk/health-and-social-care/public-health-strategy-policies-and-reports/joint-health-and-wellbeing-strategy-2017-2022

[93] Figure. Air quality focus areas. https://data.london.gov.uk/dataset/green-infrastructure-focus-map

Londoners are exposed to[94]. The pedestrianisation and greening of major streets such as Oxford Street is also likely to have a further beneficial effect. Nevertheless, poor air quality remains a challenge for the borough.

5.29 Trees and other vegetation (such as hedgerows) can mitigate against and improve air quality by intercepting particulates (held on leaves) or creating a barrier between the source of air pollution and pedestrian or play areas. Although, in order for this to be effective at street level, trees need to be incorporated guided by good practice guidance[95]. Whist trees often have a positive impact on air quality, there are several ways vegetation may negatively influence air quality, especially within cities and built-up urban areas. This includes shedding of pollen and leaf hairs. Some species can also emit high levels of volatile organic compounds (VOCs) which can cause air quality issues when planted on a large scale, an issue that is exacerbated when combined with nitrous oxide pollution and strong sunlight.[96]

5.30 Areas with the poorest air quality (both PM2.5 and PM10) are generally located in areas with the lowest % tree canopy cover (Soho, Mayfair and Marylebone), see **Figure 5.4**. There are a range of constraints in these areas with regards tree planting include physical space, heritage and other uses. Retention (and when necessary ongoing replacement) of tree cover in these areas is therefore of high importance. The incorporation of boundary hedges between the road network, pedestrian areas and open space could also be prioritised in areas with low canopy cover.

Summary of consultation responses

■ A number of barriers to green space access in the borough were highlighted; including the number of gates, poor signage and the unwelcoming feel of many of the routes e.g. Victoria to Hyde Park. A greater emphasis on improving pedestrian experience into and within green spaces is required within the borough.

■ Participants of the workshops noted that many of the canal towpaths in Westminster are not accessible to wheelchair users, which limits their use as connecting routes to other green spaces. Increased use during COVID-19 has also resulted in added recreational pressure on the towpaths, requiring additional investment.

■ There are limited cycle storage facilities in the borough which can deter visitors travelling on bicycles to use green spaces.

■ The Green Flag Award is currently developing an initiative which seeks to develop safer parks and improve access for women and girls.

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[94] Mayor of London (2023) Inner London Ultra Low Emission Zone – One Year Report
[95] https://www.tdag.org.uk/first-steps-in-urban-air-quality.html

[96] Issues associated VOCs can be reduced by appropriate species choice informed by recognised guidance, e.g.: https://www.tdag.org.uk/tree-species-selection-for-green-infrastructure.html

Figure 5.4: Tree canopy and air quality (PM2.5)
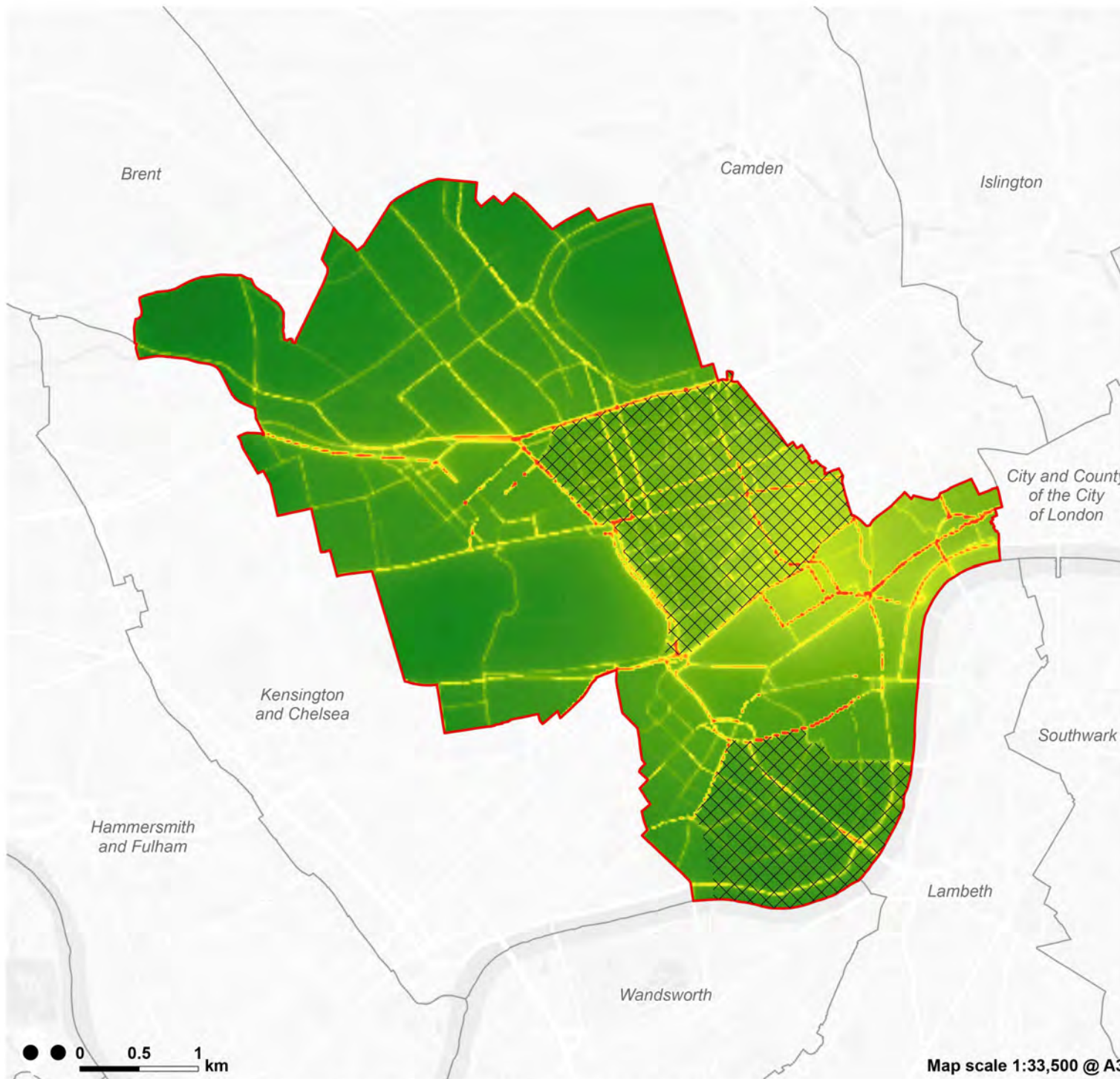
City of Westminster boundary

Neighbouring London borough

Ward with 10% or less canopy cover

Annual mean PM2.5 concentrations 2019

µg m-3

70

13

Map scale 1:33,500 @ A3

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Esri UK, Esri, HERE, Garmin, Foursquare, GeoTechnologies, Inc, METI/NASA, USGS
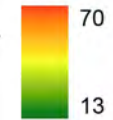
Current Initiatives

Table 5.1: Relevant GI initiatives within Westminster

Initiative	Description
Green Westbourne	Green Westbourne is a partnership scheme which aims to improve the quality of life for residents of Westbourne through improvements to local green space, biodiversity enhancements and increased access to the green economy. The activities of the project include: ■ Landscaping, wilding and greening works; ■ Food growing and permaculture; ■ Volunteering and resident training; ■ Outdoor and nature connection activities; ■ School and youth projects; and ■ Green enterprise and employment schemes.
Meanwhile Gardens, Kensal Road	Community gardens on a derelict site which have been used for the past 40 years to provide a community meeting space with a series of events and different facilities including a play hut.
Lisson Green allotments	Enhancements to allotments at Lisson Green Estate as part of the wider Church Street regeneration programme. This included connecting estate gardens, providing ecological improvements and encouraging greater resident engagement.
Royal Parks volunteer programme	The Royal Parks offer a varied volunteer programme, which is open to everyone, with different types of activity including gardening volunteers,

Initiative	Description
	conservation volunteers, education volunteers and volunteer rangers. Both regular and one-off opportunities are available.
Cycleway 43	New cycle route delivered by WCC and TfL connecting Hyde Park with existing routes at Gloucester Place to enhance connectivity between Hyde Park and Marylebone and improve nine junctions[97].
Temporary Cycle Routes	During the COVID-19 pandemic many temporary painted and/or protected cycle routes were instated on major streets through Westminster. A consultation ran in 2021 on whether these should be made permanent. Following the consultation, many of these routes (17) were retained with three removed and one downgraded during 2022.
Paddington to West Drayton Cycleway	Led by the Canal and Rivers Trust in partnership with TfL, this project will transform 16 miles of canal towpath to provide better quality surfaces, wider paths, improved access points and new signs to improve the accessibility of these routes.
Paddington Public Realm Strategy	Public realm strategy to be delivered over next decade to improve connectivity for pedestrians and cyclists around the Paddington area. Detailed designs are being progressed initially for improvements to the Canalside area around Rembrandt Gardens and Stone Wharf which involves improving safety and lighting along the route, integrating GI and activating surrounding spaces. From this section of canal to the west, a new green hub, including play, green space and SuDS features, is being planned along Warwick Avenue which will connect through to the tube station. Access along the Gyratory is also being improved as an early stage project which includes new green links and spaces.

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[97] https://westminstercycleways.co.uk/hyde-park-to-marylebone-cycleway.html

Initiative	Description
ONE Westminster	A social prescribing service for Westminster, established in 2020. The prescribing service covers a wide variety of social needs including debt, befriending and food poverty. The service also prescribes community exercise utilising the borough's green spaces
Greening Westminster Fund	Annual grant funding programme to improve and increase GI and open spaces in Westminster, available for community groups, neighbourhood forums, BIDs and internal Council departments to apply for. To date it has funded 27 projects including: ■ George's Park – a new public green space near Baker Street for local residents and workers ■ St John's Churchyard – a phased greening strategy to transform an unused tarmac yard into a new community green space, commemorating the Windrush Generation ■ St Lukes Allotments – creation of 12 mini-allotments for residents ■ HyPER Parklets – co-delivery, maintenance of several parklets to bring people in the community together ■ The Onion Garden – extension of the onion garden to provide additional green space in Victoria for residents, workers and visitors. A community pod which creates a biodiverse and sustainable garden which connects people to nature
Footways London	A London wide project which promotes a network or quiet and enjoyable routes for walking in London. They connect up major places and destinations along quiet streets to make walking a more appealing travel choice. Online maps are available for phone download and free printed copies are available for collection from London Bridge Station.

Chapter 6
Theme 3 – Thriving and Prosperous Places

This theme explores Westminster's distinctive townscape character, including the interaction of physical, cultural and perceptual influences. It also examines how GI can be used to enhance visitor experience and contribute towards the economic prosperity of a place.

Introduction

6.1 The third principle of good GI within Natural England's GI Framework is 'Thriving and Prosperous Places.' This principle recognises that economies are embedded within nature and therefore that investment in GI can bring economic benefit to communities by attracting inward investment, creating green job opportunities, supporting high streets and retail, attracting tourists and act as a catalyst for regeneration[98].

6.2 Westminster has one of the largest local economies in the UK, with a Gross Value Added (GVA) of £76bn; including over 53,000 businesses and over 767,000 jobs[99]. Many global brands and corporations have their headquarters in Westminster as well as it being the centre for national government. Attracted by the unique historic character of the borough the business base is made up of high value sectors such as finance and insurance, professional scientific and technical industries and ICT sectors and as such attracts a highly skilled workforce. Alongside this, the borough has a strong retail and hospitality sector which along with major

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[98] https://designatedsites.naturalengland.org.uk/GreenInfrastructure/Principles/WhyPrinciples.aspx

[99] https://www.westminster.gov.uk/about-council/data/facts-and-figures-about-westminster

tourist attractions, including the borough's parks and green spaces, make it a draw for over 25 million visitors a year.

Targets

National

6.3   Goals 10 and 11 of the UN's sustainable development goals relate to the reduction in inequalities and creation of both sustainable cities and communities. The UK government has adopted these goals and aims to reduce inequality by ensuring the most development programmes are targeted at the vulnerable and disadvantaged. This includes people with disabilities and by promoting economic growth through the participation of all[100]. Within cities, the UK government has committed to improving public transport, reducing air quality and increasing house building.

6.4   The 25 YEP aims to enhance beauty, heritage and engagement with the natural environment through the protection of important natural spaces and their heritage, ensuring there are high quality, accessible, natural spaces close to where people live and increasing action to improve the environment from all sectors of society.

6.5   The government's strategy to 'Build Back Better High Streets[101]' includes ambitions to integrate more GI into high streets to increase footfall. The initiative also commits to funding improvements through The Levelling Up Fund and Community Renewal Fund as well as exploring how planning reform can help with incorporating more GI into development. This includes publication of a 'Manual for Streets' which encourages the design of high streets to consider place making and the integration of active travel.

6.6   The National Design Guide published in 2021 sets ten characteristics of well-designed places which includes the integration of green and blue infrastructure into development and public spaces. The National Model Design Code provides guidance and sets a baseline standard of quality and practice to Local Planning Authorities developing Local Design Codes.

This includes how landscape GI and biodiversity should be approached in new developments and assets the importance of streets being tree-lined.

Borough

6.7   This ambition is reflected in the business plans or vision documents for the BIDs in Westminster which all contain ambitions to increase footfall along principal streets by integrating GI in the wider public realm. Working in partnership with BIDs can assist in increasing GI through their connections to private property owners in the wider delivery of GI.

Key Assets

Heritage and Historic Character

6.8   The historic character of Westminster is formed from the visible evidence in the present-day environment of its long and complex history. People value this palpable time-depth for a wide variety of reasons. Places with a strong historical dimension are often those which are the most highly valued and desirable to live, work and visit. This is certainly true of Westminster which has seen its rich historic environment become the context for a highly successful and prosperous residential, business and visitor economy and one where heritage plays a measurable role in its economic success[102].

6.9   Green spaces are an integral element of the historic environment, part of an overall landscape which has developed and evolved over time. They provide the ability to read and understand that process of evolution, preserving patterns and traces of the past, as well as an attractive context for all of the borough's economic, social and cultural activities. **Figure 6.1** illustrates the distribution of historic open spaces and townscape character.

6.10   There are 56 conservation areas in Westminster (see **Figure 6.2**), designated for their special architectural and historic interest, which collectively cover most of the borough. Additional planning controls apply in conservation areas, and this includes a degree of protection for trees, where permission must be sought before undertaking almost all tree work.

[100] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/603500/Agenda-2030-Report4.pdf
[101] https://www.gov.uk/government/publications/build-back-better-high-streets

[102]
https://www.westminster.gov.uk/sites/default/files/uploads/heritage_evidence_topic_paper_june_2019.pdf

Figure 6.1: Historic open spaces and townscape character
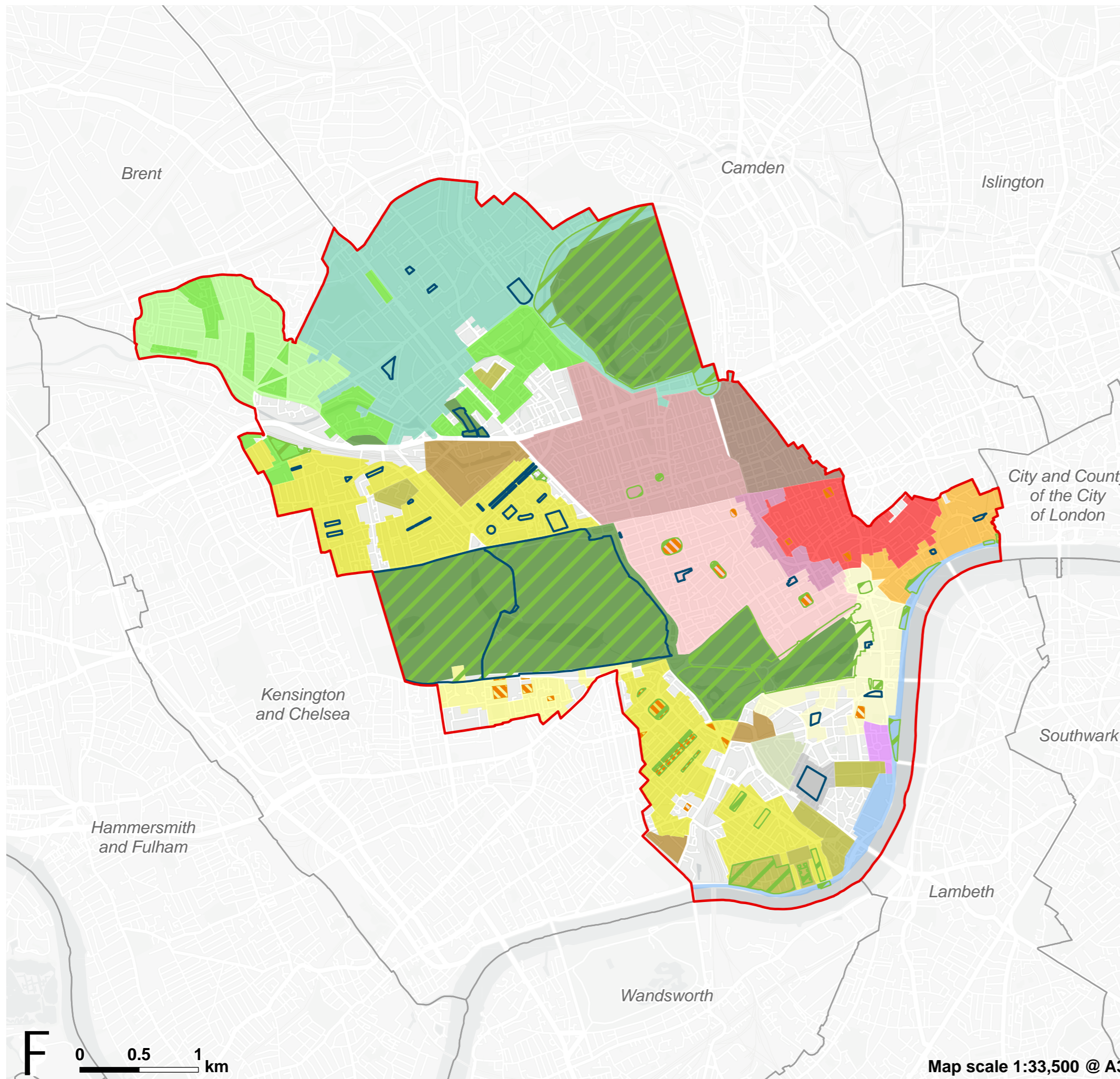
City of Westminster boundary

Neighbouring London borough

Registered Parks and Gardens

London square

London parks and gardens trust site

Townscape

Parks and associated open space

Late 20th Century housing estates

Late Victorian social housing

Arcadian Victorian

Riverside

Vincent Square

Public realm with major new development schemess

Victorian Stucco terraces and squares

Knightsbridge

The Government Precinct

Strand and Aldwych

Victorian and Edwardian south Westminster

Planned estates of high architectural quality

West Marylebone

East Marylebone

Mayfair and St James's

Soho and Covent Garden

Smith Square

Regent Street

Map scale 1:33,500 @ A3

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LUC 12403_000_MainReportMaps 21/11/2023

LUC

Figure 6.2: Conservation areas

Brent

Camden

Islington

City and County
of the City
of London

Southwark

Kensington
and Chelsea

Hammersmith
and Fulham

Lambeth

Wandsworth
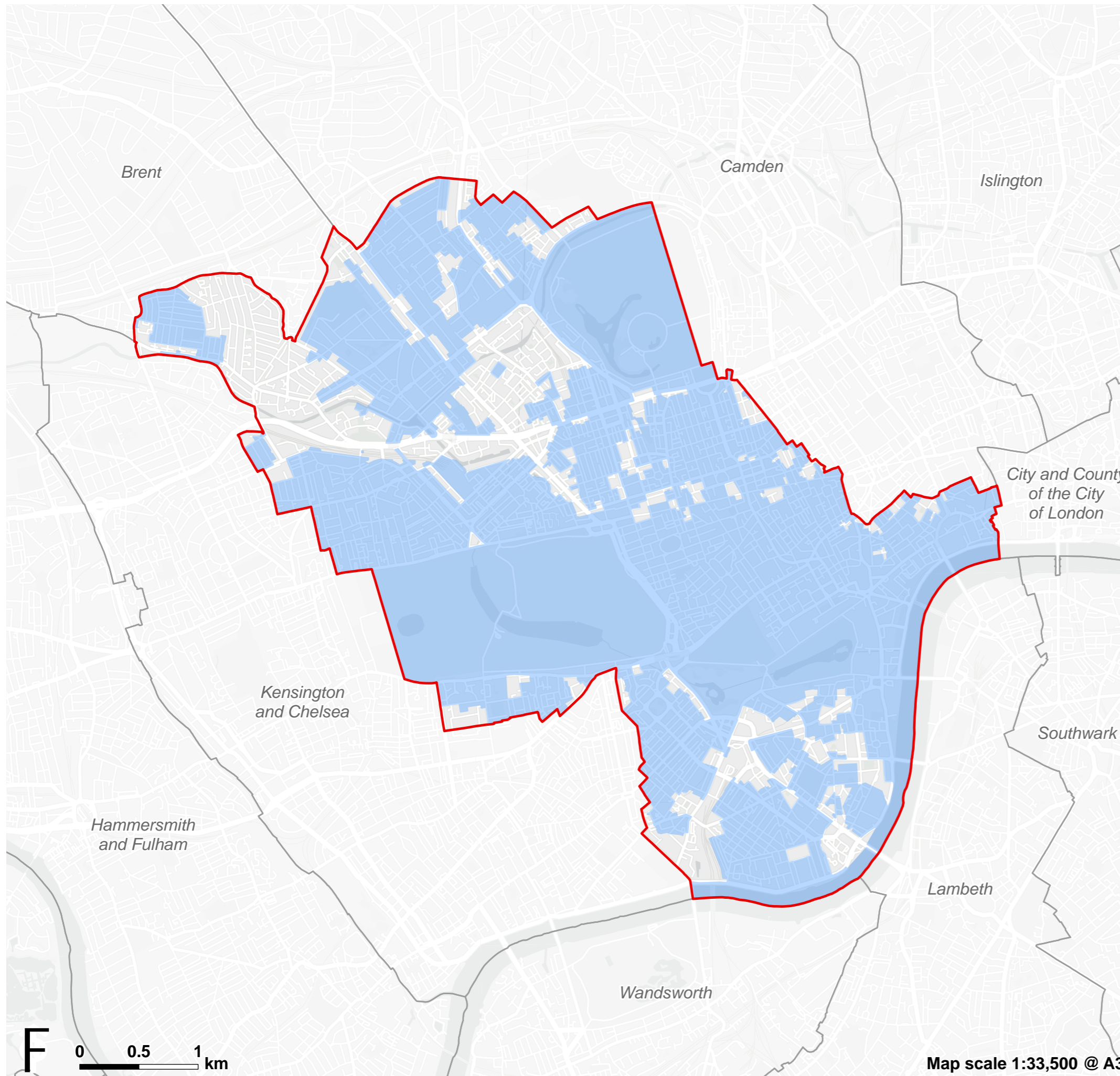
☐ City of Westminster boundary
☐ Neighbouring London borough
■ Conservation area

0   0.5   1
km

Map scale 1:33,500 @ A3

Tree planting patterns and tree cover in some instances form a key component of the character of conservation areas. Trees are therefore recognised as key natural heritage assets and are in some instances important to the setting of built heritage assets. Future tree planting should not detract from the character of each area, although it is recognised that as part of a city that can respond to growing population and climate change that new planting and urban greening is essential.

6.11 Informed by conservation area audits and guidance[103], the heritage assets in Westminster provide a significant opportunity and setting for the integration of bold GI interventions.

Business Improvement Districts (BIDs)

6.12 BIDs are defined areas within which all businesses pay a levy in addition to their normal business rates which is then used to provide projects or services beneficial to businesses in that area, beyond those provided by a local authority[104]. There are eight operational BIDs in the City of Westminster (Marble Arch, New West End Company, Northbank, Victoria Westminster, Baker Street, Paddington, Piccadilly and St James); the New West End Company is one of the largest BIDs in Europe[105]. 25% of Westminster's retail hierarchy falls within a BID[106]. All of the BIDs fall within the central and southern areas of the borough with none in the north. There are significant opportunities to work with BIDs to deliver and enhance GI in Westminster. Victoria BID was the first in London to undertake its own GI audit in 2010 with support from the Mayor of London's 'Greening the BID' programme. The 2013 Good Practice Guide subsequently produced has been used to communicate the value of integrating GI within investment programmes to other BIDs[107]. Northbank BID have also since carried out their own GI audit. In either their most recent BID proposal or business plan, Victoria Westminster[108] and Northbank[109] reference GI improvements as specific actions and all eight[110][111][112][113][114] reference environmental improvements and a commitment to tackling climate change as key priorities.

6.13 Given their spending power, influence over the management of the eight districts, existing relationships with the Council and clear mutual objectives, there is considerable potential for the BIDs to continue to contribute to the delivery of GI in the borough. This is likely to include, but will not be limited to: green corridors, walking routes and rewilding initiatives as well as the integration of GI into place making and regeneration projects led by BIDs.

Wild West End

6.14 Wild West End is a partnership between the West End's largest property owners, BIDs and other strategic partners including the London Wildlife Trust and the GLA to improve the natural environment within the area and create better connections between people and nature. They aim to integrate new GI throughout the area, creating wildlife corridors between areas of parkland whilst also improving the area as a place to live, work and visit. The partnership is currently running a number of community greening projects, improving active travel connections, creating new green spaces and a network of green corridors throughout the West End. They are also aiming to encourage and support new green enterprises and improve community engagement in the delivery of green spaces[115].

Placemaking

6.15 Alongside activities of the BIDs and Wild West End, there is a notable recognition of the role of green space in place making in current major regeneration schemes. The regeneration of Ebury, Darwin House and Church Street estates has seen the integration of new GI in recognition of the benefits it can bring to the prosperity and identity of local areas, as well as creating informal meeting spaces for people, improving community cohesion. This includes the new 'Green Spine' being integrated into the Church Street estate regeneration programme.

[103] https://www.westminster.gov.uk/planning-building-and-environmental-regulations/city-plan-neighbourhood-planning-and-planning-policy/planning-guidance-support-policies/conservation-area-audits-maps-and-guidance-k
[104] Business Improvement Districts - GOV.UK (www.gov.uk)
[105] Our Vision – New West End Company
[106] https://www.westminster.gov.uk/media/document/ev-e-005---town-centre-health-checks-report-2018-19
[107] https://www.london.gov.uk/programmes-and-strategies/environment-and-climate-change/environment-publications/green-infrastructure-audit-best-practice-guide

[108] Victoria-Westminster-BID-Proposal-2023-28-LR.pdf (victoriawestminsterbid.co.uk)
[109] https://www.thenorthbank.london/wp-content/uploads/2019/03/Northbank-BID-Proposal-2018-23.pdf
[110] Renewal-Proposal-2021-26.pdf (marble-arch.london)
[111] Our Vision – New West End Company
[112] Baker Street Quarter Partnership - Business Plan 2023 - 2028 by BakerStreetQuarterPartnership - Issuu
[113] PaddingtonNow-Renewal-2023-2028_web_download.pdf
[114] Heart-of-London-Business-Plan-2022-2027-2.pdf (holba.london)
[115] Vision — Wild West End

Integrating GI into the programme of High Street Revitalisation currently being led by the Council, notably the greening programme planned within the 'Reimagined Oxford Street' framework, will assist in the creation of a more attractive place for tourists and shoppers and increase footfall[116]. The redevelopment of Strand Aldwych has also recently been completed, including the expansion of pedestrian spaces and over 1370m^2 of greening to create a welcoming public space. **Figure 6.3** shows the relationship between the location of shopping centres in the borough and distribution of active travel networks.

WCC's Place Shaping team are also delivering place making projects in Soho, Covent Garden, Thames Riverfront, Strand Aldwych, Victoria, Paddington and North Paddington all of which incorporate elements of GI to assist in wider place making objectives.

Tourism and Events

6.16 Many of the approximately 500,000 daily visitors to the borough, pay a visit to the borough's parks and green spaces. The five Royal Parks are the most popular destinations with up to 37% of visitors to Hyde Park coming from outside the UK. These visits provide immediate job opportunities as well as increasing spend in the local economy.

6.17 Green spaces in the borough also acts as venues for a wide programme of events. These range in scale from local volunteering activities to free to access community festivals. These events can improve community cohesion and targeted events at particular groups can help break down common barriers to accessing green spaces. Other initiatives can also people explore other aspects of the borough's GI, such as a led street tree walk[117]. The larger parks in the borough also act as venues for major paid entry events, such as the British Summer Time concerts, Winter Wonderland in Hyde Park or theatre events in Regent's Park[118]. These events, as well as attracting additional visitors to the borough, generate immediate revenues which can be used to invest in park maintenance and improvements.

Drivers and Issues

Inequality and Deprivation

6.18 Despite the strength of the local economy, there are marked inequalities in the distribution of this prosperity across the borough. A high concentration of deprivation is evident in the north west of the borough, exacerbated by the effects of COVID-19 and the cost-of-living crisis. This pattern closely mirrors areas where there is less access to green space and is reflective of a general pattern of deprived areas having less access to green space across the UK[119] with 46% of people from low income households (less than £15,000) having access to green space within a 5 minute walk compared to 70% of households with an income of over £35,000[120]. This pattern also applies to access to green streets and good walking routes and the green spaces which are accessible are likely to be of poorer quality.

Heritage Risks

6.19 Green spaces form a key part of the historic environment, and enhancements to them have potential to benefit both their heritage and their GI value. However, new GI works could potentially come into conflict with heritage requirements if they cause physical or setting change which harmed aspects of the significance of heritage assets. For example, introducing substantial new large-scale vegetation cover into a designed landscape historically of a parkland character could undermine its heritage values. Proposals for GI works should be based on an understanding of their heritage context and the ways in which each potential GI location contributes to the significance of the heritage assets which might be affected. However, this approach should be balanced by the requirement for bold interventions to help address the climate emergency as well as the pressures of a growing population.

6.20 Climate change is a key, existential threat to many aspects of the historic environment, and well-considered GI has the potential to play a substantial role in mitigating its effects. The balance of harm and benefit should be considered in scenarios where this issue is relevant.

[116] Ambitious plans will reinvent the nation's high street and boost London's recovery | Westminster City Council
[117] A Street Tree Walk from Victoria to Pimlico - SouthWestFest
[118] The Barber of Seville - Opera Brava - The Regent's Park - The Royal Parks
[119] Out-of-Bounds-equity-in-access-to-urban-nature.pdf (groundwork.org.uk),
[120] ramblers-access-nature-11.pdf

Figure 6.3: Shopping centres and active travel
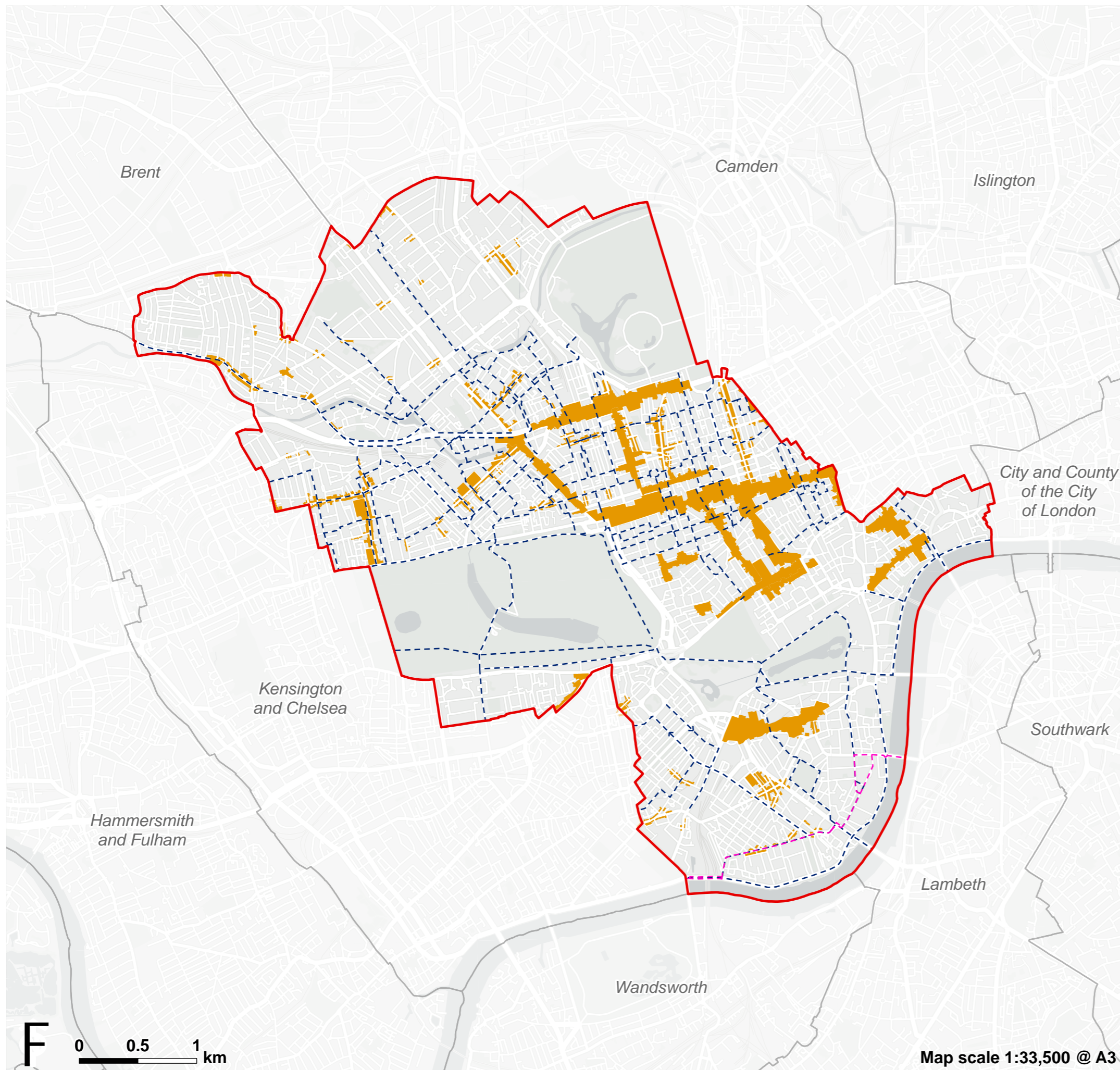
City of Westminster boundary
Neighbouring London borough
Shopping centre
National Cycle Network
TFL cycle route

Brent
Camden
Islington
City and County of the City of London
Kensington and Chelsea
Southwark
Hammersmith and Fulham
Lambeth
Wandsworth

0   0.5   1 km

Map scale 1:33,500 @ A3

Summary of findings from the online public consultation hub

Findings from the online survey indicate that the perceived quality of community garden and allotment provision in the borough was generally lower than for other GI typologies, with over 60% of respondents rating these parts of the network as 'weak'. Some of the responses highlighted that they were unaware of any food growing opportunities beyond private gardens. The importance of equality in access to GI and open spaces was also emphasised. 30% of respondents reported a lack of access to any kind of private outdoor space. Balconies and terraces were the most common type of outdoor space (34%), followed by communal gardens (29%) and private gardens (26%). No respondents reported having access to private allotments.
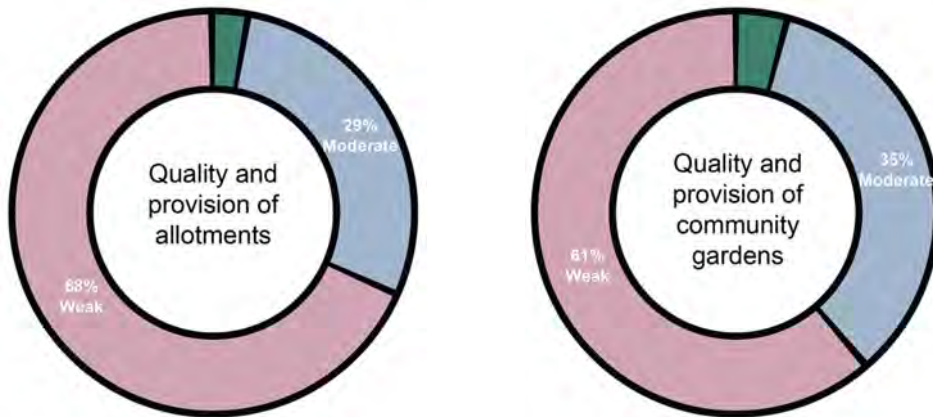
Development Pressures and Land Ownership

6.21 The integration of GI into new development is one of the key delivery mechanisms for new GI, however there is a juxtaposition of challenges in the borough with lower property values in the north reducing development profitability and high land values in the centre and south increasing the cost of development. Both of these issues provide challenges to the viability of integrating good quality GI within new development. The requirement for developers to provide at least 35% affordable housing in this context provides additional viability challenges to GI delivery and these affordable housing allocations are often delivered offsite.

6.22 Land ownership in Westminster is likely to be a barrier to the delivery of GI, particularly in terms of consistent permeability across the urban fabric. Whilst some of the larger landowners have shown willingness to proactively promote the delivery of new GI in the borough through their participation in Wild West End, many of the allocated sites within the City Plan are beyond the boundary of the West End area and landowners are less likely to provide leisure development or open space if other development is more profitable.

Decline of High Streets

6.23 Westminster has 27 major high streets and 38 smaller local centres[121]. In line with a general national trend, high streets in all areas of the borough are experiencing wider economic challenges, particularly effected are retail and hospitality businesses due to the slow recovery of footfall after the COVID-19 pandemic, particularly during the day and mid-week, and intensified by the rise of online shopping and a reduction in disposable income. Poor air quality and the overall quality of the public realm, including pedestrian accessibility have reduced the attractiveness of high streets across the borough[122].

Safety

6.24 Safety has been reported as a key concern in the use of some of the borough's existing parks and green spaces, with women and girls in particular reporting feeling unsafe in these spaces (see **Theme 2 - Active and Healthy Places**). These perceptions affect the positive use of these spaces for health and wellbeing and community cohesion. Poor visibility and lighting of parks and green spaces can contribute to perceptions of safety as can poor maintenance or a lack of active management.

Green spaces as Venues

6.25 Hosting of major events in green spaces can have negative access and environmental impacts. The creation of litter and noise can negatively affect biodiversity through concentrated

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[121] Westminster High Streets Programme | Westminster City Council

[122] A plan for a Fairer Economy | Westminster City Council

trampling of important habitats in event spaces. Trees within open spaces, which can comprise important natural heritage assets in themselves, can also be negatively impacted by heavy footfall and recreational use, resulting in increased need for protection and mitigation measures. Events also involve the closure of significant areas green spaces to the wider public for the preparation and running of the event, undermining the use of green spaces as community meeting spaces. This has been recognised as an issue in the City Plan and Westminster Open Spaces and Biodiversity Strategy which both identify the need to carefully balance the type, duration and location of events within the park to bring economic benefits while not jeopardising wider public enjoyment of them or negative environmental impacts.

Summary of consultation responses

- Declining funding sources was highlighted as a key barrier in delivering GI.

- Poor maintenance of some existing green spaces within the borough was noted, particularly in relation to the Marylebone Low Emissions Zone where provisions were not effective in maintaining new areas of GI. The general consensus was that greater funding is required to ensure the upkeep of such spaces, as well as the potential for appropriately sited street furniture.

- It was noted that GI provision within new developments is often inaccessible for the general public or semi-private e.g. green roofs.

- The Oxford Street and Regent Street Greening Programmes, aimed at introducing urban greening interventions, were highlighted as good examples of GI delivery in a constrained urban setting.

Current Initiatives

Table 6.1: Relevant GI initiatives within Westminster

Initiative	Description
Wild West End	Wild West End is a partnership between the West End's largest property owners, BIDs and other strategic partners including the London Wildlife Trust and the GLA to improve the natural environment within the area, and create better connections between people and nature. The partnership has delivered significant numbers of green roofs and streets as well as new smaller open spaces, planters and pocket parks as well as habitat features such as bat and bird boxes to support protected species.
BIDs	Several BIDs are investing in new public realm schemes which incorporate street greening, rain gardens and other GI, including: - Marble Arch Public Realm (Marble Arch BID) - Raingardens at the Marylebone flyover (Marble Arch BID) - Great Portland Estate's Hanover Square redevelopment (The New West End Company) - Refurbishment of Christchurch Gardens (Victoria BID) - The Arc (Victoria BID) - King's Scholar's Passage (Victoria BID) - The John Lewis Raingarden (Victoria BID) - The Diamond Garden (Victoria BID) - RHS 2016 Chelsea flower show garden and parklets (Victoria BID) - The Rubens at the Palace Hotel living wall (Victoria BID) - Evergreen Embankment green wall (Northbank BID)

Initiative	Description
	◼ George's Park (Baker Street Quarter BID) ◼ St Martin's Lane – Improved green space (Heart of London BID) ◼ Haymarket District – improved green space (Heart of London BID) ◼ Piccadilly gateway (Heart of London BID) BIDs also have an important role to play in the maintenance of existing public realm.
Ebury Bridge Estate Regeneration[123]	Full redevelopment of existing estate and provision of 780 new homes including reprovision of Council homes and an additional 159 affordable homes. The development will also include a community hub, nursery, fitness centre, retail units and workspace. Creation of five new large public squares providing an attraction for residents and visitors, recognising the popularity of the existing green space and integrating a variety of green and blue spaces. The design will consider perceptions of spaces in order to overcome existing barriers to use.
Darwin House Regeneration[124]	Development of site of former Balmoral Castle Pub to provide 34 new community supported homes and 18 new affordable homes for local residents. The development includes a new landscaped green space for residents and improved green space for the whole community to access.
Church Street Regeneration[125]	Major regeneration scheme providing 1,750 new homes, community services, green and pedestrianised spaces. Includes the development of a 'Green Spine', completed in August 2022; a new park which links Lisson Gardens, Broadley Gardens and Church Street with new Luton Street development. The park was designed to provide facilities for a range of people and provide a safer environment. A second phase of the

Initiative	Description
	green spine will connect the northern sections of the new development extending up to Regent's Canal. This is currently at concept design stage.
Westminster High Streets Programme	Programme aimed at supporting and revitalising highstreets in Westminster to make them more resilient, vibrant and diverse and ensure that the types and use of spaces meets the needs of local communities. Extensive consultation was undertaken over the summer of 2023 to identify community priorities. The initial three years of the programme will focus on a cluster of high streets around Paddington and Bayswater and involve community engagement and co-creation of proposals. One theme of the programme 'inclusive, safe, sustainable places' incorporates accessibility and sustainability of high streets including enhanced public realm and street greening.
Place-shaping team projects	WCC place-shaping team are responsible for the delivery of the 'Green Spine', Greening Westminster Fund and the High Streets programme. In addition to this, place making projects which incorporate elements of GI are also underway at; ◼ Paddington, including works to Paddington Green and St Mary's Churchyard, as part of the Paddington Public Ream Strategy, to improve the connectivity of these important heritage assets to the surrounding area. This will also involve the activation of these spaces and encouraging their use through the integration of play and education. ◼ Covent Garden where a framework has been developed to protect and improve the public realm in this thriving area of Westminster. This includes the improvement of links and sustainable travel to surrounding areas, enhancing the public realm and the setting of key

[123] Ebury Bridge
[124] Darwin House | Westminster City Council
[125] Green Spine | Church Street

Initiative	Description
	heritage assets in the area and enhancing the functionality of green spaces in the area.
	■ Victoria
	■ Pimlico
	■ Soho
	■ Strand Aldwych
	■ Thames Riverfront

Chapter 7
Theme 4 – Improved Water Management

This theme examines how Westminster's network of watercourses, waterbodies and sustainable drainage systems provide nature-based solutions to issues such as flooding and water quality, as well as biodiverse habitats.

Introduction

7.1   The term 'blue infrastructure' encompasses various natural water assets like ponds, lakes, streams, rivers, and stormwater systems. These resources are susceptible to climate change effects such as increased flood risk, drought events, water quality degradation, and physical alterations like underground or canalisation. GI plays a crucial role in alleviating these challenges by enabling natural water infiltration. This, in turn, provides multiple ecosystem services, including reducing flood risk, enhancing water quality, and bolstering resilience to extreme weather events. Moreover, GI offers recreational, biodiversity, and economic benefits.

7.2   In light of these considerations, WCC is proactively addressing flood risk using a strategic approach that aligns with the London Plan and City Plan policies. This response is also informed by recommendations arising from the July 2021 flood events. WCC is currently exploring opportunities to strategically incorporate SuDS to enhance public resilience and reduce surface water flood risk. This includes the development of guidance and procedures for planning applications, emphasising the importance of comprehensive flood risk assessments and drainage strategies that account for all sources of flood risk, with a particular focus on SuDS. The exploratory work has identified 14 catchment areas where there is surface water flood risk and where SuDS could be integrated to reduce this. funding is currently being sought to deliver a SuDS investment programme with priority areas identified through a scoring process using criteria such as areas where there is both high flood risk and high levels of

deprivation. The programme will involve both retrofit projects and the integration of SuDS into new projects such as road or public realm works. Opportunities to integrate projects into reactive maintenance schemes will also be explored. Additionally, WCC is in the process of updating its Local Flood Risk Management Strategy (LFRMS) to align with current policies and address local needs in flood risk management. Continuous monitoring and periodic reviews are part of this ongoing effort.

Targets

National

7.3   The **25-Year Environment Plan** for England aims to manage water resources sustainably and enhance water quality in natural environments for future generations. Key ambitions included reducing pollution from agriculture and urban areas, adopting a natural capital approach, encouraging catchment-based approaches, and balancing environmental, agricultural, industrial, and public water supply needs. Legally binding targets of the Plan, taken forward in the **2021 Environment Act**, that relate to water management are:

- Mandate that water companies must secure a reduction in the adverse impacts of discharges from storm overflows;

- Halve the length of rivers polluted by harmful metals from abandoned mines by 2038, against a baseline of around 1,500km;

- Reduce nitrogen (N), phosphorus (P) and sediment pollution from agriculture into the water environment by at least 40% by 2038, compared to a 2018 baseline;

- Reduce phosphorus loadings from treated wastewater by 80% by 2038 against a 2020 baseline;

- Reduce the use of public water supply in England per head of population by 20% from the 2019/2020 baseline reporting year figures, by the end of the reporting year 2037/2038; and

- Reduce residual waste (excluding major mineral wastes) kg per capita by 50% by 2042 from 2019 levels.

7.4   Additionally, the **2023 Environmental Improvement Plan** includes the following targets:

- Restore 75% of water bodies to good ecological status;

- Water companies to cut leaks by 50% by 2050;

- Require water companies to have eliminated all adverse ecological impact from sewage discharges at all sensitive sites by 2035, and at all other overflows by 2050; and

- Target a level of resilience to drought so that emergency measures are needed only once in 500-years.

7.5   To deliver the EIP targets, the **2023 Plan for Water** commits the UK government to:

- Transform management of the whole water system, following a catchment approach. Example of actions include: producing long-term catchment plans that set out the key issues and priorities for action, including priorities identified in Local Nature Recovery Strategies; align water and flood planning with Local Nature Recovery Strategies and the future Land Use Framework; expand penalties to include a wider range of environmental offences.

- Deliver a clean water environment for nature and people, addressing each of the pressures and sources of pollution on our water bodies. Example of actions include: consider how planning policy can promote local design decisions that reduce surface water flooding and water scarcity through, for example, dual pipe systems and water reuse options; explore targeted action on roads managed by local authority highways agencies where evidence shows transport pollution is preventing a water body from achieving good ecological status.

- Secure a plentiful supply of water – close the 4 billion litre a day supply-demand gap in public water supply. Example of actions include: ensure that new water supply resources infrastructure projects, like reservoirs, deliver 'biodiversity net gain'; require standardised sustainable drainage systems for new developments.

7.6 Lastly, it is worth noting that the **Water and Flood Management Act 2010**, Schedule 3[126], is currently under review with the aim of making SuDS mandatory for developments, expected to include projects with ten or more dwellings. Defra is scheduled to open consultations on this matter in 2023.

Regional (city-wide)

7.7 Chapter 9 of the **Sustainable Infrastructure of the London Plan 2021** includes *Policy SI 5 Water infrastructure*, listing targets:

■ Development Plans should promote improvements to water supply infrastructure to contribute to security of supply.

■ Development proposals should:

– Achieve mains water consumption of 105 litres or less per head per day;

– Achieve at least the BREEAM excellent standard for the 'Wat 01' water category or equivalent (commercial development);

– Incorporate measures such as smart metering, water saving and recycling measures, including retrofitting;

– Promote the protection and improvement of the water environment in line with the Thames River Basin Management Plan, and should take account of Catchment Plans; and

– Support wastewater treatment infrastructure investment. Boroughs should work with Thames Water in relation to local wastewater infrastructure requirements.

7.8 Additionally, *Policy SI 13 Sustainable drainage* includes relevant water-related targets such as:

■ Development proposals should aim to use rainwater as a resource (for example rainwater harvesting, blue roofs for irrigation);

■ Drainage should be designed and implemented in ways that promote multiple benefits including increased water use efficiency, improved water quality, enhanced biodiversity, etc.;

■ All new developments should utilise SuDS unless there are practical reasons for not doing so and should aim to achieve greenfield run-off rates and ensure that surface water run-off is managed as close to its source as possible;

7.9 And *Policy SI 17 Protecting and enhancing London's waterways* states that:

■ Development Plans should support river restoration and biodiversity improvements; and

■ Development proposals that facilitate river restoration and adjacent terrestrial habitats, water quality as well as heritage value, should be supported.

7.10 The **London Environment Strategy**, includes *Box 19 Water quality in London's rivers – pathways to improvement* where the Mayor is promoting:

■ Integrated Water Management Strategies (IWMSs) (Proposal 8.2.1.c);

■ Infrastructure expansion: improving and expanding existing sewerage infrastructure to reduce the amount of water pollution discharged to our waterways (Policy 8.2.4);

■ Addressing misconnections (Proposal 8.2.4.b);

■ GI can help prevent water pollution by retaining sediments, taking up pollutants and intercepting rainfall. Reedbeds help address the problem of nutrient pollution in water (Policy 5.1.1 and Policy 5.1.2);

■ SuDS: SuDS can provide a number of water quality benefits in addition to their water quantity, biodiversity and amenity benefits (Policy 5.1.1 and Policy 8.2.3); and

■ River restoration: working at the catchment scale, river and wetland restoration are strategies for improving river and stream habitats and improving water quality (Proposal 5.2.1.c).

7.11 The **London's Sustainable Drainage Action Plan**[127] relates to the improvement of the public realm through management that aims to improve water infiltration using GI. Its main

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[126] Sustainable drainage systems review - GOV.UK (www.gov.uk)

[127] London Sustainable Drainage Action Plan | London City Hall

focus is on the retrofitting of sustainable drainage to existing buildings, land and infrastructure. SuDS still remain as a solution that can help with flood alleviation, especially in Zones of higher risk.

7.12 The **2009 London Rivers Action Plan**[128] acknowledges the vital role rivers play in London's ecosystem and the well-being of its residents. The plan recognises that London's waterbodies, including rivers, have faced challenges like pollution and habitat degradation over the years. To address these issues, the plan adopts a catchment-based approach. Relevant catchment management plans, such as those for the Thames River and its tributaries, provide valuable insights and collaborative efforts for improving water quality, enhancing ecosystems, and protecting against climate change impacts. Overall, the plan envisions a London where its rivers are cleaner, more biodiverse, and better prepared for the environmental challenges of the future. As a result, London rivers have benefited from extensive river restoration, which exceeded the London Plan's target to restore 15km of London rivers by 2015[129].

7.13 The **London Lea Catchment Action Plan**[130] is a strategic document that outlines a framework for the management and conservation of the Lea River catchment area, which includes the City of Westminster. This plan is developed in collaboration with various stakeholders, including local authorities, environmental organisations, and community groups, It includes objectives and targets around three priority areas:

- Water Quality Improvement: Implement measures to reduce pollution from various sources, such as industry, agriculture, and urban runoff, to enhance water quality in the Lea River and its tributaries;

- Climate resilience;

- Biodiversity and habitats; and

- Community engagement.

Borough

7.14 **WCC Environment Policy** defines three overarching objectives:

- Prevent water pollution

- Cut down on the amount of water usage

- Residential development should meet the optional water efficiency requirement of 105 litres or less per person/day in line with Policy SI5 of the London Plan.

7.15 In accordance with **Westminster City Plan - Policy 35J** all development proposals are mandated to include SuDS to mitigate and control surface water flood risk. **Policy 34B**, focusing on GI, similarly requires developments to actively participate in the enhancement of Westminster's greenery by integrating elements such as trees, green walls, green roofs, rain gardens, and other green amenities and areas, whenever feasible.

7.16 The **2023 Strategic Flood Risk Assessment**[131] assesses flooding sources, considers climate change impacts, and evaluates the effects of land use changes and development on flood risk. It aligns with the National Planning Policy Framework (NPPF) to support Westminster's City Plan and inform planning decisions, updating the previous SFRA with lessons from the July 2021 floods and new data. Westminster's commitment to balanced growth, resource efficiency, and heritage preservation necessitates innovative land use policies, with the SFRA playing a key role in supporting these objectives within the City Plan. The SFRA was prepared in collaboration with various stakeholders, including the Environment Agency and the Greater London Authority, to ensure a comprehensive assessment of flood risk in the area.

Key Assets

Blue Infrastructure

7.17 Blue infrastructure refers to the water elements in the borough, both natural —such as rivers, ponds, wetlands, floodplains — and human-made—such as canals and water treatment facilities. Westminster counts with the following blue assets (**Figure 7.1**):

- Watercourses: there are over 1.5km of rivers and canal, which correspond to the River Thames, Regent's Canal and Grand Union Canals. Westminster's location adjacent to the River Thames holds profound historical and cultural significance, offering scenic and

128 The London Rivers Action Plan 2009
129 https://www.thames21.org.uk/2016/06/milestone-exceeded-in-restoring-londons-rivers/
130 London Lea Catchment Partnership - Thames21
131 SFRA Report (3).pdf (westminster.gov.uk)

Figure 7.1: Blue Network
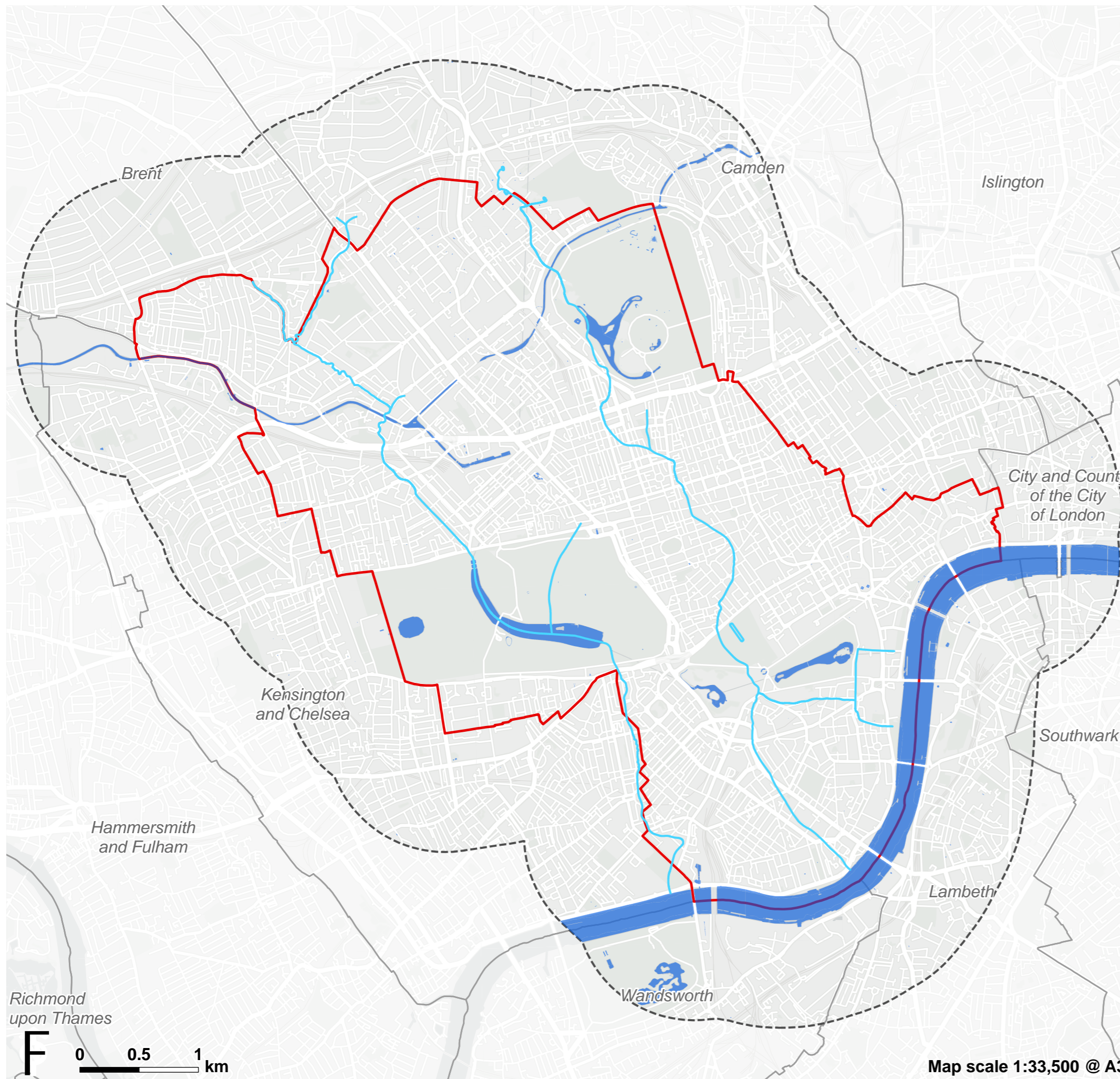
City of Westminster boundary
City of Westminster 1km buffer
Neighbouring London borough
Blue cover (ndvi 0.1)
Lost river

Brent
Camden
Islington
City and County of the City of London
Kensington and Chelsea
Southwark
Hammersmith and Fulham
Lambeth
Richmond upon Thames
Wandsworth

0   0.5   1 km

Map scale 1:33,500 @ A3

EB:shayler_h
LUC 12403_000_MainReportMaps 21/11/2023

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leisure opportunities along the riverbanks. It plays a role in transportation and commerce, while also posing flood risk management challenges that require ongoing attention.

- Additionally, there are five 'lost rivers', the Westbourne, Tyburn, Tyburn Brook, Kilbourne and Long Ditch, which have been historically culverted and now form part of the combined sewer network (see heading 'Lost Rivers').

- Westminster boasts a variety of canals and water bodies, including the Paddington Branch of the Grand Union Canal (encompassing Paddington Basin and Little Venice), the Regent's Canal, Serpentine Hyde Park (Reservoir), the Boating Lake in Regents Park, St James's Park Lake, and Long Water and the Italian gardens in Kensington Gardens and Hyde Park. These correspond to approximately 43 ha of inland water cover, which are within SINC sites. These waterbodies provide convenient routes for walking, cycling, and boating, contributing to the area's accessibility and providing recreational opportunities such as canal-side dining and waterside walks. Canal towpaths provide a good opportunity to improve active travel provision but many of these are in varying quality. The Canal and River's Trust is leading projects in the borough to try and address this, for example the Paddington to West Drayton cycle way, will transform 16 miles of canal towpath to provide better quality surfaces, wider paths, improved access points and new signs to improve the accessibility of these routes.

Summary of findings from the online public consultation hub

The findings of the online survey indicated that respondents attributed a high degree of value to waterways and canals, with over 78% of participants rating the provision and quality of this part of the GI network as 'strong' or 'moderate'. However, the potential for improvements to canal access was noted, particularly in relation to towpath infrastructure and cleanliness. The issues of water quality or flooding were not specifically identified within any of the responses.

SuDS and Rain Gardens

7.18 Surface water, sometimes associated with sewer flooding, is a recognised source of flood risk within Westminster[132]. A naturalised-surface level SuDS refers to a water management approach that mimics or incorporates natural processes and features into urban areas to control and treat rainwater runoff (SuDS can also include engineered systems and subsurface solutions). Examples of naturalised-surface level SuDS include swales, vegetated channels, rain gardens, or ponds with natural vegetation and substrates. Additionally, SuDS encompass both new installations integrated into urban development and retrofitted solutions designed to manage and mitigate stormwater runoff in an environmentally sustainable manner. These features help slow down, filter, and store rainwater runoff, allowing it to be absorbed into the ground or released at a controlled rate.

7.19 In Westminster, the use of SuDS is part of an effort to address urban drainage and flooding issues. Westminster counts with several SuDS retrofit initiatives, including SuDS designed for bioretention, and education purposes. The Drain London Partnership has helped fund several of these projects, demonstrating good practice for retrofitting SuDS so they can be

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[132] Strategic Flood Risk Assessment, 2023.

cost-effective, can improve the way an area looks, and benefit wildlife[133]. SuDS are a key strategy to address flood issues, especially in areas with spatial constraints, such as the Portman Estate, which previously relied on building modifications to mitigate flood-related problems. The location of current SuDS projects can be tracked at London's Retrofit SuDS Map[134].

7.20 Additionally, in a dense urban centre like Westminster, the integration of BNG and SuDS can yield significant environmental and sustainability benefits. BNG encourages the incorporation of GI, permeable surfaces, and vegetated features to promote biodiversity. When combined with SuDS, these elements help manage stormwater, enhance water quality, and create habitats for various species. The design of natural water bodies, public spaces, and the aesthetic appeal of urban areas can be optimised to balance ecological improvements with urban functionality. An example of this is the Queens Park Canalside proposals, which is expected to enable green streets in vicinity, reduce of car use, reduce in tarmac and replacement with SuDS[135].

Lost Rivers

7.21 Westminster, like many areas of central London, has several lost rivers that once flowed through the area, which have been historically culverted and now form part of the combined sewer network. Some of the notable lost rivers in Westminster include:

- The Tyburn was one of the most significant rivers in medieval London. It flowed through what is now Westminster and entered the Thames near Vauxhall Bridge. The river has been culverted and incorporated into London's sewer system.

- The Westbourne River originated in the West Hampstead area and flowed through what is now Paddington and Bayswater before entering the Thames in Chelsea. It has also been culverted and is now part of the sewer system. The Serpentine, was formed in Hyde Park

in 1730 by the damming of the Westbourne, although nowadays the Serpentine is supplied from water pumped from other sources.

- While the main course of the River Fleet ran further east, its tributaries extended into parts of Westminster. The Fleet River is one of London's most famous lost rivers and has been completely culverted.

7.22 The restoration of lost rivers presents a unique opportunity to revive a crucial part of the city's historical, cultural, and ecological heritage. Beyond their historical significance, these restoration efforts offer numerous advantages, including enhanced biodiversity, climate resilience through natural flood management, and urban cooling through the creation of green corridors. These restored rivers can connect with other blue assets and wetland habitats, fostering habitat connectivity and providing valuable cultural and recreational spaces.

7.23 There have been efforts to uncover and restore lost rivers in various parts of London in recognition of the multiple benefits that natural watercourses bring to urban environments. Case studies include the Lost Effra SuDS project[136] and the Ravensbourne River Corridor[137].

[133] The Drain London Partnership | London City Hall
[134] London Retrofit SuDS Map, available at London Retrofit SuDS Map
[135] https://www.westminster.gov.uk/media/document/queens-park-canalside-proposals
[136] Lost Effra case study: https://www.london.gov.uk/programmes-strategies/environment-and-climate-change/climate-change/climate-adaptation/surface-water-flooding/lost-effra-suds-projects?ac-39569=39564

[137] The Ravensbourne River Corridor Improvement Plan is available at https://narrativesofwater.files.wordpress.com/2016/09/ravensbourne_river_corridor_improvement_plan_-newformat_feb-2012.pdf

Drivers and Issues

Dealing with Water Quality and Algal Blooms

7.24 Climate change, combined with nutrient over-enrichment from sewage, has been linked with more frequent and severe episodes of algal blooms[138]. The harmful effect of these episodes include fish kills, dog deaths, higher water treatment costs and loss of recreational access.

7.25 In Westminster and throughout London, there are initiatives that are actively addressing water quality improvements in the River Thames and its surrounding waterways, such as:

- The Thames Tideway Tunnel project is a major infrastructure project to prevent untreated sewage overflow into the river during rainfall events, significantly enhancing water quality.

- SuDS are being integrated into urban planning to manage stormwater runoff effectively, reducing pollution inputs. GI and river restoration projects further contribute to cleaner water bodies. More details in the headlines below.

7.26 Community engagement also play vital roles in preserving and improving water quality in Westminster. Examples of these projects and organisations include:

- Thames21 is an environmental charity that frequently engages local communities in river and canal cleanup events, monitoring water quality, and habitat restoration along the River Thames and its tributaries.

- Friends of the Regent's Canal is a community group that focuses on preserving and enhancing the Regent's Canal. They organise cleanup activities, wildlife conservation efforts, and educational events for local residents.

- London Waterkeeper is dedicated to protecting and restoring London's waterways, including the River Thames.

- Canal and River Trust: This national charity oversees many waterways in London, including the Grand Union Canal, Regent's Canal, and Paddington Basin.

7.27 Monitoring water quality remains an essential activity to water quality management. The Environment Agency Water Quality Sampling Sites (or Open WIMS) provide frequently updated water quality data on sample sites across England[139]. Westminster counts with several sampling points, including bathing water in the Serpentine and Fitzroy Bridge (Grand Union Canal). Collation of water quality information with relevant hydrology, habitat and utilities spatial data could usefully inform the development of strategic nature recovery for the borough and the wider LNRS.

Water Availability

7.28 Climate change and population growth is putting increasing pressure on the water supply system. Climate change projections forecast hotter, drier summers and warmer, wetted winters in the UK, increasing the risk of extreme drought and flood events. Due to the high population density and drier climate, the south east of England is already classed as a water stressed region and is likely to be one of the first to experience water shortages[140].

7.29 Issues related to water availability in London are managed by multiple entities, with Thames Water as the primary water services provider responsible for supply and distribution, and the Environment Agency as the regulator of water resources, environmental protection, and water quality in the Thames River Basin. Additionally, the Mayor of London's office sets policies for environmental sustainability and climate adaptation, and the London Resilience Forum (which includes representatives from water companies, local authorities, and other agencies) coordinate responses to water-related emergencies, such as droughts or floods. Overall, matter of water availability extends beyond the jurisdiction of LPAs, but it is a responsibility that each LPA must tackle and enhance collectively.

[138] New research into the impacts of climate change on harmful algal blooms in lakes | UK Centre for Ecology & Hydrology (ceh.ac.uk)
[139] Open WIMS data available at: https://environment.data.gov.uk/water-quality/view/landing

[140] Westminster, water supply resilience and climate change: a POSTbrief for parliamentarians (aboutdrought.info)

Flood Risk Management

7.30 In Westminster, flood risk originates from three primary sources: fluvial and tidal flooding from the River Thames, surface water flooding, and flooding from sewers.

7.31 Fluvial and tidal flood risk, despite the presence of the Thames Barrier and defences, still carries residual risks. Westminster, located along the River Thames, confronts flood risk during heavy rainfall and storm surges, leading to river and surface water flooding. Historical floods, such as those in 1928 and 1953, led to overtopping defences, while more recent flash floods affected places like Victoria Station in 2007 and 2009[141]. Collaborative flood risk management efforts are carried out with neighbouring boroughs, the Environment Agency, and relevant agencies to ensure a coordinated response.

7.32 Flood zones in Westminster are categorised into three levels: Zone 1, with the lowest flood probability covering most of the borough; Zone 2, with a medium probability of flooding; and Zone 3, with the highest probability, including the floodplain. Flood Zone 3 encompasses 17% of Westminster, including well-established residential and commercial areas like Pimlico, Millbank, Victoria, and Whitehall. The majority (82.5%) falls under Flood Zone 1, with only a small fraction (0.5%) in Flood Zone 2. The Thames Estuary 2100 plan addresses flood risk management, climate change challenges, and sea-level rise, with recent updates emphasising earlier deadlines for flood defence upgrades and the benefits of managing tidal flood risk.

7.33 Overall, fluvial and tidal flooding risks are effectively managed by existing defences, surface water and sewer flooding present more immediate and growing concerns due to urbanisation and the potential impacts of climate change. Surface water flooding, mainly due to intense rainfall exceeding drainage capacity, is the most probable cause of flooding in Westminster. All parts of Westminster are susceptible to some degree of surface water flooding, with low-lying areas facing a greater risk. Developments with large roof areas, low-lying land, and basement dwellings are particularly vulnerable. Climate change is expected to increase the intensity of extreme rainfall, heightening the risk of surface water flooding.

Addressing Inequitable Flooding Impacts

7.34 More recent spatial analysis of Climate Risk Across Greater London[142] have been produced to help identify that are most exposed to climate impacts and have high concentrations of vulnerable populations, aiming to inform equitable responses and resource allocation to support communities at the highest risk (**Figure 7.2**). This map helps assess the spatial distribution of risk factors across Westminster to support informed decisions to help vulnerable populations through the allocation of resources. The areas towards the north-west of the borough are the ones where more vulnerable population will be affected by the risk of flooding.

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[141] Draft Surface Management Plan 2011, available at https://www.westminster.gov.uk/media/document/en-env-012---draft-surface-water-management-plan

[142] Spatial analysis of Climate Risk Across Greater London, available at: https://data.london.gov.uk/dataset/climate-risk-mapping

Figure 7.2: Flooding Climate Risk map, produced as part of the Climate Risk spatial analysis. Dark red indicates higher risk, dark blue indicates lower risk.
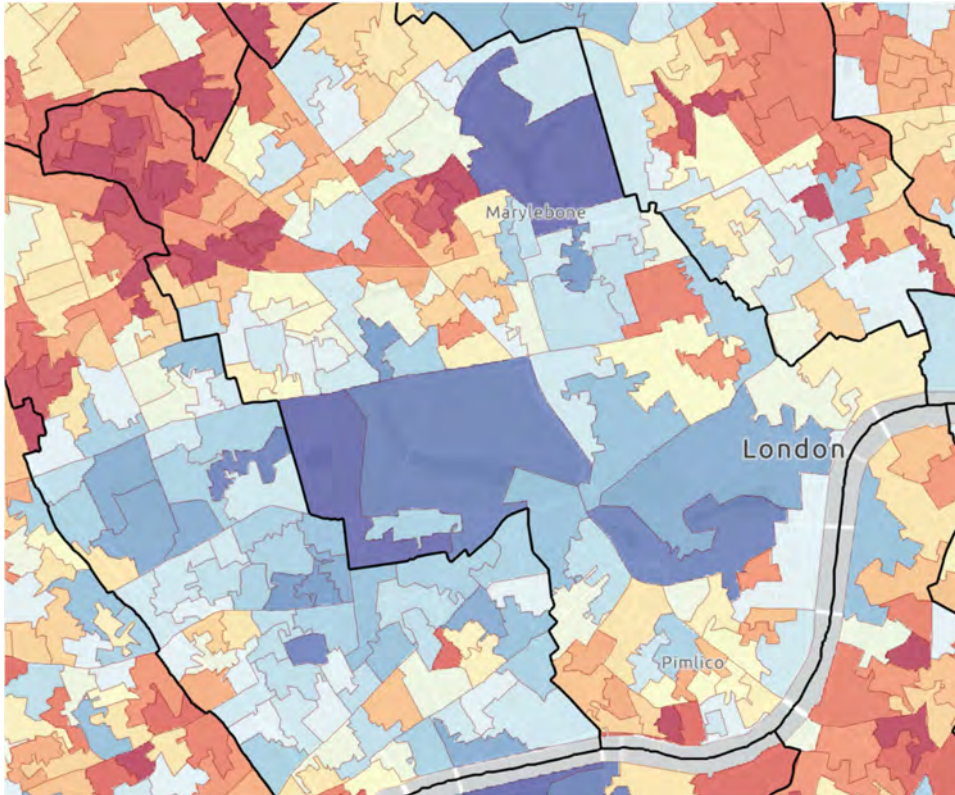
Trees To Address Flooding

7.35 Trees have the capacity to reduce the volume of surface water run-off (through interception in the canopy when in leaf) and within soil around their rootzones (when not planted into sealed surfaces). The Working with natural processes to reduce flood risk (WWNP)[143] dataset provides the evidence base for working with natural processes to reduce flood risk in England, allowing an understanding of where interventions aimed to protect and restore the natural functions of catchments, floodplains and rivers can be most effective. This intervention can be a driver for investment in GI where it can be most effective for flood management. Due to the urban density of the borough, the woodland potential areas appear largely restricted to open areas within The Royal Parks. The balance of open space to tree cover within The Royal Parks would be a key consideration for any additional significant tree planting, and may in some instances be incompatible with other site uses or inappropriate in terms of the heritage significance of the site.

7.36 There are several surface water flood risk hotspots in Westminster, some of which are located in areas with low tree cover and a high proportion of sealed surfaces (including in the central / eastern section of the borough) (see **Figure 7.3**). As with most benefits afforded by trees, greater benefits are derived from large canopied, mature trees. In hard landscape settings, tree pits can be designed to maximise the volume of water that can be accepted within the root zones of trees whilst also helping to ensure sufficient rooting volume for the healthy growth of the tree to maturity.

SuDS Catchments

7.37 The SuDS Catchments are the extent of the areas draining towards the areas at significant risk of flooding. Modelled by WSP under the commission of WCC, these SuDS Catchments are based on topography, Thames Water sewer data, outputs from the London Strategic SuDS Pilot Study (LSSPS) and the surface water modelling.

7.38 By strategically enhancing drainage capacity within these SuDS Catchments, there is a potential to significantly mitigate flood risk in these vulnerable areas across the borough. While it is important to acknowledge that areas lying outside of SuDS catchments may still face surface water flooding and stand to gain from SuDS interventions, they are not the immediate focus of attention. However, these areas remain open to future considerations for SuDS implementation, thereby ensuring a comprehensive and adaptable approach to flood risk management. Strategic datasets like this are key for enhancing flood resilience, improve water

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[143] Working with natural processes to reduce flood risk - GOV.UK (www.gov.uk)

LUC

Figure 7.3: Flood risk

Brent

Camden

Islington

City and County
of the City
of London

Southwark

Kensington
and Chelsea

Hammersmith
and Fulham

Lambeth

Richmond
upon Thames

Wandsworth
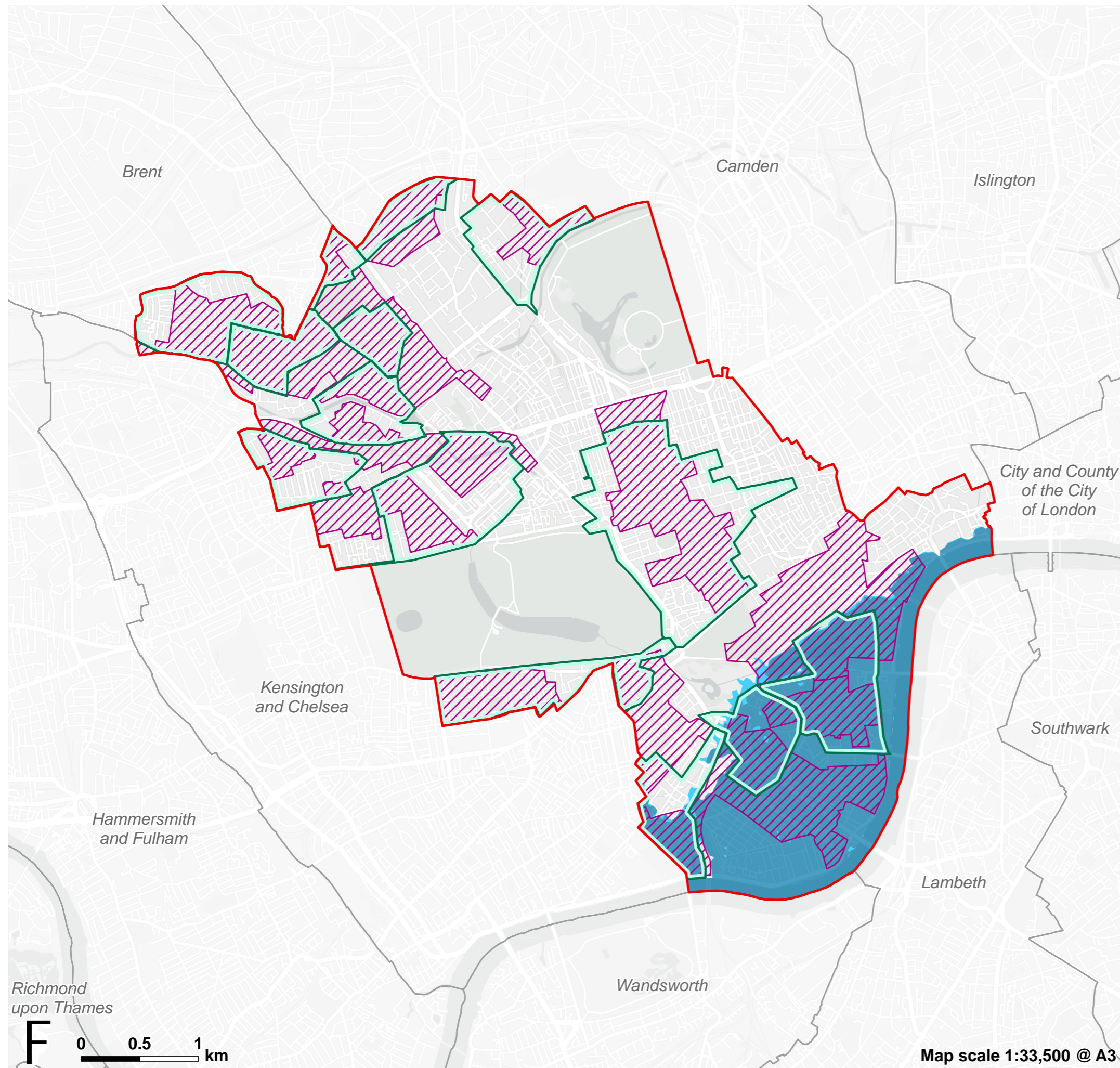
Legend:
- City of Westminster boundary
- Neighbouring London borough
- Flood zone 2
- Flood zone 3
- Surface water floodrisk hotspot
- SUD catchment

0   0.5   1 km
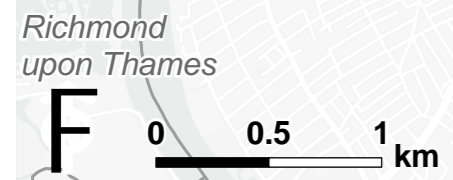
Map scale 1:33,500 @ A3

quality, create more sustainable urban environments, while contributing to the overall well-being of its residents.

River Restoration

7.39 While Westminster has several lost rivers historically culverted into London's sewer network, their restoration holds immense potential for the city's heritage and environmental benefits. As efforts to uncover and revive these rivers have taken place across London, the restoration of lost rivers aligns with a broader initiative in the city. The **2009 London River Restoration Opportunity Mapping**[144], conducted by GiGL, has played a pivotal role in identifying restoration opportunities by assessing hydro-morphological features, floodplain connectivity, and essential river processes. This mapping exercise provided a foundation for river restoration efforts, guiding collaboration and setting the stage for further work, as outlined in the 2009 London Rivers Action Plan[145]. Additionally, the **London River Restoration Group (LRRG),** working on behalf of Catchment Partnerships across London, is actively working to increase annual restoration efforts, using this mapping data to inform discussions on BNG and LNRS, and the multifaceted benefits of restoration. While past initiatives haven not yet focused on Westminster, it presents a unique partnership opportunity for lost river naturalisation within the City.

The Catchment Partnerships in London Group

7.40 The Catchment Partnerships in London group, chaired by Thames21, unites organisations responsible for London's river catchments, actively involved in the Catchment Based Approach. The partnership facilitates mutual support, consistency, and collaboration among stakeholders to address complex environmental issues. The group focuses on connecting London's waterways, tackling urban pollution, restoring urban rivers, and combatting invasive species, striving to enhance water quality, biodiversity, and river ecology.

London Lea Catchment Partnership

7.41 Westminster lies within the Lea Catchment Partnership[146]. As an integral component of the London Lea Catchment Plan[147], the strategy incorporates a spectrum of community-based initiatives provide opportunities for proactive involvement in safeguarding the health and vitality of the London Lea Catchment.

Water-Based Activities

To conclude, it's essential to acknowledge that all the preceding topics, including water quality, flood risk management, and water availability, play a pivotal role in preserving the various water-based activities that thrive in Westminster's blue infrastructure. Studies have shown that greater exposure to these outdoor blue spaces contributes to improved mental health, well-being, and physical activity[148]. In Westminster, water amenities like boat tours, paddleboarding, dinghy sailing, powerboating, kayaking, and canoeing are an integral part of the city's cultural and recreational identity. Recognising the interconnection of these topics highlights the importance of a holistic GI strategy that not only addresses water-related challenges but also promotes the preservation and enhancement of these water-based activities for the wellbeing of the community

[144] London River Restoration Opportunity Mapping - GIGL
[145] The London Rivers Action Plan 2009
[146] https://www.thames21.org.uk/catchment-partnerships/catchment-partnerships-in-london-2/
[147] London Lea Catchment Partnership (arcgis.com)
[148] Outdoor blue spaces, human health and well-being: A systematic review of quantitative studies

Ongoing Initiatives/Projects/Partnerships

Initiative	Description
Drain London Partnership	Established in 2010, the initiative was managed by the Drain London Board and includes projects relating to surface water flood risk and SuDS.
Floating ecosystems	Part of the Queens Park canal side project (Canal & Rivers Trust). Offering opportunities for community engagement and potentially paid roles. Some have however fallen into disrepair or entirely due to a lack of long term funding.
Residential mooring groups	Successful groups deliver roles in greening and maintenance as well as in community cohesion. Examples include the small interlinking gardens around permanent moorings at Maida Vale Tunnel.
Thames21: Thames Pollution Tracker	Part of the overarching Thames21 citizen science program to train and support members of the public in monitoring of the health of the London Lea Catchment. Various delivery partners contribute across the catchment. The Tracker initiative allows citizens to submit records of water pollution for centralised analysis.
Thames21: Thames & Tributaries PlasticBlitz	Annual event for community groups and Environment Agency teams to collaborate in litter collection and data gathering activities along their local rivers.

Initiative	Description
Thames21: Modular River Survey (MoRPh)	The MoRPh survey method assesses the physical habitat and condition of river systems to compare habitat conditions before and after river restoration. Both citizen scientists and environmental professionals can use it to evaluate river health.
Thames21: The Riverfly Monitoring Initiative	A widely adopted aquatic citizen science program in the UK training volunteers to sample and identify key aquatic invertebrates, which serve as indicators of a river's ecological health. Regular monitoring helps detect pollution events and take prompt action to address pollution sources.
Thames21: Outfall Safari	This initiative focuses on surveying outfalls in urban rivers to identify pollution sources caused by sewer misconnections. Citizen scientists play a vital role in monitoring and notifying authorities of pollution sources. Training for Outfall Safari surveys is available through the Zoological Society of London.
Thames21: Action for Healthy Rivers	Thames21 offers training for residents to plan and host events aimed at improving waterways, focused on local knowledge and action. After completing the training, participants can organise their own river action events under Thames21's public liability insurance, using necessary equipment.

Chapter 8
Theme 5 – Resilient and Climate Positive Places

This cross-cutting theme explores how GI can be sensitively and sustainably incorporated into development within Westminster, including appropriate retrofitting into the existing townscape to provide resilient communities of the future.

Introduction

8.1 Climate resilience and climate positive places form a cross cutting consideration that relates to the previous four themes. Actions to expand GI and increase carbon storage (such as through storage within trees and soils) can mitigate against the expected future effects of climate change (such as higher average temperatures and other extreme weather events).

Planning to create liveable neighbourhoods where people can travel sustainably and reduce travel related emissions, also requires consideration of GI and connectivity. Furthermore, the functionality of GI is at risk from the potential effects from climate change and therefore needs to be planned and managed to ensure future resilience. Resilient landscapes are better able to prepare, respond and recover from increased climate risks such as floods, heatwaves or droughts.

Targets

National

8.2   The 2008 Climate Change Act forms the basis of the UK's approach and response to climate change. The act requires a reduction in carbon dioxide emissions and other greenhouse gases (net zero emissions by 2050), including adaptation to climate change risks.

8.3   The Government's 25 year Environment Plan (2018), which paved the way for legally binding targets in the Environment Act (2021), sets out plans for environmental improvements to address climate change. The Environmental Improvement Plan sets out how commitments with the 25 year Environment Plan will be delivered. 'Improving our mitigation to climate change' is one of 10 'goals' that will work towards delivering the apex goal of 'thriving plants and wildlife'. Targets include increases in the extent and quality of a range of habitats to mitigate against climate change and store carbon. This includes funding the restoration of peatland and increasing tree canopy and woodland cover from 14.5% to 16.5% across England by 2050.

8.4   Natural England's GI Framework sets out several standards which relate directly to developing overall resilience to climate impact in urban areas. S4 'Urban Greening Factor Standard' proposes a requirement that at least 40% average green cover in urban residential neighbourhoods where this standard is not already met, and no net loss of green cover in urban neighbourhoods. Urban greening factor standards for development are also proposed, to be applied at the site scale. The GI Framework also advocates for locally defined targets for increased canopy cover and the delivery of tree lined streets.

Regional: Greater London

8.5   The Mayor of London has outlined a target for London to be net zero carbon by 2030. This is intended to be implemented through wide ranging measures; including policies and programmes set out within the London Environment Strategy and other initiatives in the capital, such as the Green New Deal Fund.[149]

8.6   The London Environment Strategy sets out several targets for the period 2018 to 2050 including:

■   London and Londoners will be resilient to severe weather and longer-term climate change impacts, such as flooding, heat risk and drought;

■   London will be the first National Park City, where more than half of its area is green and tree canopy cover will increase by 10 percent; and

■   London will be a zero carbon city – with a zero emission transport network and zero carbon buildings.

Borough

8.7   Westminster's Climate Emergency Action Plan sets out an ambitious target of achieving net zero emissions across the borough by 2040. Goals and targets are arranged under five themes (see **Figure 8.1**); 'efficient buildings', 'clean and affordable energy', 'sustainable travel and transport', 'reduced consumption and waste' and 'green and resilient city'. A key priority is to 'ensure the city is resilient to climate change impacts'.

Figure 8.1: Climate Emergency Action Plan priorities

8.8   Goals and Actions are wide ranging and have been highlighted as part of the previous themes where relevant. This includes actions for the delivery of GI interventions, strategy development and engagement such as 'engaging and enabling residents and organisations to understand and increase their resilience to local climate impacts and extreme weather events'. They also include a commitment to creating a new Public Realm SPD which will provide guidance on greening within public realm schemes to ensure carbon sinks are enhanced and they provide climate resilience benefits.

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[149] https://www.london.gov.uk/programmes-strategies/environment-and-climate-change/climate-change/zero-carbon-london/green-new-deal-fund

8.9 Several actions within Westminster's Climate Emergency Action Plan align with GLA targets such as to 'Maintain, plant and protect council trees to support a long-term increase in tree canopy cover, targeting a 10% increase of existing cover by 2050 (in accordance with GLA Targets).

Key Assets

Integrated GI Network

8.10 The in-combination effect of well designed, managed and connected GI networks is to develop more resilient and climate adaptive places. All assets discussed in the previous themes should therefore be considered as integral to resilient and climate positive places.

Canopy Cover

8.11 As set out in **Chapter 1**, trees have a major role in mitigating and adapting to climate change including through local climate regulation; providing shade and reducing ambient temperatures and helping mitigate against extreme weather events such as flooding events and heat waves. Trees also have a key role in carbon storage.

8.12 Given the significant value of trees in delivering 'resilient and climate positive' places, current and potential future canopy cover is a key consideration. GLA canopy cover data measures overall canopy cover in Westminster at 16.17% of the total area. Whilst this is lower than the average canopy cover within London as a whole (21%), this is to be expected due to the density of the urban context.

8.13 A 2017 Canopy Cover Study focussed on towns and cities in England estimated an average of 15.8% canopy over in urban areas (based on assessments using the i-Tree Canopy tool for 283 towns and cities in England). Comparing this assessment to the GLA canopy cover data suggests that Westminster average canopy cover is slightly above the estimated England average for towns and cities.[150]

8.14 Table 8.1: below illustrates the difference in tree cover between wards within Westminster (% of cover for each ward), ranging from 3% canopy cover for West End Ward to 35% canopy cover for Regent's Park Ward. The assessment shows most wards are significantly below the

borough average (16.17% canopy cover) and London average (21%). Wards with the highest relative canopy cover are those that include The Royal Parks and residential areas in the north of the borough. Differences in percentage canopy cover between wards can largely be accounted for by the density of the built environment in the wards with the lowest canopy cover.

Table 8.1: Westminster's canopy cover (% per ward)

Ward	Canopy cover (% of each ward)
Above borough average canopy cover	
Westbourne Ward	19
Hyde Park Ward	25
Little Venice Ward	25
Abbey Road Ward	27
Lancaster Gate Ward	28
Maida Vale Ward	28
Regent's Park Ward	35
Below borough average canopy cover	
West End Ward	3
Marylebone Ward	5
Pimlico North Ward	8
Vincent Square Ward	8
Pimlico South Ward	9
Church Street Ward	11
Bayswater Ward	12
Queen's Park Ward	12
St. James's Ward	13
Harrow Road Ward	14
Knightsbridge & Belgravia Ward	15

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[150] It should be noted the methodology employed for estimating canopy cover differs between the data sets.

Tree Population Structure: Size / Diameter Bands

8.15 Detailed tree population data is available for WCC owned trees and those located within the Royal Parks.[151] Understanding the mix and range of tree sizes and age (based on trunk diameter and age class) can provide a broad scale measure of the potential contribution of existing trees to future canopy cover changes and increases (i.e. the potential for smaller, younger trees to contribute to a future increase in canopy cover over time).

8.16 It should be noted that whilst an increase in canopy cover over time should be expected for trees recorded within lower size bands, a wide range of factors affect the extent of any expected increase, including:

- Species and cultivar of tree. For instance, a narrow form or fastigiate trees, even if able to grow to their full potential will result in less of an increase in canopy cover than a tree with a large spreading canopy. Canopy spread can also vary widely between large tree species and small trees.

- Factors limiting plant growth and the capacity for trees to reach their full potential. These are many and varied, including rooting volumes and other environmental factors (light, water availability, nutrients etc.).

- Conflict with other features that may result in pruning requirements or removal. This includes proximity to buildings, vehicle and pedestrian routes etc.

8.17 Figure 8.2: indicates that over 50% of WCC and TRP tree stock are trees recorded within the lower stem diameter size bands (0-15cm & 15-30cm). **Figure 8.3:** shows age class and indicates that 7% of WCC % TRP tree stock is new tree planting and around 35% is either new planting or 'young' stock. When focussing on WCC owned and managed trees, new or young trees account for around 50% of WCC stock. This suggests a notable increase in canopy cover should be expected over time from some of the existing tree stock. This will occur alongside any ongoing tree removals or other tree loss (i.e. of larger, mature specimens), however, annual removal for WCC trees only equates to around 1% of total WCC tree stock, so there is limited loss of larger, more mature trees within this part of the population in Westminster. As

this data only represents WCC and TRP managed tree stock, it also does not reflect any trends in the tree population managed by others (for instance in private gardens).

Figure 8.2: WCC & The Royal Parks owned / managed trees, described by stem diameter bands

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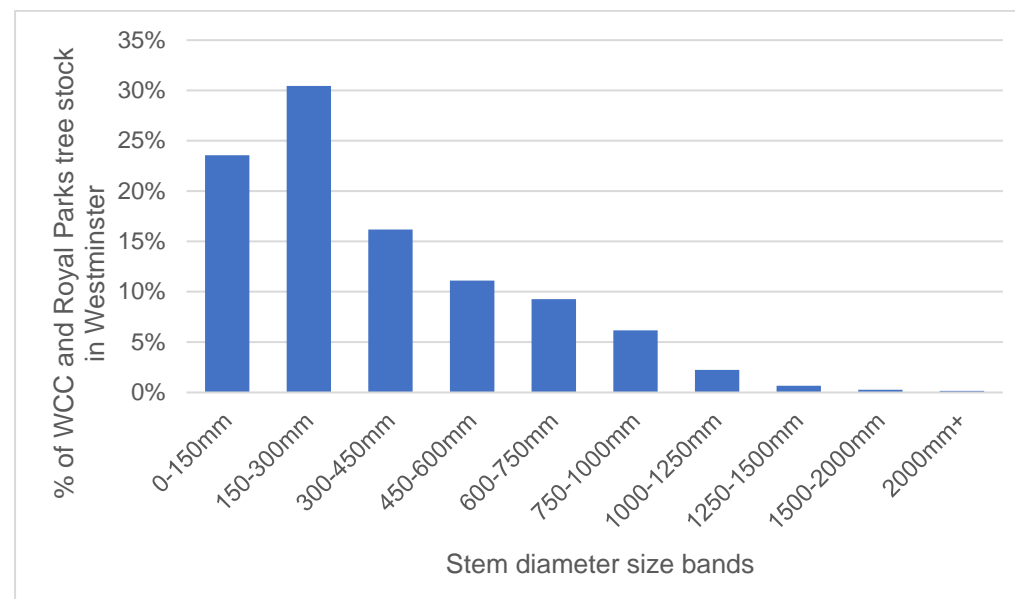
[151] It should be noted this data does not provide full borough coverage of all trees (e.g. similar data is currently not available on trees managed by others).
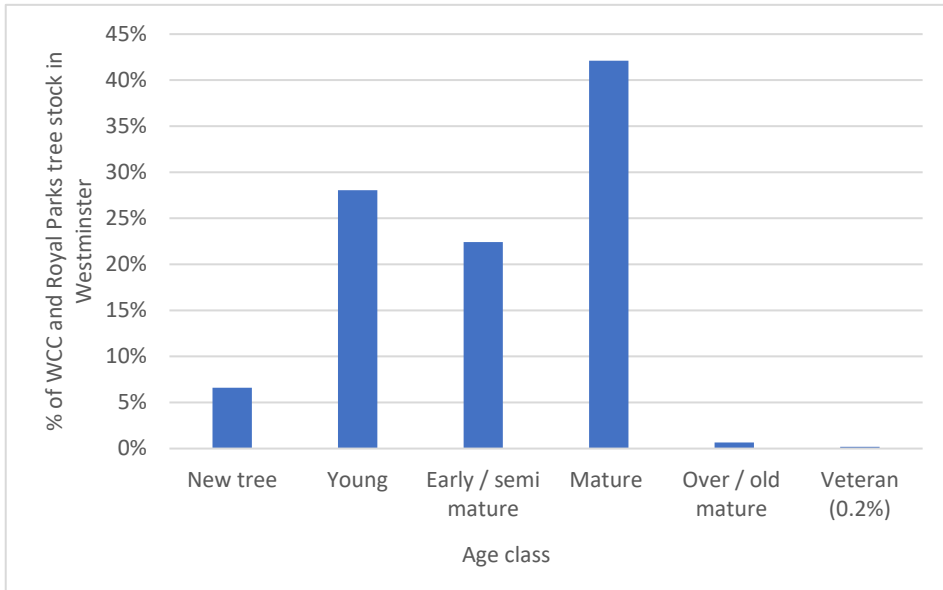
Tree Population Structure: Species Diversity

8.18 Tree species diversity and genetic diversity is an important aspect of tree population resilience (resilience being defined as being able to adapt and absorb to threats and disturbances such as pathogens and changing environmental conditions). Genetically similar trees have similar susceptibility to injury / death from biological and environmental threats.

8.19 There is no definitive measure or benchmark for appropriate tree species diversity within urban areas. **Figure 8.4** to **Figure 8.6** shows a breakdown of the total population by family, genus and species. **Figure 8.4** & **Figure 8.5** indicates that over 20% of the population is comprised of London Plane. This would likely be expected within a central London location and

is appropriate given that it is a highly effective and successful urban species that is iconic to the location. Rosaceous trees are the most abundant within the available data when focussing on tree family groups and make up around 22% of the overall tree population.

8.20 The council owned tree stock represents a reasonably diverse tree population when taking account of species, genus and family groups. Maintaining a tree population that is well adapted to the urban environment and changing climatic conditions over time will be reliant on suitable species selection at each planting location. This will need to be informed by guidance from suitably qualified arboriculturists, taking account of location, environmental conditions and the principle of right plant right place.

Figure 8.4: Ten most abundant species represented by WCC and TRP tree stock
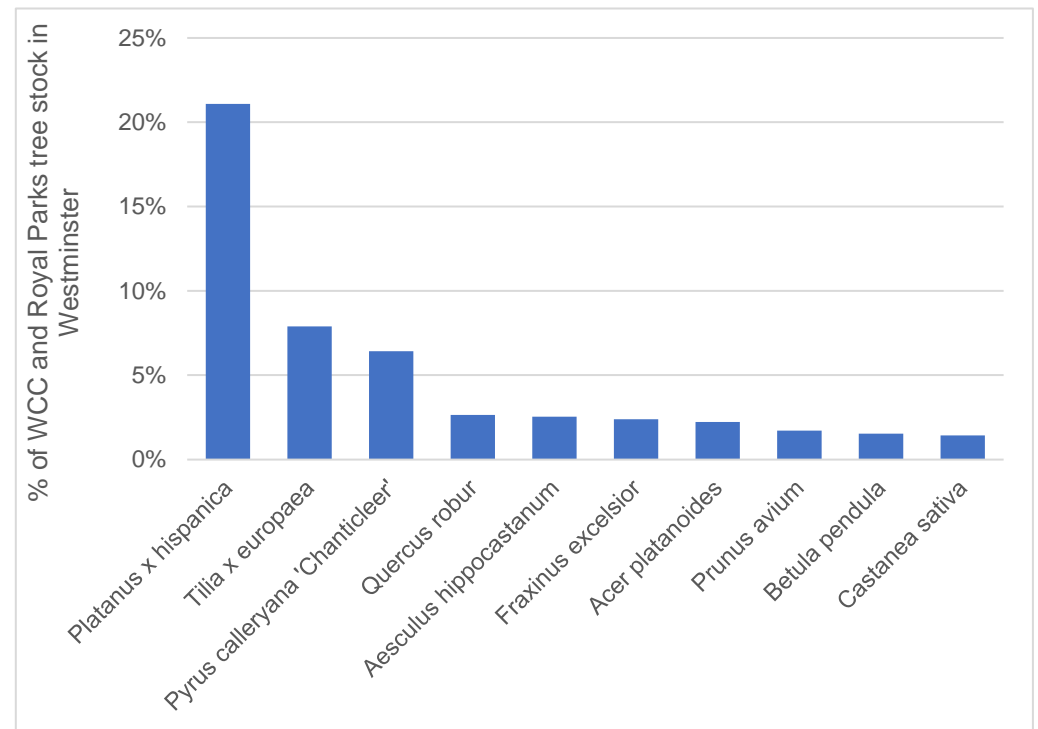
Figure 8.5: Ten most abundant genus represented by WCC and TRP tree stock
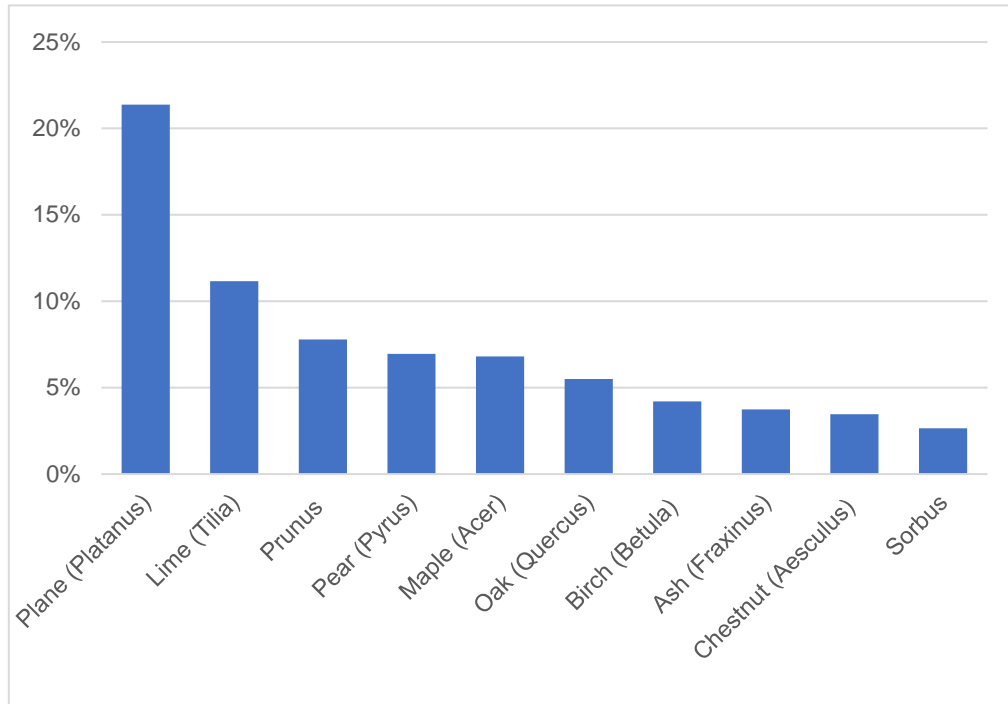
Figure 8.6: Ten most abundant family groups represented by WCC and TRP tree stock
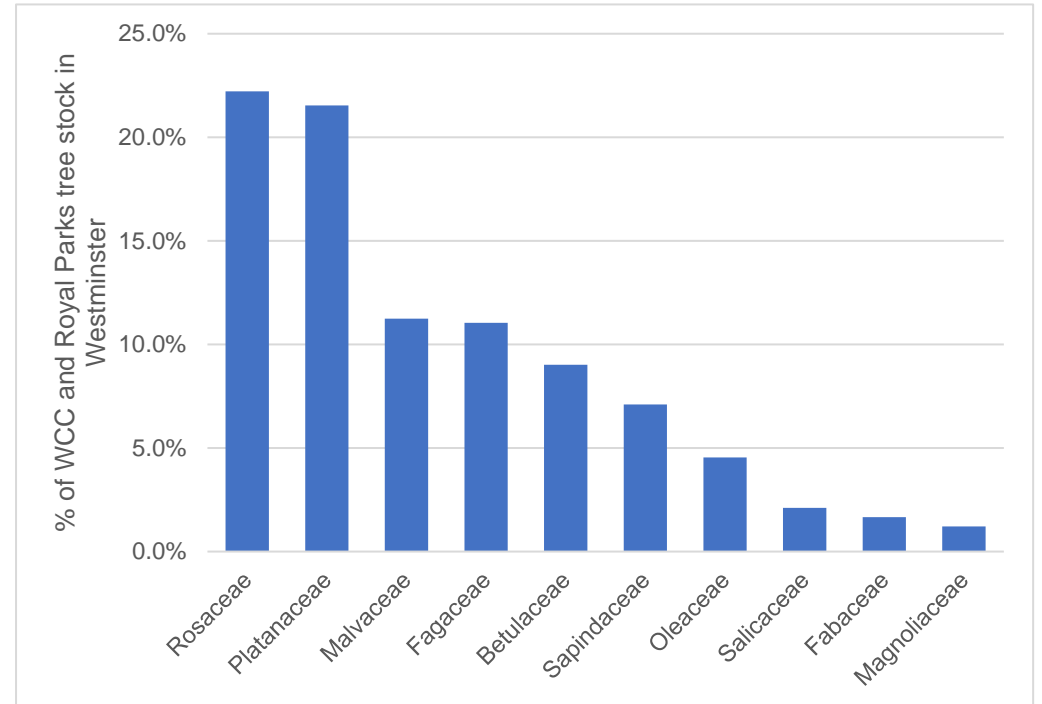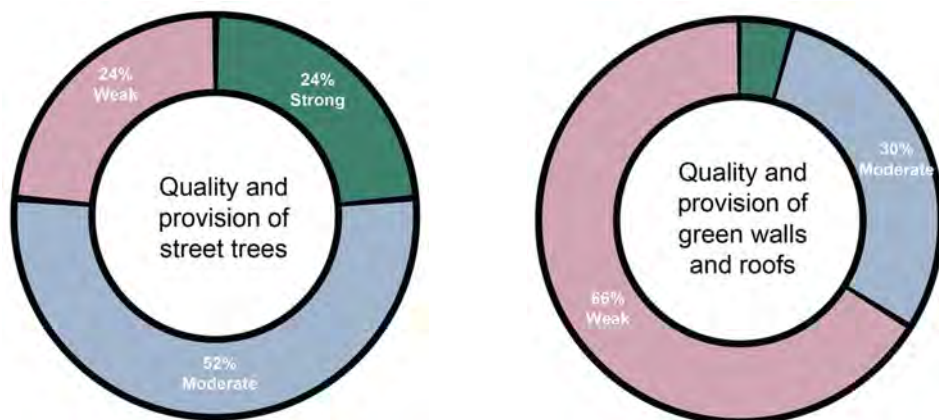
Drivers and Issues

Direct Climate Impacts on GI

8.21 Increased average temperatures and extreme weather events can detrimentally affect GI networks. For instance, extended dry periods or excessive winter rain can impact the growth potential of trees, cause tree decline or death. Increased limb shedding or subsidence claims during dry summer periods may also influence tree management decisions and pruning regimes which may impact canopy cover potential. Furthermore, drought causes particular issues with establishing new tree planting and may result in additional tree losses.

Urban Heat Island Effect

8.22 The urban heat island (UHI) effect is the effect of built features (pavements, buildings etc) which absorb and retain heat, replacing natural land cover and vegetation. It is understood that the UHI effect can cause a 10'C increase in temperatures within London compared to neighbouring rural areas. Increased temperatures can result in negative health impacts, which is particularly associated with vulnerable groups (children, older people and people with pre-existing health conditions).

8.23 The GLA Climate Risk Map[152] provides a mapping tool to visually compare flood risk and heat risk against environmental and social indicators. The data indicates that areas within the borough which are most vulnerable to heat risk include large areas of the north west of Westminster, small areas within West End, Marylebone Ward and the south west of the borough. Lower heat risk is associated with larger areas of open space in the borough.

Environmental Justice Measure

8.24 The benefits afforded by GI are not felt equally throughout the borough. Areas that are dominated by hard surfacing and buildings experience increased average temperatures due to the urban heat island effect, and these are areas that typically have the lowest tree canopy cover due to constraints associated with incorporating trees in hard surfacing or narrow street canyons. This is reflected within Westminster's Environmental Justice Measure which factors in

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[152]Analysis of exposure and vulnerability to climate change across Greater London. To be used to target resources to support communities at highest risk of the impacts of climate change.

https://www.london.gov.uk/programmes-and-strategies/environment-and-climate-change/climate-change/climate-adaptation/climate-risk-map

several indicators (including canopy cover) to highlight areas with highest negative impact as a result of poor environmental justice. Notable areas experiencing 'higher impact' include several wards in the north-west of the borough, the east section of St James Ward and areas in Pimlico South Ward.

Development Pressure

8.25 Increased density of built development without adequate incorporation of GI exacerbates the urban heat island effect and additional built development competes for physical space with GI assets. This is most obvious in terms of tree retention and protection as mature, large canopy trees are not quickly or easily replaced if removed. Dense development of sites reduces space for large tree canopied trees and can results in challenging or constrained growing conditions for existing or new trees. Although large areas of the borough are covered by conservation areas, which provide a degree of protection for existing trees, land values and the need for affordable housing can act as competing pressures during the planning process.

Canopy Cover Targets

8.26 WCC has committed to increasing canopy cover in the borough by 10% (in line with GLA targets). This target focuses on maintaining, protecting and planting council owned trees. A 10% increase of the current borough wide 16.17% canopy cover equates to an increase to 17.79% canopy cover by 2050. Opportunities for significant additional tree planting in open spaces within the borough is limited and therefore increases in canopy cover through additional planting would need to be delivered via street and public realm planting or planting on private land (including new development). Whilst there is some known capacity, there are limited suitable new planting locations on Westminster's streets. Many streets which are capable of supporting trees on pavements have already been planted. The presence of below ground services, vaults and narrow footways preclude tree planting on many of the remaining streets. There are also important townscape reasons, for example the setting of historic buildings, which can also preclude tree planting.

8.27 The focus for Westminster is therefore likely to be ensuring adequate protection and maintenance of the existing tree population (whether on private or public land) and ensuring new tree planting and replacement planting focuses on optimising canopy cover and planting trees according to the principle of the 'right tree in the right place'. Analysis of tree canopy cover data indicates that a notable percentage of the population is not managed by WCC and some of this is on private land. The protection of trees on private land, and promotion of tree planting on private land, will therefore also be required to ensure an increase in canopy cover over time, although it should be noted that there are limited options for *requiring* tree planting on private land, except on development sites.

Biosecurity

8.28 Changing climatic conditions increases the potential for risks associated with new tree pathogens. In addition, mature trees under stress due to climate change are more likely to be significantly impacted by pests and diseases. The ongoing spread of *Massaria* disease (specifically affecting plane trees) presents a particular challenge in areas of London, such as Westminster, where London plane forms a significant proportion of mature trees within the population.

Environmental Horticulture

8.29 Planting within open space, the public realm and private gardens can play a key role in developing resilient landscapes and green networks within urban areas. Ornamental and wildlife friendly planting has been shown to provide important habitat for a range of wildlife, particularly invertebrates,[153,154] and can enhance the value of spaces for people.

8.30 Environmentally sensitive approaches to horticultural management can include incorporating diverse mixes of native and non-native species, sometimes within relatively small areas. Plant communities can be designed to be appropriate for local micro-climate, be adaptive to a range of conditions, (e.g., drought / periodic inundation), support specific GI functions (for instance planting within SuDS schemes or rain gardens) and can also encompass productive or edible landscapes. Promoting this approach within private gardens, and building

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[153] Salisbury, A., Armitage, J., Bostock, H., Perry, J., Tatchell, M. & Thompson, K. 2015. Enhancing gardens as habitats for flower-visiting aerial insects (pollinators): should we plant native or exotic species? Journal of Applied Ecology 52: 1156-1164

[154] https://www.rhs.org.uk/science/conservation-biodiversity/plants-for-bugs

on existing work within existing open spaces, is of particular importance within dense urban areas where space is at a premium. Natural Capital

8.31 Analysis of the distribution and condition of natural capital assets within the borough provides the opportunity to explore the benefits provided to society. Published by Natural England, the Natural Capital Atlas for Greater London (mapping indicators report) maps the key properties of the environment to show the quantity, quality and location of ecosystem assets, as well as the flow of ecosystem services (see **Figure 8.6**).

8.32 The Mapping Indicators report shows the relative quantity and distribution of urban indicator assets that are key to delivering different ecosystem services. Assets that are indicated as key to delivering climate regulation as an ecosystem service include 'blue space', 'green space', 'woodland, scrub & hedge' and 'semi-natural habitats'. The indicator mapping for Westminster shows large areas in the borough have a high quantity (within the top 10% for the country) of 'blue space', 'green space' and 'woodland, scrub and hedge'. These elements form key assets for climate regulation in Westminster. The mapping also suggests climate regulation ecosystem services associated with semi-natural habitats is lower than other assets in Westminster.

Climate Emergency

8.33 Westminster's Climate Emergency Action Plan sets out a framework for collective action to achieve net zero carbon emissions across the borough by 2040, responding ambitiously to the climate emergency. Westminster has some of the highest carbon emissions in the UK and the GI network offers the opportunity to mitigate and adapt to this challenge. The GI plays a vital role in climate change mitigation and adaptation through contributions such as surface water and flood management, storage of greenhouse gases, improvements to air quality and provision of habitats for wildlife. The impacts of climate change will be particularly strong in urban areas. A greater proportion of hard surfacing in urban areas increases the likelihood of flooding, and the urban heat island (UHI) effect will increase warming in urban settings such as Westminster. The distribution of green assets also plays a role here with areas with less green space more susceptible to the effects of UHI . This is seen clearly in Westminster's Environmental Justice Measure mapping where areas away from large areas of green spaces are much more susceptible to heat risk.

Summary of consultation responses

- The role of design in helping to develop resilient and climate spaces was highlighted by many of the participants of the workshops, particularly in relation to public realm improvements.

- One workshop participant suggested that the GI Audit should consider species required in the next 10-50 years due to the detrimental effects of climate change. The same participant stated that soil health is often absent from the dialogue about the impacts of climate change on biodiversity. Whilst it is an area which requires further research, a decline in soil biodiversity is likely to have a detrimental effect on tree health. As such, it should be considered to the same degree as air quality and water quality.

- In relation to Westminster's tree population, it was noted that there must be a greater emphasis in the planning system on finding new spaces for developing tree populations and maintaining the existing tree stock.

- The risk of over-reliance on one type of tree species was also highlighted, using the example of London plane. A greater diversity of tree species is required to provide effective climate change adaptation and mitigation.

- An 'eco-mooring' zone trial for visiting boats between King's Cross and Angel by the Canals Trust was discussed. This scheme includes electric charging points to provide boaters with an alternative to running boat engines when moored to generate energy, and a programme of energy advice and support for boaters.

Ongoing Initiatives / Projects / Partners

Table 8.2: Relevant GI initiatives within Westminster

Initiative	Description
WCC annual tree planting programme	Achieving an increase in canopy cover over time within Westminster will require additional tree planting within the borough. Tree planting by WCC includes new tree planting

Initiative	Description
	and replacement planting for trees that have been removed or lost. It should be noted that the number of new trees planted is only one of several influences on future tree canopy cover, alongside protection and maintenance of the existing tree stock. WCCs annual tree planting programme comprises planting on streets (replacement planting, new planting and planting as part of highways works), on housing estates and in the public realm more generally. New annual tree planting in WCC parks is relatively modest as many have largely achieved their full canopy cover potential and have high levels of tree cover. **Table 8.2** below provides a summary of tree planting as part of WCC's annual tree planting programme since the 2019/2020 planting season. As is shown below, the majority of council tree planting is within streets. The street tree population has increased by 3000 trees over the past 15 years and around 1,244 street trees have been planted since the 2019/2020 planting season, although some of this is replacement planting.
The Royal Parks	New annual tree planting in the Inner London Royal Parks is modest as the balance of open areas to tree cover within The Royal Parks in the borough is considered appropriate for the use of the sites and historic context. The Royal Parks have undertaken hedge planting at sites within the borough, focussing on locations that are adjacent to large roads to help mitigate against noise and air pollution (e.g. the northern boundary of Hyde Park, Bayswater Road). Most other tree planting within The Royal Parks (in Westminster) is replacement planting.
Greening Westminster Fund	Annual grant funding programme to improve and increase GI and open spaces in Westminster, including the impact of them to contributing to climate change mitigation and

Initiative	Description
	adaptation. Projects funded to date which include specific climate change mitigation objectives include: ■ Westminster tree trust – planting across Vincent Square Ward ■ Tree planting in Marylebone ■ Tree planting across the West End

Table 8.3: WCC Tree Planting (2019 – 2023)

Location	Planting season				Total by location
	2019 / 20	2020 / 21	2021 / 22	2022 / 23	
Street tree planting	324	412	264	244	**1,244**
Housing estates and individual properties	5	50	56	39	**150**
Parks (excluding cemeteries)	13	No data	No data	48	**61**
Highway build outs	-	-	8	25	**33**
Public Realm/Place Shaping schemes	No data	No data	No data	87	**87**
Total by year	**342**	**462**	**328**	**443**	**1575**

Chapter 9
Summary of Current GI and Local Needs

The following chapter summarises the findings of the preceding theme chapters and considers how the borough's GI network will need to respond to future challenges.

9.1 Following a comprehensive review of the baseline within **Themes 1-5,** combined with the findings of consultation and the stakeholder workshops, this chapter summarises the key assets and issues relating to the borough's GI network. This includes the identification of deficiencies with the aim of tying the five themes back together to ensure opportunities identified moving forward are holistic and multi-functional.

Theme 1 - Nature-Rich Beautiful Places
Summary

Key assets

- Despite being a densely populated borough, green and blue cover accounts for approximately 36% of Westminster.

- Westminster is ranked 14th out of the 33 London boroughs in terms of the percentage of accessible green space.

Status of SINC provision in the borough:

Four 'proposed upgrade' in status

One 'opportunity' SINC*

27 sites maintain their status, 'no change'

One 'at risk' site

Five pSINCs**

Four pipeline SINCs - recommended for the designation process

18% of the borough is defined as accessible public parks

The Royal Parks account for 49% of green and blue cover in Westminster

24% of the borough is designated as a SINC site

43ha of lakes and ponds

94% of priority habitats in Westminster are safeguarded by a SINC designation

1.5km of linear rivers

* intervention recommended to upgrade status

** to complete designation

Drivers and issues

- Westminster's open spaces form important recreational and wildlife assets.

- The high density urban context of the borough, coupled with the constraints posed by historic assets, provide challenges in the delivery of increased green space provision. This issue will be exacerbated with future population growth.

- There is a requirement for increased engagement between WCC and other organisations who manage open spaces to ensure ecological objectives consistently inform future management.

- Landscape scale connectivity between SINC sites is needed to allow species to adapt to and survive in a changing climate.

- Invasive species, pests, diseases and the high level of artificial lighting pose additional threats to nature recovery in Westminster.

Theme 2 - Active and Healthy Places
Summary

Key assets

There are over 80 parks and open spaces in Westminster, including:

5 Royal Parks

23 Registered Parks and Gardens

30 parks achieving Green Flag status

Green spaces form an important attraction for local communities and 94% of residents reported visiting open spaces.
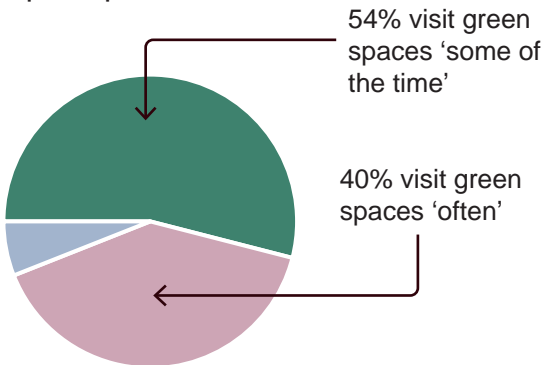
'Meanwhile spaces' offer temporary space for community gardens and food growing opportunities.

54% visit green spaces 'some of the time'

40% visit green spaces 'often'
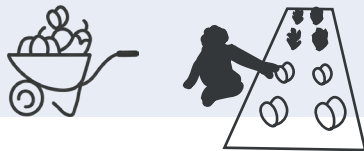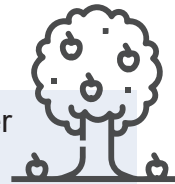
There are over 30 designated cycle routes, including along canal tow paths

An additional 120 cycle storage facilities were provided in 2022-23

80%

Residents with access to green space within a five minute walk of their home

Drivers and Issues

- Westminster has relatively good access to green space. However, deficiencies exist in the north west and south east of the borough.

- Inequalities in access to green spaces result in more deprived areas having less access to the health and well-being benefits associated with GI.

- There are significant gaps in the existing cycle network and the accessibility of some routes, affecting access for different users.

- Safety of green spaces is a key concern affecting use, particularly for women and girls.

- Increased provision of allotments and community gardens is required to meet demand in the borough.

- Noise pollution and poor air quality are key challenges for health outcomes in the borough.

Key assets

25 million
Number of visitors to the borough per year

37%
Visitors to Hyde Park are from outside the UK

£76bn
One of the largest local economies in the UK

25%
Westminster's retail hierarchy falling within a BID

500,000
Daily visitors to the borough

56
Conservation areas, reflecting Westminster's rich heritage
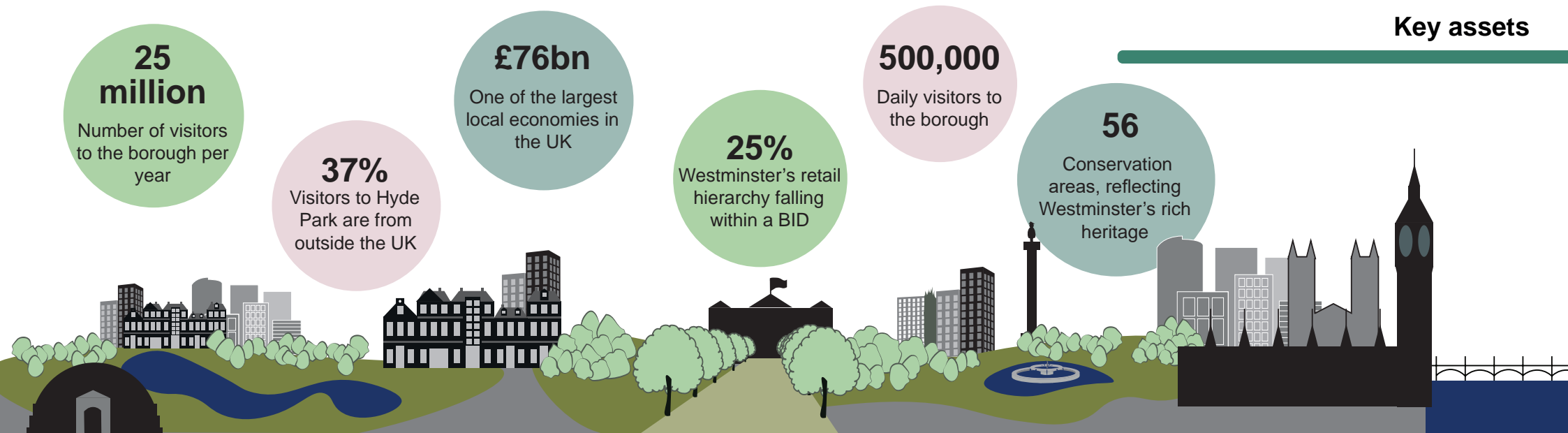
Drivers and Issues

- Patterns of inequity in access to green spaces correlate with patterns of socio-economic inequality, with the north west of the borough faring much worse than affluent areas in the south.

- Westminster's rich historic environment provides an attractive context. Whilst consideration should be given to the protection of heritage assets when integrating GI into the existing townscape, bold GI interventions are required to help address the climate emergency.

- Westminster has experienced the same decline in footfall on its high streets as other city centres due to the rise of online shopping and exacerbated by the COVID-19 pandemic.

- High land values and the density of the existing urban form provide practical challenges to the delivery of new GI through development.

- The high number of visitors to some green spaces, including the Royal Parks, and their use as venues can lead to negative ecological

Theme 4 - Improved Water Management
Summary

Key assets

1.5km
of rivers and canals (corresponding to the River Thames, Regent's Canal and Grand Union Canal)

Five
'hidden rivers' that have historically been culverted, (Westbourne, Tyburn, Tyburn Brook, Kilbourne and Long Ditch)

43ha
of inland open water cover within the borough

Current increase in use of SuDS to tackle surface water flooding, including through the Drain London Partnership
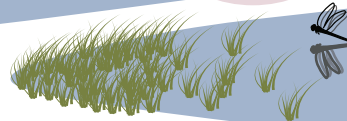
17%
of Westminster is encompassed within Flood Zone 3, equating to a 1 in 100 (1%) or greater annual probability of flooding in any given year

Drivers and Issues

- The spatial analysis of climate risk across Greater London indicates that populations within the north west of the borough are those most vulnerable to the risk of flooding.

- Flood risk in Westminster originates from three primary sources; fluvial and tidal, surface water flooding and flooding from sewers. Existing flood defences effectively manage fluvial and tidal flooding, although increasing storm frequency due to climate change may exacerbate flood risk. Surface water flooding, mainly due to intense rainfall exceeding drainage capacity, is the most probable cause of flooding in Westminster.

- Population growth and the effects of climate change increase demand on the water supply system in the borough.

- Initiatives aimed at addressing water quality improvements due to climate change and nutrient over-enrichment are ongoing within Westminster.

Theme 5 - Resilient and Climate Positive Places
Summary

Drivers and Issues

- The Natural Capital Atlas for Greater London indicates that the borough has a high quantity (within the top 10% for the country) of 'blue space', 'green space' and 'woodland, scrub and hedge'. These elements form key assets for climate regulation in Westminster.

- The urban heat island effect can increase temperatures by up to 10°C in London, particularly in more built up areas, increasing the potential impacts of climate change.

- Average tree canopy cover in Westminster is below the London average of 21%. The density of the built environment and increasing development pressures pose significant challenges to ambitions to increase tree canopy cover by 10%.

- Mature trees under stress from climate change are more significantly impacted by pests and diseases.

Key assets

- GLA canopy cover data measures overall canopy cover in Westminster at 16.17% of the total area.

- Westminster average canopy cover is slightly above the estimated England average for towns and cities (15.8%)

West End Ward has the lowest canopy coverage

Tree canopy cover ranges from 3% to 35%

Regent's Park Ward has the highest canopy coverage

Small areas in Marylebone Ward, West End and the south west of the borough have high heat risk

Lower temperatures are associated with the Royal Parks

Large areas in the north west of the borough are most vulnerable to heat risk
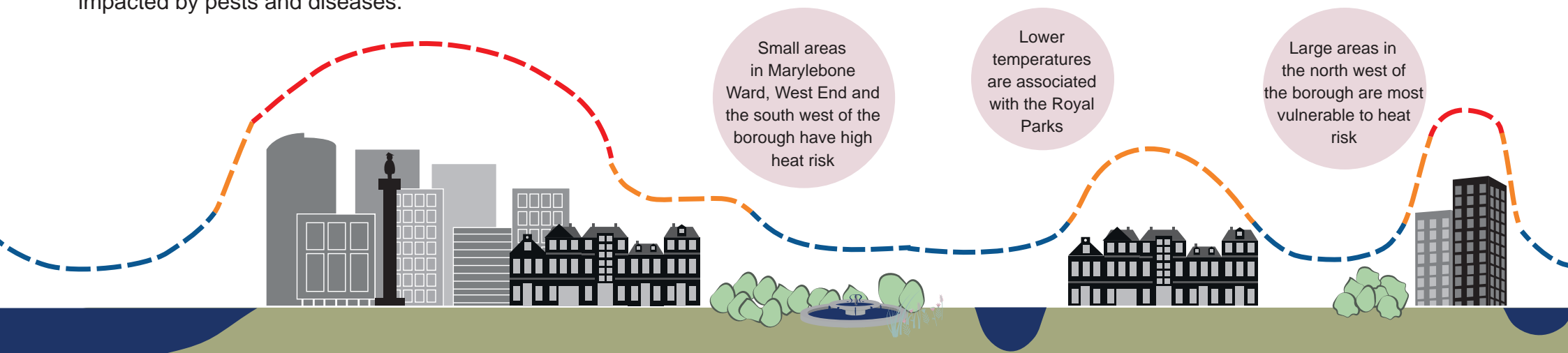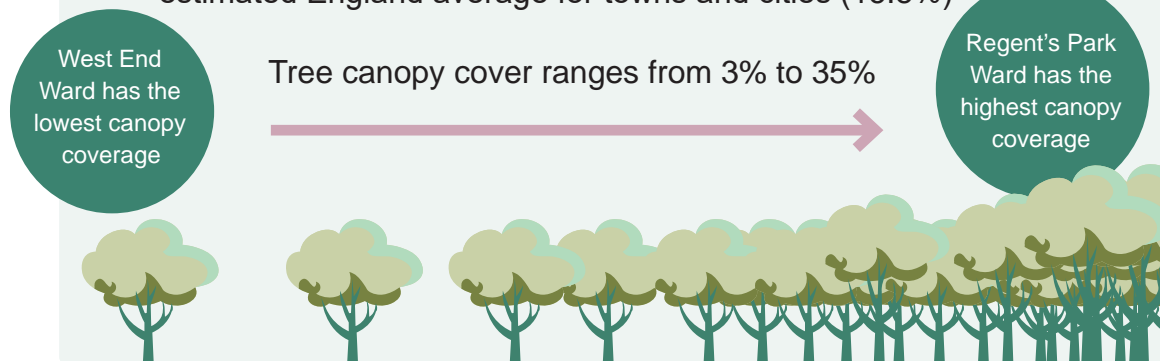
Chapter 10
Priority GI Recommendations

Utilising the findings from the baseline review and both stakeholder and public consultation, a series of priority GI recommendations have been identified.

10.1 Priority GI recommendations have been identified to deliver a host of multi-functional benefits through the GI network. These recommendations will guide the direction of the borough's GI and will be used to prioritise the identification of spatially specific GI interventions within the future GI Strategy. Each priority GI recommendation will be realised through the delivery of these GI interventions. As well as ensuring the borough's GI network is performing to the best of its ability, the priority GI recommendations will ensure the delivery of multi-functional benefits, whilst also tackling areas of deficiency.

10.2 The priority GI recommendations will act as a framework for the delivery of GI interventions identified within the future GI Strategy. It is envisaged that the GI interventions will be delivered on a rolling basis, with priority locations being identified within the future GI Strategy and emerging potential locations being updated on a regular basis.

Methodology for identifying priority GI recommendations

10.3 Following the collation of baseline information and analysis of the findings from stakeholder and public consultation, a series of priority GI recommendations were identified. The principle behind the identification of priority GI recommendations was to identify strategic proposals to address issues and deficiencies identified in the preceding chapters. This approach involved consideration of a number of factors; including:

- Addressing issues of greatest need within the borough;

- Ensuring the delivery of multi-functional benefits is maximised;

- Future viability and deliverability;

- Compilation of a robust evidence base; and

- The results of both stakeholder and public consultation.

10.4 The selection of priority GI recommendations also aim to maximise the delivery of multi-functional benefits (see **Figure 10.1**) and are illustrated spatially in **Figure 10.2.**

10.5 The list of priority GI recommendations is provided below in **Table 10.1**, with additional detail provided in the detailed proformas (as seen overleaf). The priority GI recommendations identify where delivery steps will be undertaken as part of the future GI Strategy or by WCC (see **Figure 10.3**). Where delivery of the priority GI recommendations is required by WCC, the relevant WCC Directorate is identified, combined with any relevant documents / strategies. It is recommended that the future GI Strategy should identify a long list of spatially specific GI interventions based on each priority GI recommendation.

Figure 10.3: Identification of roles in the delivery of priority GI recommendations
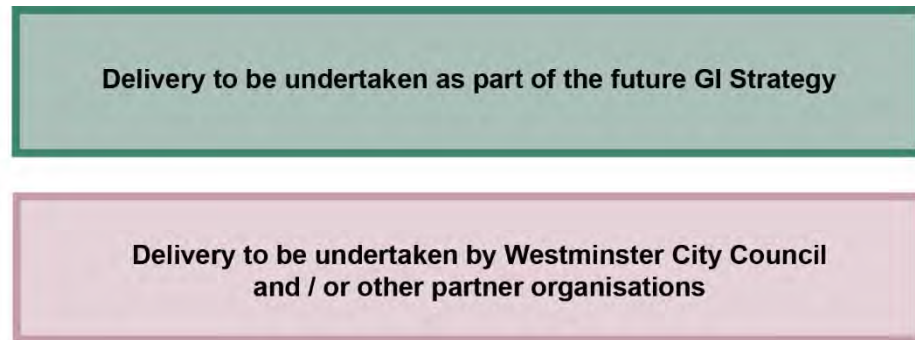
Delivery to be undertaken as part of the future GI Strategy

Delivery to be undertaken by Westminster City Council
and / or other partner organisations

Table 10.1: Priority GI recommendations

Priority GI Recommendations
Address areas of green space deficiency in the north west and south east of the borough
Address gaps in the active travel network
Reduce the impact of high visitor pressures on existing green spaces
Integrate new GI into key streets experiencing declining footfall
Maximise GI opportunities provided by Westminster's historic environment
Mitigate impacts due to the urban heat island effect, particularly where these are disproportionately higher in areas to the north west of the borough
Restore lost rivers
Deliver a bigger, better, more joined up SINC network
Deliver nature recovery and climate change resilience
Address the risk of surface water flooding in the borough
Protect existing tree cover
Encourage new tree planting within the borough
Adopt and encourage tree pit designs that optimise SuDS benefits
Develop a borough-wide 'Green Spine'

Figure 10.1: Priority GI recommendations and the delivery of multi-functional benefits

GI theme	Address areas of greenspace deficiency in the north west and south east of the borough	Address gaps in the active travel network	Reduce the impact of high visitor pressures on existing greenspaces	Integrate new GI into key streets experiencing declining footfall	Maximise GI opportunities provided by Westminster's historic environment	Mitigate impacts due to the urban heat island effect, particularly where these are disproportionately higher in areas to the north west of the borough	Restore lost rivers	Deliver a bigger, better, more joined up SINC network	Deliver nature recovery and climate change resilience	Address the risk of surface water flooding in the borough	Protect existing tree cover	Encourage new tree planting within the borough	Adopt and encourage tree pit designs that optimise SuDS benefits	Develop a borough-wide 'Green Spine'
Nature rich beautiful places	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓		✓
Active and healthy places	✓					✓			✓					✓
Thriving and prosperous places		✓	✓	✓	✓	✓	✓			✓	✓	✓		✓
Improved water management	✓			✓			✓	✓	✓	✓	✓	✓	✓	
Resilient and climate positive places	✓		✓	✓	✓	✓	✓			✓	✓	✓	✓	✓

City of Westminster

LUC

City of Westminster boundary

Spatially-specific interventions

Address areas of greenspace deficiency in the north west and south west of the borough

Address gaps in the active travel network

Reduce the impact of high visitor pressures on existing greenspaces

Integrate new GI into key streets experiencing declining footfall

Mitigate impacts due to the urban heat island effect, particularly where these are disproportionately higher in areas to the north west of the borough

Restore lost rivers

Deliver nature recovery and climate change resilience
(Existing areas deficient in access to nature)

Encourage new tree planting within the borough
(Existing tree canopy coverage 10% or less)

Develop the Westminster Green Spine

Deliver a bigger, better, more joined up SINC network
(Refer to Figure 4.1 in *SINC Network Review* for the location of the designated site network)

Strategic borough-wide interventions

Maximise GI opportunities provided by Westminster's historic environment

Address the risk of surface water flooding in the borough

Protect existing tree cover

Adopt and encourage tree pit designs that optimise SuDS benefits

Figure 10.2 Priority GI Recommendations

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Address areas of greenspace deficiency in the north west and south east of the borough

Analysis of locally available open space data recorded as part of the *Borough Open Space Strategy Update (2016)* identifies a deficiency in the quantity and accessibility of multiple types of open space, primarily within both the north west and south east of the borough. This trend is supported by analysis available within Westminster's Environmental Justice Measure which indicates that areas with less access to public open spaces include areas to the west of Abbey Road, land to the north of Little Venice, West Marylebone, Pimlico North and portions of Belgravia. Enhancements to the condition and functionality of amenity greenspaces within areas of existing deficiency offers the opportunity to fill gaps in open space provision and contribute to the enhancement of health and wellbeing in areas of correlating disadvantage.

1. Paddington Green   2. Rembrandt Gardens
3. Paddington Recreation Ground

Process for delivery of the recommendation

Include the requirement to audit existing greenspaces located within areas of deficiency (AoD) as part of the future GI Strategy

Update the findings of the *2016 Borough Open Space Strategy Update* by targeting greenspace auditing within areas of deficiency to provide a robust and integrated evidence base. The methodology for the study of open space provision should reflect the current requirements of the National Planning Policy Framework (NPPF), informed by the Accessible Greenspace Standards (AGS) developed as part of the Natural England GI Framework.

STEP 1

Audit local GI provision across identified areas of deficiency

Update the understanding of open space data across areas of greenspace deficiency through more detailed audit (considering all factors – quantity, quality, value and accessibility), predicted population growth and local contextual data (e.g. IMD). Accordingly, review the 'opportunities for enhancements' included within the *2016 Borough Open Space Strategy Update* and incorporate within the revised analysis, as appropriate.

STEP 2

Assess the perception and user experience of greenspace provision within areas of existing greenspace deficiency

Determine whether residents and community groups perceive that the areas identified currently exhibit a deficiency in open space through a process of targeted public consultation. Consultation should include a broad range of demographics and representative communities within the borough.

STEP 3

Use the findings to identify a range of greenspaces to be enhanced in the north west and south east of the borough

Ensure a range of sizes and typology of sites are selected to maximise the potential delivery of multi-functional benefits. This approach will allow WCC to target investment to improve existing sites or deliver additional provision to provide greatest benefit.

STEP 4

Address gaps in the active travel network

Gaps in the network of cycle routes limits the effectiveness of this method of travel for everyday journeys and providing wider connections. Increased fragmentation is evident in the north west of the borough. The quality of surfacing and attractiveness of these routes is also variable which presents additional challenges for use. Enhancement to the active travel network through the integration of GI along existing routes offers the opportunity to increase the accessibility of greenspaces and encourage modal shift from cars, with advantages for air quality.

▲ *Grand Union Canal Walk at Little Venice*

Responsible WCC Directorates
- Environment, Climate & Public Protection
- Innovation & Change

Relevant documents / strategies
- Sustainable Transport Strategy
- Active Westminster Strategy
- Environmental Justice Measure

Process for delivery of the recommendation

Review Westminster's existing cycle network and provide an up-to-date evidence base

Following recent consultation on the permanence of temporary routes, the future GI Strategy should provide a high-level review of potential spatially-specific opportunities to address gaps in the existing network.

STEP 1

Audit the quality of the existing cycle network

Commission a survey to audit the network of existing routes, identifying where quality and condition issues (such as damaged surfacing, the attractiveness of routes or features (such as underpasses)) may be discouraging use. This could be undertaken as part of a future update to Westminster's Cycling Strategy.

STEP 2

Establish a long-list of routes to be delivered or upgraded

Using the results of the above, identify all routes which should be upgraded or created to enhance the overall network.

STEP 3

Identify priority routes for upgrade or establishment

Through analysis of data on existing everyday journeys and consultation with communities, identify a programme of prioritisation for delivery of new routes and route upgrades.

STEP 4

Reduce the impact of high visitor pressures on existing greenspaces

Analysis of existing data and consultation with key stakeholders identifies the negative impacts of high visitor pressure on key destination greenspaces, particularly The Royal Parks and those which are used to host major events. Balancing recreational demand with habitat protection requires the development of a proposed access strategy to enable public access, whilst ensuring areas of sensitive ecology are preserved.
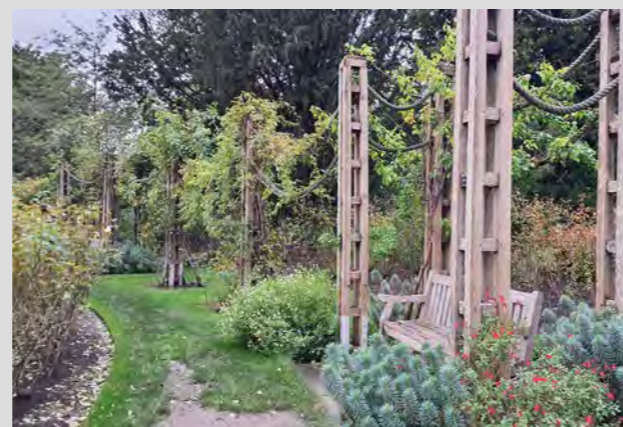
Responsible WCC Directorates
- Environment, Climate & Public Protection
- Innovation & Change

Relevant documents / strategies
- City of Westminster Biodiversity Strategy
- Park Management Plans
- Climate Emergency Action Plan
- City Plan (2019-2040)
- Environmental SPD
- Historic Parks & Gardens SPD

Process for delivery of the recommendation

Consult with The Royal Parks team and WCC Parks team to identify sites which are experiencing high visitor pressures

This task should include a review of overall visitor figures for destination sites and where some parks are subject to particular pressures due to the hosting of events.

STEP 1

Develop and deliver flexible (both spatially and temporally) access measures

Create a framework for flexible access measures which balances recreational demand with habitat protection. Ensure that these measures accommodate diverse user needs, including those with mobility challenges. WCC should work with The Royal Parks to integrate these measures into their existing and future park management plans.

STEP 2

Promote responsible use of greenspaces and communicate guidelines to the public and integrate educational opportunities

When implementing access restrictions, the integration of signage, public awareness campaigns, volunteer and educational programmes would help to explain the reasoning behind these measures, whilst allowing people to benefit from an understanding of the processes of nature recovery. Clear usage guidelines, educational materials, public awareness campaigns, signage, a user-friendly website, community engagement, volunteer programmes and feedback mechanisms should also be explored.

STEP 3

Visitor facilities at Regent's Park

Integrate new GI into key streets experiencing declining footfall

Analysis of locally available economic data and strategies has highlighted a decrease in footfall along some of Westminster's high streets, consistent with wider trends nationwide. The integration of new GI along these corridors would provide opportunities to increase the attractiveness for visitors as well as deliver multi-functional benefits. These would include reductions in noise, air pollution and surface water flooding as well as increased habitat connectivity.

1. Elgin Avenue, Maida Vale
2. Edgware Road
3. Maida Vale (A5)

Process for delivery of the recommendation

Identify all existing high street and regeneration projects currently in development across the borough

Using the GI Audit as a starting point, create a database of all existing regeneration projects and undertake additional consultation with stakeholders to establish a complete picture of projects currently in development.

STEP 1

Identify potential GI interventions to be integrated into the street scene

Identify where partners could work together to increase the functions of new GI, for example through the creation of links to the Climate Resilience Team at WCC to integrate SuDS.

STEP 2

Undertake audits of the main high streets in the borough and complete consultation with a range of user groups

Where work is not currently planned, identify opportunities for the integration of new multi-functional GI which would increase the attractiveness of key routes. Consultation and engagement should be undertaken to identify priority interventions.

STEP 3

Identify partners and funding opportunities to implement these measures

Identify an appropriate delivery partner to take forward projects (ranging from BIDs or community groups). Identify funding for project delivery (such as the High Streets programme or Greening Westminster Fund).

STEP 4

Maximise GI opportunities provided by Westminster's historic environment

Analysis of existing data demonstrates the importance of Westminster's historic character to its economic prosperity. The borough's historical development has influenced the provision of important greenspaces; including The Royal Parks and town squares. However, climate change is a significant risk for Westminster's heritage and a balance is required between preserving historic character and maximising opportunities for bold public realm interventions which help address the climate emergency, whilst also provide opportunities for improved health and wellbeing. Understanding historic character is an important early step in determining the location, type and form of new GI appropriate to each place. Understanding the historical context of proposals will ensure the right solution in the right place, creating 'win-win' solutions for all aspects of the environment, including the historic dimension.

Westbourne Terrace, Bayswater Conservation Area

Process for delivery of the recommendation

Develop an understanding of historic character and sensitivity to inform proposed public realm improvements

Where opportunities are identified to enhance GI in a conservation area, gain an understanding of historic character and sensitivity before embarking on the options /design process. This should consist of:

- Checking designations information for local and national assets (e.g. listed buildings, registered parks and gardens);
- Reviewing archaeological sensitivities;
- Consulting existing conservation area audits and historic character mapping;
- Undertaking a historic character audit if there are gaps in the above information, or a greater level of detail is required; and
- Having early discussions with conservation and design officers to flag up likely issues or sensitivities.

STEP 1

Review existing policy and guidance on street trees

Review existing policy consult with the Tree Officer at WCC to identify spatially specific opportunities for integration of new street trees, whilst avoiding detrimental effects on historic character.

STEP 2

Develop new guidance on the integration of GI into the historic environment

Develop a palette of GI options to help guide which types of intervention may be more or less suitable in historic locations which are sensitive for different reasons: formal planned streets; areas of archaeological sensitivity and designed landscapes etc.

STEP 3

[1] https://historicengland.org.uk/listing/the-list/map-search
[2] https://historicengland.org.uk/services-skills/our-planning-services/greater-london-archaeology-advisory-service/greater-london-archaeological-priority-areas/
[3] https://www.westminster.gov.uk/planning-building-control-and-environmental-regulations/design-and-heritage/conservation-areas#find-out-if-you-are-in-a-conservation-area
[4] https://historicengland.org.uk/services-skills/our-planning-services/greater-london-archaeology-advisory-service/database-project/#73280ee3

Mitigate impacts due to the urban heat island effect, particularly where these are disproportionately higher in areas to the north west of the borough

Analysis of existing data indicates that areas in the north west of the borough are more vulnerable to risks from the urban heat island effect. This correlates to WCC's Environmental Justice Measure which indicates that areas which are experiencing the highest negative impact from heat (and other effects of climate change) as a result of poor environmental justice are concentrated in the north west of the borough, as well as the east section of St James Ward and Pimlico. Concentrating actions to reduce the urban heat island effect can help to mitigate the effects of climate change, whilst also tackling injusties in access to greenspace and poor health outcomes.

Hallfield Meadow (left). Private garden at Portman Estate (right)

Process for delivery of the recommendation

Identify areas where there are overlapping issues of environmental injustice and high negative impacts from urban heating

Use existing data on land cover to identify specific locations where enhancements to natural capital assets could mitigate against the urban heat island effect and improve environmental justice.

STEP 1

Identify specific actions which can be taken to reduce the urban heat island effect through the integration of new GI

Where priority locations for the integration of new GI to reduce the urban heat island effect have been identified, assess delivery options for new provision. This could include:

- Centralise spatial data on green roofs / vertical greening to understand the baseline coverage;
- Working with private property owners to encourage the retrofitting of green roofs / walls into existing buildings; and
- Incorporating requirements for green roofs / walls and greenspace into new development through development specific design briefs, a future local design code or by using existing

STEP 2

Undertake targeted community engagement

To ensure local 'buy-in' from the community and ensure that measures taken to mitigate the urban heat island effect would have multi-functional benefits for communities.

STEP 3

Deliver a bigger, better, more joined up SINC network

A thriving, well-connected SINC network is central to nature recovery across Westminster. SINCs denote the most important ecological assets and recognise the natural heritage of the borough. The 2023 baseline of 33 SINCs equates to 522ha (24%) of the borough. A bigger, better, more joined up SINC network is required to ensure it supports thriving ecosystems. This also underpins its resilience to the changing climate and ability to continue to meet the needs of a growing population. This recommendation reflects those outlined within the 2023 SINC Network Review, including those that are site specific.
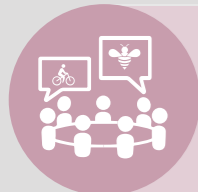
Responsible WCC Directorates

- Environment, Climate & Public Protection
- Innovation & Change

Relevant documents / strategies

- City of Westminster Biodiversity Strategy
- City Plan (2019-2040)
- Environmental SPD

Ensure all SINCs are maintained in optimal condition

- Implement recommended interventions at all SINCs identified as 'proposed upgrade and / or extension', 'opportunity' or 'at risk' to ensure that ecological value for which they are designated is recovered and maintained in the long-term. One site is identified 'at risk' in 2023[1].
- Continue monitoring in the long-term, in accordance with the policies of the City Plan and emerging Greater London LNRS. This will include recording and reporting using standard methods, centrally coordinated (both at WCC and GIGL).

STEP 1

[1]Talbot Square SINC – decline in habitat quality and extent recorded as a result of visitor pressure over time.

Regent's Park, one of the largest SINC sites in the borough

[2]*Lisson Garden SINC, Little Venice Garden, Winston Garden & The Crescent Garden SINC, Park Square Gardens SINC, Westbourne Green Meadow SINC.*

[3]*Churchill Gardens Housing Estate, Formosa Garden, Grosvenor Square, Lillington and Longmoore Gardens Estate, Victoria Tower Gardens*

[4]*Belgrave Square SINC (habitat management recommendations with potential to deliver future upgrade) and Hyde Park and Kensington Gardens SINC (habitat management recommendations across a wider 9ha with potential to facilitate future extension).*

[5]*Five sites assessed in the 2023 SINC Network Review: Cavendish Square Gardens, Duke of Wellington Arch, Westbourne Green, Warwick Estate, Soho Square Garden.*

[6]*Three additional open spaces noted for future consideration in the 2016 Open Space Strategy Mid-Point Update: Queens Gardens, Sussex Square, Sutherland North.*

Hyde Park, a metropolitan SINC

Process for delivery of the recommendation

Expand the SINC network to capture all existing assets of SINC value

■ Through the Local Wildlife Site (LWS) Board process, secure extension of existing SINC boundaries where ecological value is justified. Four sites identified in 2023[2].
■ Progress identified potential SINC (pSINC) for new designation with the LWS Board. Five sites identified in 2023[3].

STEP 2

Enhance and expand the SINC network to meet the challenges of nature recovery

■ Delivery of recommended habitat management and creation interventions at SINCs identified as 'opportunity sites' with the aim of future upgrades in status or extension. Two sites identified in 2023[4].
■ Delivery of coordinated habitat management and creation interventions across selected sites to enable future expansion of the network:
- Five 'future pipeline' sites identified in 2023[5];
- Three additional open spaces noted for future consideration in 2016 Open Space Strategy Mid-Point Update[6]; and
- Establish a Local Site Selection Panel as an expert advisory body to support the Council in the identification of future pipeline sites and in the LWS Board designation process.

STEP 3

Secure long-term recognition and positive management across the SINC network

■ Review Local Plan policies to ensure all SINCs are adequately protected in land use planning decision-making.
■ Ensure each SINC has a management plan that:
- Prescribes appropriate positive management interventions;
- Details the requirements for monitoring (with reporting to WCC and Local Site Selection Panel; and
- Identifies a mechanism for remedial action/s where necessary.
- Reviews funded roles and responsibilities.

STEP 4

Ensure WCC has the capacity to manage and maintain SINC sites

■ Allocate adequate resourcing across appropriate WCC Directorates to fully support the delivery of site management plans across all SINC owned and/or managed by WCC. This should include both appointment of dedicated roles, and development of existing roles to recognise and increase positive ecological management.
■ Collate key guidance to support the delivery of site management plans across the entire SINC network. This should include opportunities for partnership working and for community engagement in line with the emerging LNRS.
■ Identify additional funding to support delivery across the network in the medium and long term. This may range from UGF and BNG streams (primarily focused at new or expanded SINC) to wider sources from government, corporate CSR, philanthropic donation and community-backed applications.

STEP 5

Protect existing tree cover

The urban setting of Westminster already accommodates many trees of great value, and their retention should be promoted. The protection of existing trees on public and private land prevents unnecessary tree removal and protects canopy cover both now and in the future. In accordance with the vision and policies outlined within the Westminster City Plan (2109-2040), new development is required to contribute to the overall greening of Westminster through the protection of existing tree canopy cover. However, management of large populations of urban trees implicitly means that some tree removal will be required to ensure a safe urban environment. Tree loss may also be needed to enable new developments. However, where loss is unavoidable, replacement should be provided.

The aftercare of planted trees and the maintenance of established trees to maximise tree growth and longevity is also a key factor in ensuring tree canopy cover. In addition, adherence to good biosecurity practices is critical for preventing the introduction of pests and diseases. Recommendations for tree management and planting within both public realm and private land need to ensure alignment with key objectives included within planning policy and the forthcoming Public Realm Strategy.

Partners and stakeholders such as BIDs and the wider business community, major landowners, neighbourhood forums, residents' associations and the Westminster Tree Trust all play a key role in the delivery of trees, and continued collaboration with these organisations is an important part of canopy cover ambitions.

Responsible WCC Directorates
- Environment, Climate & Public Protection
- Innovation & Change

Relevant documents / strategies
- City of Westminster Biodiversity Strategy
- City Plan (2019-2040)
- Environmental SPD

Existing tree avenue on Warrington Crescent

Existing tree planting at Westbourne Estate

City of Westminster | **LUC**

Process for delivery of the recommendation

Ensure future policy reflects new guidance relating to tree retention and enhancement

- Include key objectives for tree management and the expansion of local tree cover are included in the forthcoming Public Realm Strategy.
- Ensure planning policy supports the protection and delivery of local actions related to urban forestry on private land.

STEP 1

Ensure that trees are protected on new development sites

- New planning proposals that impact trees must be accompanied by an arboricultural impact assessment report and a tree protection plan that details the tree protection measures that will be employed during construction. If it is determined that a development will be impacting on trees due to be retained the developer will be required to submit an arboricultural method statement.
- Planning policy should provide a robust framework for tree protection, ensuring adequate resource is made available to enforce agreed tree protection on development sites in accordance with BS5837:2012 or its successors.

STEP 2

Ensure adequate tree planting on development sites

- Local planning policy should provide clear guidance on tree replacement requirements as it will not be possible to save all trees on every development site. If planning permission is granted that necessitates the removal of trees, adequate replacements should be provided based on the value and benefits of the existing trees due for removal.

STEP 3

Ensure WCC has sufficient resources to manage and maintain trees

- Adequate staff numbers are required to meet WCC's statutory duties for tree protection. Additional one-off funding is also likely to be required to develop a tree strategy and identify new sites that are suitable for new tree planting.
- The Tree Team will also require sufficient funding to maintain the Council's tree stock and deliver the objectives of a new Tree Strategy.

STEP 4

Deliver nature recovery and climate change resilience

The GI network extends beyond the core SINC network to cover approximately 35% of the borough. Optimising the value of the GI network for biodiversity is central to meeting nature recovery and climate resilience, whilst also ensuring access to nature for all communities of the borough. Planning and design of GI needs to accommodate bold interventions that deliver nature-rich assets to complement and reinvigorate Westminster's celebrated cultural heritage. Key principals include a GI network that is bigger (expanded), better (in terms of SINC, habitats and species) and more joined up (connectivity across and beyond Westminster).

Responsible WCC Directorates
- Environment, Climate & Public Protection
- Innovation & Change

Relevant documents / strategies
- Climate Adaptation Plan
- Climate Emergency Action Plan
- City Plan (2019-2040)
- Environmental SPD
- Historic Parks & Gardens SPG

Process for delivery of the recommendation

STEP 1 — Define and map local conservation and restoration priorities

Define and accurately map the local conservation and restoration priorities of the borough as the foundation for the forthcoming Westminster Biodiversity Strategy. This will be developed in collaboration with key partners and correlate to wider priorities, such as those of the Royal Parks and Greater London. Veteran and ancient trees will be recognised as irreplaceable habitats. Other habitat examples include acid grassland fen and structurally diverse scrubland.

STEP 2 — Identify opportunities for strategic connectivity between and beyond the SINC network

Opportunities will contribute to the emerging LNRS and be captured in supported strategic GIGL mapping.

Strategic connectivity includes linear features, expanded or buffering assets and stepping stones to connect beyond and between SINC. Canopy level, at height and vertical (green roofs, walls and trellises) opportunities as well as those at 'ground level' will be included to make use of three dimensional spaces within a broad corridor.

STEP 3 — Expand positive 'wildlife-friendly' management for all WCC-owned or managed sites

Collate existing good practice / aspirations for positive management across the WCC Directorates. Examples range from habitat creation and species selection to invasive species management, recreational access and community engagement to monitoring and recording.

Identify best practice principles for consistent application across WCC, recognising the potential of LNRS as well as UGF and BNG.

Principles will reflect, and be reflected in, appropriate Local Plan policies.

STEP 4 — Ensure WCC has the capacity to leverage partnerships and implement robust monitoring / evaluation

Allocate adequate resourcing across appropriate WCC Directorates to fully support the delivery of interventions. This should include the identification of existing and potential partners, such as The Royal Parks or the London Rewilding Taskforce to ensure the broadest coverage of the borough. Establish links to the emerging LNRS.

Implement a system for rigorous monitoring and evaluation of GI projects, and SMART targets. This should include data collection on ecological impact, habitat restoration progress, and biodiversity enhancement. The data should be used to make informed decisions, adapt projects as needed, and report on the ecological outcomes of GI initiatives.

STEP 5 — Foster community engagement and stewardship

Encourage community involvement in citizen science initiatives and habitat restoration projects.

Provide guidance on community engagement and stewardship initiatives, including mechanisms for involving residents and stakeholders.

Encourage new tree planting within the borough

The first step when planning to plant a tree is identifying the planting location. This determines what attributes the selected tree must have and influences all subsequent considerations. This decision ultimately determines whether the tree will thrive and fulfil its true potential and provide all its possible benefits. London plane trees and Callery pear trees dominate some parts of the borough. In some places this has become part of the local character, however this limits biodiversity and leaves the local tree population vulnerable to disease outbreaks. Planting large numbers of trees in dense spacing is likely to develop narrow crowns and a dense canopy. Trees planted in this way will not make attractive spaces for people to use.

The most limiting factor in the growth of urban trees is the lack of usable soil for root growth, and inadequate underground rooting space is one of the main contributors to the premature mortality of urban trees. Small and short-lived trees do not provide significant green infrastructure benefits, and nor do they contribute to long-term increases in canopy cover. Therefore, when designing urban spaces, it is necessary to make sure that the species that is planted is provided with enough soil to be healthy and reach a degree of maturity that will deliver benefits to the local community. The local community should be encouraged to be involved in tree planting programmes and to help with their aftercare, as recommended by the Arboricultural Association.
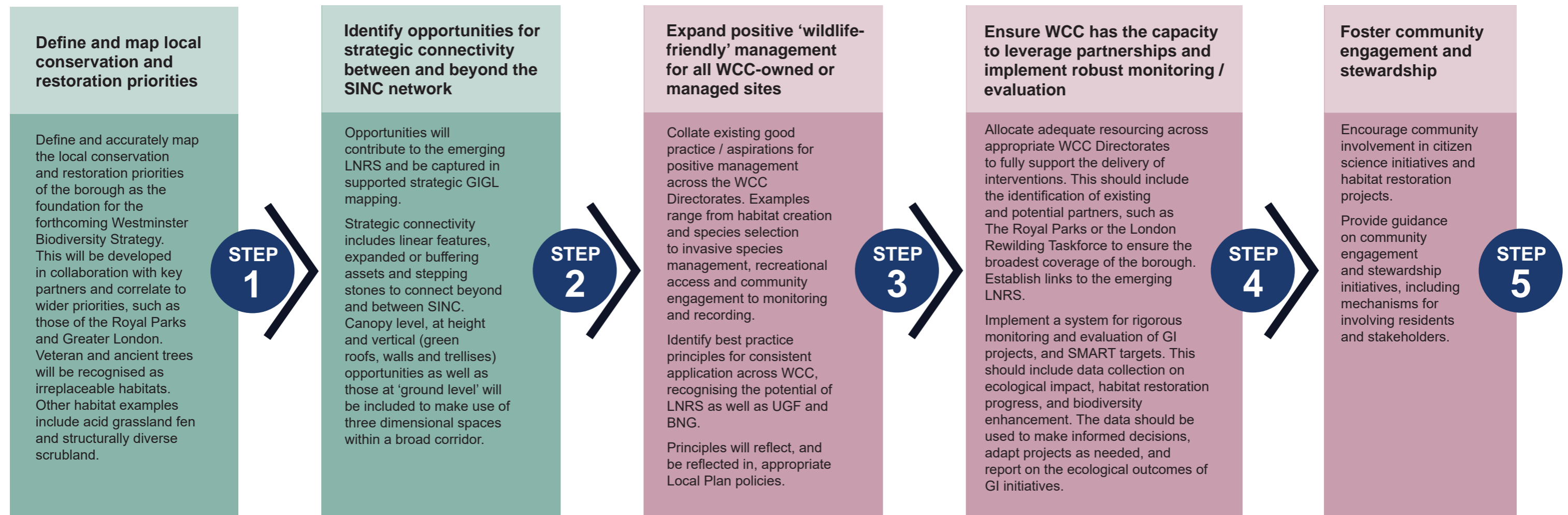
Responsible WCC Directorates
- Environment, Climate & Public Protection
- Innovation & Change

Relevant documents / strategies
- Climate Adaptation Plan
- Climate Emergency Action Plan
- City Plan (2019-2040)
- Environmental SPD
- Historic Parks & Gardens SPG

▲ *Existing tree planting at Paddington Green*

Process for delivery of the recommendation

STEP 1

New trees should be planted where there is space available

For a dense urban area such as Westminster, new tree planting should focus on quality rather than quantity. The aim should be to plant the right tree in the right place. This is key to ensure that resources aren't wasted on planting trees that won't survive and flourish.

Trees of all sizes are valuable in urban areas, but large and long-lived species have the potential to deliver the greatest benefits and public goods for the longest time-period. Overall, cultivating large and healthy trees provides the best return on investments.

STEP 2

Identify new tree planting sites

Potential new tree planting sites should be systematically identified and investigated for their suitability.

New street tree planting should be encouraged wherever possible, particularly in Soho, Mayfair and Marylebone where there is currently a shortage. Engineered tree pits must be designed to hold sufficient soil for the trees to reach maturity.

STEP 3

Encourage species diversity

Planting a wide range of tree species would protect the tree population from the threats of novel pests and diseases. Also, planting trees that are likely to tolerate warmer temperatures and drought conditions should make the tree population more able to tolerate expected climate change.

STEP 4

Ensure that trees are planted with adequate soil volumes

The aim is to create a diverse assemblage of long-lived trees to create resilient green infrastructure with multiple benefits, and the key to achieving this is to ensure that each tree is planted with enough soil to enable it to reach maturity.

One of the first steps taken by a specifier should be to calculate the volume of soil available in a planting position. This will identify what tree species can be supported in that location. At the planning application stage, WCC should request detailed tree pit designs, and these should be scrutinised to ensure their adequacy.

Adopt and encourage tree pit designs that optimise SuDS benefits

Trees provide long-term SuDS benefits, whilst also providing amenity and supporting local biodiversity. Urban tree pits can collect and attenuate surface water runoff by storing water within the soil and filtering out pollutants. However, within most urban areas within Westminster, runoff is diverted away from trees and into stormwater management systems. In addition, the tree canopy layer can intercept and evaporate approximately 6.5–11.0% of the total rainfall falling onto the crown (Kirnbauer et. al., 2013). Tree transpiration also removes water from the drainage system before it leaves the site. The larger and healthier a tree is, the more effectively it can intercept and conserve water (LTOA, 2013; Hand & Doick, 2019). Therefore, using rainwater to irrigate urban trees brings multiple SuDS benefits, as well as enhancing their survival.

Street trees at Hyde Park Estate & Connaught Village

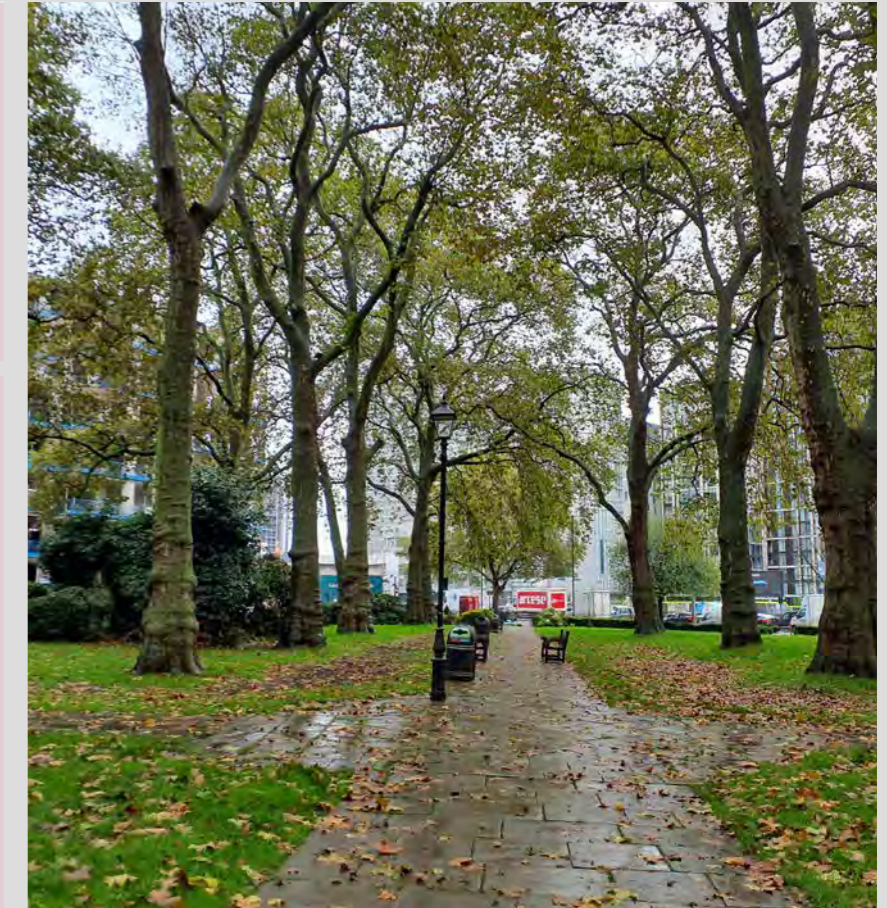
Howard de Walden Estate

Responsible WCC Directorates

- Environment, Climate & Public Protection
- Innovation & Change

Relevant documents / strategies

- Climate Adaptation Plan
- Climate Emergency Action Plan
- City Plan (2019-2040)
- Environmental SPD
- Public Realm Strategy SPD

Process for delivery of the recommendation

Encourage the use of rainwater to irrigate urban trees

- SuDS and urban tree establishment should be part of one integrated design.
- Drainage designs should aim for water to pass through the soil in the tree pit and be drained out of the bottom. Runoff generated by a hard, impermeable surfacing should be directed into the tree pit via a suitable inlet. Alternatively, the whole surface should be designed to be permeable as part of wider integration of GI into key streets.

STEP 1

Encourage large-growing tree species

- Larger trees bring greater SuDS benefits and so they should be planted whenever there is available space.
- The effectiveness of runoff reduction is more pronounced when trees are planted over or near impervious surfacing.

STEP 2

Provide guidance on suitable tree pit designs

- Trees can be planted within bioretention areas to improve their performance; for example, in rain gardens and detention basins. Tree pits designed to accept runoff can be used as a separate feature in a SuDS.
- Providing guidance on suitable designs for SuDS tree pits will help enable trees to be incorporated into new developments.

STEP 3

Ensure collaboration with design teams

Professional input from landscape architects, drainage engineers and arboriculturists is required in the design of tree pits to ensure the provision of conditions necessary for trees to grow into healthy and mature individuals. Safeguarding the urban tree canopy is a shared responsibility and effective collaboration is needed to design tree pits to support healthy and long-lived trees.

STEP 4

City of Westminster

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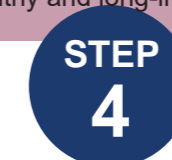
Restore lost rivers

The restoration of lost rivers in Westminster can contribute to catchment scale revival. Beyond ecological and cultural significance, restoration will promote climate change mitigation through natural flood management and urban cooling. Connectivity of restored river corridors to other wetland habitats not only fosters nature recovery but access to nature for recreation, health, education and culture.

▲ *Opportunity to link to existing blue corridors within Westminster - Grand Union Canal (left) and Regent's Canal (right)*

Responsible WCC Directorates
- Environment, Climate & Public Protection
- Innovation & Change

Relevant documents / strategies
- Climate Adaptation Plan
- Climate Emergency Action Plan
- City Plan (2019-2040)
- Environmental SPD

Process for delivery of the recommendation

Map subsurface connectivity

Map subsurface hydrological connectivity using historic, current and predictive modelling data to identify restoration opportunities that will also contribute to climate change mitigation.

STEP 1

Identify synergies with wider nature recovery and GI

- Review potential areas for river restoration that optimise linear connectivity through the borough and align with wetland habitats more widely.
- Identify foci for the integration of SuDS to complement wetland habitat restoration and creation, ensuring that SuDS contribute to effective stormwater management and biodiversity enhancement.

STEP 2

Agree priorities and develop action plans

- Review with partner organisations / technical stakeholders, such as the London River Restoration Group (LRRG) working on behalf of Catchment Partnerships across London, to determine priorities for delivery based on cross-boundary catchments.
- Commission feasibility studies to provide additional analysis to inform detailed action planning.
- Develop an action plan for delivery with funded roles and responsibilities identified.
- Define the strategy for community engagement, including collaboration with local communities and stakeholders. Collaborate with stakeholders to create a shared vision for these projects, ensuring their success through stakeholder 'buy-in' and long-term sustainability.

STEP 3

Address the risk of surface water flooding in the borough

Analysis of existing baseline data has shown that areas in the east as well as central areas of Westminster are subject to high levels or surface water flood risk. These areas of high flood risk areas broadly correlate with areas of low tree canopy cover and a high proportion of sealed surfaces. Climate change is expected to increase the intensity of extreme rainfall, heightening the risk of surface water flooding. Recent data shows the areas of the borough most vulnerable to climate impacts are located in the north west of the borough. GI offers the opportunity to provide substantial surface water flooding alleviation. Westminster has already begun the development of a programme of SuDS interventions in areas of high flood risk. Future proposals should aim to maximise the benefits of this investment across the borough.
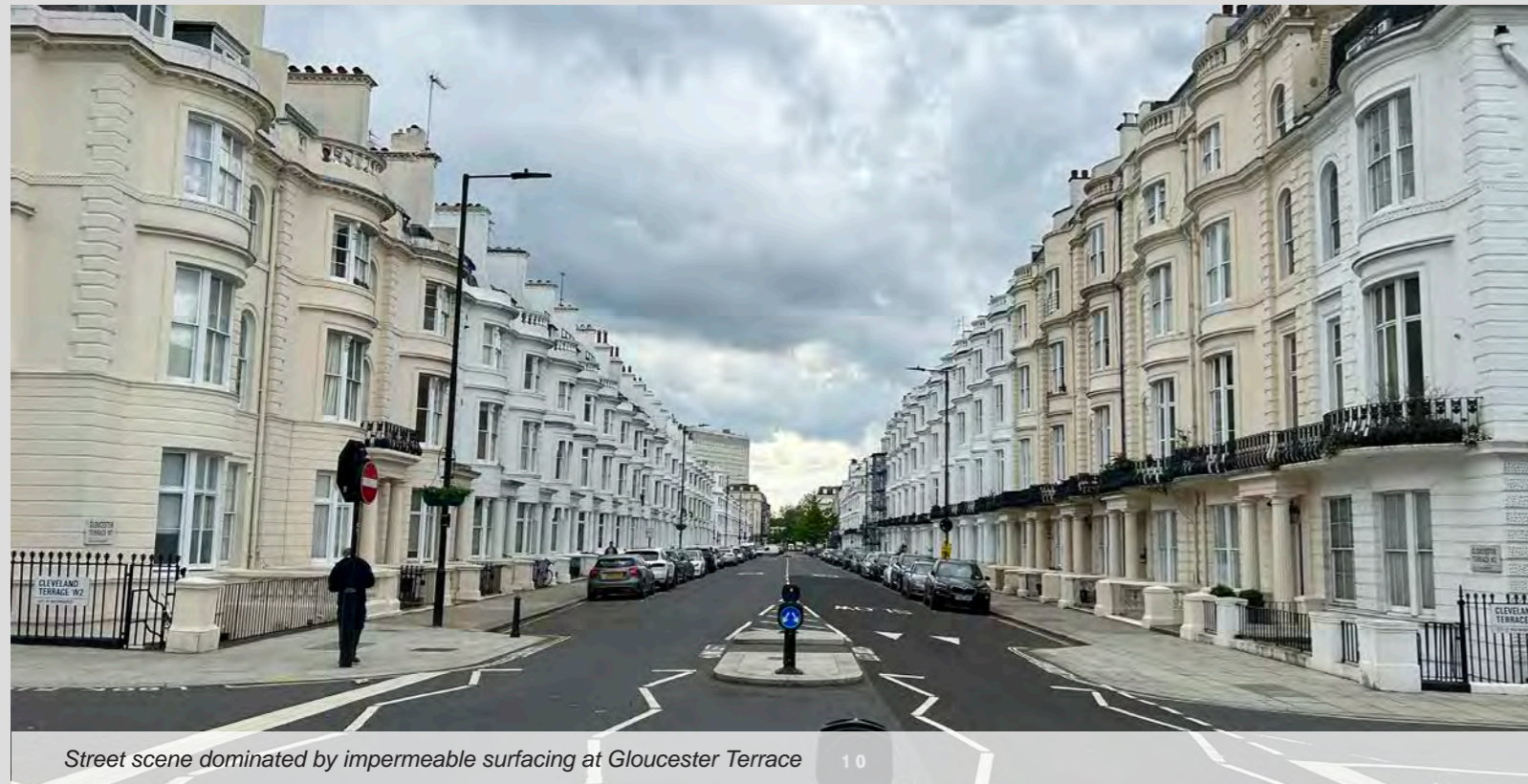
Street scene dominated by impermeable surfacing at Gloucester Terrace

Responsible WCC Directorates

- Environment, Climate & Public Protection
- Innovation & Change

Relevant documents / strategies

- Climate Adaptation Plan
- Climate Emergency Action Plan
- City Plan (2019-2040)
- Environmental SPD

Process for delivery of the recommendation

Build on work previously undertaken to integrate SuDS in areas of high surface water flood risk by the Climate Resilience Team

Ensure all relevant departments, as well as other organisations such as BIDs, are connected with WCC's surface water flooding programme to identify all opportunities to integrate SuDS into planned programmes of work. Prioritisation work should also be undertaken to target delivery in areas most at risk, ensuring alignment with recent Climate Risk Analysis to ensure its integration offers the potential to reduce the inequitable impacts of climate change.

Building on the identified projects and partnerships identified in the GI Audit, identify existing projects being led by with partner organisations, such as Thames21, Friends of the Regent's Canal, London Waterkeeper, Canal and River Trust, and Catchment Partnerships in London.

The future GI Strategy should prioritise opportunities for SuDS retrofitting in areas prone to surface flood risk and where this would provide an equitable response to mitigating climate risk.

STEP 1

Consider SuDS retrofitting alongside BNG

The future GI Strategy should prioritise opportunities for SuDS retrofitting in areas prone to surface flood risk. Guidance on the integration of BNG principles into GI and SuDS projects should be developed, emphasising local habitat incorporation and biodiversity enhancement.

STEP 2

Emphasise the need for a holistic design process and secure stakeholder 'buy-in'

Utilise policy updates and design guidance to promote the design of GI interventions that balance ecological enhancements with urban functionality. Collaborative agreements with partner organisations should be established to leverage their expertise, resources, and community engagement capabilities.
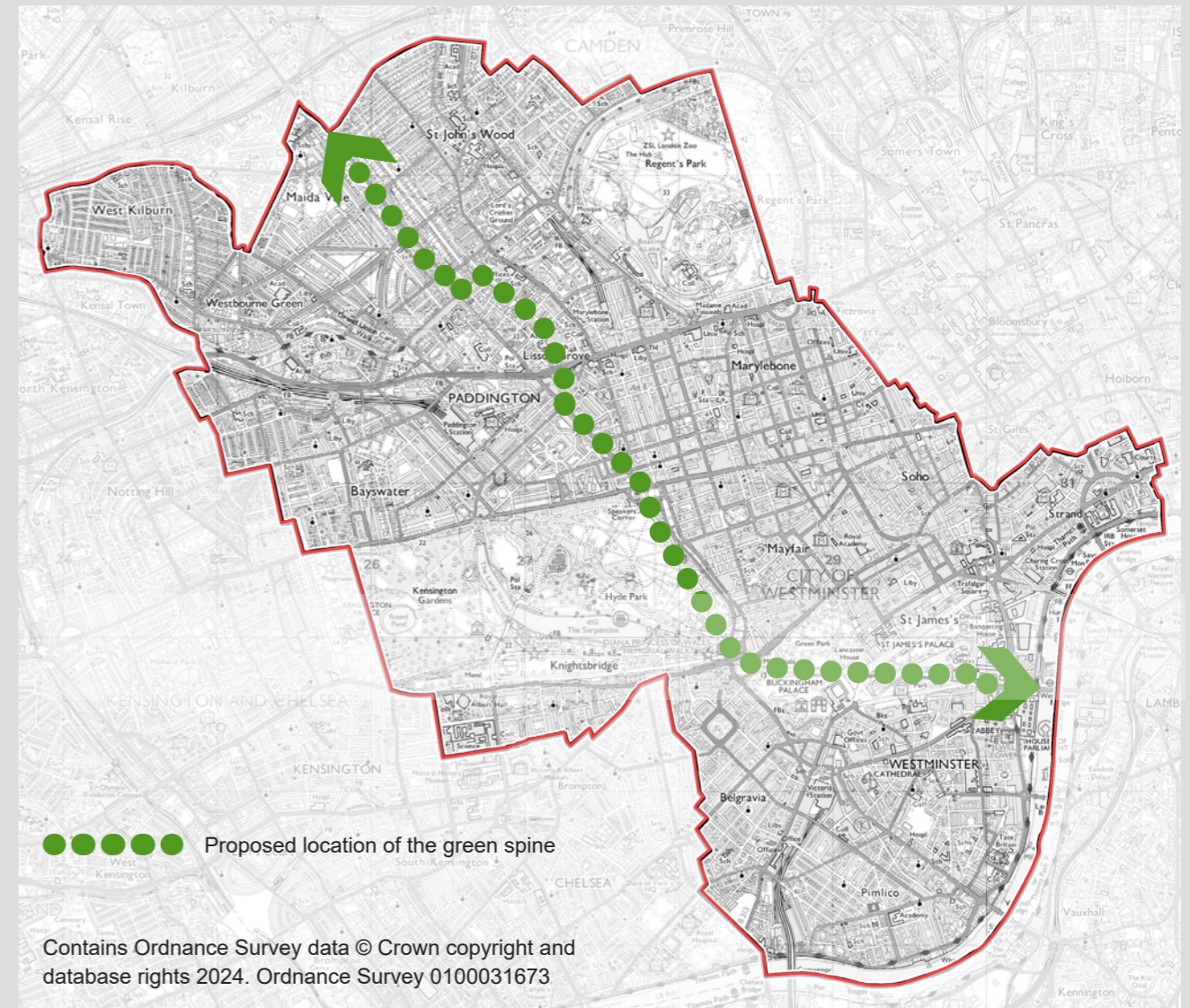
STEP 3

Develop a borough-wide 'green spine'

Analysis of locally available open space and habitat data identified gaps in the habitat network throughout Westminster. Inequalities in access to greenspace also exist across the borough. In addition, key shopping streets are experiencing declining footfall due to the impacts of the COVID-19 pandemic and the rise of online shopping.

GI is being integrated into existing regeneration projects in the borough, including a green spine within the Church Street Regeneration project. There is an opportunity to expand this planned green spine north and south to span the entire borough, linking up with and enhancing other recommendations. The green spine would utilise various GI typologies such as SuDS, green walls, street trees, raised planters and pocket parks as stepping stones to create an integrated GI network. These interventions would support habitat connectivity, surface water management, reduce the urban heat island effect and promote the attractiveness of the street scene. It would also provide an attractive green connection to the borough's existing greenspaces.

The proposed route of the green spine would extend north from Church Street along Fisherton Street and then connect to Maida Vale along the Regents Canal. Moving south along Edgware Road, it would connect to the north east of Hyde Park and then link via green stepping stones through Green Park and St James' Park to the River Thames.
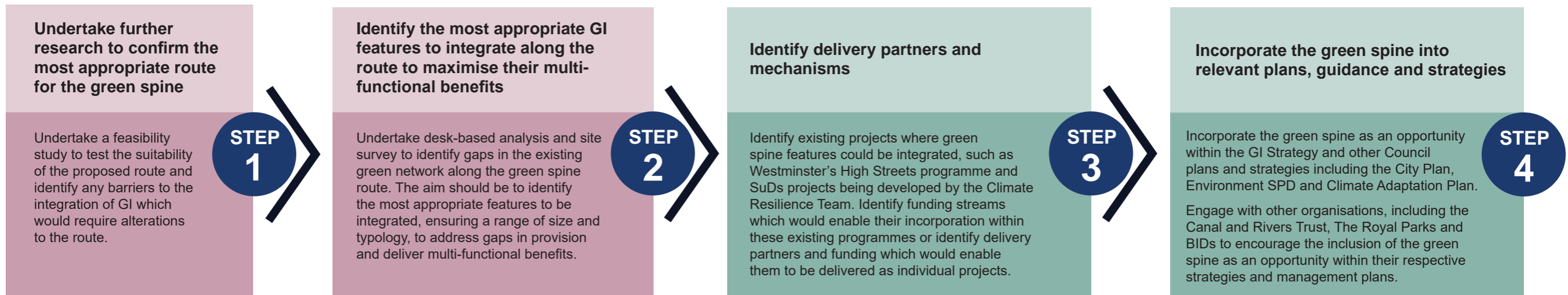
Responsible WCC Directorates
- Environment, Climate & Public Protection
- Innovation & Change

Relevant documents / strategies
- Climate Adaptation Plan
- City Plan (2019-2040)
- Environmental SPD
- Public Realm Strategy SPD

Proposed location of the green spine

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Process for delivery of the recommendation

Undertake further research to confirm the most appropriate route for the green spine

Undertake a feasibility study to test the suitability of the proposed route and identify any barriers to the integration of GI which would require alterations to the route.

STEP 1

Identify the most appropriate GI features to integrate along the route to maximise their multi-functional benefits

Undertake desk-based analysis and site survey to identify gaps in the existing green network along the green spine route. The aim should be to identify the most appropriate features to be integrated, ensuring a range of size and typology, to address gaps in provision and deliver multi-functional benefits.

STEP 2

Identify delivery partners and mechanisms

Identify existing projects where green spine features could be integrated, such as Westminster's High Streets programme and SuDs projects being developed by the Climate Resilience Team. Identify funding streams which would enable their incorporation within these existing programmes or identify delivery partners and funding which would enable them to be delivered as individual projects.

STEP 3

Incorporate the green spine into relevant plans, guidance and strategies

Incorporate the green spine as an opportunity within the GI Strategy and other Council plans and strategies including the City Plan, Environment SPD and Climate Adaptation Plan.

Engage with other organisations, including the Canal and Rivers Trust, The Royal Parks and BIDs to encourage the inclusion of the green spine as an opportunity within their respective strategies and management plans.

STEP 4

Chapter 11
Recommendations for Delivery

The GI Audit provides a first step towards the successful delivery of GI across Westminster. The development of the priority GI recommendations as part of the future GI Strategy is essential to ensure the delivery of multi-functional enhancements of the GI network.

11.1 The GI Audit collates mapping and assesses the wider GI evidence base, providing analysis of the existing GI network against each of the Natural England GI framework benefit principles. The strengths of the existing network and areas of deficiencies are also identified. This has resulted in the provision of a series of priority GI recommendations to address the identified gaps in the borough, with associated processes and mechanisms for delivery. Many of these priority GI recommendations will be delivered through the production of a future GI Strategy and accompanying Action Plan. Strategic objectives and spatially specific interventions will be developed to provide a plan for their successful delivery and ongoing stewardship. The future GI strategy will then set out how GI can be integrated into planning policy and delivered to support multiple benefits. The successful delivery of GI also relies on strong partnerships, robust delivery mechanisms and transparent funding sources.

Requirements of the future GI Strategy

11.2 The future GI strategy will be a simple, easy to navigate document which clearly outlines a vision and objectives for GI in Westminster. The document will provide a clear set of spatially specific interventions linked to the priority GI recommendations identified within the GI Audit. Guidance relating to delivery, management, monitoring and their integration into planning policy will also be provided. Whilst the Regeneration, Economy & Planning Directorate at WCC should

take ownership of the future GI Strategy and its delivery, it should be seen as a corporate document which can be used to provide guidance to a variety of audiences. This includes planners, WCC officers, developers, delivery partners and the local community. The document should be considered in conjunction with the development of other document and strategies prepared by WCC, as highlighted within **Figure 1.3.**

Actions identified within the GI Audit for inclusion within the future GI Strategy (refer to Chapter 10):

- Audit existing green spaces located within AoD;

- Examine local GI provision across areas of deficiency and use the findings to identify a range of green spaces to be enhanced in the north west and south east of the borough;

- Assess the perception and user experience of green space provision within areas of existing green space deficiency;

- Review Westminster's existing cycle network using baseline information from the revised Sustainable Transport Strategy to provide up-to-date evidence base;

- Integrate active travel within identified GI interventions;

- Consult with The Royal Parks team and WCC Parks team to identify sites which are experiencing high visitor pressures;

- Review all existing regeneration projects with a view to proposing the integration of GI across the borough. Undertake consultation with a range of user groups and identify delivery partners / funding opportunities to implement these measures;

- Consider historic character and sensitivity when identifying GI opportunities, including the development of new guidance on the integration of GI (e.g. street trees) into the historic environment;

- Consider the restoration of lost rivers as a key opportunity

- Identify areas where there are overlapping issues of environmental injustice and high negative impacts from urban heating. Propose and consult on GI interventions which reduce the urban heat island effect;

- Define and map local conservation and restoration priorities, identifying opportunities for strategic connectivity between and beyond the SINC network;

- Build on work previously undertaken to integrate SuDS in areas of high surface water flood risk by the Climate Resilience Team to consider how the SuDS programme can be fed into the development of GI opportunities; and

- Include recommendations for the involvement of communities in the stewardship of new or improved GI within the borough.

Delivery beyond the GI Strategy

11.3 Demonstrating the cross-cutting nature of GI and its relevance to many different sectors, not all of the priority GI recommendations arising from the GI Audit will be deliverable through the production of the future GI Strategy. GI should be seen as an integral to the success of the work across WCC and partner agencies. Consequently, specific actions identified within the priority GI recommendations of the GI Audit would also be delivered through the production of strategies and delivery plans by other teams within WCC or partner organisations.

Delivery mechanisms

11.4 There are several mechanisms which can be adopted to ensure the successful delivery of GI, including:

- **Organisations**
  Identify and deliver GI projects independently from the planning system.

- **Grassroots initiatives**
  Ensures that communities can deliver GI directly.

- **The planning system**
  Provides the mechanisms by which opportunities are identified, funded and delivered.

11.5 Embedding GI within the planning system provides the most robust method of securing the future protection, enhancement and expansion of the network. However, adopting a range of these mechanisms is the most likely way to guarantee continued and supported delivery which engages the wider community, ensuring they are not isolated from the process and champion its ongoing stewardship.

Partnerships

11.6 Before deciding on a definitive delivery mechanism and funding stream, it is important to consider the partnerships which will be utilised in delivering a project. The more cooperation and stakeholders which are involved in a project from the outset, the more likely it will be successfully delivered and maintained in the long-term.

11.7 From the outset of this GI Audit, partnership and stakeholder involvement has been paramount to the identification of the priority GI recommendations and this therefore creates a starting point for the future identification of spatially specific interventions as part of the future GI Strategy. It is important to remember that positive partnership working requires open communication from inception through to delivery and during ongoing maintenance. Additional consultation, including with potential delivery partners not directly engaged with as part of this GI Audit, will be essential in the delivery of some future GI interventions.

Funding

11.8 Financing projects is most often the biggest obstacle to overcome when planning for GI. Therefore, it is essential that a combination of funding streams and financing mechanisms are drawn upon. Potential funding sources include:

- The direct delivery of greening features within masterplans of new development, using future Biodiversity Net Gain (BNG) policies as a lever, alongside design codes and developer checklists as tools for ensuring high-quality interventions;

- Section 106 (s106) and offsetting BNG through biodiversity credits (where on-site provisions cannot be achieved) from new development;

- Small-scale community-level funding to retrofit urban areas with green features;

- Public realm enhancement schemes which could benefit from some national government grants;

- Funding associated with BIDs to deliver high street greening and active travel projects; and

- Events and commercial activity in open spaces which re-invest some of the profit into the borough's open space assets and could also be used to fund maintenance.

Design Guides and Codes

11.9 The recently published National Design Guide and National Model Design Code highlights the importance of using these tools in achieving high quality, sustainable and beautiful design. The development of a future local design code and guidance for new development offers a potential mechanism to deliver GI interventions identified within the GI Audit and future GI Strategy.

Monitoring and review

11.10 The continued monitoring of the implementation of the GI Audit is essential to gauge its success, as well as identifying any amendments or changes in priorities. The priority GI recommendations were developed based on information available at the time of writing. The list of priority GI recommendations should therefore be reviewed, ensuring that the prioritisation of projects continues to reflect the existing circumstances within Westminster, for example, whether a specific development coming forward alters the need, delivery mechanisms and financing of a lower priority project to a high priority. Measurable standards provide the most robust way of monitoring the future success of the priority GI recommendations and determining their degree of adherence with policy requirements.