INTEGRATED IMPACT ASSESSMENT OF THE LONDON PLAN

IIA SCOPING REPORT

FEBRUARY 2017

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1 INTRODUCTION

This chapter sets out the background, purpose and the status of the IIA Scoping Report and provides an overview of the contents of the rest of the report.

1.1 OVERVIEW

1.1.1 The GLA is a unique form of strategic citywide government for London. It is made up of a directly elected Mayor and a separately elected Assembly. The Mayor is responsible for drafting a number of statutory strategies and for setting the budget for the GLA and its functional bodies.

1.1.2 The Greater London Authority Act (as amended) places responsibility for strategic planning in London on the Mayor, and requires him to produce a Spatial Development Strategy for London (also known as the London Plan); he is also required to keep it under review. The Greater London Authority Act 2007 gave the Mayor additional powers, including powers to 'call in' and determine some major planning applications. The Act devolved responsibilities from Whitehall to the Mayor to tackle climate change and health inequalities in London. There are currently discussions underway about the further devolvement of powers across a range of issues.

1.1.3 Following his election in 2016, Mayor Sadiq Khan indicated that a full review of the London Plan would be undertaken leading to the adoption of a new London Plan in 2019.

1.1.4 An key part of reviewing the London Plan is the requirement to undertake an Integrated Impact Assessment (IIA). This scoping report is the first stage of the Integrated Impact Assessment and incorporates the statutory and non-statutory requirements of:

- Strategic Environmental Assessment (SEA)
- Sustainability Appraisal (SA)
- Equalities Impact Assessment (EqIA);
- Health Impact Assessment (HIA); and
- Community Safety Impact Assessment (CSIA)
- Habitats Regulation Assessment (HRA);

1.2 PURPOSE OF THIS IIA SCOPING REPORT

1.2.1 This IIA Scoping Report sets out, for the purposes of consultation, the proposed scope of issues to be addressed in the IIA and the approach to be undertaken in assessing them. The document aims to outline the baseline information and evidence which is needed to inform the IIA of the emerging London Plan objectives and policies. This is based on identification review of plans and programmes which are relevant to the study area and an assessment of the environmental, economic and social baseline information.

1.2.2 From an assessment of the baseline, this IIA Scoping Report identifies key social, environmental and economic issues facing London and provides a framework for assessing the likely impacts of the London Plan in terms of how it will contribute to resolve such issues and

ultimately how it will contribute to sustainability. The framework consists of IIA objectives and guide questions which will examine whether the spatial approach to development and policies set out in the London Plan are sustainable.

1.2.3 The IIA Scoping Report provides consultees with an early opportunity to comment on the IIA process. In accordance with the Office of the Deputy Prime Minister (ODPM) SEA Guidance, A Practical Guide to the Strategic Environmental Assessment Directive (2005), our approach should provide:

- An understanding of the context of the London Plan and its likely scope (Chapter 2)
- The approach of the IIA, the topics it will need to consider and to what level of detail (Chapter 3)
- Identification of other policies, plans, programmes and sustainability objectives and key issues related to them (Chapter 4 and Appendix A)
- An understanding of the baseline situation and its likely evolution in the absence of a revised London Plan, and other evidence likely to be available to the assessment, with any important gaps identified (Chapters 5 and 6)
- The proposed IIA objectives and framework to assess the sustainability of the London Plan and alternatives; (Chapter 7)
- An overview of the proposed approach to undertaking the assessment (Chapter 7)

1.2.4 The Scoping Report aims to provide sufficient information to key stakeholders on the proposed approach to the IIA for the London Plan review. The final results of the IIA will be described in a full IIA report that will be published at the same time as the draft new London Plan in Autumn 2017. A full public consultation process will be undertaken for both documents and stakeholders and the public will be provided with the opportunity to comment on the IIA Report.

1.2.5 Figure 1.1 signposts the reader to where the key issues under the respective elements of the IIA can be found in the Scoping Report, with specific reference to the topics which should be addressed under the SEA Directive in conformity with the DCLG guidance.

Figure 1.1: SEA, SA, EqIA, HIA, and CSIA Topics and their Coverage in the IIA Scoping Report

SEA Directive Assessment of Effects Issues	IIA Topics	Issues under: SEA, HIA, EqIA, SA, CSIA	Where can be found in this IIA Scoping Report
Population	Demographic, Social Integration and Inclusion	SEA, SA, EqIA	Sections 5.2, 5.3, Figures 6.1, 7.1, Appendix B
	Economic competitiveness and employment	SEA, SA, EqIA	Sections 5.10, 5.11, Figures 6.1, 7.1 Appendix B
	Education and Skills	SEA, SA, EqIA	Section 5.12, Figures 6.1, 7.1, Appendix B
	Connectivity	SEA, SA, EqIA, HIA, CSIA	Section 5.8, Figures 6.1, 7.1 Appendix B
Material Assets	Materials and waste	SEA, SA, EqIA	Section 5.23, Figures 6.1, 7.1 Appendix B
	Housing and Sustainable land use	SEA, SA, EqIA, HIA	Sections 5.6, 5.7, Figures 6.1, 7.1, Appendix B
Human Health	Health and health inequalities	SEA, SA, EqIA, HIA	Section 5.4, Figures 6.1, 7.1, Appendix B
	Accessibility	SEA, SA, EqIA, HIA, CSIA	Section 5.9, Figures 6.1, 7.1, Appendix B
	Crime, safety and security	CSIA, SA, EqIA, HIA	Section 5.5, Figures 6.1, 7.1, Appendix B
	Noise and vibration	SEA, EqIA, HIA	Section 5.24, Figures 6.1, 7.1, Appendix B
Fauna & Flora Biodiversity	Natural environment and natural capital	SEA, SA, EqIA, HRA	Section 5.19, Figures 6.1, 7.1, Appendix B
Soil	Geology and soils	SEA, SA, HIA	Section 5.22, Figures 6.1, 7.1, Appendix B
Water	Water resources and quality	SEA, HRA, HIA, SA, EqIA	Section 5.17, Figures 6.1, 7.1, Appendix B

SEA Directive Assessment of Effects Issues	IIA Topics	Issues under: SEA, HIA, EqIA, SA, CSIA	Where can be found in this IIA Scoping Report
Climatic Factors	Air quality	SEA, SA, EqIA, HIA	Section 5.14, Figures 6.1, 7.1, Appendix B
	Climate change adaptation and mitigation	SEA, SA, EqIA, HIA	Section 5.15, Figures 6.1, 7.1, Appendix B
	Energy use and supply	SEA, SA, EqIA, HIA	Section 5.16, Figures 6.1, 7.1, Appendix B
	Flood risk	SEA, SA, HIA	Section 5.18, Figures 6.1, 7.1, Appendix B
Cultural Heritage including Architecture & Archaeological Heritage	Historic Environment	SEA, SA, EqIA, HIA	Section 5.21, Figures 6.1, 7.1, Appendix B
	Culture	SEA, SA, EqIA	Section 5.13, Figures 6.1, 7.1, Appendix B
Landscape	Historic Environment Townscape and Landscape	SEA, SA, EqIA, HIA, CSIA	Section 5.21, 5.20, Figures 6.1, 7.1, Appendix B

1.3 ENGAGEMENT AND CONSULTATION

1.3.1 An internal GLA steering group has been set up to develop a consistent IIA framework for all Mayoral strategies. The framework will include a common set of IIA objectives to be used for the assessment stage of the IIAs for each strategy. The guide questions which sit underneath each of the IIA objectives will be relevant and specific for the individual strategies.

1.3.2 The GLA and TfL held a workshop with key stakeholders on 14 June 2016 to identify key issues and consider a consistent set of IIA objectives which could apply to all relevant Mayoral strategies. This has directly informed the IIA objectives identified in this report. A full list of workshop participants can be found in Appendix E.

1.3.3 Regulation 4 of the Environmental Assessment of Plans and Programmes Regulations 2004 defines certain organisations with environmental responsibilities as consultation bodies. In England the statutory consultation bodies are Historic England, Natural England and the Environment Agency.

1.3.4 This IIA Scoping Report will be provided for comment to the statutory consultees as well as well as other key stakeholders for a period of five weeks.

If you would like to comment on any part of this document please respond by any of the following means:

by e-mail to: rachael.rooney@london.gov.uk

by post to: Rachael Rooney

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The consultation period will run from 14th February 2017 to 21st March 2017 for a 5 week period.

2 THE LONDON PLAN

This chapter gives an overview of the London Plan, its current status and the need to revise the strategy. It describes the proposed approach to a revised strategy and provides an account of its scope.

2.1 ABOUT THE LONDON PLAN (SPATIAL DEVELOPMENT STRATEGY)

2.1.1 The London Plan outlines the parameters for London's growth, including homes and job numbers, housing delivery targets for boroughs, and a range of strategic policies – with which the boroughs' Local Plan policies must be in general conformity.

2.1.2 The latest London Plan was published in March 2016 and is a consolidated version based on the 2011 Plan (under the previous Mayor Boris Johnson) – including three minor alterations (Revised Early Minor Alterations 2013, Further Alterations 2015 and Minor Alterations 2016).

2.1.3 After his election in May 2016, the Mayor of London Sadiq Khan announced that a full review of the London Plan will be undertaken leading to the adoption of a new plan in 2019.

2.1.4 As part of this early stage in the review, the Mayor formally published A City for All Londoner document in October 2016 which sets out his direction of intent for all his strategies, including the London Plan, providing an opportunity for early engagement in the development of all his strategies. Within this direction of travel document the Mayor has set out a vision for good growth:

"To build a London where no community feels left behind and where everyone has the opportunities they need to fulfil their potential

To accommodate as much growth as possible within London – protecting land for employment across London but particularly in the centre and intensifying housing developing around stations and well connected town centres so that people can live in convenient locations.

Ensure that people can access decent and affordable housing, jobs, culture and social infrastructure across the city, that methods of transport keep pace with the number of people needing to travel, and that the environment is protected and enhanced – in a bold and positive response to unprecedented growth pressures.

Bring forward more housing on Transport for London (TfL) and other public-sector land. Help the development industry to do more – and, importantly, offer a variety of affordable housing types – low-cost rented, the London Living Rent and shared ownership – working towards a target of 50 per cent of new homes in the capital being affordable.

Preserve and enhance London's global competitiveness on all fronts – delivering world-class transport infrastructure, arguing for an immigration system that prioritises access to talent, and protecting our environment and our world-class culture so that people and businesses from around the world continue to choose London.

Increase opportunities for all Londoners – from different backgrounds and of all ages - to ensure that everyone benefits from the capital's economic success.

Promote economic activity across London, day and night, and take account of the particular needs of small businesses operating in the capital.

Protect and enhance the environment - including the Green Belt. Bring air quality back down to safe levels as soon as possible, and by 2050 London to be zero carbon – which can be achieved in part by introducing measures for cleaner, more efficient energy production and use.

The city to be green, healthy and more attractive - reducing traffic and encouraging cycling and walking on 'Healthy Streets'.

Protect the city's heritage and culture and promote good design in public spaces to improve everyone's quality of life.

To be a stronger, more cohesive and social integrated city by addressing inequalities, tackling disadvantage and discrimination and promoting full participation in the life of the city. Making sure that in every area of policy, they are given the resources they need to make London a more equal city.

Redefining the priorities of the Met Police to bring policing closer to communities; to protect young people, particularly from the dangers of knife crime; to confront violence against women and girls; to combat hate crime, extremism and terrorism; and to improve the criminal justice system so that it really works for all Londoners."

The vision and objectives for the London Plan will derive from those in the 'A City for All Londoners' document, as set out above.

Growth challenges

2.1.5 Figure 2.1 sets out the key drivers of growth that the new London Plan will need to consider.

Figure 2.1: Key drivers of growth for London

Economic and demographic growth parameters to 2041 for the new London Plan	
Population	• 8.7 million people at 2015 • 2016 London Plan: projected growth of 76,000 people per year to 2036 • latest projections: projected growth of 72,000 people per year to 2041
Households	• 3.4 million households at 2014 • 2016 London Plan: projected growth of 40,000 households per year to 2036 • latest projections: projected growth of 46,000 households per year to 2041
Housing need	• 2016 London Plan: assessed need of 49,000 homes per year to 2036 • latest indications: 56,000+ homes per year to 2041?
Housing capacity	• 2016 London Plan: borough annual housing targets set at 42,000 homes in aggregate plus capacity sufficient to meet need (49,000 pa) to be identified • housing pipeline of 260,000 (planning approvals) • annual completions averaging only 25,000 per year (29,600 a year if non self-contained and vacant homes returning into use are included) • future housing capacity to be determined (2017 SHLAA)
Employment	• 5.6 million jobs at 2015 • 2016 London Plan: projected growth of 32,000 jobs per year to 2036 • latest projections: projected growth of 46,000 jobs per year to 2041

Policy Levers

2.1.6 The growth challenges described above can be tackled by applying different policy levers, various combinations of which will result in different spatial patterns of development for London (the spatial options). Some of these have been explored in Outer London Commission reports, commissioned by the previous Mayor, as well as joint work with Transport for London on options for transport infrastructure and through independent studies (see Appendix F). These include (noting many of these may overlap):

- focusing growth in CAZ/Isle of Dogs, opportunity and intensification areas, housing zones, the higher order town centres, Strategic Outer London Development Centres and locations well served by public transport, together with selective release of industrial land for housing. Note that this is the approach favoured by the current Plan.
- promoting higher levels of growth in the above locations, recognising transport capacity constraints
- housing density uplift
- estate renewal
- better use of public landholdings (including TfL's)
- marginal industrial/brownfield land release – but not to the extent that London's core industrial base is compromised
- suburban intensification
- station intensification zones/areas
- growth corridors in and extending beyond London (pulls all the above together but with a particular focus on strategic transport infrastructure (eg CrossRail1, High Speed 2, CrossRail2)
- improved efficiency – making better use of existing housing stock and the pipeline of approvals,
- metroisation (more frequent services on existing lines),
- addressing barriers to housing delivery
- green belt review/selective green belt release
- Duty to Cooperate agreements with authorities outside London to take an element of London's growth (housing and/or industry)

2.2 SPATIAL DEVELOPMENT OPTIONS

2.2.1 As part of the London Plan review, high level spatial development options will be tested to assess strategic land use alternatives for London.

2.2.2 The options to be considered envisage that the new London Plan will strongly support economic growth, recognising that sustaining and enhancing the agglomerations of global and national activities in CAZ/Canary Wharf will be central to this but that opportunities must be taken to foster a fairer, more accessible economic geography across London with a renewed emphasis on social integration and cohesion.

2.2.3 The new London Plan will also outline a stronger spatial emphasis with an increased focus on the delivery of development through the intensification of more parts of London.

2.2.4 The decision to leave the EU will also have implications for a range of policy areas the Plan will

need to consider, including London's economic competitiveness, access to labour markets and migration patterns.

2.2.5 At this stage in the review process spatial development options are still being finalised, however with reference to the available London Plan policy levers described above, three options are currently being explored.

1) **the current London Plan's approach**

- Focusing high order economic growth in the CAZ/Isle of Dogs (and inner London)
- Opportunity and Intensification areas – largely residential led
- Housing Zones – 31 currently identified
- Town centres as the main focus of commercial activity beyond CAZ
- Renewal of medium order town centres (some Majors and more Districts) – higher density, housing led mixed use re-development
- SOLDCs and other locations well served by public transport
- Selective release of industrial land for housing based on updated industrial land benchmark release

2) **Sustainable Intensification**

- Focusing high order economic growth in the CAZ/Isle of Dogs (with Stratford) and Old Oak as 'strategic office reserves') but also encouraging more dispersed growth across London (outer as well as inner London);
- all of option 1 with an uplift in housing density generally and in particular in locations well served by public transport,
- medium and higher order town centres – more targeted approach to identifying and facilitating re-development/intensification opportunities in some Major and, in particular, District centres through mixed use residential led higher density renewal;
- estate renewal - targeted approach in partnership with boroughs and residents,
- public landholdings - redevelopment of surplus landholdings for housing based on a review and reconfiguration of public service delivery,
- more proactive approach to managing industrial land release including facilitating co-location of suitable industrial and housing, and selective re-location of industry within and beyond London,
- suburban intensification - selective redevelopment of some parts of outer London that are in medium to high PTALS
- station intensification zones/areas – these areas may overlap with town centres, opportunities areas and growth corridors,
- growth corridors – scope for denser development based on significant infrastructure delivery such as Crossrail 2, Bakerloo line Extension, possible expansion of Heathrow,
- improved efficiency of existing stock – provision of realistic and attractive

alternatives (eg sheltered or specialist housing) to allow movement of under occupiers to free up existing stock and addressing barriers to delivery of the substantial pipeline of planning approvals

3) **City Region Approach**

- Main focus of economic growth within CAZ/Isle of Dogs and encouraging more dispersed economic growth across London coupled with stronger emphasis on fostering economic success with partners for growth on city region scale – this would include proactively working with partners in the Wider South East to develop infrastructure corridors and selectively encourage industrial relocation outside of London
- all of option 2 – housing growth
- selective Green Belt release for housing, especially in Development Corridors – led by the boroughs as part of their Local Plan review
- increased focus on DTC beyond London – targeting investment in strategic infrastructure there to enable partners to share housing delivery across the wider region

3 THE PROPOSED APPROACH TO THE INTEGRATED IMPACT ASSESSMENT

This chapter describes the purpose of the IIA, its role in the decision-making process and outlines the IIA process. The IIA is an integral part of good plan-making that identifies and reports on the likely significant effects of the London Plan and the extent to which implementation of the London Plan will achieve sustainable development. This chapter describes how this will assist the Mayor in fulfilling the objective of meeting the legal requirements for a Strategic Environmental Assessment and other requirements to have regard to economic, environmental and social impacts, and also explains the benefit of integrating different methods of appraisal and evaluation into a coherent single impact assessment.

3.1 PURPOSE OF THE IIA

3.1.1 The purpose of the IIA is to promote sustainable development through better integration of sustainability considerations into plan preparation and adoption. IIA is an integral part of good plan-making and should not be seen as a separate activity. It is an iterative process that identifies and reports on the likely significant effects of a plan or strategy and the extent to which implementation of the plan or strategy will contribute towards sustainable development.

3.1.2 The aim of the IIA is to help to identify and assess different strategic options and help advise on the most sustainable solutions. It also aims to minimize negative impacts, optimize positive ones, and compensate for the loss of valuable features and benefits. The IIA informs decision-makers about the environmental and sustainability consequences of the proposed London Plan policies which can then be considered alongside financial, technical, political and other concerns. Thus IIA adds an additional dimension to the decision-making process. The IIA process is, in many ways, a model for good plan-making. The more the plan-making and assessment processes are integrated, the more effective the assessment is likely to be.

3.2 WHAT IS IIA?

3.2.1 The aim of facilitating sustainable development requires the use of different disciplinary approaches to the impact assessment of plans and programmes, which can give a balanced consideration to the multidimensional nature of sustainable development targets.

3.2.2 The IIA is an assessment tool which uses an integrated appraisal approach across a number of topics to measure the potential impacts of the new London Plan. The IIA delivers SEA and SA requirements as well as looking in more depth into the issues of health, equality and community safety. By adopting this approach, the IIA provides for a thorough assessment of the respective aspects of sustainability.

3.2.3 The IIA is a strategic-level quantitative and qualitative assessment and is based on broad assumptions and judgements. It gives consideration of the significant environmental/ sustainability effects of the London Plan and of reasonable alternatives that takes into account the objectives and the geographical scope of the strategy. The IIA is a tool for improving the strategic action proposed by London Plan, which may be changed as a result of the IIA, with a focus on different objectives, different means of achieving these objectives, and different forms of implementation.[1] It also promotes participation of other stakeholders in the decision-making process and focuses on key environmental/sustainability constraints.

[1] Therivel, R. (2010) Strategic Environmental Assessment in Action. 2nd Edition. Earthscan: London.

3.3 APPROACH TO IIA

3.3.1 The proposed policies within the new London Plan will be subject to the following assessments, of which the findings will be collated into the overall IIA Report:

- Strategic Environmental Assessment (SEA);
- Sustainability Appraisal (SA)
- Equalities Impact Assessment (EqIA);
- Health Impact Assessment (HIA);
- Community Safety Impact Assessment (CSIA).
- Habitats Regulation Assessment (HRA);

3.3.2 The requirement for each assessment is discussed in more detail in Appendix A.

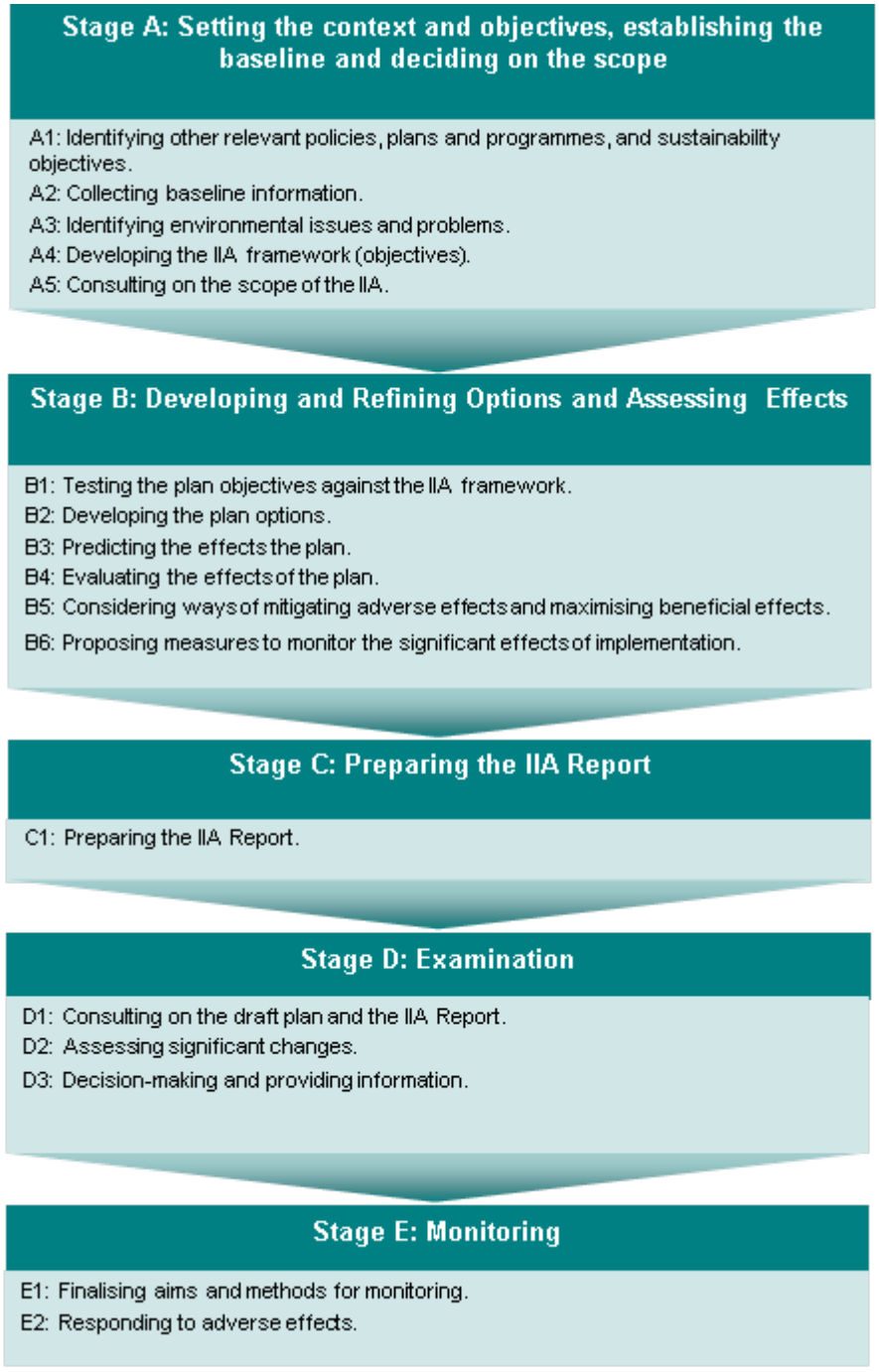
3.4 IIA PROCESS

3.4.1 This IIA Scoping Report follows key legislation, policy and guidance including:

- Directive 2001/42/EC 'on the assessment of the effects of certain plans, and programmes on the environment' (European Commission, 2001) i.e. the SEA Directive.
- Environmental Assessment of plans and programmes Regulations 2004 (SI 2004 No 1633)
- A Practical Guide to the Strategic Environmental Assessment Directive (ODPM, 2005);
- Guidance on Integrating Climate Change and Biodiversity into Strategic Environmental Assessment (4th April 2013 European Commission);
- Historic England guidance (2013) on Strategic Environmental Assessment (SEA)/ Sustainability Appraisal (SA) and the Historic Environment;
- Planning Advisory Service (PAS) Good Plan Making Guide. Plan Making Principles for Practitioners (2014);
- National Planning Policy Guidance
- Crime and Disorder Act 1998 (as amended)
- Police and Justice Act 2006
- HUDU Planning for Health (June 2015) Rapid Health Impact Assessment Tool
- Equality and Human Rights Commission (November 2009) Equality impact assessment guidance A step-by-step guide to integrating equality impact assessment into policymaking and review.
- The Equalities Act 2010

3.4.2 The approach to IIA ensures that commonalities, inter-related issues and synergies between the above assessments are identified in a systematic manner and used to inform the development of the new London Plan. In doing this, the IIA will contribute to development of a better informed London Plan which will be enhanced by giving greater consideration to a range of sustainability issues and will identify opportunities to maximise the contributions to sustainable development that the London Plan can make. Previous Scoping Reports that have been prepared for past London Plan and Mayoral strategy assessments have also been reviewed to ensure consistency with this assessment approach.

Figure 3.1: Stages of the IIA process



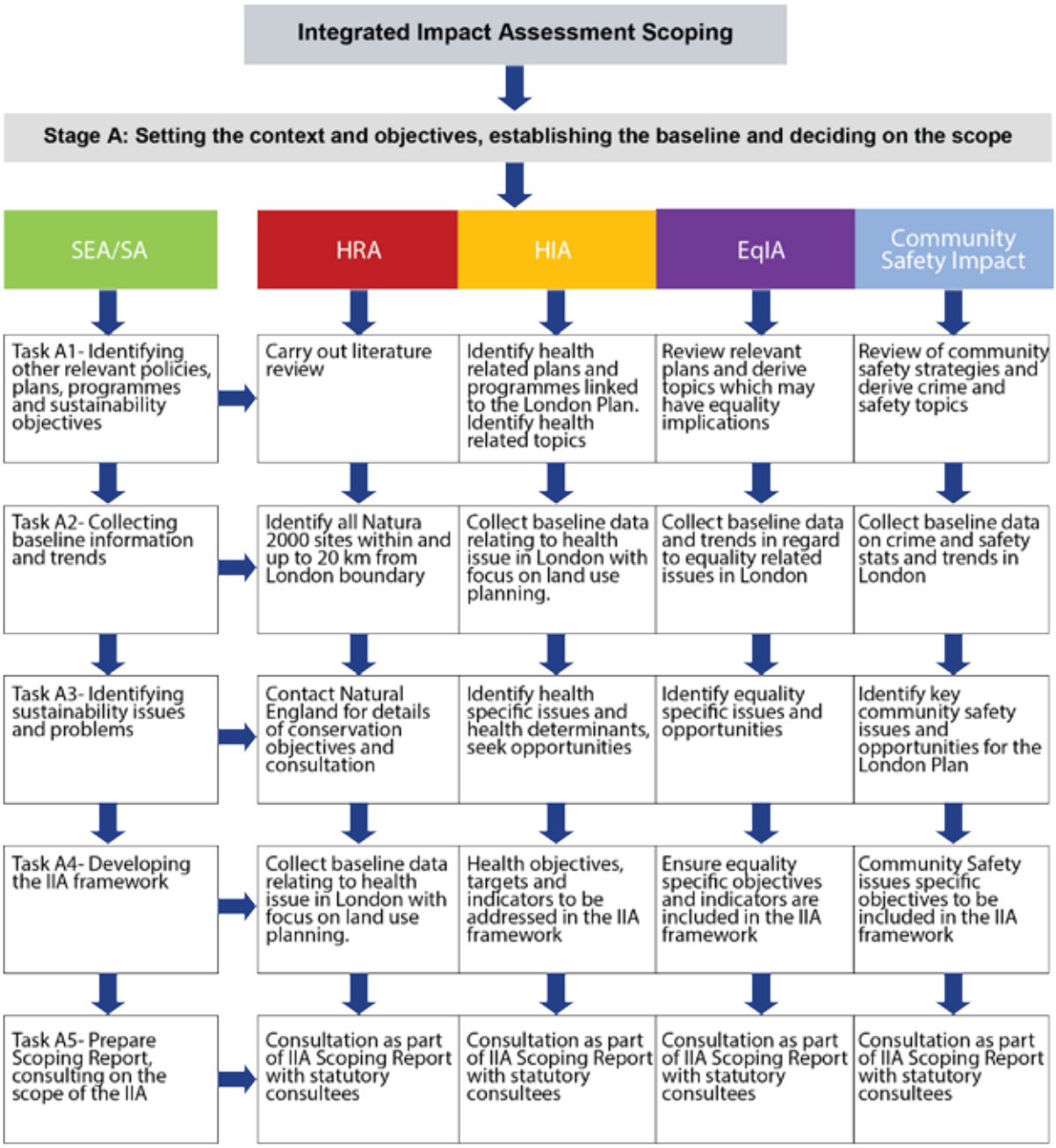
3.4.3 The first stage (**Stage A**) of the IIA process involves setting the context and establishing the baseline against which the London Plan review can be appraised. The key output of this stage is this Scoping Report, which has been developed with input from the statutory and selected non-statutory consultees as part of a workshop in June 206. It is now subject to further consultation by these consultees.

3.4.4 The scope of the IIA includes environmental, economic and social issues (including health, equality and community safety) to provide a wide ranging assessment of the potential effects

of implementing the policies of the new London Plan. In order to produce this Scoping Report, the IIA process requires a review of relevant plans and programmes as well as the collation and analysis of relevant baseline information. This will help identify key issues and will inform the development of a set of sustainability objectives that will be used in the framework to assess the new London Plan.

3.4.5 A detailed process of IIA at the scoping Stage A is illustrated in Figure 3.2:

Figure 3.2: IIA Scoping detailed process



3.4.6 **Stage B** includes developing and refining alternatives and assessing impacts. This will commence following consultation on this Scoping Report, taking into account the responses of those consulted.

3.4.7 **Stage C** includes preparing the IIA report. This will involve the integration of the assessments from all work streams into a single document.

3.4.8 **Stage D** includes the publication for wider public and stakeholder consultation of the draft new London Plan and associated IIA report, which assesses the likely significant impacts of the proposed London Plan.

3.4.9 The responses to the consultation on both the draft new London Plan and IIA Report will be analysed by the GLA and a report prepared for the Mayor, with recommendations for potential changes (if any).

3.4.10 Following the Examination in Public where both the draft new London Plan and the IIA report will be assessed, the Inspector will prepare a report setting out whether the London Plan is sound and/or provide recommendations. The Mayor can choose to accept or reject the Inspectors recommendations, however he would need to provide justification as to why any of the Inspector's recommendations were not accepted. The Mayor will then submit the final new London Plan to Secretary of State (SoS). The SoS then has 6 weeks to decide whether to direct the Mayor to make changes in order to avoid inconsistency with national policy or detriment to an area outside London. Assuming the Secretary of State decides not to make a direction, the Mayor is required to lay a copy of his draft proposals before the London Assembly, which then has 21 days to decide whether to reject it in its entirety or not (rejection requires two thirds of those voting in favour). If the London Assembly does not decide to reject the draft, the Mayor can then publish the London Plan (or alterations to the Plan) (Stage E), and it will have formal status as part of the development plan. At this time the Mayor is also required to publish a Post-Adoption Statement which will set out**:**

- how environmental, social and economic considerations have been integrated into the London Plan;
- how opinions expressed by consultees have been taken into account;
- the reasons for choosing the London Plan as adopted, in the light of the other reasonable alternatives dealt with; and
- the measures that are to be taken to monitor the significant environmental effects of the implementation of the London Plan.

3.5 SPATIAL AND TEMPORAL SCOPE OF THE IIA

3.5.1 The spatial scope refers to the geographic area that will be covered by the IIA. The principal spatial scope for the IIA will be the Greater London Authority area. The IIA will also take account of potential impacts on adjoining areas as appropriate, beyond the boundaries of Greater London into the neighbouring East of England and South East of England regions (for example, the outer metropolitan area and the interregional growth corridors). London in the context of the wider South East area is shown in Figure 3.3.

3.5.2 The key geographic areas within the Greater London boundary are defined by the individual London boroughs (depicted in Figure 3.4), and the areas of central, inner and outer London (depicted in Figure 3.5).

3.5.3 The new London Plan covers the period to 2041 and this will therefore also be the timeframe for the IIA. Where possible, significant effects identified will be categorised as short term (0-5 years), medium term (6-15 years) and long term (16-25 years

Figure 3.3: London and the wider South East

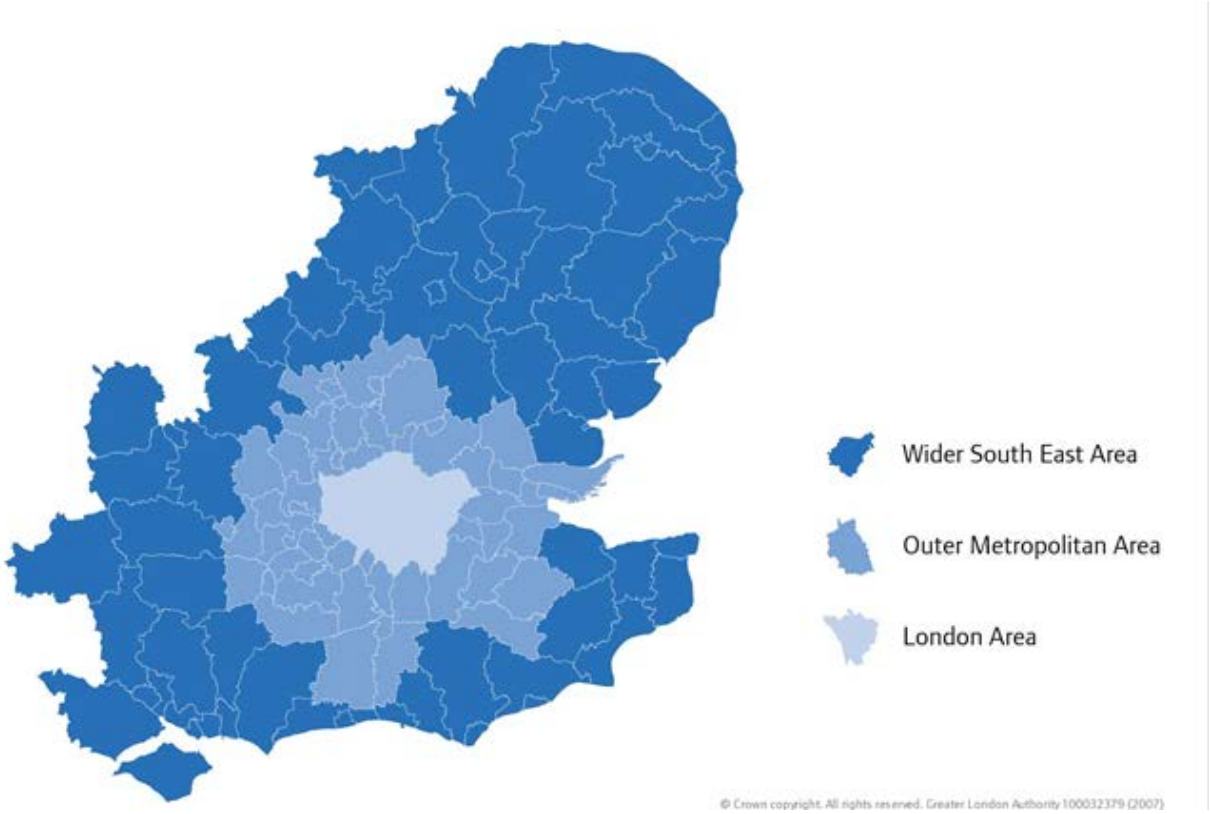
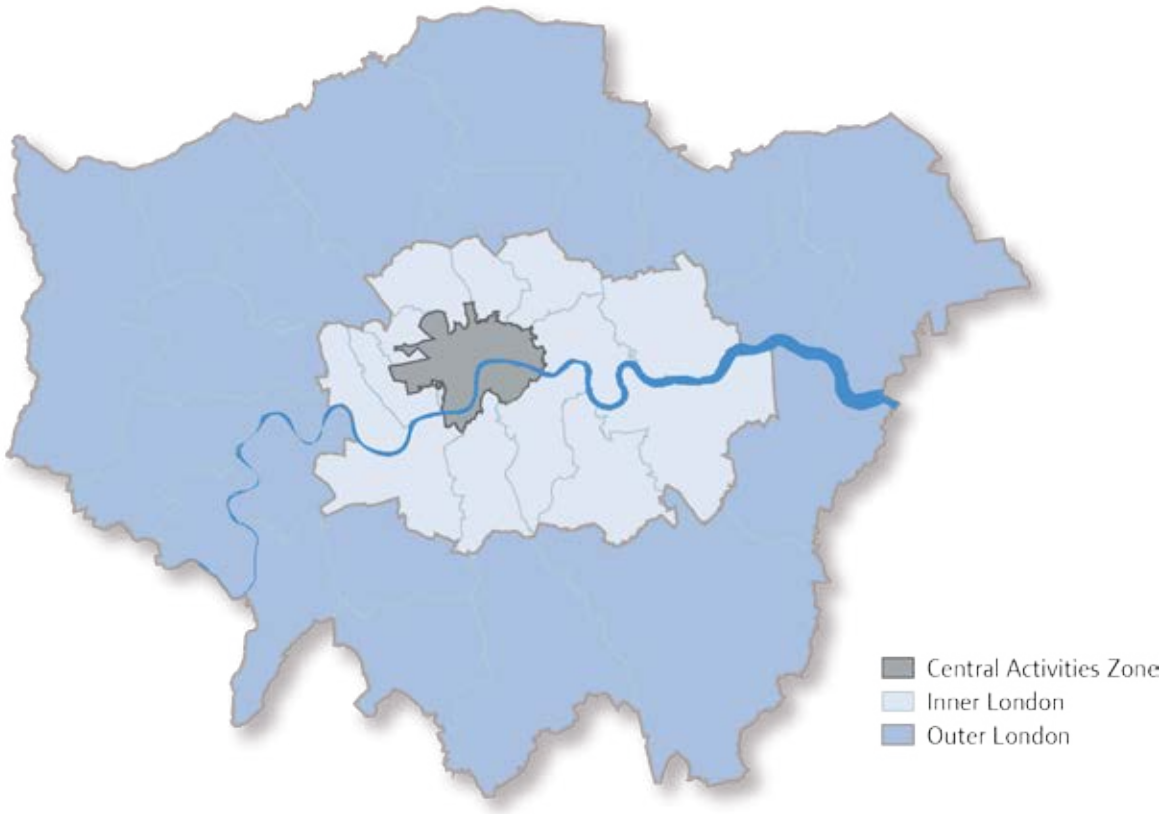


Figure 3.4: Greater London Authority area.

Figure 3.5: Central Activities Zone, Inner and Outer London



3.6 UNCERTAINTIES AND ASSUMPTIONS

3.6.1 The IIA is a strategic level assessment by nature and is based on broad assumptions and professional judgements, therefore some uncertainty over the assessment may exist. Qualitative rather than quantitative assessments will need to be made and there will be some degree of subjectivity which is typical of the IIA process. The assessment will be undertaken by independent consultants with specialist knowledge across a range of sustainability topics. The monitoring framework, which will be developed in the next stage, will assist in providing more clarity for the duration of the strategy and will enable the uncertainties identified in the IIA Scoping Report to be addressed.

4 IDENTIFYING OTHER PLANS, PROGRAMMES AND SUSTAINABILITY OBJECTIVES (TASK A1)

This chapter describes the process and the need to identify other plans and programmes relevant for the London Plan, their objectives and targets, and provides a summary on their implications for the London Plan. The most relevant plans that will require detailed consideration are summarised below and presented in Appendix B. They have been scoped and presented as of December 2016..

4.1 TASK A1

4.1.1 Task A1 requires that all relevant policies, plans, programmes and environmental and sustainability objectives are analysed to:

- Identify any external social, environmental or economic objectives that should be reflected in the IIA process;
- Identify external drivers that may influence the preparation of the London Plan;
- Identify how the preparation of the London Plan might influence other external drivers; and
- Determine whether the policies in other plans and programmes might lead to cumulative or synergistic effects when combined with policies in the London Plan.

4.1.2 A plan or programme may be influenced in various ways by other plans or programmes, or by external environmental protection objectives such as those laid down in policies or legislation. The IIA process takes advantage of potential synergies and addresses any inconsistencies and constraints. This IIA Scoping Report presents a summary analysis of the objectives of the key policies, plans and programmes (including legislation) that are relevant to the London Plan and the IIA assessment process.

4.1.3 The most relevant plans are summarised and presented in **Appendix B**. They have been scoped as of December 2016. These are presented by their geographic scope, from international to local.

4.2 IMPLICATIONS OF THE PLANS, PROGRAMMES AND POLICY REVIEW

4.2.1 The review of relevant plans, programmes and policies has identified a number of key messages that need to be taken into consideration when developing the London Plan and IIA objectives::

- **Demography** – London's population is significantly increasing and the composition is changing - becoming more diverse with a significant increase the proportion of older people.
- **Equality and Social Integration** - reducing inequalities and the promotion of inclusion and participation opportunities for those groups with protected characteristics to promote social integration and cohesion.
- **Health and Health Inequalities** - a need to improve the overall health and healthy life expectancy of London's population and reduce inequalities in the health of the population.
- **Crime, Safety and Security** – the design of the built environment and the mix of activities can significantly impact on fear and actual crime.
- **Housing** – to significantly increase the delivery of housing, including a mix of size, tenures, affordable products and choice. The complexity of issues around barriers to housing delivery

- **Sustainable Land Use** – ensure the most efficient use of land which adheres to the principles of sustainable development and considers London's relationship as part of a city region
- **Connectivity** – Integration of land use and transport planning to ensure growth is sustainable and optimises connectivity throughout London. The green network also provides connections which has many health and environmental benefits.
- **Accessibility** – the need for people to be able to easily and independently access jobs, housing, public spaces, education, public transport, healthcare and amenities and be able to easily and independently navigate their way through the built environment.
- **Economic Competitiveness** – the importance of London's position as a leading global city and to support a strong, diverse and resilient economic structure providing opportunities for all.
- **Employment** – employment growth in different sectors ensuring a diverse economy providing opportunities for all.
- **Education and Skills** – the importance of ensuring a world class education system and that Londoners have the right skills to access a diverse range of jobs
- **Culture** – the economic and social benefits of culture.
- **Air quality** – the urgent need to meet mandatory standards for air quality and cut the annual number of premature deaths from air pollution-related diseases by almost 40 per cent by 2020.
- **Climate Change** – the need to design buildings and spaces to adapt and mitigate the effects of climate change, including overheating, flooding, droughts and more extreme weather events. The Mayor has a commitment to reduce London's CO_2 emissions by 60 per cent by 2025. Review options to achieve zero net carbon emissions by 2050.
- **Energy Use and Supply** – Widening supply and demand gap. Greater efficiencies, use of renewable energy sources, and the importance of low carbon economy.
- **Water resources and quality** – identified need to focus on the protection, improvements and sustainable use of the water environment.
- **Flood Risk** – A need to ensure that development is designed not to increase flood risk, to encourage the use of Sustainable Urban Drainage Systems (SUDS) and that all elements of policy require review to ensure that flood risk is integrated with the management of the rest of London's Environment.
- **Natural Environment and Natural Capital** –facilitating opportunities to integrate biodiversity and the network of green spaces to provide a range of sustainability benefits, i.e. healthy living, improving air and water quality, cooling the urban environment, enhancing biodiversity and ecological resilience. This could include both enhancing existing habitats and providing new areas for biodiversity as opportunities arise.
- **Townscape, Landscape and Public Realm** – the importance of creating and maintaining a safe, attractive and well designed public realm which encourages people to walk and cycle, promoting a sense of place and reducing the need to travel.
- **Historic Environment** – the importance of the social, cultural and economic benefits of the historic environment and the importance of conserving and enhancing designated and non-designated heritage assets and their settings.
- **Geology and Soils** – a need to focus on prevention and remediation of environmental damage, including land contamination. Need to increase efforts to reduce soil degradation and remediate contaminated sites.
- **Materials and Waste** – A need to apply principles of circular economy when aiming for waste reduction, reuse, re-manufacturing and recycling in all construction and operational

practices. Review of London's waste management capacity projected alongside expected waste arisings to inform infrastructure gaps and need.

- **Noise and Vibration** – a need to minimise noise and vibration levels and the number of people exposed to high levels of noise from development, activities and use.

5 BASELINE INFORMATION AND KEY SUSTAINABILITY ISSUES IN LONDON (TASKS A2 & A3)

This chapter sets out the baseline data across all IIA topics. The baseline data has been aggregated into themes representing three dimensions of sustainable development - social, economic and environmental. Significant interlinkages exist between the thematic issues and cross-cutting issues such as air quality, health and equality which have been identified across many sustainability topics and addressed in an integrated way which can assist in the development of coherent policy guidance to inform the London Plan review process.

5.1 Overview

5.1.1 The baseline data for the IIA includes existing relevant environmental and sustainability information from a range of sources which is both quantitative and qualitative. This information provides the basis for assessing the potential impact of the proposed policies in the new London Plan and will aid development of appropriate mitigation measures, together with future monitoring indicators.

5.1.2 The baseline information in this chapter is set out in relation to topics relevant to each of the individual assessments which comprise the IIA. It can be seen from Figure 5.1 that the majority of these topics are applicable to more than one of the assessments. This table is an indicative marker of different inter-relationships between sustainability topics and the individual assessments which together make up the IIA.

Figure 5.1: Key issues (and subsequent topic areas) for baseline

Topic	Sustainability Appraisal (SA)	Strategic Environmental Assessment (SEA)	Equalities Impact Assessment (EqIA)	Health Impact Assessment (HIA)	Community Safety Assessment (CSA)
Demographic	•		•	•	•
Social Integration and Inclusion	•		•	•	•
Health and Health Inequalities	•		•	•	
Crime, Safety and Security	•		•	•	•
Housing	•		•	•	
Sustainable Land Use	•	•	•	•	

Topic	Sustain-ability Appraisal (SA)	Strategic Environmen-tal Assess-ment (SEA)	Equalities Impact Assess-ment (EqIA)	Health Impact Assess-ment (HIA)	Com-munity Safety Assess-ment (CSA)
Connectivity	•	•	•	•	•
Accessibility	•	•	•	•	•
Economic Competitiveness	•		•		
Employment	•		•	•	
Education and Skills	•		•	•	
Culture	•		•	•	
Air Quality	•	•	•	•	
Climate Change	•	•	•	•	
Energy use and supply	•	•	•	•	
Water Resources and Quality	•	•		•	
Flood Risk	•	•		•	
Natural Environment and Natural Capital	•	•	•	•	
Townscape, Landscape and Public Realm	•	•	•	•	•
Historic Environment	•	•	•	•	
Geology and Soils	•	•		•	
Materials and Waste	•	•		•	

Topic	Sustain-ability Appraisal (SA)	Strategic Environmen-tal Assess-ment (SEA)	Equalities Impact Assess-ment (EqIA)	Health Impact Assess-ment (HIA)	Com-munity Safety Assess-ment (CSA)
Noise and Vibration	•	•	•	•	

5.1.3 For each topic key issues have been identified. These have been used to inform the development of IIA objectives against which the emerging new London Plan will be assessed.

Social

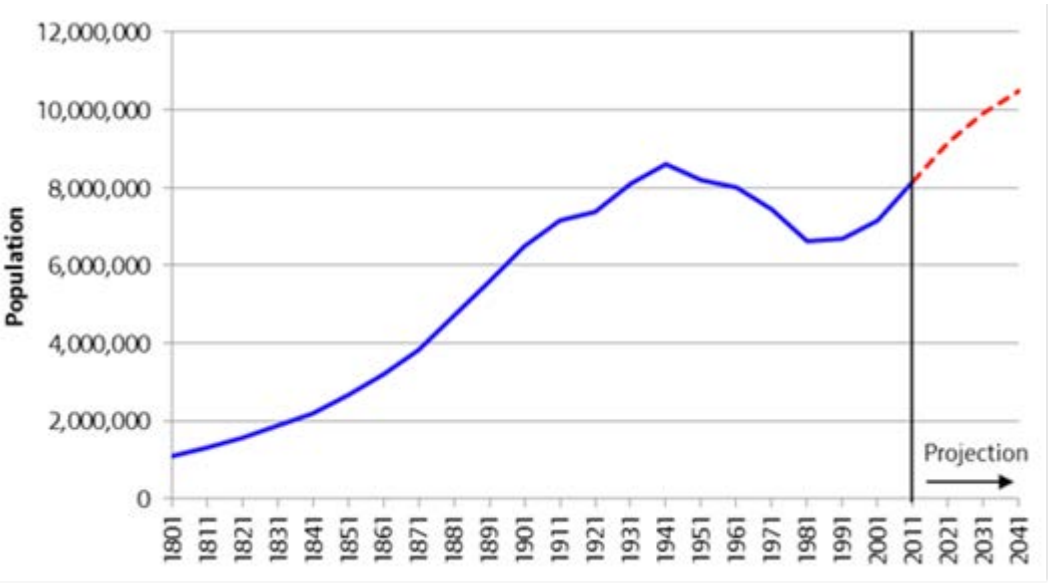
5.2 Demographic Change

The growth and composition of the population

5.2.1 London is experiencing huge population growth. In 2015, London's population peaked at 8.6 million people, equalling the previous peak which was last reached in 1939.

5.2.2 The Further Alterations to the London Plan, one of the most significant changes to the 2011 Plan, were a result of the significant increase in the projected growth that became apparent as a result of the release of 2011 Census data. The census showed that London's population has been increasing at the average of 87,000pa in the previous decade, which is nearly double the rate of that had been assumed previously and planned for in the 2011 London Plan. Current population projections suggest London's population is likely to continue to grow and anticipates an additional 3 million more people by 2050, reaching 10.5 million by 2041[2], the equivalent of c70,000 pa.

Figure 5.2: London's population, every ten years between 1801 and 2011 and projection to 2041



ONS Census (historic data), GLA 2015 trend-based population projections (long-term migration scenario)

Age

5.2.3 London is a relatively 'young' and this is considered to contribute to its economic strength. The median age in London is 34 years old compared to the national average of 39 years[3]. This is a result of the large numbers of young adults who come to work or study in London and, in the past, the tendency for Londoners to relocate outside the capital from their mid-30s onwards.

[2] ONS Census (historic data), GLA 2015 trend-based population projections (long-term migration scenario)

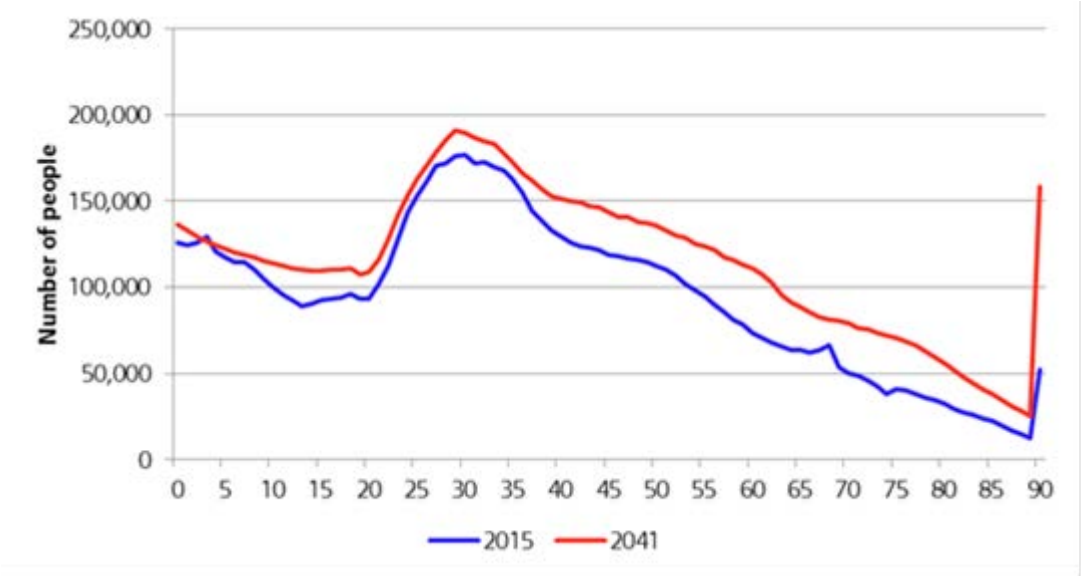
[3] ONS Mid-year Estimates 2014

5.2.4 It is not anticipated that London's growth will be evenly distributed between age groups. As Figure 5.3 shows the working age population (16 to 64) is projected to rise by 1 million between 2015 and 2041 while the over 65s are expected to increase by 600,000 persons, an increase of 65 per cent from 2011 - driven by increasing life expectancy, the large cohort of baby-boomers passing 65 and a significant increase in people aged over 85 years of age. Although the proportion over 90 years old is still a smaller proportion of the total population than in the rest of England, it is expected to more than double to make-up 1.5 per cent of London's population by 2041[4]. The number of older person households varies significantly by borough. Outer London boroughs have the oldest populations (13 per cent compared to inner London's 9 per cent) with Havering, Bromley and Bexley having the largest proportion of their population aged 65+ in 2015 (excluding City of London).

5.2.5 London's school-age population is also growing and is projected to number nearly 1.4m by 2041, (up from 1.2 million in 2014)[5].

5.2.6 Overall there are slightly more males than females, with more males in most age groups up to about 40 and more women in age groups aged 50 and over[6].

Figure 5.3: London's age structure 2015 and 2041



ONS Census, GLA 2015 trend-based population projections (long-term migration scenario)

Migration and Natural Change

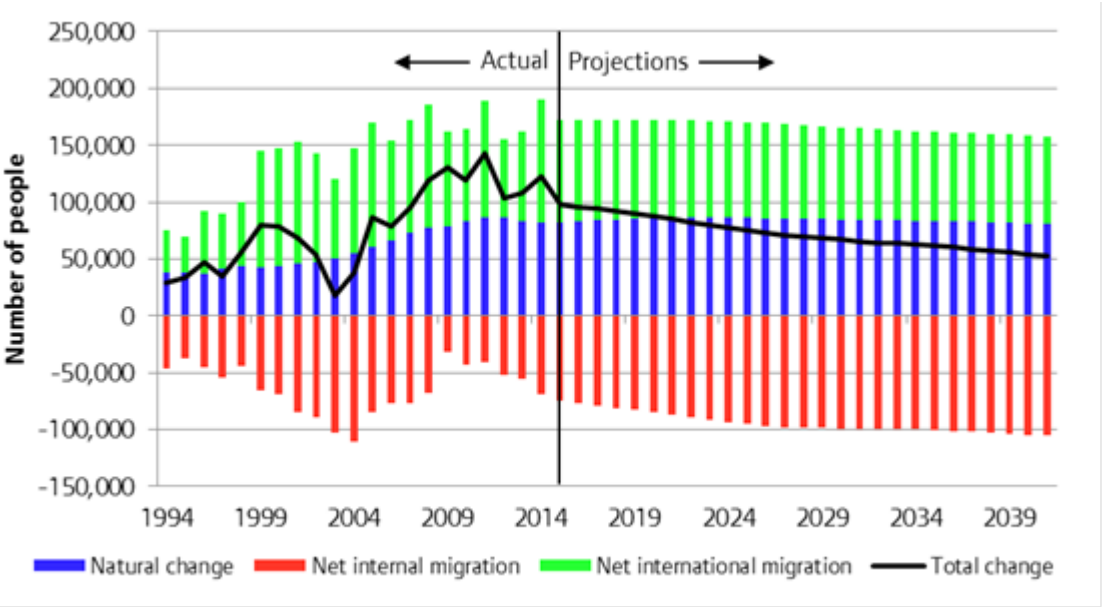
5.2.7 London's population growth is a function of the interplay between international and internal migration and natural change. Natural change, a function of age structure, is a significant contributor to London's population growth (c70,000 pa). This high level of births reflects the relatively young age profile of internal and international migrants. The number of births peaked in 2012 at 134,000, however their impact will be felt into the future as these cohorts move through the education system before entering the world of work and have particularly requirements in terms of social infrastructure needs.

4 ONS Census, GLA 2015 trend-based population projections (long-term migration scenario)
5 Ibid
6 Ibid

5.2.8 The other driver of population growth is migration. In 2014, approximately half of all migration to London (49.6 per cent) was from overseas, with the other half from the rest of the UK. Migrants from overseas tend to go to inner London, whereas there is a roughly even split of migrants from the rest of the UK going to inner and outer London. Meanwhile, the outflow of people from London (which includes migrants who have already arrived in London) shows that they are more likely to go to the rest of the UK. In fact, there is a net outflow of people from London to the rest of the UK, whereas in contrast there is a net inflow of international migrants to London[7].

5.2.9 London currently has net domestic out migration of 50,000 pa, which is considered to be suppressed when compared to pre-economic crisis levels of 70-80,000 pa in the years leading up to the economic crisis. This drop in out migration is likely to have been in part the result of a slowing of the housing market, and in part due to London's job market proving relatively resilient compared to those in other parts of the UK, leading to more people staying in London. Net domestic outflows have begun to increase again as the economy has recovered, but it is not yet clear what impact further economic recovery / recession will have on future migration patterns. In terms of international migration, London has an international net in migration of c70-90,000 pa which again is probably a reflection of the relatively strong job market in London and the UK's stability[8]. However, the referendum decision to leave the EU in spring 2016 may change migration patterns and it is hard to say at this time how these will be affected, particularly in the longer term.

Figure 5.4: Components of change for London's population, 1994 to 2041



ONS Mid-Year Estimates, GLA 2015 trend-based population projections (long-term migration scenario)

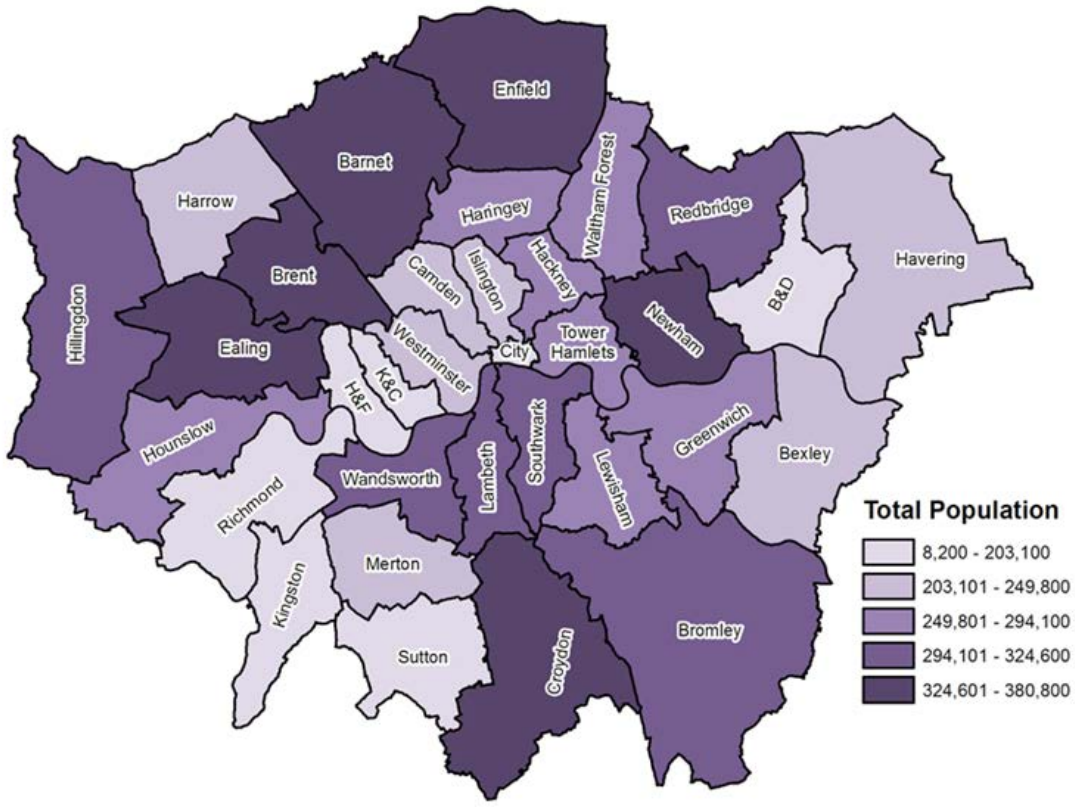
7 GLA Economics (2016) Economic Evidence Base, Chapter 8

8 Ibid

Distribution

5.2.10 Figure 5.5 shows the current spatial distribution of London's population. The geographically larger outer London boroughs tend to have a greater number of residents than the inner boroughs with the notable exception of Newham. In 2011 this uneven distribution consisted of 4.97million (60 per cent) in outer London and 3.29 million (40 per cent) in inner London[9].

Figure 5.5: Total population by London borough, 2015



5.2.11 Trend-based population projections suggest that there will be strong growth in outer London of c500,408 people (65 per cent of total growth) compared to inner London of c266,000 people (35 per cent of total growth) as per Figure 5.6. However, population projections based on housing targets as set out in the 2013 Strategic Housing Land Availability Assessment (SHLAA), which take account of the capacity of land to accommodate housing, are relatively low for outer London at 193,000 people (45 per cent of total growth) compared to inner London of 231,000 people (55 per cent of total growth) for the period up to 2036[10]. Based on the 2013 SHLAA, the majority of the growth in outer London will be in Barnet of 23,305 units, Barking & Dagenham at 15,348 units, Croydon at 15,164 units and Brent at 11,165 units[11].

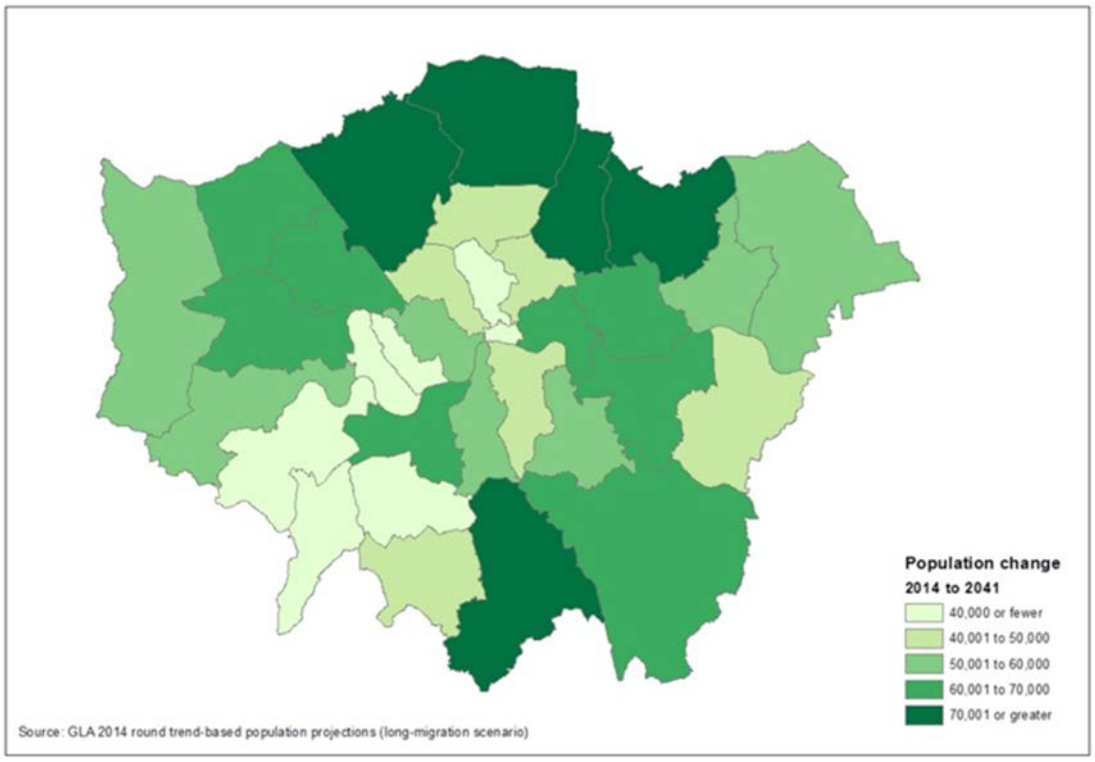
5.2.12 Policies in the new London Plan, particularly in informing the underlying assumptions of the new SHLAA, will potential alter the spatial distribution of this growth.

9 ONS Census 2011

10 Nb the revised 2016 SHLAA will provide updated figure up to 2041

11 Mayor of London (2013) Strategic Housing Land Availability Assessment, GLA

Figure 5.6: Trend based population distribution 2014 – 41



Key issues	• Significant increase in the population • Young profile • Ageing and more diverse population • Uncertainty of the composition of the population, including migration patterns
Opportunities	To ensure that the benefits of growth are more fairly distributed
Implications of the Plans and Programmes Review	Accommodating growth must be a central objective of the new London Plan however due to recession and referendum decision to leave the EU has led to increased uncertainty as to the relative scale of the growth, the composition of the resultant population and how that growth might be distributed across London.
	↓
Suggested IIA Objectives	To make the best and most efficient use of land so as to support sustainable patterns and forms of development To ensure London has socially integrated communities which are strong, resilient and free of prejudice

5.3 Social Integration and Inclusion

One's ability to feel able to / want to participate in societal activities

Diversity

5.3.1 By 2041, 16 per cent of London's population is projected to be 65 and over compared to 11.6 per cent in 2015[12]. With a higher life expectancy than the rest of England, the city needs to prepare to meet the needs of this growing group. Older people in London have a higher life expectancy than the national average with men in London at 80.3 years compared with 79.5 years nationally and women in London average life expectancy at 84.2 years compared to 83.2 years nationally[13]. Older people report higher life satisfaction and happiness than other age groups[14]. However, as with any group there are likely to be huge variations of situations. Some studies suggest that older Londoners are more likely to be socially isolated than any other group, with 18 per cent of pensioners in London living in poverty and material deprivation compared to 12 per cent in the rest of England and many remain digitally excluded[15].

5.3.2 London saw 1.16m (14 per cent of residents) reporting that they had a long-term health problem or disability which limited their day-to-day activities. This proportion was below the national average (18 per cent) and was lower than every other region in England and Wales.[16] This was mostly due to London's comparably younger age structure. When looking at individual age groups the rate of Londoners with limiting long-term health problems did not vary significantly from the national average.

5.3.3 45 per cent of Londoners identify themselves as White British with 40 per cent from Black, Asian and minority ethnic (BAME) backgrounds with a further 15 per cent of Londoners identifying as 'White Other'. 26 of the 30 local authorities with the most ethnically diverse populations in the UK are in London[17]. This makes London's population more diverse than any other UK city or region. BAME groups are projected to increase to 4.88 million by 2041, an increase of 1.57 million to .5 per cent increase[18].

5.3.4 The White population is projected to increase from 4.91 million in 2011 to 5.48 million in 2041, an increase of 0.57 million (11.5 per cent) over the period[19].

5.3.5 There are clear spatial trends when looking at London's ethnic groups and these have been changing over time. In 2011, London's White population was most highly concentrated in outer London; its Black population in east London; and its Asian population is west and north-east London[20].

12 ONS Census, GLA 2015 trend-based population projections (long-term migration scenario)

13 Public Health Outcomes Framework 2012-14 http://www.phoutcomes.info/public-health-outcomes-framework#page/0/gid/1000049/pat/6/par/E12000007/ati/102/are/E09000002

14 ONS Self-Reported well-being statistics

15 ONS APS, https://data.london.gov.uk/dataset/internet-use-borough-and-population-sub-groups

16 ONS Census 2011

17 ONS Census 2011 incl update CIS 2012-04 http://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/internationalmigration/articles/internationalmigrantsinenglandandwales/2012-12-11

18 GLA Intelligence, 2014 ethnic group projections

19 Ibid

20 GLA Economics (2016), Economic Evidence Base, Chapter 8

5.3.6 By 2036, 12 London boroughs are projected to have BAME majority populations, three in Inner London (Newham, Tower Hamlets, and Lewisham) and nine in Outer London (Brent, Harrow, Redbridge, Ealing, Hounslow, Barking and Dagenham, Croydon, Waltham Forest, and Hillingdon)[21].

5.3.7 More than one in five Londoners used a language other than English as their main language at home. Polish, Bengali and Gujerati are the most widely spoken, each used at home by more than 100,000 Londoners[22]. Of London's total population 4 per cent at the time of the 2011 census could not speak English well or at all, significantly impacting their ability to fully participate in life in the city.

5.3.8 Nationally, 42 per cent of non-English speakers live in the capital.

5.3.9 In 2014, it is estimated that almost half (49 per cent) of Londoners define themselves as Christians (4.1 million), around 14 per cent as Muslims (1.2 million), 5 per cent as Hindu (440,000), 1.8 per cent Jewish (150,000), 1.2 per cent Sikh (101,000) and 1 per cent Buddhist (86,000)[23].

5.3.10 A high proportion of London's population is made up of individuals and families who moved here from another country. 3.1 million Londoners were born outside the UK (37 per cent of the total population), with just under half arriving in the UK in the last 15 years. This compares to only 13 per cent living outside their country of birth in the rest of the UK[24]. In 2013, 58 per cent of live births in London were to a mother born outside the UK[25].

5.3.11 Globally, London is the city with the second largest foreign-born population behind New York City in terms of absolute numbers. In terms of the share of foreign-born population, London is in line with other big cities such as Hong Kong, Sydney, and Singapore. As with age, this diversity of population is considered to contribute to London's economic strength.

5.3.12 Traditionally, migration to the UK came from relatively few countries globally and led to the establishment of long-standing settled communities. Over the past decade, migration flows have changed with new migrants coming from a broader range of countries with a diversity of faiths, languages and immigration statuses, and settling in different areas of London compared to the more recognised settlement patterns of older migrant communities.

5.3.13 Official statistics may not fully capture all those living in the capital. Hidden within London's thriving economy are extremely vulnerable groups such as undocumented migrants including refused asylum seekers, those overstaying their visas, and those in forced labour. In 2007, LSE research[26] estimated that there were between 400,000 and 700,000 undocumented migrants in London. At any given time, there are also short-term migrants, overnight visitors and owners of second homes in the capital.

21 Mayor of London, The London Plan 2016

22 ONS Census 2011 incl update CIS 2012-04 http://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/internationalmigration/articles/internationalmigrantsinenglandandwales/2012-12-11

23 GLA Economics (2016) Economic Evidence Base

24 ONS Annual Population Survey, 2014

25 ONS, Births by parents' country of birth, 2014, at: https://data.london.gov.uk/dataset/births-by-parents--country-of-birth--2014

26 London School of Economics (2009), 'Economic impact on the London and UK economy of an earned regularisation of irregular migrants to the UK', report for GLA Economics

5.3.14 The EHRC's (2016) research on fairness in England highlights the stigma and discrimination many groups face on the basis of their race and religion across England[27]. This is particularly true for Muslims, Sikh and Gypsy Traveller and Roma communities across the country and impacts their ability to fully participate and feel included. The research found that some groups in England were being 'left further behind' compared to others because they 'face particular barriers in accessing important public services and are locked out of opportunities'[28]. These groups make up a relative small part of the London's population yet face high levels of social isolation - they include travellers, asylum seekers and refugees, street homeless and disabled groups.

5.3.15 London's diversity does not only stem from its large ethnic mix; there are a range of other key characteristics that make London's population so diverse and its needs so varied.

Deprivation

5.3.16 Based on the UK Government's qualitative index of multiple deprivation (IMD), many places in London are among the most deprived in the country. Areas within Hackney, Islington and Westminster are within two per cent of the most deprived areas in England. Parts of Haringey, Tower Hamlets, Croydon, Brent, Newham, Kensington & Chelsea, Barking & Dagenham, Enfield, Croydon, Lewisham, Waltham Forest, Lambeth and Ealing also fall within the most deprived five per cent of the country. As figure 5.7 shows, these areas are often in concentrations and follow particularly corridors.

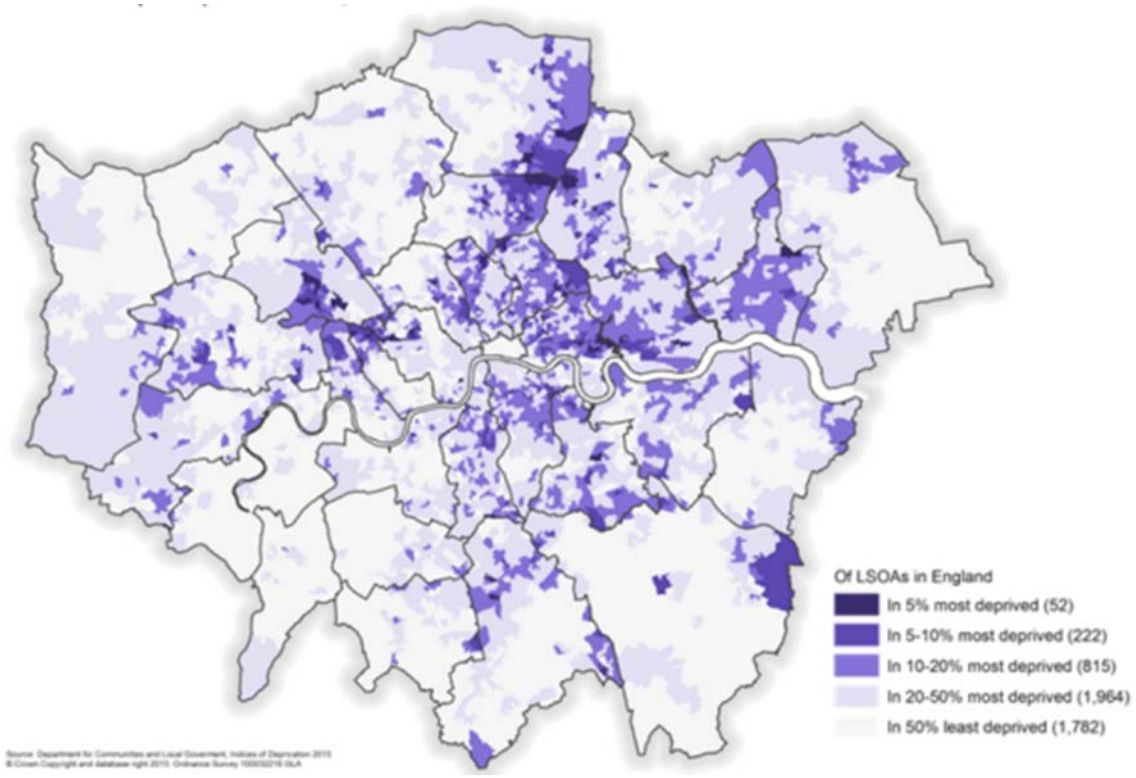
5.3.17 A lack of income, employment and earnings is often associated with a wider range of other socio-economic issues: poor health, schooling, housing and crime. Whilst London has improved on this measure to become less deprived relative to the rest of the country between 2010 and 2015, it still contains persistently high levels of poverty in certain areas.

5.3.18 The City of London and Richmond are the only boroughs within London with no areas in the most deprived 20 per cent of England.

27 Equality and Human Rights Commission 2016, 'Is England Fair: The State of Equality and Human Rights 2016',

28 Ibid

Figure 5.7: Index of Multiple Deprivation for London, 2015



Department for Communities and Local Government, 2015

5.3.19 After accounting for housing costs, 2.2 million Londoners live in relative poverty (below 60 per cent of the national median), equivalent to 27 per cent of the population. This compares to 20 per cent in the rest of England, with a third of inner London residents living in poverty. It includes 1.3m adults of working age, 700,000 children and 200,000 pensioners[29].

5.3.20 Housing is a significant factor in driving these high rates of poverty in London, with poverty rates almost doubling after housing costs are considered. National evidence shows that getting a job is one of the best ways of moving out of poverty yet in London 21 per cent of working families live in poverty. However employment is not in itself sufficient to escape poverty. In contrast to a decade ago, the majority (c.60 per cent) of children and adults in poverty in London now live in a family where someone is in work[30].

5.3.21 Different groups are more likely to experience poverty than others; households headed by minority ethnic individuals, households headed by young people and disabled people, refugee and asylum seekers, travellers and gypsy groups, and workless households. Children growing up in these households are at greater risk of experiencing poverty[31].

5.3.22 37 per cent of children in London live in poverty with the highest rates (47 per cent) in Inner London, which is 20 percentage points higher than in the rest of England, although the gaps

29 GLA Economics (2016), Economic Evidence Base

30 London's Poverty Profile http://www.londonspovertyprofile.org.uk/2015_LPP_Document_01.7-web-per cent255b2per cent255d.pdf

31 Equality and Human Rights Commission 2016, 'Is England Fair: The State of Equality and Human Rights 2016',

have been reducing.[32] While fewer children in outer London were living without the essentials, more than 1 in 5 children in inner London could not afford items widely viewed as essentials. This includes items such as being able to afford birthday or other celebrations, a warm winter coat, and having a week-long holiday each year. Within London there are significant borough disparities between child poverty levels with Tower Hamlets and Newham having child poverty rates of 49 per cent and 41 per cent respectively while others like Richmond upon Thames (15 per cent) and Sutton (20 per cent) are much lower. Particular factors that influence child poverty include growing up in lone parent households, low income households; low parental qualifications; family instability; having a large family (family size) and parental ill health and disability. Another significant contributing factor that is often cited is the high costs of childcare in London[33].

5.3.23 London has a smaller proportion of their total population over 65s than the rest of England, but at 18 per cent it has a higher rate of those in living poverty compared to 12 per cent in the rest of the country. This is equivalent to 200,000 Londoners, or 1 in 6 Londoners in this age group. Material deprivation affects more that quarter of all pensioners in inner London. This is more than twice the rate in any other part of the UK with more than one in four unable to have or take part in the social norms for that population group (such as having a damp-free home, access to a telephone when needed, having their hair done or cut regularly, etc.)[34].

5.3.24 Poverty and deprivation are important predictors of loneliness and poorer old people tend to be disadvantaged in multiple ways i.e. having lower levels of mobility, less access to technology and leisure activity[35]. Londoners experience more social isolation than people in other regions of the UK. Isolation and loneliness is not only found among older people, though it tends to be concentrated among this group.

5.3.25 The Runnymeade Trust also highlights that deprivation and poverty act as major barriers to (social) integration. EHRC found BAME people were more likely to live in poverty than White people and children in BAME households were more likely to live in overcrowded accommodation than children in White households[36].

5.3.26 Different groups are also likely to face differing challenges relating to financial exclusion and will have different support needs around financial resilience. There are strong links between financial exclusion and vulnerable groups or those on low income[37]. Problem debt is a significant and growing challenge in London, with the potential to affect all Londoners in different ways, regardless of where they live or how much they earn[38].

32 Family Resources Survey, DWP 1994/5-2013/14 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/437246/households-below-average-income-1994-95-to-2013-14.pdf

33 GLA Economics (2016), Economic Evidence Base

34 DWP Family Resources Survey

35 Friends of the Elderly - Future Foundation. The Future of Loneliness: Facing the challenge of loneliness for older people in the UK, 2014 to 2030

36 Equality and Human Rights Commission 2016, 'Is England Fair: The State of Equality and Human Rights 2016'

37 Toynbee Hall, 'Financial Inclusion and financial capability: what's in a name?' http://www.toynbeehall.org.uk/data/files/Services/Financial_Inclusion/Financial_Inlcusion_and_Capability_-_f

38 Step Change, 'London in the Red – A briefing on problem debt in London', https://www.stepchange.org/Portals/0/documents/Reports/London_in_the_Red_final_report.pdf

Population Churn

5.3.27 There is a mixture of people coming into, leaving and moving around London for all sorts of reasons: natural change through births and deaths; movements of people within an area, into or out of the area from other parts of the country or overseas on both a short-term or long-term basis all contribute to 'population churn'. This can impact on people's sense of belonging to an areas and community cohesion. In 2014, roughly 50 per cent of the 400,000 people moving to London were from abroad with the remaining 50 per cent moving from other regions within the UK[39]. Havering, Barking & Dagenham, Bexley and Bromley have experienced the highest proportion of London's internal movements, which have seen more people leave inner London boroughs than elsewhere across the capital, being absorbed by outer eastern and some southern boroughs[40].

5.3.28 Social integration and community cohesion can have a significant effect on people's well-being and metal health. The Annual London Survey, based on interviews with 3,861 adult Londoners, found that around half of the respondents agreed that there are good relations between older and younger people, and between ethnic and religious communities in their local area[41]. The DCLG community life survey[42] found that 89 per cent of correspondents believed that their local area is a place where 'people from different backgrounds get along well together' this was slightly higher than the England average of 86 per cent. However the Annual London Survey also showed that Londoners also reported having less trust in people in their neighbourhood than the rest of the country (31 per cent versus 44 per cent)[43].

39 ONS internal migration estimates; and ONS mid-year components of change, year to mid-2014

40 ONS internal migration estimates, 2014 at: https://data.london.gov.uk/dataset/internal-migration-by-local-authorities

41 GLA Intelligence Unit, Annual London Survey 2015, GLA

42 DCLG (2014) Community Life Survey

43 GLA Intelligence Unit, Annual London Survey 2015, GLA

Key issues	• Increasing aging and diverse population • Multiple Deprivation • High levels of poverty in some parts of London, with rates of child poverty continuing to exceed national levels • Discrimination • Isolation • Population churn and impact on community cohesion • Gentrification
Opportunities	• Development should meet the highest standards of inclusive design, to ensure it is suitable for the diversity of London's population • Design of the built environment to encourage social cohesion and reduce isolation – inclusive neighbourhoods • Implications of an ageing and diverse population for public service delivery, urban design and housing provision. • Provision of accessible open space to encourage recreation and high quality public realm to encourage active travel. • Provision of a more accessible public transport system. • Link with other strategies to address wider determinants of deprivation, access to jobs, good quality housing and choice, provision open space, access to amenities and services
Implications of the plans and programmes review	Reducing inequalities and the promotion of inclusion for those groups with protected characteristics to promote social integration and cohesion.
	
Suggested IIA Objectives	• To ensure London has socially integrated communities which are strong, resilient and free of prejudice • To make London a fair and inclusive city where every person is able to participate, reducing inequality and disadvantage and addressing the diverse needs of the population • To ensure that provision of environmental, social and physical infrastructure is managed and delivered to meet population and demographic change in line with sustainable development and to support economic competitiveness

5.4 Health and Health Inequalities

The health of the population in terms of general health, lifestyle, life expectancies and other health determinants

5.4.1 Health can be influenced by a range of factors, and the quality and accessibility of the health care system is generally recognised to account for only a minority of the variation in overall health. Wider factors such as socio-economic status, the environments in which people live and the influence of these social and environmental factors on people's behaviour have a profound impact on people's physical and mental health.

Londoners are living with complex health needs for longer periods.

5.4.2 Life expectancy at birth in London is now 80.3 years for men and 84.2 years for women[44], which is slightly higher than for England as a whole, and trends in premature mortality for the leading causes of death - cancer, cardiovascular and respiratory diseases - are all going down. However, increases in the amount of time that people can expect to live without suffering from ill health (known as healthy life expectancy) are not keeping pace with increases in overall life expectancy, and a significant proportion of life is spent in ill-health. Healthy life expectancy in London is only 64 years for men and 64.1 years for women[45].

5.4.3 An ageing population and improvements in healthcare also lead to an increasing burden from long-term conditions. Older people are more likely to have a long-term condition, or multiple long term conditions resulting in complex needs, and population projections suggest that this trend is increasing. As well as the obvious impact demand for healthcare services, long periods spent in ill-health can also have important implications for the way people live, affecting demand for different types of housing, infrastructure which is accessible to people with a range of health needs and implications for people's ability to work.

Access to Health Services

5.4.4 There are significant differences in the number of GPs per 1,000 population between London boroughs, with Islington having 0.69 GP's per 1000 compared to Bexley which had 0.40 GP's per 1,000 in 2015 - these differences could have significant implications on GP appointment waiting times. 19 boroughs have less than the England average number of GPs per patients at 0.57 GP's per 1,000 population, with the fewest in Bexley, Barking & Dagenham and Redbridge. Bexley has the lowest number of GPs per patient in England. The highest numbers of GP's per 1,000 population are in the boroughs of Islington, Tower Hamlets and Wandsworth[46].

Londoners are not consistently enabled to lead healthy lifestyles

5.4.5 Lifestyle factors play an important part in determining people's long and short-term health. The four major lifestyle risks of poor diet, low levels of physical activity, smoking and excessive drinking can each independently have a major impact on health, but these lifestyle factors

44 ONS Life Expectancy at Birth

45 Public Health Outcomes Framework, Healthy Life Expectancy at Birth (2012-14) http://www.phoutcomes.info/

46 Health & Social Care Information Centre (HSCIC) (2014) www.hscic.gov.uk/catalogue/17387

are also known to cluster in particular populations over time, with compounding effects for health[47].

5.4.6 57.8 per cent of adults in London are physically active[48], is which is slightly better than for England. However, the relatively high proportion of people who meet physical activity recommendations masks a substantial minority of the population who do almost no physical activity at all. As much as 28.1 per cent of London's population is considered inactive, meaning they do less than 30 minutes of physical activity per week, with particularly high rates of physical inactivity in Barking and Dagenham - 43.7 per cent, Newham - 39.8 per cent and Brent - 34.3 per cent[49]. Certain groups, such as those who own a car and older people, are less likely to walk or cycle making them less likely to be getting the activity they need.

5.4.7 The London Health Commission finds that only 55 per cent of children in London are physically active. Inactivity rates are much lower in London men than women – 23 per cent of London men are inactive compared to 30.9 per cent of London women. These rates are slightly lower than the England average. 28.3 per cent of BAME Londoners are inactive, similar to the national rate for BAME groups. 49.5 per cent of London disabled people are inactive compared to 50 per cent of the England average. In London inactivity increases with age with the highest levels of inactivity found among the 60 and over group at 49 per cent in London compared to 45.3 per cent in England. Inactivity on average is higher in London than England for all age groups except 26-34. The majority of young people aged 5-15 years old (84 per cent of girls and 79 per cent of boys) are not meeting the minimum recommended guidelines for physical activity[50].

5.4.8 Childhood obesity is a particular problem in London and is related to a poor diet, low physical activity and an obesogenic environment. The proportion of children aged 4-5 classified as overweight or obese in London is 22.2 per cent and is as high as 37.2 per cent for 10-11 year olds, significantly higher than for England as a whole. Excess weight in adults is 58.4 per cent in London as a whole[51].

5.4.9 Whilst physical activity is an essential part of a healthy lifestyle, diet is proven to have more impact on people's weight. Public Health England data shows a strong association between deprivation and the density of fast food outlets, with more deprived areas having more fast food outlets per 100,000 residents. A large number of these outlets are also located near to schools. This is likely to have an impact on the food choices young people make and affect levels of obesity within this age group[52].

5.4.10 It is important that the London Plan considers the role and design of the built environment on the opportunities communities' have to access healthy lifestyle choices, however this will need to be conjunction with the Mayor other strategies which can more directly impact behavioural choices.

47 King's Fund, Clustering of Unhealthy Behaviours Over Time 2012 https://www.kingsfund.org.uk/publications/clustering-unhealthy-behaviours-over-time

48 Meaning that they meet the Chief Medical Officer's recommendation of doing at least 150 minutes per week of physical activity

49 Public Health Outcomes Framework 2012-2014, percentage of physically inactive adults, 2015 http://www.phoutcomes.info/

50 http://activepeople.sportengland.org

51 Public Health Outcomes Framework 2012 - 2014 http://www.phoutcomes.info/

52 http://www.noo.org.uk/securefiles/160411_0954//FastFoodOutletsJan13_v2-2.pdf

Social inequalities in the physical and mental health of Londoners

5.4.11 There are very substantial differences in life expectancy and healthy life expectancy between different boroughs and demographic groups, with people in the most deprived areas having the shortest life expectancy. Healthy life expectancy for men is 17.6 years shorter in Barking and Dagenham as in Richmond on Thames, and 13.7 years shorter for women in Tower Hamlets as in Richmond on Thames. Looking at smaller local areas (MSOAs), the gap in healthy life expectancy is as high as 26.9 years for men and 28 years for women between certain areas[53].

5.4.12 Although there are large variations across boroughs, London has the lowest reported life satisfaction, worthwhileness and happiness and the highest anxiety of any UK region. London's average anxiety rating was 3.15, compared to England's average of 2.93 on an eleven point scale[54]. These differences may be explained by London's different age structure.

5.4.13 Whilst older people generally report higher life satisfaction and happiness than other age groups, this masks significant variations in experiences. There are 65,000 older Londoners (over 65 years old) that experience dementia. This figure is expected to almost double over the next 30 years. Mental health problems are common in all age groups, and the proportion of people with a recorded mental health problem is higher in London than in England as a whole[55].

5.4.14 A London Assembly Health Committee report identified a wide range of factors beyond health that may contribute to an individual's predisposition to mental ill-health, including access to good housing, education and employment. These are particularly pertinent in areas of high deprivation56. The Cavendish report (2014) also finds Londoners are more likely than residents in other parts of UK to suffer mental health problems as a result of unemployment or debt[57].

5.4.15 Whilst difficult to study, there is also a possible link between access to green space and increases in physical activity, with the consequent health impacts. There is stronger evidence that people with better access to the natural environment tend to be happier and less prone to mental illness: nature has positive effects on mood, concentration, self-discipline, and physiological stress There is also good evidence for the contribution of the natural environment to social cohesion, particularly for well-maintained green spaces[58].

Air Quality

5.4.16 Whilst air quality in London is improving; in the last fifteen years the concentrations of all local air pollutants in London have decreased, London is failing to meet limits for NO_2 with specific concerns over particulate matter, which is damaging to health at any level. Children,

53 Analysis conducted on behalf of the GLA by Public Health England, 2016

54 http://www.ons.gov.uk/ons/rel/wellbeing/measuring-national-well-being/personal-well-being-in-the-uk--2013-14/sb-personal-well-being-in-the-uk--2013-14.html#tab-5--Personal-well-being-in-the-English-regions-

55 http://www.ons.gov.uk/ons/rel/wellbeing/measuring-national-well-being/personal-well-being-in-the-uk--2013-14/sb-personal-well-being-in-the-uk--2013-14.html#tab-5--Personal-well-being-in-the-English-regions-

56 Mayor of London (2014), LONDON MENTAL HEALTH: The invisible costs of mental ill health, GLA

57 http://tavistockandportman.uk/sites/default/files/files/London%20Mental%20Health%20Fact%20Book%20Cavendish%20Square%20Group%20FINAL.pdf

58 Mayor of London (2015) Green Infrastructure Task Force Report, GLA

older people, and people already suffering from lung or heart issues are particularly vulnerable. Nearly 25 per cent of all school children in London are reported to be exposed to levels of air pollution that exceed legal limits.

5.4.17 The London Health Commission states that 7 per cent of all adult deaths in London are attributable to air pollution. Mortality is not the only air pollution related health effects, in 2010 - London air pollution was associated with over 3,000 hospital admissions, an increased sensitivity to allergens, pre-natal exposure linked to low birth weight and increased risks of chronic disease later in life are also associated with issues of air quality.

5.4.18 Other wider determinants of health and exposure to environment risks such as the urban heat island effect and flooding and their related impacts on the population's health are discussed in sections 5.15 and 5.18

Key issues	• Increasing health inequalities across the population • Londoners are living with complex health needs for longer period • Increasing and changing pressure on the health services and service provision • Differentials in life expectancy and healthy life expectancy across London • Widening social inequalities • Low levels of physical activity and increasing obesity levels across the population
Opportunities	• Development should be meet the needs of wide range of peoples • Increased co-ordination of between the provision of different service delivery to meet requirements of an ageing and more diverse population Design of the built environment to promote health lifestyle choices • Link with other strategies to address wider determinants of health, access to jobs, good quality housing and choice, provision open space, access to amenities and services
Implications of the plans and programmes review	A need to improve the overall health of London's population and reduce inequalities in the health of the population.
	↓
Suggested IIA Objectives	To improve the mental and physical health and wellbeing of Londoners and to reduce health inequalities across the City and between communities.

5.5 Crime, Safety and Security

Actual crime, perceived risk of crime, anti-social behaviour (ASB) and threats to security / major incidents.

5.5.1 London is a relatively safe city when compared to other global cities and the likelihood of being a victim of crime is low in London. However, as a global city it is at higher risk of terrorist attacks than other cities in the UK.

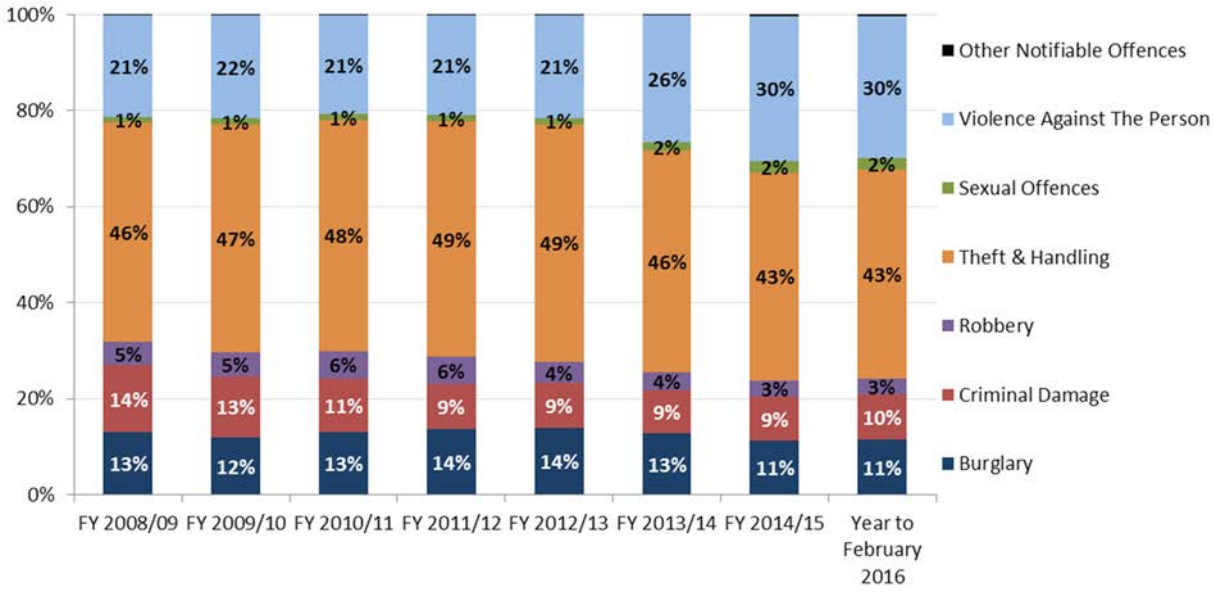
5.5.2 Heightened risks of threats to security can impact London's economic competitiveness and tourism.

5.5.3 The Counter-Terrorism and Security Act 2015 permits the Home Secretary to issue guidance for the purpose of preventing people from being drawn into terrorism. CONTEST is a national strategy and based around four main areas of work: Pursue, Prevent, Protect and Prepare. There is also a new counter-extremism strategy which sits alongside the government's wider counter-terrorism activity. Collectively, these strategies set out how the government, with the boroughs and other statutory partners in London, work together to reduce the threat from terrorist or extremist activity.

5.5.4 In terms of other forms of crime and perceptions of safety, although most Londoners feel safe in their communities, in 2015 36 per cent of Londoners were 'worried' or 'very worried' about crime in their local area.

5.5.5 Recorded crime statistics are published on the Metropolitan Police Service website each month, and are broken down into 32 different crime types: including violence with injury, robbery, theft from person, burglary, theft of motor vehicle, theft from motor vehicle and criminal damage.

Figure 5.8 Recorded Crime Statistics 2008 - 2016



MOPAC

5.5.6 In general, levels of recorded crime in London have fallen consistently since 2008. Notably, the volume of victim based crimes has decreased over time, with over 53,000 fewer offences in the most recent year compared to 2008/09.

5.5.7 Reports of hate crimes however have increased over the last few years with the largest percentage rises in disability and faith hate crimes in London. Racist and religious crime represents the bulk of recorded hate crime across the London in the year to December 2015 – representing 88 per cent of all hate crimes. Victims of hate crime are most frequently recorded as male (61 per cent male and 39 per cent female), and tend to be adults (18-34 years - 44 per cent, 35-60 years - 41 per cent). Older people over 60 years old (8 per cent) and children under 18 (7 per cent) account for a lower proportion of victims of reported hate crimes[59].

5.5.8 Regardless of the offence, in 2014, 3 per cent (16,404) of all victims were flagged as having a disability, with violence against the person having the highest amount of victims with a disability (39 per cent).

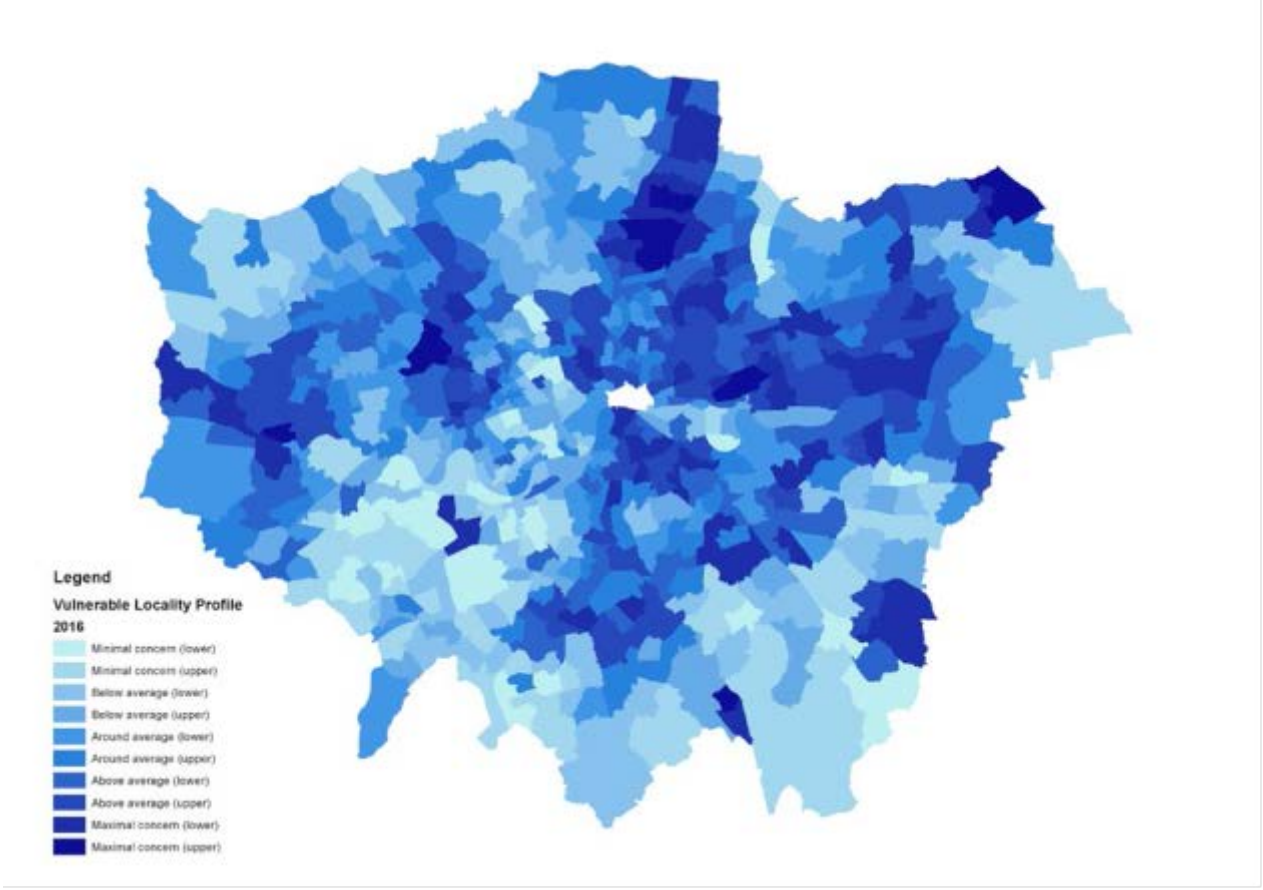
5.5.9 Anti-social behaviour incidents have fallen since 2007/08 from a rate of 51incidents per 1000 population to 32 per 1000 population in 2014/15. This figure is currently lower than the England and Wales rate of 34 per 1000 population but fluctuates from year to year.

5.5.10 Using London-specific data covering issues of deprivation, population, crime, and educational attainment, the Vulnerable Locality Profile (VLP) maps the relative safety of locations in London to identify wards in London most at risk from issues of community cohesion. This identifies a 'central cross' of vulnerability in London and classifies a top 10 per cent of wards as of being of most concern. In this group, several wards are located in Haringey (7), Enfield (7), Newham (6), Barking and Dagenham (5), Southwark (5), Lewisham (4) and Brent (4), with Northumberland Park in Haringey assessed to be the 'most vulnerable' ward in London. In contrast, over 70 per cent of the least vulnerable wards are located in South London, in the boroughs of Richmond, Bromley, Wandsworth, Sutton, Merton, Bexley, Kensington and Kingston (see figure 5.9).

[59] Mayor's Office for Police and Crime 2016

5.5.11 Within the most vulnerable areas, there are higher rates of crime, particularly violence against the person, and there are also much higher rates (compared to the group of least vulnerable wards) of unemployment, deprivation, residents of BAME ethnicity, and deliberate fires[60]. Understanding the interrelationship between these factors is important in being able to target action effectively.

Figure 5.9: Vulnerability locality profile at ward level, 2016



GLA London Landscapes, derived from data provided by GLA population projections, the Metropolitan Police Service and Department for Education via ONS Neighbourhood Statistics.

5.5.12 Fear of crime can be a barrier to walking or using public transport. A recent TfL survey (2014) indicates that 31 per cent of Londoners are put off using public transport because of concerns about anti-social behaviour[61]. BAME groups and women are most likely to say that their frequency of travel is affected 'a lot' because of concerns over anti-social behaviour[62]. Fear of anti-social behaviour can be stressful and can limit people's access to activities and contribute to social isolation.

5.5.13 The design of the build environment can help to minimise risk of criminal behaviour through passive surveillance. Sometimes there is a balance between designing a place to make it feel safe and secure and allowing places to be permeable and attractive which can aid walking and

60 Based on simple comparisons between Ward level data via the GLA ward profiles and atlas (2014 boundaries), available at: http://data.london.gov.uk/dataset/ward-profiles-and-atlas

61 Transport for London (2015), Safety and Security Survey, Future Thinking

62 Mayor of London (March 2016), Crime on public transport. GLA.

movement. Ensuring that places are appropriately lit can also help to minimise risk of crime and add to perceptions of safety.

5.5.14 Safety concerns are a barrier to active travel and contribute to inactivity which, in turn, has impacts on health and wellbeing.

5.5.15 The evening and night time economy is a key driver of the economic and cultural regeneration of town centres. However whilst an increase in night-time activities may provide greater 'passive-surveillance', it can also lead to an increase risk in crime, anti-social behaviour and community safety problems which, without appropriate management and mitigation, can impacts on the quality of life of local residents, workers and customers. Perceptions of safety may also disproportionately impact certain vulnerable groups.

5.5.16 As well as the social effects of crime and perceptions of safety, there are costs to business such as impacts of crime/fraud, cost of insurance and additional security measures which can affects London's global reputation.

Key issues	• Increased threat of major incidents and unplanned events • Perceptions of safety • Fear of crime creating barrier to activities leading to increased social isolation • Vulnerability of different groups of people at greater risk of crime • More vibrant night-time economy leading to increased risk of crime
Opportunities	• Designing out crime should be integral to development proposals and considered early in the design process • Use of lightening and passive surveillance to help improve perceptions of safety • Need to balance aspects of permeability and legibility with concerns of safety and security • Promote the use of private spaces for the public
Implications of the plans and programmes review	The design of the built environment can significantly impact on people's fear of and actual crime.
	↓
Suggested IIA Objectives	To contribute to safety and security and the perceptions of safety.

5.6 Housing

A person's home / shelter

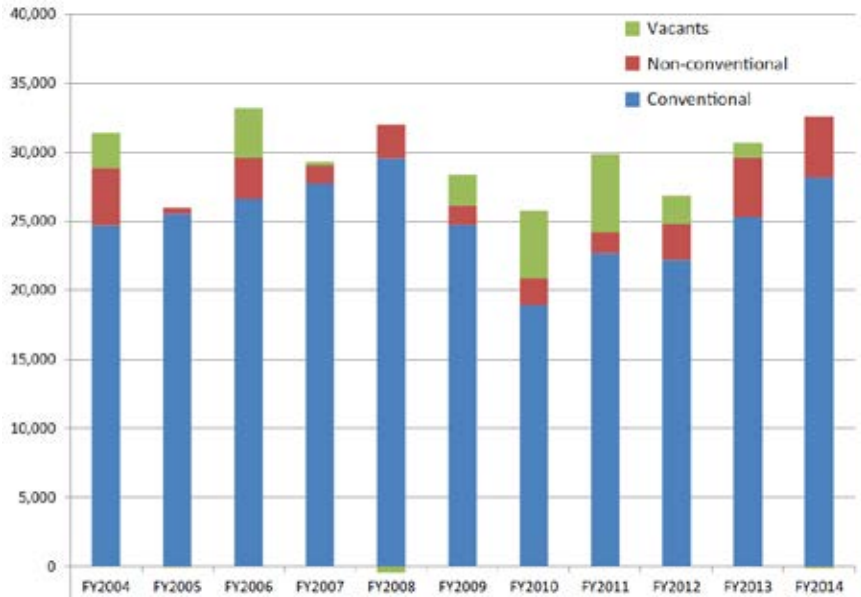
Housing need

5.6.1 The 2013 London Strategic Housing Market Assessment (SHMA) estimated that London will need around 48,840 new homes every year between 2015 and 2035, of which: 48 per cent should be market homes, 32 per cent social rent or affordable rent, and 20 per cent intermediate. In terms of unit size, 34 per cent of the estimated requirement is for homes with one bedroom, 18 per cent with two bedrooms, 26 per cent with three bedrooms and 22 per cent with four or more bedrooms. An updated SHMA is currently being undertaken to inform the new London Plan. This is likely to show a higher overall housing requirement due to faster projected household growth and worsening affordability problems.

Housing supply

5.6.2 Over the last 10 years, London has delivered on average around 25,000 net conventional homes each year. This includes new build housing as well additional housing from conversions and change of use. This figure rises to around 27,500 housing units a year when other non-self contained housing units are included. It includes bedrooms in student halls of residence, hostels and large houses in multiple occupation. Where vacant homes returning to use are accounted for, the average overall net housing supply in London has been c29,500 units a year.

Figure 5.10: Housing Delivery



London Development Database

5.6.3 The most recent London Plan AMR[63] shows that overall housing provision in London during 2014/15 was 32,44064. This overall net figure includes:

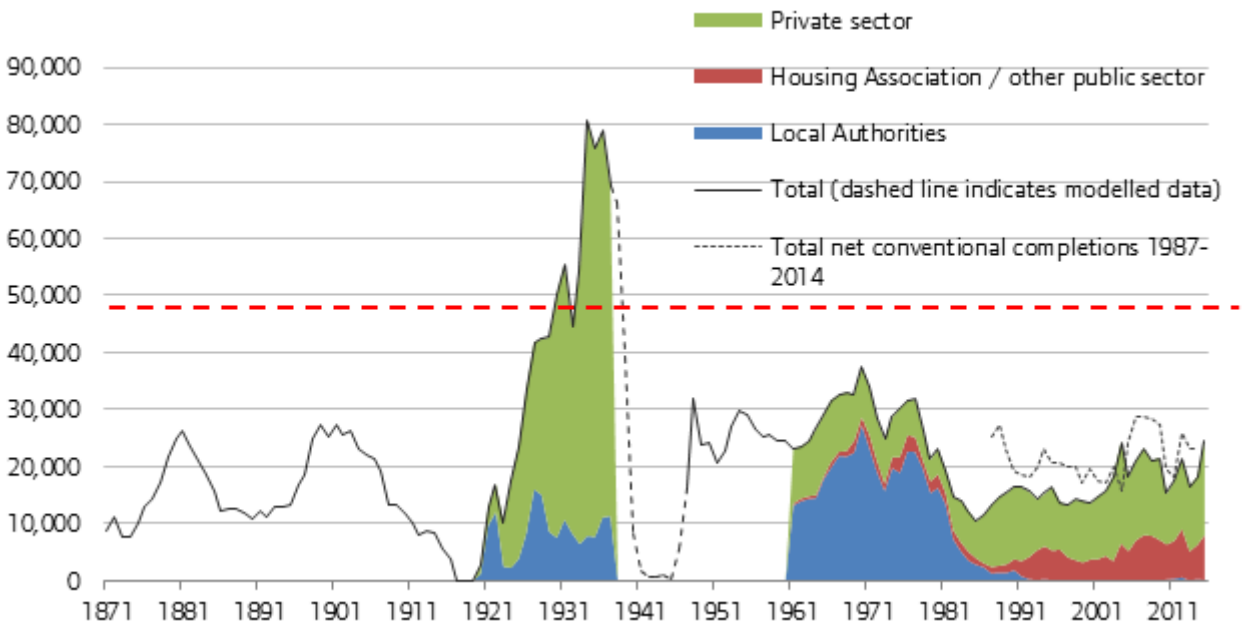
- 28,191 net conventional housing completions – 83 per cent of these completions were new build homes, 4 per cent were housing conversions and 13 per cent were change of use
- 4,369 non-self-contained housing units were completed. 4,369 non-self-contained housing units were completed.
- the number of long term vacant properties rose by 120 overall.

5.6.4 New housing provision in London is heavily weighted towards smaller units. Across all tenures, 34 per cent of homes completed during 2014/15 had one bedroom, 42 per cent had two bedrooms and the remaining 24 per cent had three bedrooms or more[65].

Historic context – housing delivery

5.6.5 Substantial increases in current rates of housing delivery are required to ensure London meets its housing need, with almost one million new homes needed between 2015 and 2035[66]. This level of housing output has not been achieved in London since the 1930s. From a historic context, the number of new homes built in London peaked in 1934 at 80,600 units. Even the post war council housing booms producing a peak of only 37,400 unit pa in 1970 and during this period the overall net housing provision was actually lower than during the past three decades. This is because of higher rates of demolitions during this period and also the impact of net housing provision from conversions and change of use. As Figure 5.11 shows, local authority housing pretty much stopped from the early 1990s.

Figure 5.11: Net housing delivery by type



GLA and Department for Communities and Local Government[67]

63 Mayor of London, London Plan AMR 12, 2014/15

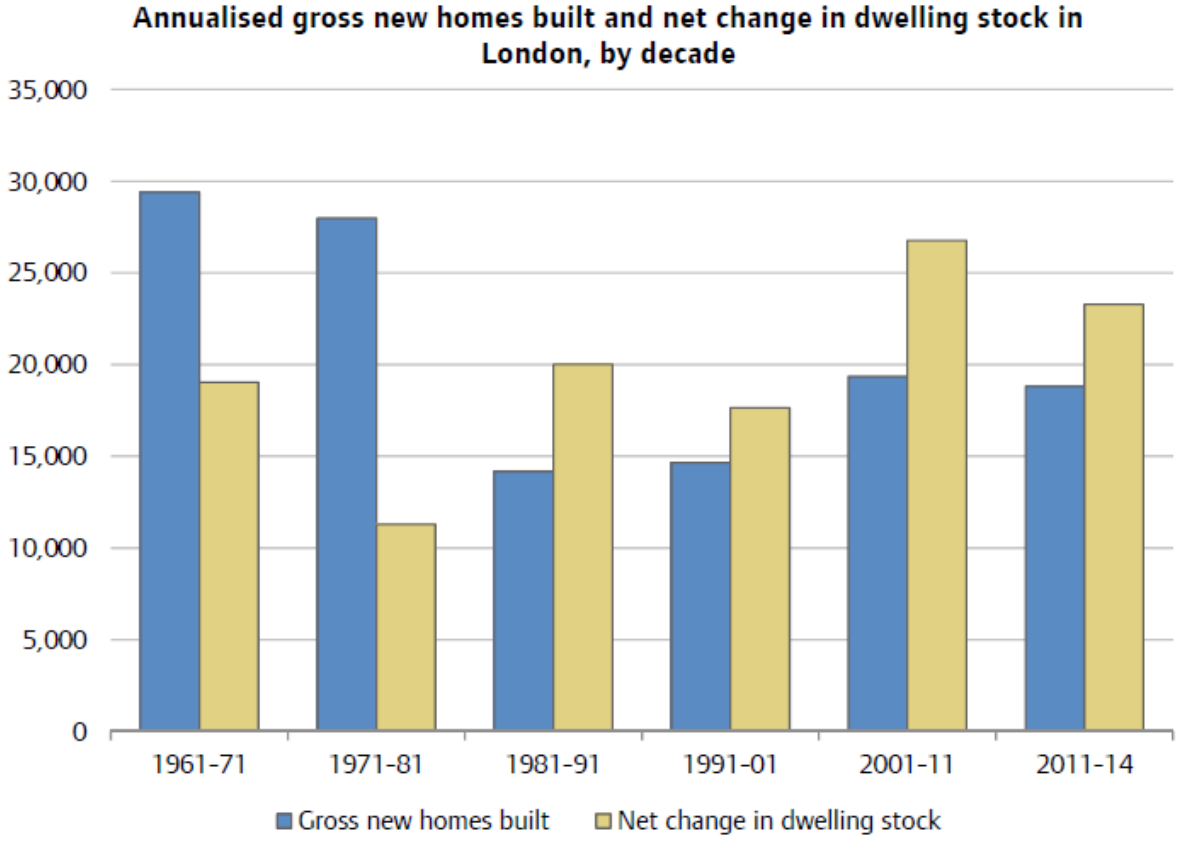
64 This includes net conventional and non-self contained housing and the number of long-term vacant homes returning to use

65 London Development Database

66 Mayor of London (2013) Strategic Housing Land Availability Assessment, GLA

67 Note – net conventional completions (1987-2013) includes net housing provision from conversions, change of uses and extensions (Source: London Development Database)

Figure 5.12: Annualised Gross new homes built and change in dwelling stock



GLA Housing in London, 2014/5

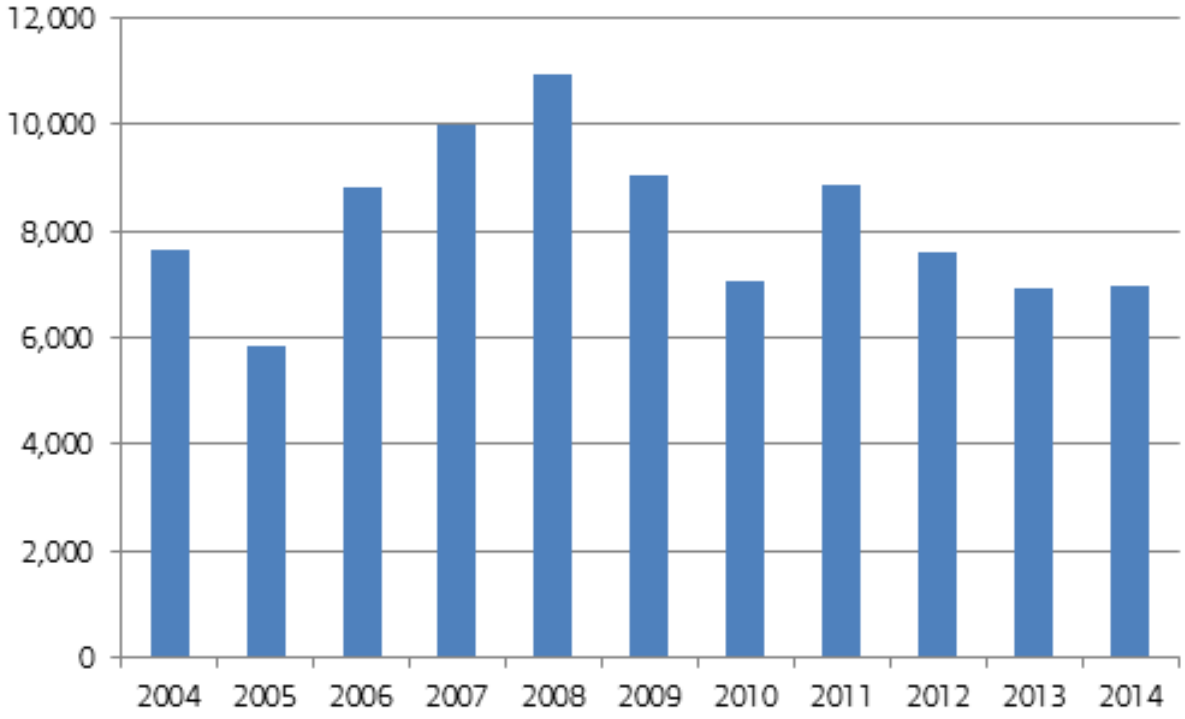
Affordable housing delivery

5.6.6 Over the last three years, 28 per cent of overall net conventional housing planning permissions were affordable units equivalent to 21,529 homes – providing on average 7,176 net affordable homes a year[68]. This is significantly less than the current housing target in the London Plan, which seeks a minimum of 17,000 affordable homes a year. Social rented units make up 52 per cent of affordable completions over this period, intermediate housing 37 per cent and affordable rent nearly 11 per cent. Overall, 28 per cent of affordable housing completions in 2014/15 comprised homes with three or more bedrooms, with the remainder being 1 and 2 bedroom units. Average annual net affordable housing in London has been around 8,100 since 2004 and is shown on figure 5.13. In 2014/15, 87 per cent of approved units were for market sale or rent, leaving 13 per cent as affordable units, broken down as 7 per cent intermediate, 4 per cent affordable rent and 2 per cent social rented[69].

68 Mayor of London, London Plan Annual Monitoring Report 2014/15

69 Ibid

Figure 5.13: Net affordable housing delivery 2004/5 to 2014/15



London Development Database

5.6.7 Measured in gross terms (including acquisitions of existing private sector homes for use as affordable housing) 53,430 affordable homes were delivered during the four years 2011/12 to 2014/15, of which 23,200 were social rented housing, 17,490 intermediate housing and 12,270 were affordable rent. Nb this figure does not include demolitions.

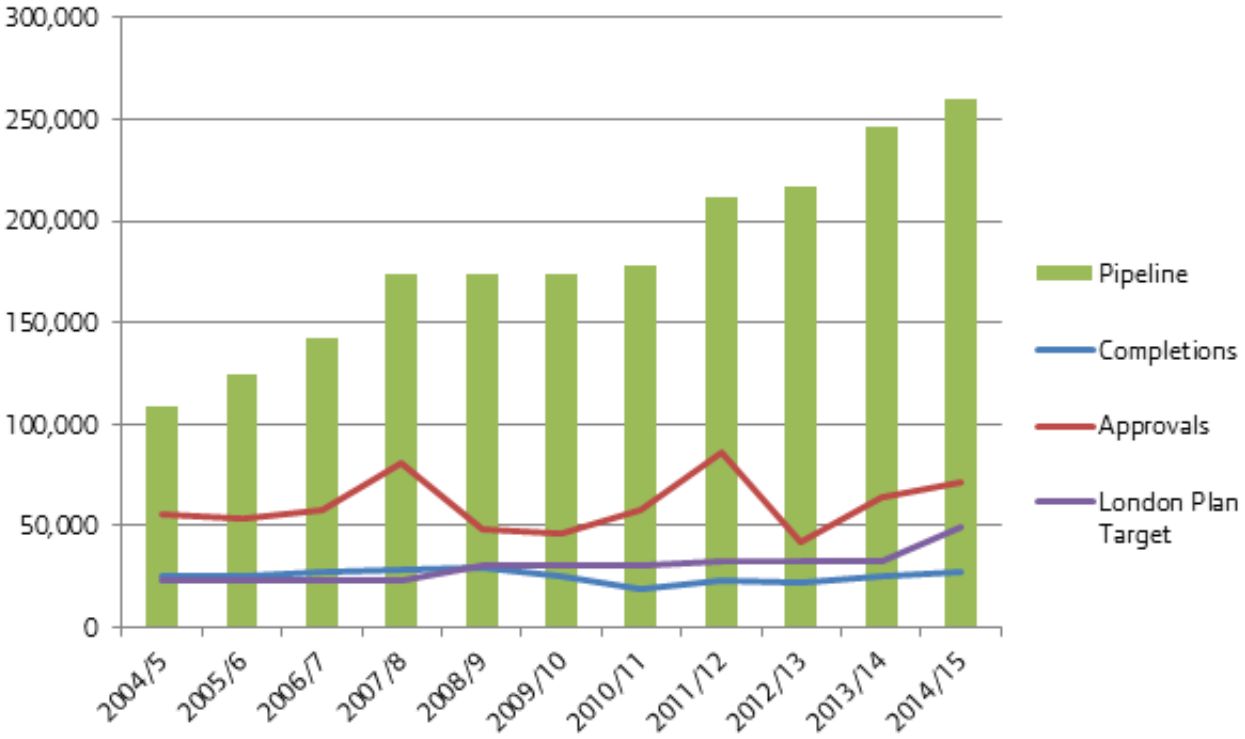
London's planning pipeline

5.6.8 As of 31 March 2015, the net conventional housing pipeline consisted of 261,600 homes, of which 51 per cent are under construction. 78 per cent of the pipeline are 1 and 2 bed units and 22 per cent 3+ bedroom homes. This pipeline has more than doubled over the last 10 years, as shown in Figure 5.14, as around twice the number of units are approved each year as are completed. London boroughs consistently grant planning permission for over 50,000 conventional homes a year, with completions averaging 25,000 a year70. Indeed, over 74,000 homes were approved in London during 2014/15 up from 63,700 in 2013/14[71].

5.6.9 However, half of London's pipeline of approved units is concentrated in schemes of over 500 units in size which will take years, if not decades, to be completed due to phasing and infrastructure delivery constraints and timescales. Indeed, many approved schemes may not come forward. The pipeline is also concentrated in particular boroughs and in East London. Figure 5.15 shows the distribution of London's pipeline in terms of size of schemes.

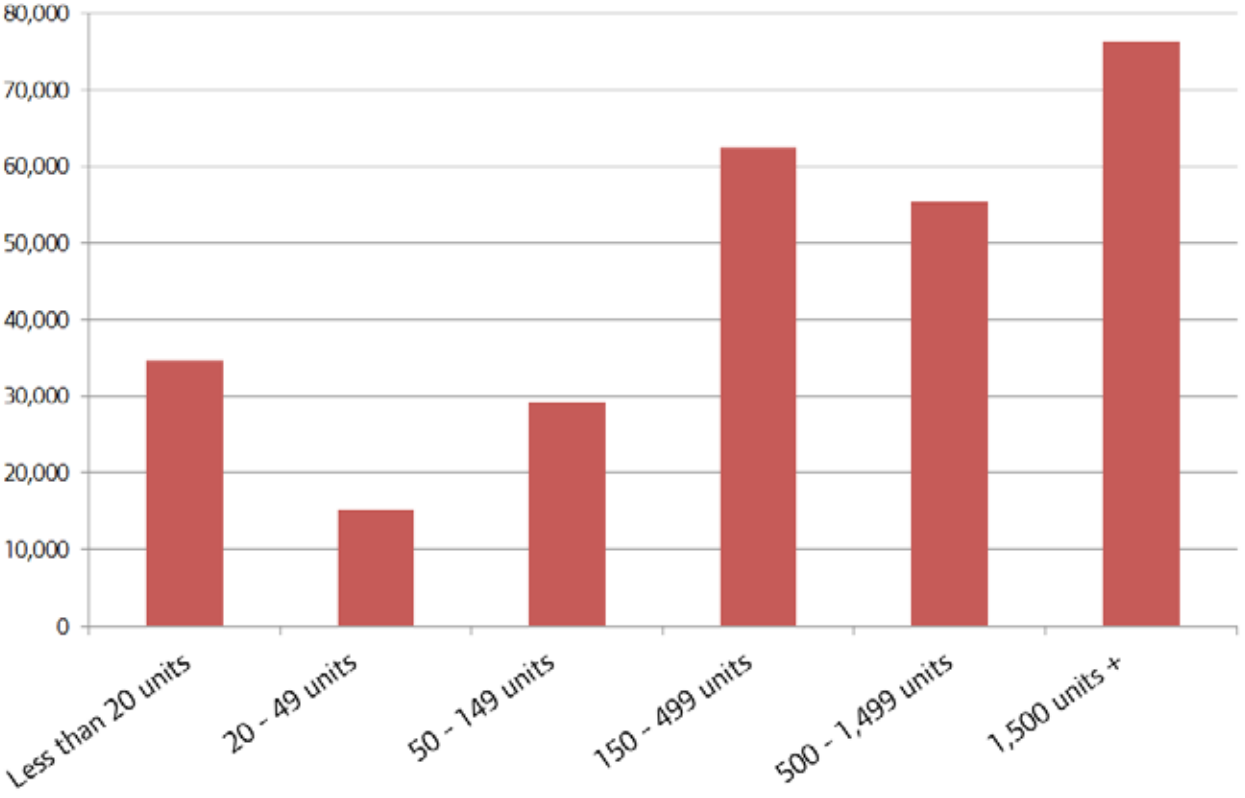
70 London Development Database – net conventional homes
71 Mayor of London, London Plan Annual Monitoring Report 2014/15

Figure 5.14 London's net conventional housing pipeline, 2004 to 2015



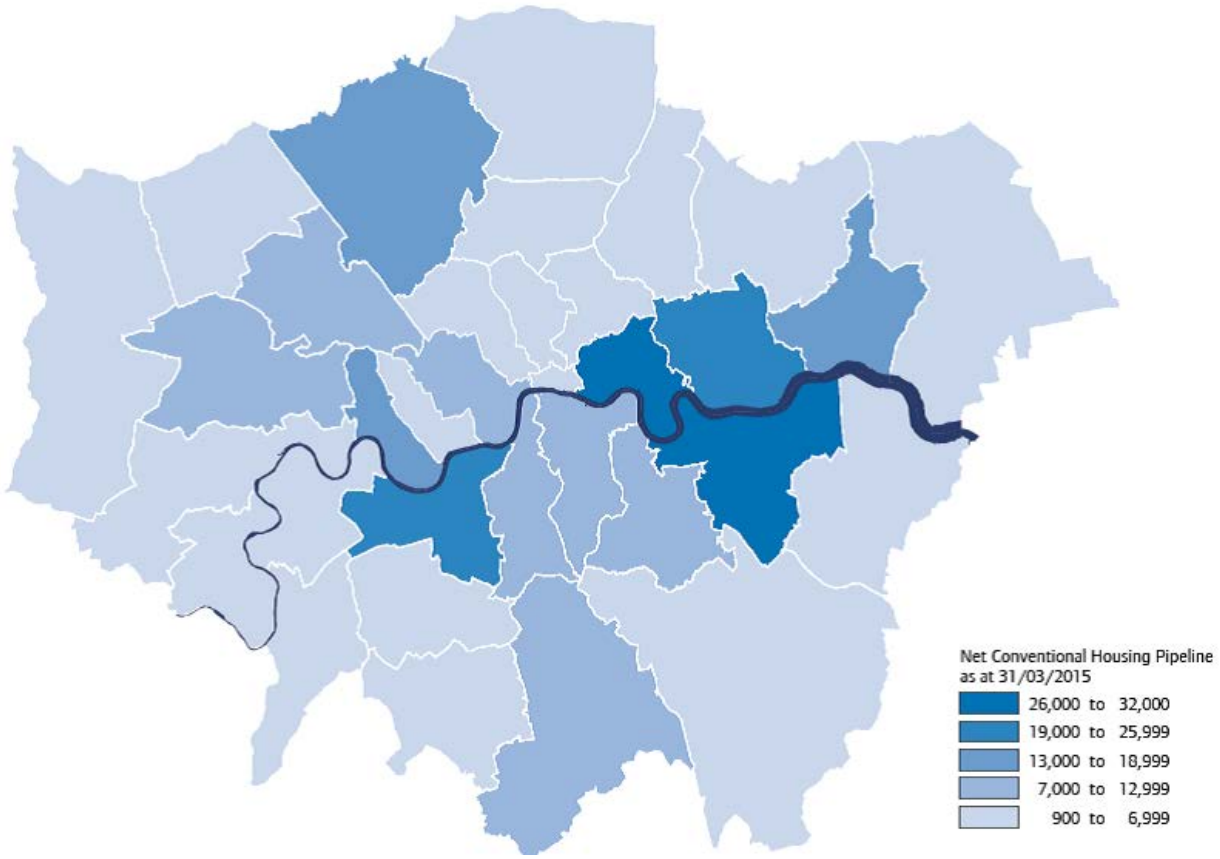
London Development Database

Figure 5.15: London's housing pipeline by number of units in the scheme



London Development Database

Figure 5.16: London's net conventional housing pipeline by borough



London Development Database

Residential density, typology and stock

5.6.10 The average density of new housing approvals in 2014/15 was 160 dwellings per hectare (dph), and the average density of completions was 124 dph. The 2011 Census shows that flats comprise just over half of London's accommodation, compared to less than 20 per cent in the rest of the country[72] and the London Development Database (LDD) shows that they make up the large majority (7/8th) of new dwellings being built in London.

5.6.11 New homes in London have an average floor area of 80 square metres (m2), compared to an average across England as a whole of 92m2. The average size of homes in London depends on the age of the housing stock. Homes built before the war are typically larger on average (87m2), whilst those built during the post war period and 1980s and 1990s tend to be smaller compared to the current average[73].

Housing tenure trends

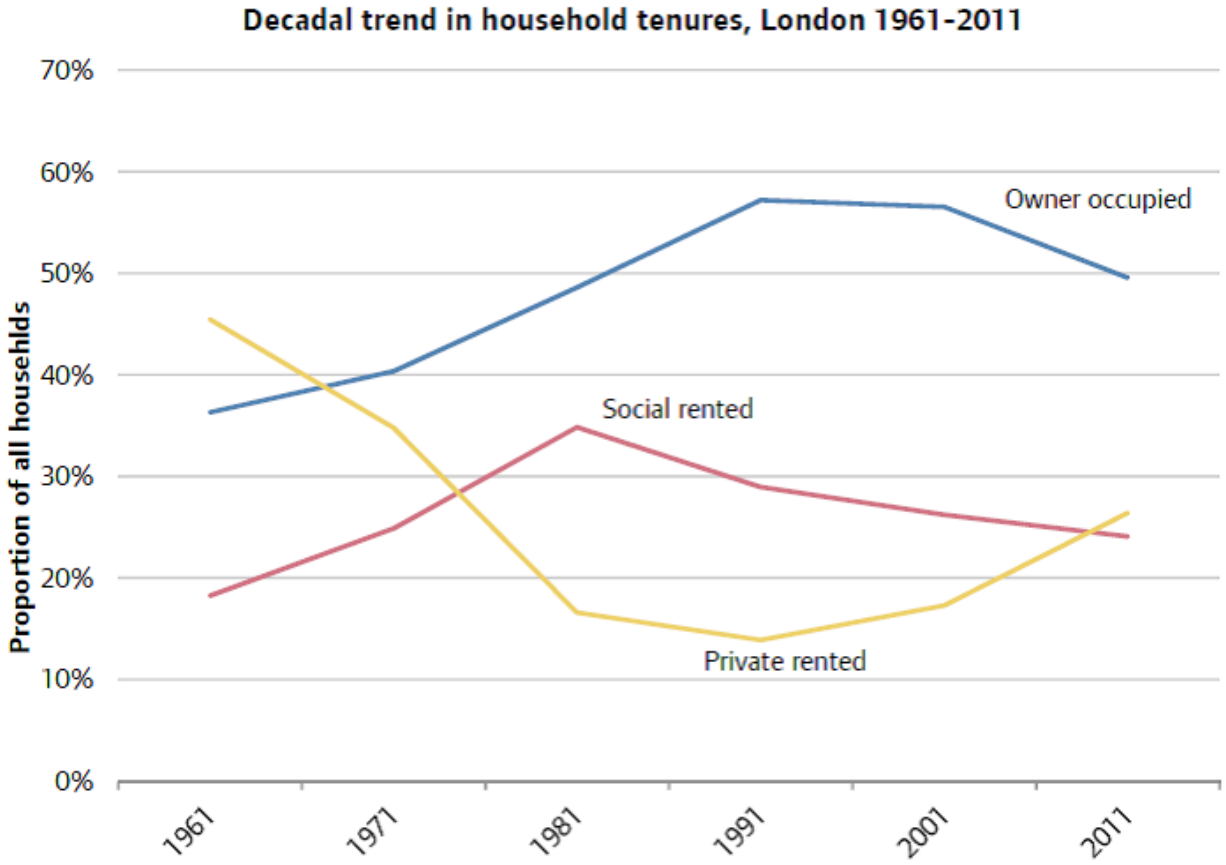
5.6.12 The private rented sector was once the largest tenure in London but shrank from 46 per cent of households in 1961 to 14 per cent in 1991, before rapid growth brought it back up to 26 per cent in 2011, making it the second largest tenure. In contrast, social renting grew rapidly between the 1960s and 1980s, accommodating 35 per cent of households in 1981, before falling to 24 per cent in 2011[74].

72 Mayor of London, London Plan Annual Monitoring Report 2014/15
73 Mayor of London (2015), Housing in London, GLA
74 Mayor of London (2015), Housing in London, GLA

5.6.13 The proportion of London households who own their own home (whether outright or with a mortgage) peaked in the early 1990s but then fell to just under half by the time of the 2011 Census, the first time owner occupiers have been in the minority since the early 1980s. In England as a whole, 64 per cent of households owned their home in 2011, with 18 per cent each in social and private rented accommodation[75].

5.6.14 Homes in Multiple Occupation comprise 8 per cent of London's private housing stock, a much higher rate than in other areas in the country. One in three private renting households in London has children, up from one in five a decade ago. The proportion of private renting households with children rose from 20 per cent in 2004 to 33 per cent in 2014[76].

Figure 5.17: Housing Tenure 1961 – 2011



GLA Housing in London 2015

Housing affordability

5.6.15 In March 2015 average rents in the private sector have risen 29 per cent since 2005 and are increasing at a faster rate than average earnings, implying affordability is increasingly getting worse[77]. The median cost of renting a one or two bed flat is now £1,155 and £1,400 respectively. However, there is also huge variation in monthly market rents within London and, in the most expensive boroughs, between the top and bottom of the market. Across Inner

75 Ibid
76 Ibid
77 Ibid

London as a whole, the median monthly rent for a two bedroom home is £1,650, compared to £1,200 in outer London.

5.6.16 In 2014 median house prices were almost 10 times median earnings[78], meaning that the aspiration of home-ownership is increasingly beyond the reach of many Londoners, unless households have access to significant deposits or are able to access and progress from shared ownership products.

5.6.17 Home ownership rates among younger Londoners have fallen sharply in recent decades. In 1990, 25 per cent of households in London were headed by someone aged 16-24 and 57 per cent by someone aged 25-34 owned their home, but by 2014 these figures had fallen to 6 per cent and 26 per cent respectively. Home ownership rates also fell for households headed by someone aged 35-44 (from 69 per cent to 47 per cent) and 45-54 (71 per cent to 56 per cent)[79].

5.6.18 Nearly a quarter of young adults in London live with their parents, up from one in six in the late 1990s. Around 470,000 young adults (those aged 20 to 34) in London live with their parents, 24 per cent of all those in this age group. The proportion living with their parents has risen from 17 per cent in the late 1990s, with a particularly rapid rise seen in recent years[80].

5.6.19 The average age a Londoner purchases their first home is 34 years old and an increasing number are only able to meet the value of large deposits needed thanks to parental assistance and/or inheritance. This may have long-term implications for social mobility and entrench wealth inequality across generations.

5.6.20 The affordability challenges facing low and middle income groups, including key workers, has been a key economic concern for businesses in London, particularly in light of the potential impacts on labour market mobility, staff retention, consumer spending and the capital's overall attractiveness as a global city[81]. In November 2014 there were 269,000 Housing Benefit recipients in London's private rented sector, and 557,000 in social housing.

Overcrowding

5.6.21 Around 8 per cent of households in London are in overcrowded accommodation, with higher rates of overcrowding in certain boroughs and within the private and social rented sector (around 13 per cent)[82]. Increases in overcrowding since the 1990s are driven by rising overcrowding rates in private and social rented housing, as the proportion of overcrowded homeowner households has held relatively steady at around 3 per cent over the period. The proportion of overcrowded private renting households has more than doubled since the 1990s. While inner London has always been more overcrowded than outer London, there is enormous variation in overcrowding rates across London at ward level and it has risen sharply in pockets of outer London.

78 GLA Economics (2016), Economic Evidence Base
79 Mayor of London (2015), Housing in London, GLA
80 Ibid
81 London Chamber of Commerce and Industry, Getting our house in order, 2014
82 Mayor of London (2015), Housing in London, GLA

Homelessness

5.6.22 In March 2015 there were 48,240 homeless households in temporary accommodation arranged by London boroughs, an increase of 11 per cent from 2014 and 35 per cent from its lowest point in mid-2010[83]. Most of these households (around 37,000) were being housed in accommodation leased from private sector landlords or other private sector accommodation, with the remaining households housed in hostels and refuges, bed and breakfast hotels and social housing. The average length of stay in temporary accommodation in London has remained steady in recent years. There were 7,580 people seen sleeping rough in London in 2014/15, an increase of 16 per cent or more than a thousand on the 2013/14 figure. 17,530 households were accepted as statutorily homeless in London in 2012/13, which accounts for 32 per cent of the national total[84].

Empty homes

5.6.23 According to council tax data there were 56,720 empty homes in London in 2014, equivalent to 1.7 per cent of the total dwelling stock. Both the number of empty homes in London and their share of the total housing stock are at their lowest levels since at least 1978 having fallen more or less continuously since a peak of 160,500 or 5.4 per cent in 1993. Since 2004 the overall number of long-term vacant homes in London (registered as vacant for longer than 6 months) has reduced by half and now accounts for only 0.6 per cent of the total housing stock - 20,800 homes. This is also a record low. London has a much lower vacancy rate in its private sector housing than other parts of the country, while vacancy rates for affordable housing are broadly similar[85].

Second homes

5.6.24 There are 48,390 homes in London recorded as second homes for council tax purposes, around 1.4 per cent of the total housing stock. Just over half of these are in four boroughs: 8,330 in Kensington and Chelsea; 6,080 in Westminster; 5,560 in Camden; and 5,000 in Tower Hamlets. Together, the remaining 29 boroughs have 23,420 recorded second homes[86].

Under-occupation

5.6.25 There are around 730,000 under-occupying households[87] in London, around 23 per cent of all households in the capital. Around 85 per cent of these are home owners, 8 per cent are private renters and another 8 per cent are social housing tenants. According to the 2011 census, 34 per cent of households in outer London are currently under-occupying their homes to the extent that they have a surplus of two or more rooms (based on the number of recorded household residents). This compares to just 19 per cent of households in inner London. In some outer London boroughs the rate is between 40 per cent and 50 per cent of all households[88].

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83 Ibid

84 Ibid

85 Ibid

86 Ibid

87 Under-occupied households are those with two or more bedrooms more than they require according to the bedroom standard (though this does not necessarily mean that the bedrooms are unused).

88 Bexley (43 per cent), Bromley (51 per cent, Havering (45 per cent), Kingston-upon-Thames (43 per cent); Richmond upon Thames (48 per cent); Sutton (41 per cent)

Decent homes and fuel poverty

5.6.26 Around 21 per cent of homes in London are below the official Decent Homes standard[89] and has fallen faster in London than in the rest of England since 2006. 30 per cent of private rented homes in London are below the Decent Homes standard, compared to 18 per cent of owner occupied and 19 per cent of social rented homes. The proportion of homes below the standard has fallen significantly in each tenure since 2006. The number of affordable homes in London below the Decent Homes standard has fallen from 260,300 in 2005 to 79,800 in 2014. Around a tenth of London households are estimated to be living in fuel poverty, just below the national rate. For more information on fuel poverty, please see the energy baseline section.

Accessibility

5.6.27 Around 30 per cent of households in London include a person with a long standing illness, disability or impairment which causes substantial difficulty with day to day activities[90]. English Housing Survey data suggests that 180,000 households, 6 per cent of all households in London, say the illness or disability of one or more household members requires adaptation(s) to the home. Of these, around 20,000 households say they are currently attempting to move to find a more suitable home.

5.6.28 The English Housing Survey (EHS) grades the accessibility of the existing housing stock by reference to the four 'visitability' features[91]. GLA analysis of EHS data[92] shows that around one fifth of all homes in the capital have no 'visitable' features – over half a million dwellings[93]. A further 1 million homes have only one 'visitability' feature and only 9 per cent of London's existing housing stock is estimated to exhibit all four 'visitability' features (less than 300,000 homes).

5.6.29 In terms of planning approvals, the London Plan Annual Monitoring Report shows that a very high proportion of new build units in London currently comply with Lifetime Homes standards (93 per cent)[94]. However, due to the time lag between approvals and completions particularly on approved large schemes, only 59,000 units have been completed which meet Lifetime Homes standards since the standards were introduced in 2004 London Plan[95].

Demographic forecasts

5.6.30 Whilst London has a relatively young existing population profile compared to other areas in England, 20 per cent of households include someone aged over 65, and the overall number of these older person households in the capital is substantial – nearly 700,000[96]. This is expected to increase to over 1 million households during the period of the Plan (2019 to 2041). This will

89 This is a composite measure of dwelling stock conditions that takes into account minimum standards, thermal comfort, kitchen and bathroom facilities and the general state of repair. London's 'non-decency' rate is not significantly different from the national average of 22 per cent or from most other regions.

90 DWP, Family Resources Survey (2013/14)

91 These are: level access; flush threshold; a sufficiently wide door and circulation space to move around; and use of a WC on the ground or entry floor.

92

93 DCLG and ONS, English Housing Survey, 2012

94 Mayor of London, London Plan, Annual Monitoring Report 11, 2013-14, GLA,

95 London Development Database, Lifetime Homes completions 2004/5 to 2014/15

96 GLA Intelligence Unit (2013) household projections (central trend), GLA

represent an increase of 50 per cent (over 350,000 additional households) and will mean that older person households will constitute 25 per cent of all households in London. Particularly substantial increases are expected in the number of households with representatives aged over 85, which are forecast to more than double.

5.6.31 GLA's evidence[97] estimates that the potential demand for specialist retirement housing which cannot be met from existing stock is of the order of 3,900 units a year. This estimate is based on the assumption that 15 per cent of households aged 75 and over and 2.5 per cent of households 65-74 are likely to require specialist older persons housing. It also takes into account existing levels of provision and the current pipeline.

5.6.32 Poor quality homes, insecure housing and overcrowding can significantly effects people's mental and physical health. These effects may also disproportionately impact certain vulnerable group such as older people, those on low incomes, BAME groups or disabled groups.

Gypsies and travellers

5.6.33 The London boroughs conducted a joint Gypsy and Traveller Accommodation Assessment in 2009, but have not repeated the exercise on a joint basis since then. Boroughs are responsible for assessing needs at the local level and addressing these needs in light of local circumstances and in line with government guidance and the London Plan.

Government reforms

5.6.34 There are currently a large number of reforms being progressed by Government through the Housing & Planning Act and proposed changes to the National Planning Policy Framework (NPPF). These include proposals for starter homes, extensions to 'right to buy' to include housing association tenants and the proposed sale of vacant council houses in high value areas. In addition, proposed changes to the National Planning Policy Framework have been put forward which would change the definition of affordable housing by removing 'in perpetuity' requirements to enable the provision of starter homes and other intermediate housing products.

5.6.35 Government has also made permitted development rights for change of use from office to residential permanent, with the current exemptions ceasing at the end of May 2019 and will need to be replaced with Article 4 Directions by local planning authorities, subject to Secretary of State approval. A consequence of this liberalisation is that new homes delivered through these permitted change of use do not need to accord with affordable housing policies or meet residential or accessible housing design standards.

5.6.36 These Government reforms will cumulatively impact on London's ability for overall delivery of new homes as well as for different tenures. The new London Plan will therefore need to carefully consider the potential impacts of these reforms as well as the other issues of supply and demand outlined above.

5.6.37 Ensuring a sufficient supply of quality homes, of the type that people desire and can afford, in the right places for residents to access a range of employment opportunities, as well as

[97] Three Dragons and Celandine Strategic Housing, 2014, - Older Persons Housing Needs Assessment Report 2013

necessary services and amenities, is of fundamental importance to London's global success and the quality of its offer to a competitive workforce. If businesses find it harder to recruit skilled worker due to the cost and availability of housing then they will consider locating elsewhere.

Key issues	• Lack of affordable housing • Under supply of homes which meet the needs of Londoners (size, type, tenure) • High level of approvals, low level of completions • Increasing costs of housing relative to wages • Homelessness • Implications for delivery from major Government reforms to housing legislation and policy
Opportunities	• Diversifying the sector - build to rent, SMEs • Diversify the range of sites • Turning approvals in to completions, helping to ensure new approvals are built out (review mechanisms). • Provide greater certainty within the planning system, particularly around the level of affordable housing required.
Implications of the plans and programmes review	To significantly increase the delivery of housing, including a mix of size, tenures and affordable products
	
Suggested IIA Objectives	To provide a quantum, type, quality and tenure of housing (including specialist and affordable provision) to better meet demographic change and household demand

5.7 Sustainable Land Use

The use of land that is developed or undeveloped, brownfield and greenfield, agricultural or urban and the associated density of development

5.7.1 London saw a large expansion in its population and geographic area up until the Second World War. Urban land was not in restricted supply because new transport – commuter rail, trams, London's underground and then arterial roads – opened up land as it was needed. The expansion of London meant it absorbed towns such as Croydon, Kingston, Harrow and Romford within its boundary.

5.7.2 The introduction of the 1947 Town and Country Planning Act, which changed development rights and introduced urban containment policies such as greenbelts saw a change in the way London developed. A reduction in the densities at which people lived, coupled with Government policy of decentralisation through measures like the building of the New Towns resulted in London's population started to fall, reaching a low of 6.7 million by 1988.

5.7.3 However, since 1988 London's population has increased every year. Even during the economic downturn of the early 1990s and the more recent recession in the late 2000s, London's population grew and overall growth accelerated. The main reasons for this change is more people of childbearing age moving to the city, leading to strong natural population growth (the surplus of births over deaths). London's current population is 8.6 million and it is expected to continue to growth at c70,000pa.

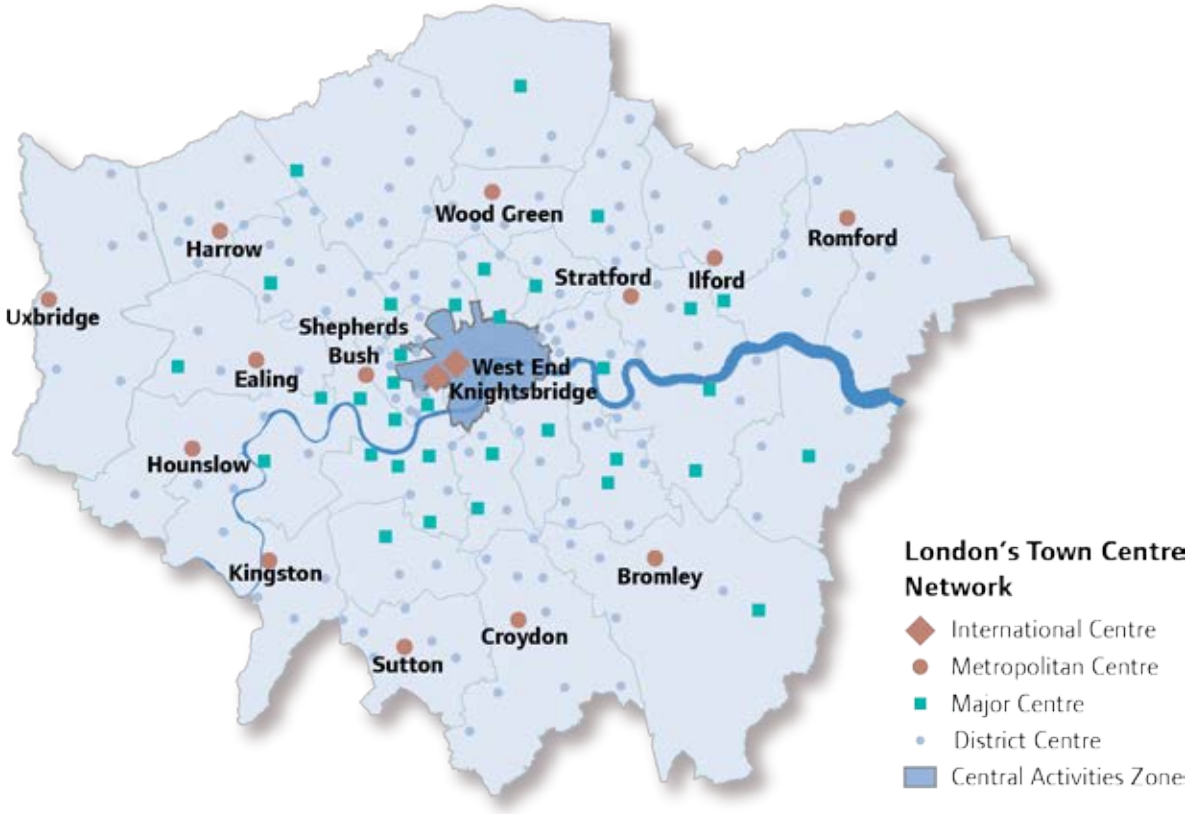
5.7.4 London's continued economic success (which is discussed in more detail in section 5.10) will, alongside demographic factors, drive population growth. The spatial distribution of growth is fundamental to preparation of the London Plan. A number of spatial scenarios for managing that growth and the infrastructure needed to underpin it are currently being explored.

5.7.5 In terms of London's future growth, it is important to consider the current geography of activities within London and how they might be impacted in the future. Inner London is characterised by a strong focus on commercial, cultural and employment activities, whilst outer London comprises of mostly residential activities. As a result, economic development within the city has developed a distinct geography that is predominately focused on the central area.

5.7.6 The Central Activities Zone (CAZ) covers London's geographic, economic and administrative core. It brings together the largest concentration of London's financial and globally-oriented business services. Almost a third of all London jobs are based there and, together with the Northern Isle of Dogs (including Canary Wharf), it has historically experienced the highest rate of growth in London. Employment in the CAZ and Northern Isle of Dogs is expected to grow substantially, particularly driven by expansion of the office-based business services sector, as well as more jobs in areas like retail and leisure services.

5.7.7 Town Centres are also of fundamental importance to the capital and are the focus for a wide range of uses including shopping and leisure, arts and culture, housing and employment, civic and social infrastructure. They also serve as community hubs, providing a sense of place and identity. Figure 5.18 shows the spatial network of different types of town centres within London.

Figure 5.18: Town Centre Network



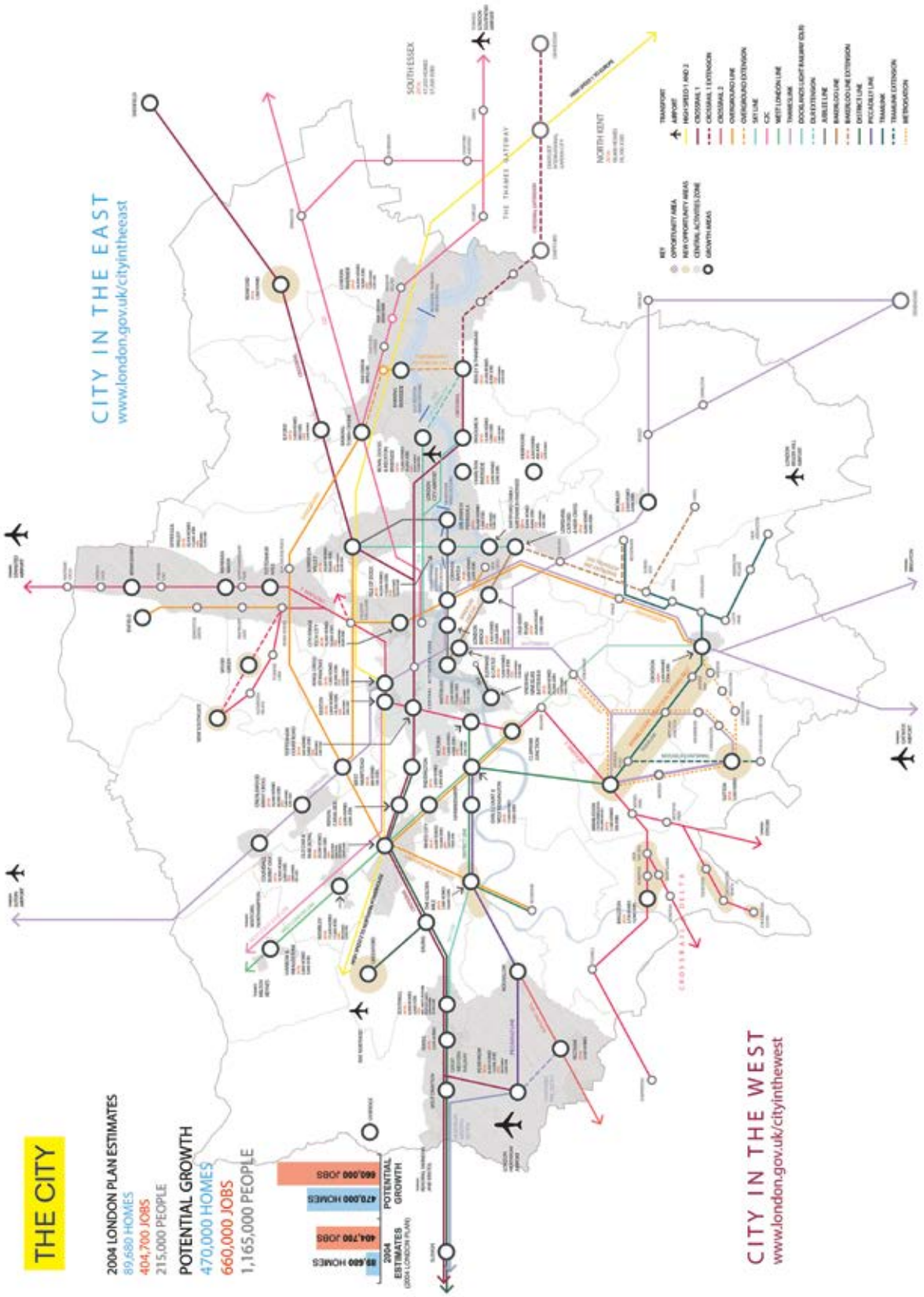
5.7.8 Current London Plan policy highlights town centres generally as a focus for growth however it is likely that there will be even greater emphasis for higher density residential growth in the future, potentially with a more targeted approach to identifying specific town centres to help target resources more effectively to increase delivery.

5.7.9 Opportunity Areas are the capitals major reservoirs of brownfield land also have significant capacity to accommodate new housing, commercial and other development linked to existing or potential improvements to public transport. Almost two thirds of the land within Opportunity Areas (measured by area) is in outer London, a quarter in inner London and the remaining tenth in and around the Central Activities Zone. The largest concentrations of Opportunity Areas follow the River Thames to the east, along the Upper Lea Valley to the north, and around Old Oak Common/Park Royal and Heathrow in the West. Figure 5.19 shows their distribution and relationship to each other.

5.7.10 The Opportunity Areas are diverse, ranging in size from 3,900 hectares (Upper Lea Valley) to 19 hectares (Tottenham Court Road). Some, particularly in the east of London, require significant public intervention whereas for others the market will be stronger. They are and will continue to be of fundamental importance in delivering London's future growth.

5.7.11 Intensification Areas are typically built-up areas with good existing or potential public transport accessibility. Their importance is likely to grow in the delivery of higher density housing as the competition for land becomes even more intense.

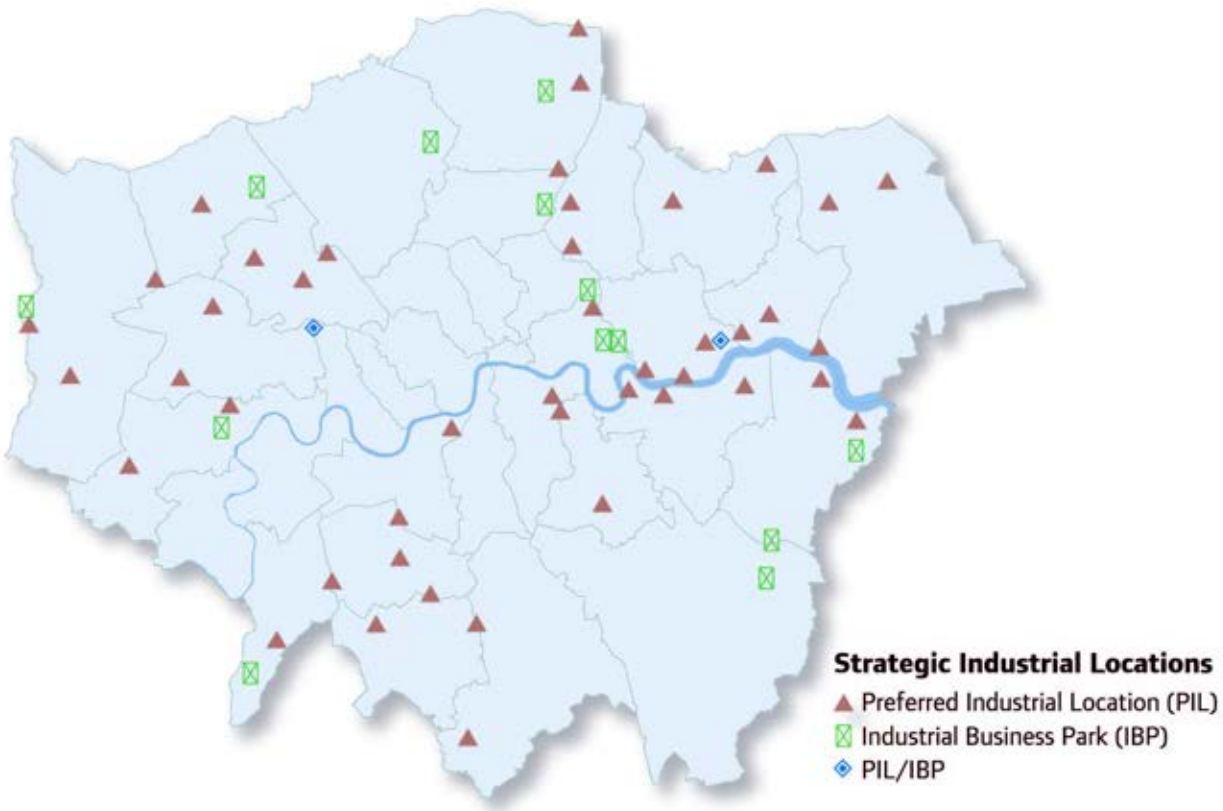
Figure 5.19: Opportunity Areas



Industrial Land

5.7.12 Figure 5.20 shows the spatial distribution of London's Strategic Industrial Locations, which comprise about 50 per cent of London's total supply of industry.

Figure 5.20: Strategic Industrial Locations



5.7.13 SILs are important in supporting the logistics system and related infrastructure which are essential to London's economic function and competitiveness. They are given strategic protection because their scale and relatively homogenous character means they can accommodate activities which elsewhere might raise tensions with other land uses. Most are over 20 hectares in size although in some areas, especially parts of west and south-west London where there is particular pressure on industrial land, smaller locations, for example of 10 hectares, can be of strategic importance.

5.7.14 Current London Plan policy is of managed release of surplus industrial land, however due to intense pressure for residential development, land is currently being released at almost 3 times the recommended amount ; more details can be found in section 5.10. Studies are currently being updated to understand the relationship between demand and supply of industrial land, in particular the effect the higher rate of release might be having spatially in London.

Accommodating Growth

5.7.15 Due to the scale of growth expected and the limited supply of land, there is an inherent tension between the delivery of housing versus that of other land uses, in particular

employment, and competition between them can impact on the spatial and economic structure of the city. How London will accommodate this growth is fundamental to the preparation of the new London Plan.

5.7.16 The most recent SHMA (Strategic Housing Market Assessment 2013) identified a need for 49,000 homes per year. Demographic changes alone suggest that this might increase to the mid-50,000s; meeting the back log of need in ten rather than 20 years could take the figure to the high 60,000s. Changing the need assessment methodology to that recommended by Government's Local Plans Expert Group could put it in the region of c70,000-c80,000 pa. The most recent SHLAA (Strategic Housing Land Availability Assessment 2013) identified capacity for 42,000 homes per year (based on current London Plan policy assumptions) and put in place policy to bring forward an additional 7,000 pa, thus matching potential capacity with the 49,000 need figure. This was more than achieved in terms of approvals, but not in terms of completions which have only average c27,000 pa.

5.7.17 A new SHMA and SHLAA are currently being undertaken, however if the housing need figure rises to the region of 60,000pa or even 70,000pa then significant more capacity needs to be identified. To complicate this further, arguably the real challenge is not identifying capacity through the planning system but translating the 50,000pa approvals into completions. It may be prudent therefore that the new London Plan is more delivery focused.

5.7.18 Current London Plan policy is to realise additional housing output through intensification, especially where there is good public transport connectivity. It may be the case that further sources of supply need to be identified or that there is a more targeted approach to intensification within London.

5.7.19 There are both advantages and disadvantages to higher densities. Economic advantages of higher densities include improving a city's economic efficiency and employment opportunities through agglomeration of businesses, increases in productivity levels and the provision of a critical mass to support social and physical infrastructure, including a more viable and efficient public transport network. Higher densities can also lead to a greater choice of homes thereby reducing social inequality; however higher densities can also lead to more cramped living conditions, a loss of privacy, increases in noise and nuisance, contribute to a lower overall sense of community and have an impact on people's mental health and wellbeing . As with many impacts, these vary depending on the circumstances of the individual.

5.7.20 Ensuring a strong relationship between the scale and intensity of development and connectivity of public transport will continue to be a central axiom of the London Plan. In order to close the gap between need and capacity, outer London boroughs are likely to have to make a more substantial contribution to meeting their projected housing growth and overall housing need.

5.7.21 The growing gap between demand and supply for homes in London poses many challenges, not least house price inflation, bridging the affordability gap and meeting the needs of different groups of Londoners. In terms of employment, failure to provide sufficient and suitable employment land at competitive prices could diminish access to employment opportunities, putting at risk the achievement of sustainable, mixed and balanced communities, as well as potentially compromising London's international competitiveness.

5.7.22 Accommodating forecast growth within London's existing boundaries will rely on greater integration between land use and transport planning. Growth will need to be accommodated in a way that delivers more housing that is accessible and affordable for Londoners and a continued shift towards public transport, walking and cycling. The London Plan will need therefore need to consider the ability of London to accommodate its need within its boundaries and consequentially its relationship with the wider region. This might entail partnerships with authorities beyond London where infrastructure investment might enable an uplift in development in appropriate locations; in particular strategic transport corridors eg along the London-Stansted-Cambridge corridor and possibly associated with an extension of Crossrail 1 along the south of the Thames estuary; and/or possibly extensions to other existing towns outside London.

5.7.23 The decision on future of airport capacity in the South East will also have significant effect on the location of future development pressures in London. Not only in terms of associated infrastructure and transport links but also in terms of economic opportunities and connections to the rest of the UK

Key issues	• Inability for London to accommodate required growth within its boundaries • Unsustainable patterns of development within and across London's boundaries • Higher density developments • Competing pressures for land impacts on ability to provide social, physical and environmental infrastructure • Non-efficient use of land • Integration of land use and transport • Spatial impact and consequential development pressures resulting from decision on London's future airport capacity
Opportunities	Targeted intensification of focused areas Growth corridors supported by infrastructure investment
Implications of the plans and programmes review	Ensure the most efficient use of land which adheres to the principles of sustainable development and considers London's relationship as part of a city region
	↓
Suggested IIA Objectives	To make the best and most efficient use of land so as to support sustainable patterns and forms of development.

5.8 Connectivity

One's ability to reach employment, education, shops, recreation, friends, family and health and social services measured by whether the infrastructure is in place and whether it is able to accommodate demand

5.8.1 Transport issues will be principally addressed in the review of the Mayor's Transport Strategy, which is being undertaken in parallel to the London Plan review. However, improvements to London's transport system and accessibility for all Londoners will remain key considerations for the London Plan. Importantly the new London Plan will need to ensure coordination of land use and transport planning and the provision of infrastructure and services to address the needs of a growing and increasingly diverse city.

5.8.2 Connectivity relates to ease of reaching employment, education, shops, recreation, friends, family and health and social services by different modes of transport i.e. public transport, private transport, cycling and walking. Good connectivity can help to improve mental wellbeing and personal resilience as well as reduce stress and social isolation. Good connectivity is particularly important for people on low incomes who may not be able to afford all types of transport and therefore have fewer options to connect to facilities and services.

5.8.3 At present, almost 800,000 people commute into London for work[98] and the GLA estimates that this will grow to more than a million by 2041. The centralisation of jobs in the CAZ generates growth in demand for radial peak travel and a continuing ebb and flow of passengers. Sectoral employment trends (discussed in section 5.11) are expected to have an impact on travel demand to work, with public transport mode shares expected to increase and car modal share to reduce. It is expected that the number of trips made by London residents will increase from 20m to 25m per day between 2011 and 2041. Including in-commuting and visitor travel, there will be close to 32.2m trips in London on an average day in 2041[99].

Public transport

5.8.4 London benefits from a well-developed public transport network, which includes the Underground, National Rail services and an extensive bus network, which provide a high level of transport connectivity. Connectivity can be impacted by busy wide roads, railways and rivers which can sever destinations which are geographically close but as a result of the road (the infrastructure itself or the volume and/or speed of traffic it carries), railway or river, cannot be easily reached.

5.8.5 Connectivity to the public transport network in London is measured by using TfL's Public Transport Access Level (PTAL). The PTAL value combines information about how close public transport services are to a site and how frequent these services are. It does not include where these services actually take people to or indeed how accessible they are to all members of the population.

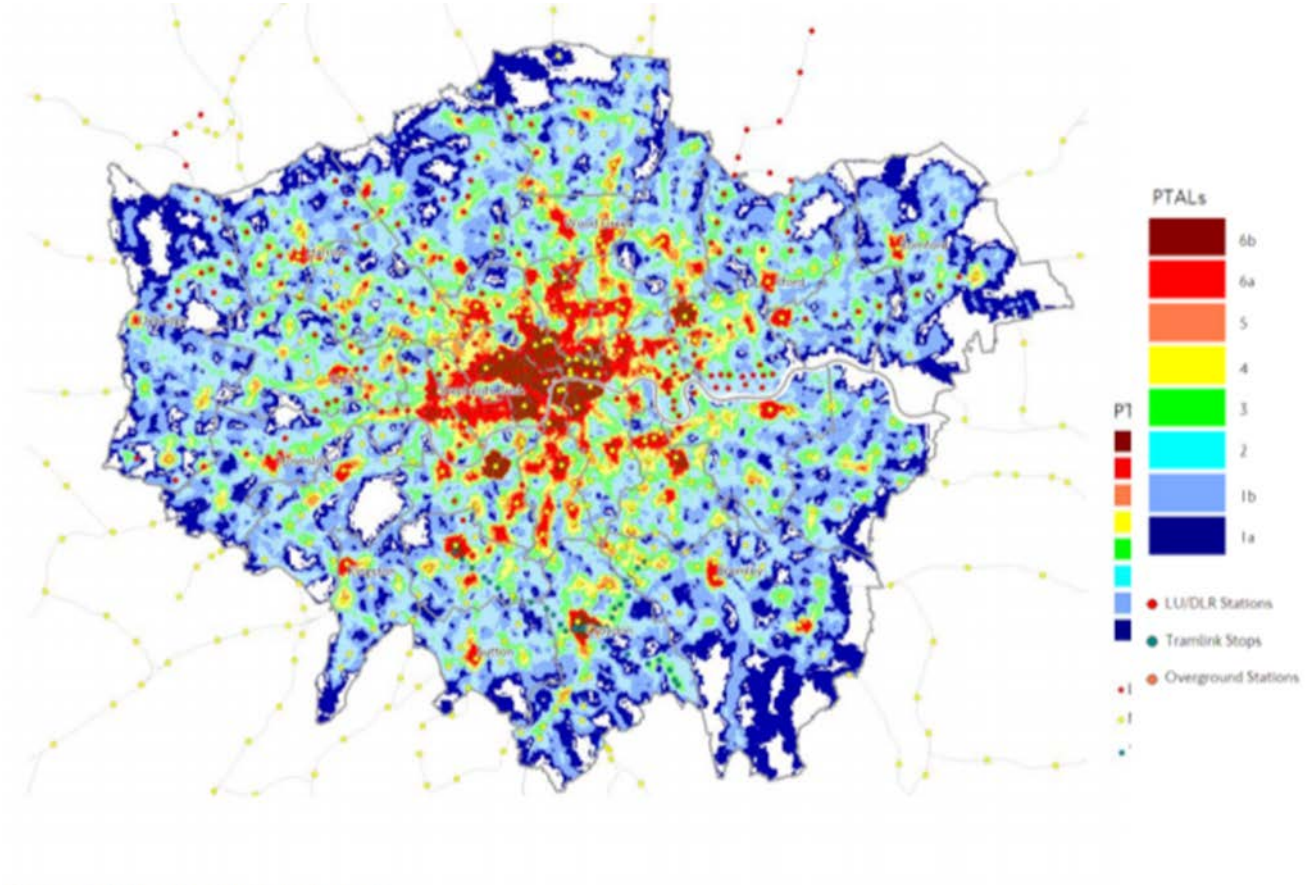
5.8.6 The highest level of connectivity has a PTAL score of 6b and the lowest has a PTAL score of 0. As shown in Figure 5.21, generally the central London and metropolitan centres including

98 GLA Economics (2016) Economic Evidence Base Chapter 3

99 Transport for London (2016), Travel in London Report 9

Uxbridge, Harrow, Wood Green, Stratford, Ilford, Romford, Bromley, Croydon, Sutton, Kingston, Hounslow, Ealing and Shepard's Bush are more connected to the public transport system than other parts of London. The predominantly radial orientation of the main public transport corridors is also visible in the figure. It also shows that East London is less connected than West London.

Figure 5.21: Public transport connectivity within Greater London, 2015



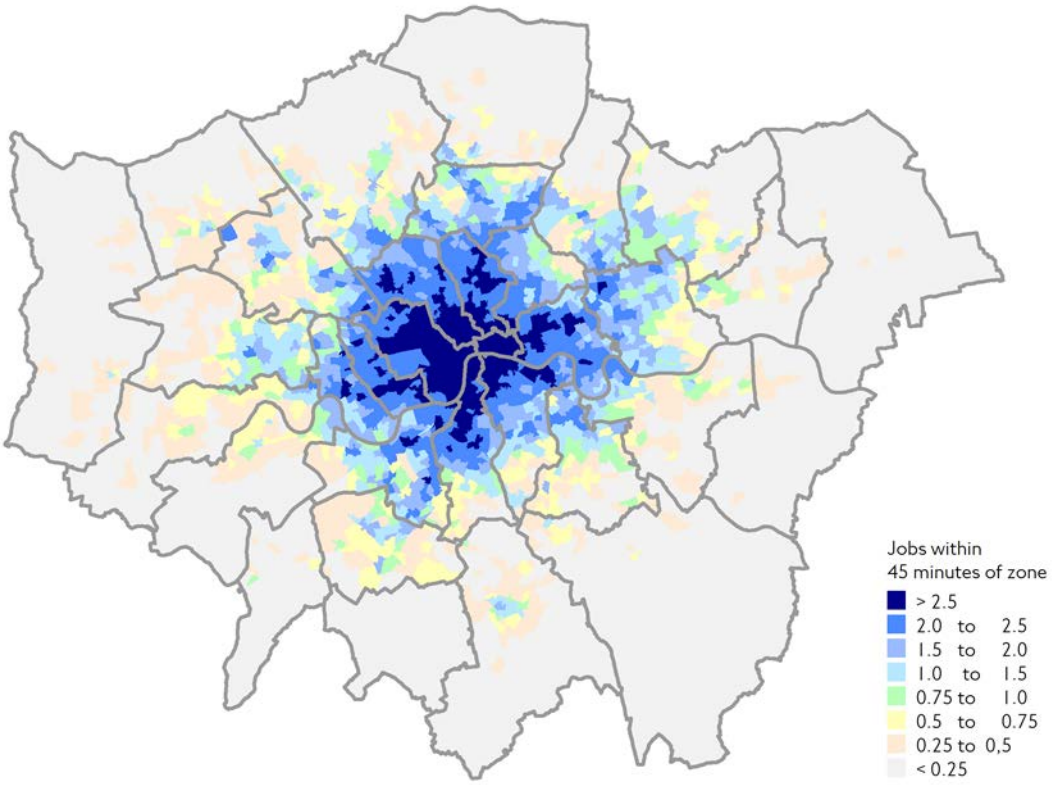
Source: TfL Planning. Strategic Analysis.

Transport for London (2015) Travel in London. Report 8

5.8.7 It is important to note that PTAL scores do not consider crowding or the ease of interchange. However these elements affect connectivity as they impact on the 'ease' of reaching employment, services and facilities by public transport.

5.8.8 Another measure of connectivity is the number of jobs (whether filled or currently vacant) that are potentially available within a given travel time – 45 minutes by the principal public transport modes.

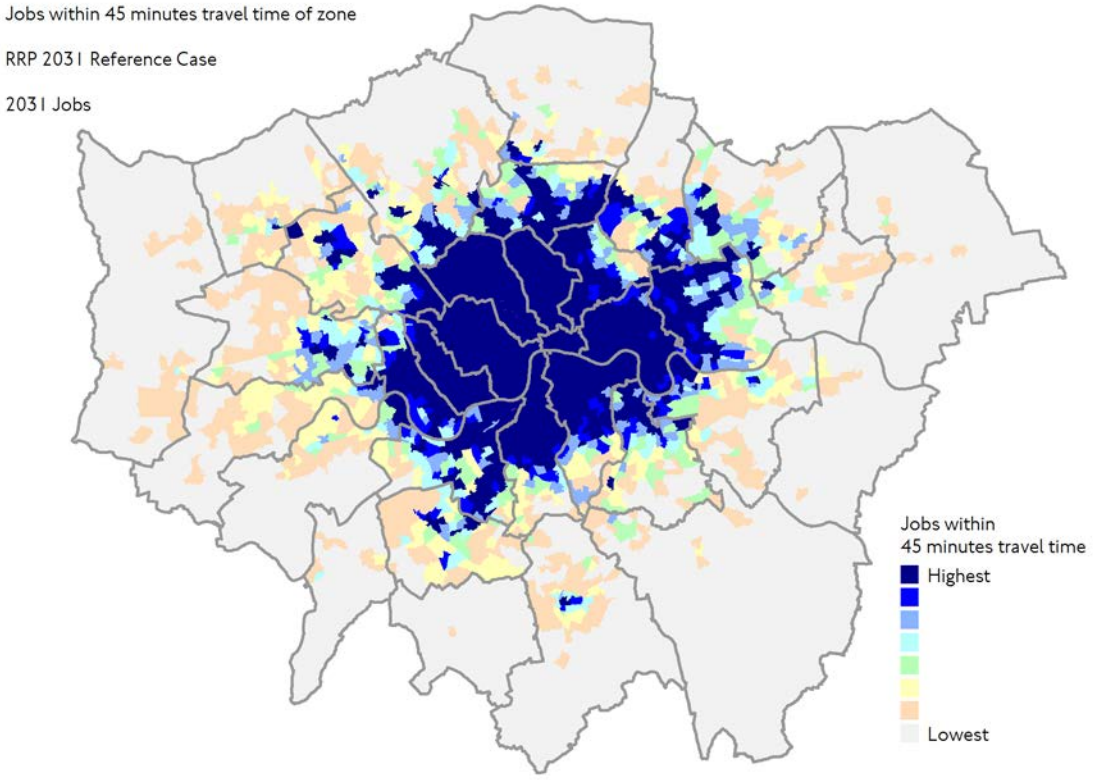
Figure 5.22: Number of jobs available by mass public transport within 45 minutes. 2015



TfL Planning, Strategic Analysis

5.8.9 As might be expected, Figure 5.22 reflects the concentric pattern of employment density and also the primarily radial orientation of the public transport networks. In 2015, typically for people living in outer London, between 0.25 and 0.5 million jobs are potentially within 45 minutes travel time. This rises to around 2.5 million jobs potentially available to a resident of central London. Figure 5.23 shows availability to these results for 2031. The expansion of job catchment is noticeable, reflecting the expansion of the transport network such as The Elizabeth Line (Crossrail) and as well as increased number of jobs in the CAZ. The speed and reliability of journeys to employment opportunities is particularly important in terms of London's economic competitiveness.

Figure 5.23: Number of jobs available by mass public transport within 45 minutes. 2031



TfL Planning, Strategic Analysis

5.8.10 The use of public transport including buses, Underground, DLR and Tramlink has risen to its highest levels since the 1950s. It has continued to grow faster than the use of private cars, with a 36 per cent increase in public transport journeys per head of population between 2001 and 2014, as compared to a 21 per cent decrease in car journeys per head over the same period[100]. By 2041, total trips by public transport are predicted to increase from 9.5 million (in 2014) to 12.3 million[101].

5.8.11 There is particularly poor connectivity in east London, largely due to the River Thames which acts as a barrier due to limited river crossings when compared with river crossings in west and central London. There are 20 crossings in west London, 19 in central London and 12 crossings east of Tower Bridge, of which only three are highway crossings. The cross-river bus network in east London is also poor with only one bus route east of Tower Bridge, compared with 47 bus routes that cross the river west of Vauxhall[102]. This is likely to impact the most deprived Londoners living in east London as they tend to use the bus more than other modes of public transport such as the Underground.

5.8.12 Fewer connections across the river in east London has spatial economic impacts with residents living in east London having fewer employment options, facilities and services available to

100 Mayor of London, London Plan AMR 2014/15 KPI 13

101 Transport for London (2016) Mayor's Transport Strategy 2016. PowerPoint, 18 February 2016.

102 Transport for London (2015) Connecting the Capital. Our plan for new river crossings for London. December 2015.

them. Levels of economic activity are lower and unemployment rates higher in east London compared with the rest of the city and the UK[103].

5.8.13 There is also issue on the lack of orbital connectivity around London, particularly from one outer London borough or 'high street' centre to another. Access to jobs is also poorer in parts of London predominantly dependant on the National Rail network.

5.8.14 Overcrowding on public transport is a serious concern. GLA's 'The Big Squeeze, Rail overcrowding in London' (February 2009) reported that overcrowding on trains was a significant problem in 2009 and that the most overcrowded trains were carrying around 40 per cent more passengers than they should have been during the morning and evening peak periods. Since 2009, the growth in public transport trips has increased significantly, maintaining or heightening concerns over overcrowding.

5.8.15 Employment growth in central London places significant pressure on the public transport network, and in particular on the rail network. A million additional daytime public transport trips are expected by 2041 to/from/within central London. With demand increasing faster than supply, by 2041 the number of passenger-km exceeding a standing passenger density of two people per square metre, is expected to increase by 60 per cent on London Underground and 150 per cent on National Rail[104].

5.8.16 Figure 5.24 shows the most overcrowded sections on the tube network AM Peak in 2014

Figure 5.24 The most overcrowded sections on the tube network

Railplan Scenario WE107A03Y_SQM_Ratio, AM Peak Hour

103 Transport for London (2015) Silvertown Tunnel Preliminary Regeneration and Development Impact Assessment, October 2015. Document reference: ST150030-PLN-ZZZ-ZZ-RP-PC-0019

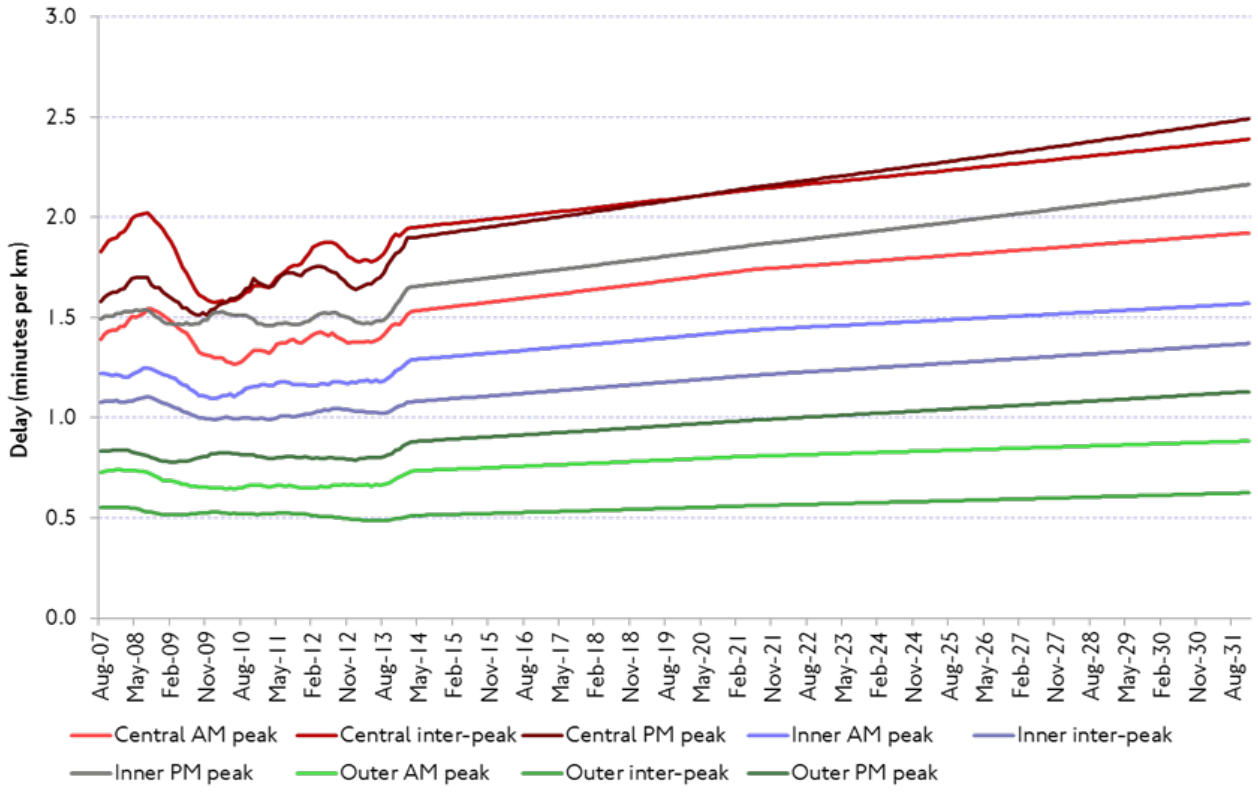
104 Transport for London, London Transport Studies Model, 2016

Private transport

5.8.17 London has an extensive road network. Roads and streets in London account for 80 per cent of public spaces in London, 80 per cent of all journeys and 90 per cent of all goods moved[105]. Congestion on the road network makes for a more hostile road environment, reducing the ease of reaching employment, services and facilities by private transport and increasing the costs and inconvenience for business and people. Congestion is caused by high usage of the road but also as a result of incidents which cause delay (maintenance or accidence) and has adverse impacts across the wider road network. Increased congestion can also worsen localised air quality, disproportionally affecting more vulnerable groups.

5.8.18 Figure 5.25 shows that road congestion has, on average, increased and is expected to continue to increase, in particular at AM and PM peaks. It further shows that central London has seen the greatest increase in road congestion, followed by inner London and outer London.

Figure 5.25: Average vehicle delay (minutes per kilometre) by functional sector of London. Working weekdays, by time period



TfL Planning, Strategic Analysis

5.8.19 A recent study by INRIX and the Centre for Economics and Business Research suggested that London could incur £9.3 billion from traffic congestion by 2030, an increase of 71 per cent from today, costing each car commuting household more than £4,000 a year.

5.8.20 The reallocation of capacity in central London means that, although traffic volumes may decrease, congestion is still projected to rise. However, not all journeys on the road are made

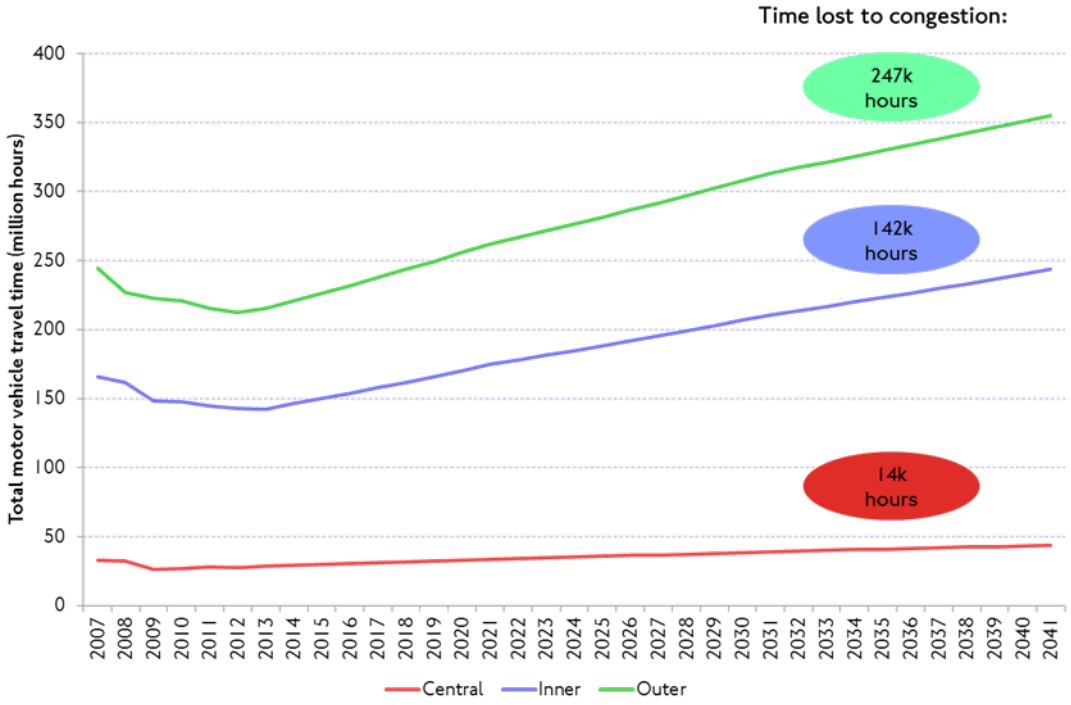
105 Transport for London. (2015). Roads Task Force. Progress report: a successful first year. April 2015.

by private transport. Buses, taxis and freight also use the road network and more than half of road congestion in central London is caused by these vehicles rather than private transport[106].

5.8.21 Travel in outer London is more car dependent with fewer public transport options available and thus the economic viability of the region is more dependent on people and goods being able to travel efficiently on the road network. Congestion in outer London is forecasted to grow by 40 per cent compared to 32 per cent in central London[107]. Figure 5.26 illustrates time lost to congestion across the capital by central, inner and outer London areas. The forecasts suggest that congestion per capita will grow fastest in outer London thus increased congestion there could have a more significant economic impact than in central London, despite being 'less congested' on a minutes per km basis.

5.8.22 Additionally, east London suffers from road congestion as a result of limited river crossings between Tower Bridge and Dartford Crossing. These include the Rotherhithe and Blackwall Tunnels which both have restrictions on use by large vehicles and are over capacity, particularly in peak directions at peak periods. Poor cross-London connectivity in east London place limitations on businesses' access to markets as well as residents' connectivity to employment and other opportunities.

Figure 5.26 Total delay experienced by motor vehicles by functional area of London



Cycling

5.8.23 In 2014 over 615,000 journeys were made each day by bike equating to the equivalent of 10 per cent of bus passenger journeys, one fifth of tube passenger journeys or 100 per cent of all journeys on the District Line[108]. In 2014, across London cycling rose by 10.3 per cent; between

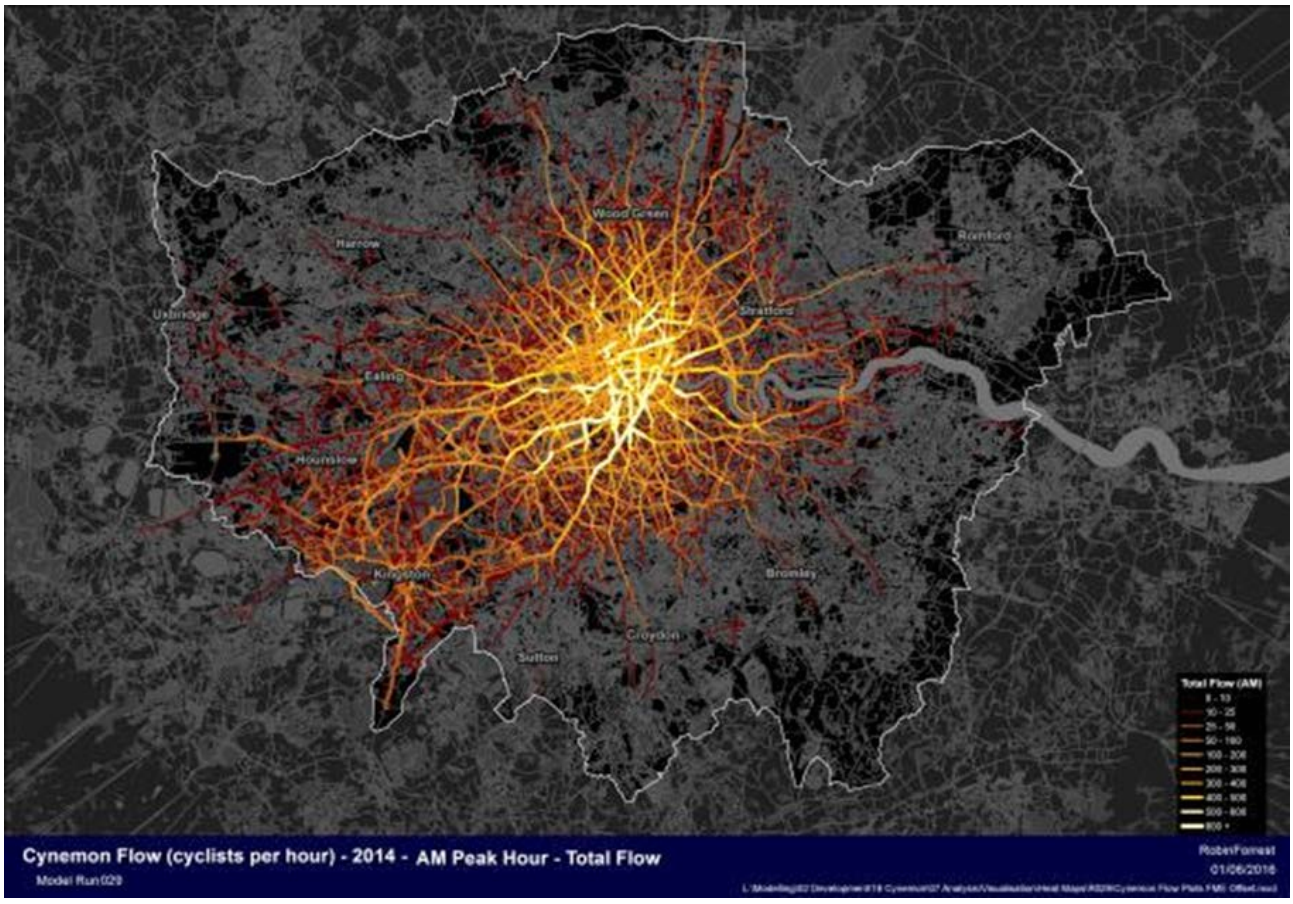
106 Transport for London (2015) Travel in London. Report 8.
107 Ibid.
108 GLA Economics (2016) Economic Evidence Base, Chapter 3,

2008 and 2014 cycling on TfL controlled main roads rose by 63 per cent and cycling on all roads rose by 31.9 per cent[109]. Even though there has been a significant growth in cycling, there still remain significant barriers with the number one deterrent for 75 per cent of those thinking about taking up cycling relating to 'safety' and 'perception of safety'.[110]

5.8.24 There has been substantial growth in the number of people choosing to cycle in order to access central London, with flows across the cordon surrounding central London increasing by more than 200 per cent since 2001. The greatest increase in trips made by London residents has been in inner London, up by 133 per cent since 2005/06. Cycling has grown the least in outer London, but has the most potential for growth in terms of trip volumes as only 5 per cent of trips that could be cycled are currently cycled.

5.8.25 Figure 5.27 shows the total flow of cyclists per hour in AM peak hour in 2014. In some areas, London's cycling infrastructure has improved significantly over the past 8 years and has helped to improve connectivity between land uses by cycling. However there are still parts of London with poor connectivity by cycling, including east, south east and north west London.

Figure 5.27: The total flow of cyclists per hour in AM peak hour in 2014.



Walking

5.8.26 Walking accounts for 30 per cent of all trips made by Londoners and two thirds of trips under a mile. Walking is the most common mode used to travel for shopping and to travel to school/ college. By 2041 there will be 8 million 'walk all the way' trips and 38 million walk stages

109 Mayor of London (2016), Human Streets. The Mayor's Vision for Cycling, three years on. GLA

110 Transport for London, December 2010, 'Analysis of Cycling Potential: Policy Analysis Research Report

(walking as part of a trip by another mode) daily in London[111]. The majority of the growth of walking is expected to be in inner London, reflecting the distribution of development and also the greater reliance on public transport in inner London. However there is also significant potential to encourage walking for shorter journeys that are currently made by car in outer London.

5.8.27 The demand for high quality streets and public spaces that support physical, social and economic activity will increase as London's population grows and changes. The design of new places will have a significant impact on how much walking people do. Many streets in central and inner London already suffer from pedestrian overcrowding and low levels of pedestrian comfort. Particular challenges arise at major rail termini and on busy high streets on the strategic road network, where the needs of pedestrians conflict with the movement requirements of other modes of transport.

5.8.28 Green infrastructure and green corridors also helps to improve connectivity between places and encourages walking. Attractive well connected green spaces make a significant contribution to the identity of neighbourhoods often reinforcing cultural and historical character, encouraging healthy active lives whilst also supporting natural biodiversity ecosystems and helping to tackle the impacts of climate change. Whilst 33 per cent of land in London was covered by green space (excluding gardens)[112] in 2013, over 86 per cent of London is still considered deficient in access to at least one type of public open space. These green corridors are essential for improving sustainable travel connections. More details on green infrastructure and corridors are discussed in section 5.19.

International and national gateways

5.8.29 Almost 800,000 people commute into London for work; this is predicted to rise to more than a million by 2036[113].

5.8.30 In 2015 there were 18.6 million international tourist visits in 2015 (accounting for 108.3 million nights, average nights per visit is 5.8) and 12.9 million in domestic tourist visits (accounting for 30.2 million nights, average nights per visit is 2.33). In terms of day times there were 280 million tourism day visits, although just under 75 per cent of all tourism day visits in the capital are actually from Londoners[114].

5.8.31 International, national and region arrivals into London come by air, rail, road and coach. There is only one railway station with international connections: St. Pancras. There are a number of mainline railway stations served by national rail that provide long distance services to major economic centres elsewhere in the UK (Manchester, Birmingham, Leeds, Edinburgh, Glasgow) as well as allowing access to the employment zones of London for many areas. High Speed 2 (HS2) will aid in providing significant changes to national rail connections across Britain and will help take pressure off long distance high speed services on the West Coast Main Line, Midlands Main Line and East Coast Main Line. Elizabeth Line (Crossrail) when it opens in 2035 will also significantly improve London's connectivity with the surrounding region.

5.8.32 The main airports serving London are Heathrow, Gatwick, Stansted, Luton and London City; with Gatwick and Heathrow accounting for 27,780 and 41,643 flights pa respectively[115]. In the

111 Transport for London (2016) Mayor's Transport Strategy 2016. PowerPoint, 18 February 2016.

112 Greenspace Information for Greater London datasets, 2013

113 GLA Economics (2016) Economic Evidence Base, Chapter 3

114 GLA Economics (2016) Economic Evidence Base, Chapter 5

115 https://www.caa.co.uk/uploadedFiles/CAA/Content/Standard_Content/Data_and_analysis/Datasets/Airport_stats/Airport_data_2016_07/Summary_Airport_Statistics.pdf

year to December 2015, it is estimated that 75 million passengers went through Heathrow. Since 2010, passenger numbers have increased by 13.8 per cent[116].

5.8.33 The connectivity and accessibility of airports, through their supporting physical infrastructure, facilitates greater business opportunities to the wider UK economy as well as London. The decision on the future of airport capacity in the South East will have significant effect on the location of future development pressures in London and therefore the connectivity of different parts of London to both the UK but also global markets.

Key issues	• Poor orbital connectivity by all modes of public transport in outer London • Poor connectivity across the River Thames in east London • Reduced transport connectivity across London as a result of congestion and overcrowding on services and roads • Reduced connectivity across London by walking as a result of congestion and overcrowding on pavements and footpaths • Increasing airport capacity will impact on the spatial and economic fabric of the city • Deficiencies in access to open space • Poor connectivity to green infrastructure for all
Opportunities	• Increase the number of river crossings in the east of London • Metroisation to help improve frequency of services – link up with interchanges • Integration of maintenance works to reduce disruption, congestion and consequences impacts on business and people • Improve connectivity by all modes of public transport across London • Promote more orbital connections • Promoting rail and water transportation for freight. • Design of built environment to improve green connections
Implications of the plans and programmes review	Integration of land use and transport planning to ensure growth is sustainable and optimises connectivity throughout London. The green network also provides connections which has many health and environmental benefits.
	
Suggested IIA Objectives	To enhance and improve connectivity for all (to and from and within and around London) and increase the proportion of journeys made by sustainable and active transport modes

116 GLA Economics (2016) Economic Evidence Base, Chapter 3

5.9 Accessibility

Ability of all people to access the built environment, transport system and its infrastructure, including those with physical, sensory or cognitive impairments

5.9.1 Everyone should be able to live, participate and work in a safe, healthy, supportive and inclusive environment and enjoy opportunities the city has to offer. They should be able to be able to access public transport and active travel modes (including walking, cycling and public transport), to services and facilities that are relevant to them that offer healthy choices, and that accommodate and provide effectively for the diversity of population.

5.9.2 The design of the spaces between buildings, public space, open space and amenity areas are just as important as the buildings themselves, and if designed well can enable people to navigate their way easily around their neighbourhood and the city through high quality barrier free spaces to inclusive buildings and facilities.

5.9.3 "Analysis of the English Housing Survey identifies that currently 19 per cent of the population of London (circa 1.5m) has a long-standing illness, disability or infirmity[117]. However London's population is set to change in composition, which could significantly increase this proportion. London will continue to be younger than elsewhere in England and Wales – there will be 17 per cent more school age Londoners in 2036 and 28 per cent more aged 35-64. At the same time, the projected number of people over 64 is projected to increase by 64 per cent (nearly 580,000) to reach 1.49 million by 2036. The over 90s are expected to grow in number, by 89,000, as medical advances, improvements in lifestyles and new technologies support improved life expectancies[118]. Social infrastructure will need to be planned to address the needs of this changing population.

5.9.4 The current London Plan sets out a commitment to ensuring equal life chances for all Londoners, emphasising and recognising that this is key to tackling the huge issue of inequality across London. It is therefore essential to identify the physical and social barriers which act to 'disable' and prevent people participating in society.

5.9.5 The design of the external environment and the public realm can also significantly impact on people health and well-being, their ability to access services and participate in civic life. However there is currently a lack of quantitative data available about the accessibility of the built environment.

5.9.6 For many people the availability of accessible and reliable public transport is needed to lead an active and independent life. People can often feel excluded from using public transport if they are concerned about safety due to anti-social behaviour or if they are unable to easier understand where or how to make public transport journeys, especially pertinent to people with cognitive impairment, (whether lifelong or associated with dementia), lack of literacy or mental illness[119].

117 GLA Economics, analysis of English Housing Survey 2008/09 to 2011/12

118 ONS Census, GLA 2015 trend-based population projections (long-term migration scenario)

119 Transport for London (2015) Your accessible transport network. Our commitment to making it even easier for you to travel around London. May 2015 update

5.9.7 Seven groups of people who typically face increased barriers to public transport use include[120]:

- Black, Asian and minority ethnic people (BAME) (40 per cent of Londoners);
- Women (51 per cent of Londoners);
- Older people (aged 65 or over) (11 per cent of Londoners);
- Younger people (under the age of 25) (32 per cent of Londoners);
- Disabled people (14 per cent of Londoners);
- People living in a lower income household (income of less than £20,000 per year) (37 per cent of Londoners);
- Lesbian, gay and bisexual people (LGBT) (2.5 per cent of Londoners).

5.9.8 TfL's 'Your accessible transport network' (2012 and May 2015 update) identifies barriers to people being physically able to access public transport, including:

- Inability to get to the train platform i.e. no step-free access;
- Inability to get onto the train carriage or bus e.g. large gap between platform and carriage, uneven access or no ramp;
- No designated wheelchair space;
- No audio and/or visual announcements;
- BAME Londoners (65 per cent), 16-24 year-olds (62 per cent) and women (59 per cent) are most likely to mention overcrowding as a barrier to using public transport[121]..

5.9.9 Out of 270 currently functioning stations across TfL's Underground and Overground network, 67 tube stations and 56 London Overground stations have step-free access; including all DLR stations are step-free. This therefore leaves a significant proportion of the public transport network inaccessible to many including many disabled people, those carrying heavy luggage, people accompanied by a child under 5 (and therefore probably using a buggy or pram) and older people with mobility issues122. The number of step-free stations is expected to increase with plans to make more stations step-free over the next ten years: New stations built as part of the Metropolitan line extension, Northern line extension and the Elizabeth line (Crossrail) will have step-free access. TfL acknowledge that more work is needed to make London's transport network more accessible and they are investing money to make improvements, including providing alternative services to help alleviate physical accessibility related impacts.

5.9.10 Passengers with sensory or cognitive impairments ('hidden' or 'non-physical' disabilities) also face a range of obstacles to the use of the public transport network or the build environment generally. These could include a lack of confidence and/or understanding. This alternative forms of communication (including travel information on how to undertake a fully accessible journey), signage, lighting, and permeable and legible routes can help.

120 Transport for London (2015) Travel in London: Understanding our diverse communities. September 2015

121 Transport for London (2015) Travel in London: Understanding our diverse communities. September 2015.

122 Transport for London (2012) Your accessible transport network. The Mayor's commitment to making it even easier for you to travel around London.

Key issues	• Poor design of the built environment, not adopting an inclusive design approach from the outset. • Barriers to using public transport
Opportunities	• Development of 'inclusive neighbourhoods' • Provision of more inclusive public transport system
Implications of the plans and programme review	The need for people to be able to easily access jobs, housing, green spaces, education, healthcare and amenities and be able to easily navigate their way through the built environment.
	
Suggested IIA Objectives	To maximise accessibility for all in and around London

Economic

5.10 Economic Competitiveness

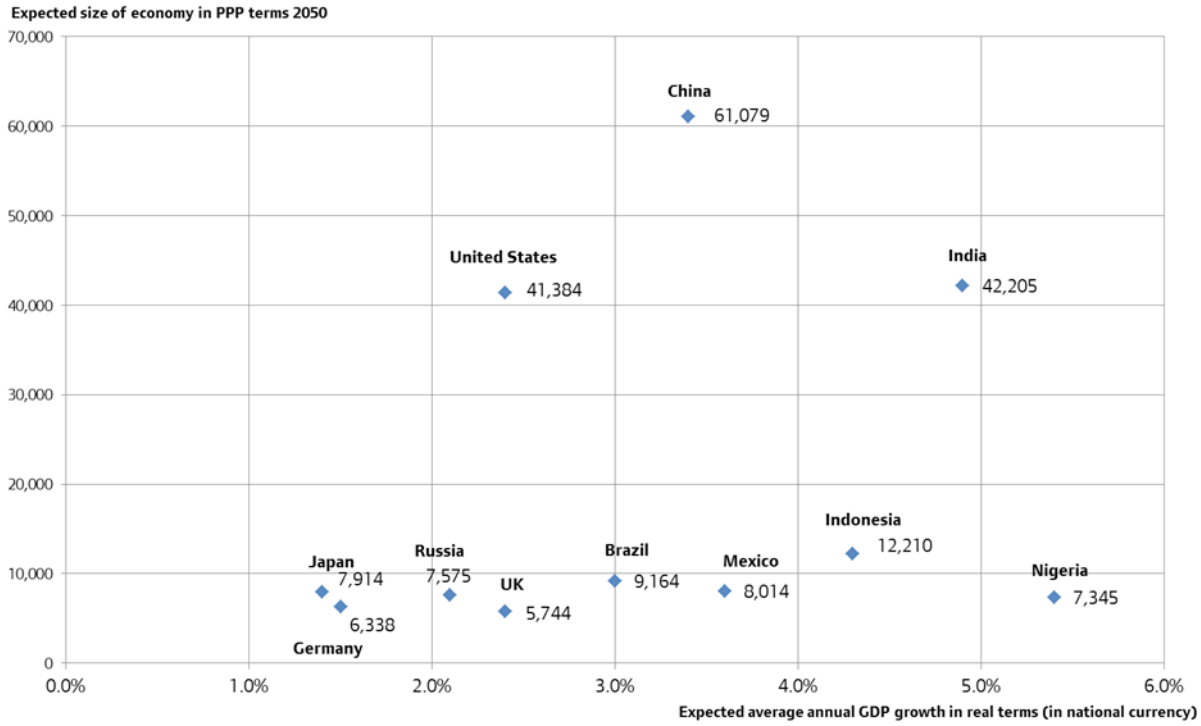
The relative economic performance of London as a major international city

Changing global economy

5.10.1 Through globalisation, London has become increasingly specialised in certain activities and has built upon its comparative advantages. Many factors explain why London remains a highly competitive location. However it can be summarised that businesses wish to locate in the capital as a result of London's central global position, its openness to trade, its connectivity and links to international markets, and its competitiveness as a business environment.

5.10.2 Figure 5.28 shows the expected size of major global economies in 2050 together with expected average annual GDP growth

Figure 5.28: Expected size of major global economies in 2050 together with expected average annual GDP growth.



PWC

5.10.3 Not only does globalisation create trading opportunities, it exposes London's businesses to international competition forcing them to be productive and competitive which in turn helps to drive economic growth. As developing countries become wealthier, new trading opportunities will emerge for London's businesses to exploit.

5.10.4 While emerging economies will present new opportunities for London's businesses, developed economies in Europe, Asia and the USA are expected to remain the capital's key trading partners. In 2014/15, the Europe and the USA accounted for 84.9 per cent of total inward investment projects to London (an increase of just 0.4 percentage points over the 2010/11

financial year)[123].

5.10.5 London's global competitiveness is underpinned by the location and capacity of its airports. There are 6 main airports serving London, Heathrow, Gatwick, the City, Stansted, Luton and Southend. Airports in themselves are significant catalysts for growth. They are worth £21bn to the UK's economy each year with 40 per cent of our country's imports and exports. Through their multiplier effects they facilitate direct and indirect employment, making an important contribution to their local economies, being major employers in their own right and attracting companies whose business depends on air travel into their immediate proximity, as well as through their wider supply chains. Their connectivity and accessibility through their supporting physical infrastructure also facilitates greater business opportunities to the wider UK economy, spreading their multiplier effects further as well as supporting the tourism industry. Through their economic potential, airports also unlock further growth creating demand for additional housing.

5.10.6 London and New York are typically identified as the dominant global financial services centres. However, cities like Singapore, Hong Kong and Tokyo have similar aspirations. At the same time, rapid economic growth in China over the past three decades has led to Shanghai, Shenzhen and Beijing becoming important financial centres. Following the vote to leave the European Union and the uncertainty over the terms of the UK's departure, there is the threat that London maybe overtaken by Paris, Frankfurt or another city as the major financial services hub within Europe.

London's Productivity

5.10.7 London's total economic output in 2014 (measured as Gross Value Added) was £364 billion, comprising 22.5 per cent of the UK's total economic output, an increase of 6.8 per cent on the previous year[124]. If London were an economy in its own right, it would be the eighth largest economy in Europe. London's economy has grown on average by 2.4 per cent per annum in real terms between 2006 and 2014[125].

5.10.8 Labour productivity as measured by GVA per worker is considerably higher in London than the UK average (36.8 per cent higher)[126]. However, in real terms, since 2014 employment has grown much more strongly that output growth, resulting in a productivity decline / stagnation. This contrasts strongly with recoveries from previous UK recessions which have been characterised with strong productivity growth and has caused concern about the nature of the employment growth since.

5.10.9 There are two schools of thought on what has become known as the 'productivity puzzle', firstly that the lack of productivity is cyclical i.e. short term, reflecting lower utilisation of employees due to weak demand conditions and is therefore likely to be temporary in nature. The second hypothesis is that more persistent factors are at work affecting the capacity of the economy to supply goods and services. Investment in the physical capital stock was subdued in the aftermath of the economic crisis, which may have encouraged businesses to switch to more labour-intensive forms of production. No clear resolution poses a dilemma for forecasters

123 GLA Economics (2016) Economic Evidence Base, Chapter 1

124 These figures on GVA are from the Regional Accounts published by the ONS and are in nominal terms, i.e. no changes have been made to account for the effects of inflation

125 GLA Economics (2016) London in comparison with other global cities", GLA Economics Current Issues Note 48, August 2016

126 GLA Economics (2016) Economic Evidence Base 2016, Chapter 1

in deciding whether this is a short term cyclical trend and should be deemed a temporary or whether it is more permanent phenomenon.

Potential loss of agglomeration benefits

5.10.10 The agglomeration benefits of being based in London are a key feature of its success. Proximity to other firms and access to deep labour markets helps to reduce transaction costs, fosters collaboration and competition, and supports the development of formal and informal networks. This in turn leads to knowledge spillovers, higher productivity and growth[127]. Agglomeration has led to a large clustering of economic activity, particularly in the area of the Central Activities Zone and the northern part of the Isle of Dogs. It is calculated that the output of the Central Activities Zone, northern part of the Isle of Dogs and a 1km fringe around them stood at just over £188 billion in 2014, accounting for nearly 52 per cent of London's output and just under 12 per cent of UK output from an area of land covering just 0.03 per cent of the UK[128].

5.10.11 Agglomeration also has its costs / dis-benefits. A growing concentration of businesses and people raises demand for resources which in turn raises prices in these markets. Moreover, population growth places additional demands on local services and transport which may increase the costs and/or affect the quality of service provision. These costs associated with higher densities are considered the diseconomies of agglomeration or congestion costs.

5.10.12 Businesses make informed decisions about whether the benefits of operating in London (e.g. higher profits) outweigh the costs (e.g. higher rents). Similarly, workers make decisions about whether the benefits of working in London (e.g. higher wages or better career opportunities) are sufficient to compensate for the costs (e.g. higher cost of living or longer commuter journeys). Some lower paid sectors such as health and social care sectors are particularly experiencing the impact of these costs, the impacts of which are presenting themselves in terms of high job vacancy rates[129].

5.10.13 The degree to which London's competitiveness is eroded by rising costs and/or the deterioration of the quality of life of its citizens depends to a large extent on London's capacity to accommodate additional growth. Given London's continued strong growth it would appear that, on aggregate, the agglomeration benefits continue to outweigh the costs– as London's business base continues to grow. However, it is questionable how long this trend is likely to continue.

5.10.14 There is also an issue with regard to the impact of rising costs of business space for some business sectors (notably the artistic and cultural sectors), small and medium-sized enterprises and new business start-ups. Cost pressures are known to be highest in and around central London reflecting strong demand relative to supply and the intense competition for space with other uses including residential.

127 GLA Economics, September 2014, 'Growing Together II: London and the UK economy

128 GLA Economics (2016) Economic Evidence Base 2016, Chapter 2

129 GLA Economics (2016), Economic Evidence Base 2016, Chapter 6

Increased pressure on London's infrastructure as a result of growth and increased economic activity

5.10.15 With the significant growth predicted in population and workforce over the next 20 years, London's infrastructure will come under increasing pressure. Whilst transport infrastructure is perhaps the most commonly cited area of concern, increases in capacity of energy, waste, and water will also be needed to ensure growth is sustainable. Broadband is also increasingly viewed by businesses and residents as an essential utility[130].

5.10.16 The transport network plays a key role in maintaining London's economic competitiveness and is a significant driver of growth. Employment growth in central London place significant pressure on the public transport network, in particular tube and rail. A million additional daytime public transport trips are expected by 2041 to/from/within central London. Eight in ten arrivals to central London in the morning peak are by rail, underground or DLR. While funded rail and underground investment will increase capacity on the Underground and National Rail networks, demand is increasing faster than supply and by 2041 the crowded passenger experience is expected to increase by 60 per cent on London Underground and 150 per cent on National Rail Even with the planned network improvements[131].

5.10.17 London's Victorian sewerage and water supply network is struggling to cope with the demands being placed on it. Thames Water forecasts that, without significant new investment, demand for water will exceed supply by 10 per cent in London by 2025, rising to 21 per cent by 2040. This will mean a potential deficit of over half a billion litres of water a day by 2050. London's combined sewer system, built over 150 years ago, was designed for a smaller, more permeable city. The challenges of London's growing population, changing land uses and changing climate mean that London is outgrowing its drains and sewers. This in turn is a contributing factor towards the increasing the risk of flooding[132]. See section 5.18 for more detail.

5.10.18 As London grows, there will also be increasing demand for energy. By 2050, the scale of population and economic growth expected in London will mean an estimated 20 per cent increase in overall energy demand[133]. Extra capacity will particularly be required around the Opportunity Areas where significant numbers of new homes and jobs are planned.

Lack of high speed and efficient digital connectivity

5.10.19 Reliable, high quality, fixed and mobile broadband connections are essential to most modern businesses and especially for digital tech and creative companies. High speed internet enables businesses to create new and more efficient business processes, opens up new markets, and supports more flexible working. In future years, demand for high speed connections is likely to grow as firms and households need to transfer ever greater volumes of data.

5.10.20 Ofcom's Infrastructure Report 2014 found that the average download speed for the UK was 23mbps, although speeds available to customers vary considerably. Superfast broadband – speeds greater than 24 mbps – is now available in 75 per cent of UK premises, with take-up of 21 per cent. In London, average speeds were 27.3mbps, the highest of all UK regions.

130 GLA Economics (2016), Economic Evidence Base, Chapter 6
131 Mayor of London (2014) London Infrastructure Plan 2050, GLA
132 Ibid
133 Ibid

5.10.21 For London to be internationally competitive, the Government has set out its ambition of connecting the UK to 'Ultrafast' broadband of 100mbps. In general, London provides good access to high speed broadband. Ofcom postcode data indicates that around 89 per cent of London is able to opt for Superfast Broadband (24Mbps or above). However gaps in provision are more acute in certain parts of London. A House of Commons research note, based on Ofcom data, showed that only 32 per cent of properties in the City of London and Westminster constituencies have access to Superfast broadband. Around 6500 properties can only access speeds of 2Mbps or less - not enough to run BBC iplayer[134].

Loss of employment land - Insufficient amount of floorspace available to meet identified needs

5.10.22 Employment land in many London boroughs is under significant pressure for redevelopment due to the higher values that can be achieved through residential development. Typically residential land values are three to seven times higher than industrial land values[135] and residential values typically exceed offices in most parts of London.

5.10.23 In the London Business Survey, 32 per cent of business units identified the supply of commercial premises as having a negative or very negative impact on their business[136]. It is therefore vital that London has a ready supply of different types of sites and premises to accommodate business growth.

5.10.24 The availability and cost of affordable and grow-on workspace for start-ups and small businesses is a concern in both inner and outer London boroughs. This is particularly the case for office- based services where employment growth is projected to be strongest in the long-term, but also for specialist workspace such as the life science sector, where London has the potential to be world-leading. Research conducted for the London Enterprise Panel in 2015 found there to be 132 incubator, accelerator and co-working spaces in London, accommodating upwards of 3,800 SMEs on a given working day. Over two-thirds offered office space, around a quarter offered workshop space, and less than ten provided laboratory space. Provision is concentrated in the CAZ and CAZ fringe boroughs[137].

5.10.25 Peter Brett Consultants estimate there will be 575,000 new office-based jobs in London over the period 2011-2036[138]. Some of this growth can be accommodated by occupiers making more efficient use of space but a considerable quantum of new office space will be required. The current London Plan estimates demand for an additional 3.9 million square metres (net) of office floorspace to 2031 but the requirement could be as high as 7.5 million square metres depending on the underlying assumptions used regarding the scale of employment growth and occupation densities. Much of the growth is being driven by the professional, scientific and technology sectors.

5.10.26 Central London still provides the most demand for office space with most of the growth (2000-2012) having been in the City of London and Tower Hamlets; these two boroughs accounted for almost two-thirds of the increase over this period, adding 1.9 million square metres between them – or 160,000 square metres each year. Together with Westminster, these

134 Mayor of London (2014), London Infrastructure Plan 2050, Connectivity Paper, GLA
135 AECOM Industrial Land Supply and Economy Study 2015, published GLA March 2016
136 GLA Economics, November 2014, 'London Business Survey 2014: Main findings'
137 URS, 2015, 'Supporting Places of Work: Incubators, Accelerators and Co-Working Spaces'
138 Peter Brett Associates, (2014), London Office Panel Review, GLA4

boroughs account for almost half of the office floorspace across London (12.8 million square metres)[139].

5.10.27 In outer London the total stock of office space has remained relatively static over the period 2000-2012, declining by 101,000 square metres or 8,400 square metres per year, to 5.7 million square metres by 2012[140].

5.10.28 Previous editions of the London Plan have acknowledged that beyond the central London office market areas there has been a surplus of dated office space. The release of this in appropriate locations was managed through the planning system. However since the introduction of permitted development rights to change offices to residential has resulted in the potential loss of over 1 million sqm of office space in outer London and almost 0.5 million sqm in inner London of which, 56 per cent is either occupied or part occupied[141]. If trends continue, this may pose a particular threat to small occupiers. Recent research (Ramidus, 2015) estimates that there are about 90,000 small office occupiers in the CAZ in units less than 500 sqm, of which over 80 per cent are in units of less than 100 sqm.

5.10.29 New office hubs are emerging in London including King's Cross, South Bank and Stratford and there is some evidence of renewed interest in Croydon. Old Oak presents a long-term office development opportunity capitalising on the Crossrail/HS2 interchange. However, according to the most recent London Employment Sites Database (LESD), the longer-term employment projections by GLA Economics now exceed the currently identified employment capacity. In previous iterations of the LESD, capacity has always exceeded the projections. The reverse is thought to be due to a combination of the employment projections being revised upwards following strong recent employment growth and the supply of employment space in London coming under increasing pressure from higher value residential development[142].

5.10.30 London's industrial estates also provide a valuable source of land for a wide range of different employment sectors. In 2015 there was an estimated 6,976 hectares of industrial land in London of which 4,553ha is of core industrial use (65 per cent), 1,877ha is of wider industrial uses (27 per cent) and 547ha is vacant land (8 per cent of total industrial land or 11 per cent of core industrial uses). Of this, outer London contained approximately 5,296ha or 76 per cent of the total, of which 68 per cent is in use for core industrial activities. Recent data suggests that London is losing almost three times the amount of industrial land compared to the benchmarks set out in the London Plan and GLA Land for Industry and Transport SPG. Between 2010 and 2015, a total of 525ha of industrial land was transferred to other uses or 105ha per annum compared with the London Plan/SPG recommended rate of release of 36.6ha per annum. A further 830ha of industrial land is in the pipeline for release, suggesting that if the current rate of release continues, the SPG target will be reached by around 2017 and exceeded significantly by 2031[143].

5.10.31 The stock of vacant industrial land has also being decreasing over the past decade or more, from 16 per cent of core industrial uses in 2001 falling to 12 per cent in 2010 and 11 per cent in 2015. At the London-wide level this is higher than the average frictional vacancy rate of 5 per cent suggested in the SPG (for movement within the stock), if vacant sites in the

139 VOA 2012

140 VOA 2012, using current London Plan definition of outer London

141 London Development Database (includes data provided by the boroughs as at 6/6/2016)

142 GLA Economics (2016) Economic Evidence Base, Chapter 6

143 AECOM Industrial Land Supply and Economy Study 2015, published GLA March 2016

development pipeline (approvals) are excluded. There are however several London boroughs, mostly in central, west and south London which are at or below the 5 per cent frictional vacancy rate[144].

5.10.32 The loss of employment land in London's industrial estates is seen as a significant risk by some, however analysis suggests that there could be an emerging pattern of industrial sectors that are more sensitive to London locations tending to remain or grow in London (eg logistics, food, construction, waste, motor vehicle servicing and repair), and other sectors that are less sensitive to location tending to leave London (manufacturing, chemicals and metals). This suggests that overall there may be potential for the South East region to (continue to) accommodate some overspill demand from London or that demand may also transfer outside of London as its supply in London contracts. However, once this industrial land is redeveloped, if demand for these uses within London increases again, it may be very difficult to accommodate them and particularly those uses that cannot be mixed with residential (for operational/amenity reasons) and/or have large site area requirements[145].

5.10.33 Understanding the changing relationship between economic output, jobs growth and land required to support different economic activities is fundamental to ensure that appropriate levels of employment land is available for different sectors to support the proper functioning of the city. With such intensive competition for land in London, it will be imperative that the London Plan understands and plans for this and monitors how this changing balance between employment land and housing affects London's economic competitiveness.

Town centres

5.10.34 London's town centres provide people with access to a range of goods and services, complementing the role of the Central Activity Zone and contributing to London's economic competitiveness. According to forecasts by Experian produced in 2013[146], London will need an additional 0.9 million sqm of comparison goods retail space by 2036, along with qualitative improvements to existing outmoded retail floorspace. However, there are spatial differences in these requirements with a significant number of District town centres in outer London boroughs estimated to require less retail floorspace than they currently have. The London Plan also identifies town centres as key areas for more intensive provision of housing and it is likely that the new London Plan will put even greater emphasis on these areas in the future. For those town centres that will see a contraction in retail floorspace requirements, it will be important that the release of retail uses is managed proactively so that these centres can diversify and still function in a coherent manner by having a more focused retail core but allowing the secondary and tertiary streets to become more mixed. This should enable these centres to develop alternative functions and attractions which complement the offers of the other town centres.

5.10.35 The evening and night time economy is a key driver of the economic and cultural regeneration of town centres. It generates jobs and improves incomes from leisure and tourism activities, contributing not just to the vitality of the town centre but also making it safer by increasing activity and providing 'passive-surveillance'. However, it can also be associated with noise,

144 Ibid

145 Ibid

146 These forecasts are currently being updated to inform the next London Plan

crime, anti-social behaviour, community safety problems and detrimental effects on public health, which, without appropriate management and mitigation, impacts on the quality of life of local residents, workers and customers. Large concentrations of late night uses may also mean places lack vitality during the day.

5.10.36 In 2013-14, around 1,100 premises held a 24-hour licence in London. Almost 40 per cent of these were in five boroughs – City of London, Westminster, Islington, Lambeth and Haringey[147].

5.10.37 The opening of the night tube in August 2016 is also expected to have a significant positive impact on the night time economy with suggestions that it could add £77m per year to the value to London's night time economy and significantly improving London's global economic competitiveness.

147 London Datastore, Number of Premises Licences and Club Premises Certificates, December 2014

Key issues	• Changing global economy • London's Productivity • Potential loss of agglomeration benefits • Increased pressure on London's infrastructure as a result of growth and increased economic activity • Risk that infrastructure could constrain economic growth • Lack of high speed and efficient connectivity (digital) across all parts of London • Loss of employment land as a result of increased pressure for housing • Insufficient amount of floorspace available to meet identified needs • Affordability of business space, particularly for small and medium sized enterprises and start-ups • Impact of mixed use development – night-time economy and residents • Impact on town centres as a result of a reduction in demand for retail floorspace
Opportunities	• Potential to boost London's economy, innovation and competitiveness, support existing businesses to expand and new business to start-up (particularly SMEs) • Opportunity to accommodate forecast growth in London's employment • Opportunity to link land use planning and transport (including intensification of highly accessible locations including the CAZ and town centres) • Opportunity to link infrastructure providers with plans for development – forward planning • Opportunity to create more mixed use environments for business and residential (where this is possible in terms of business operational requirements and residents' amenity) • Planners more aware of hot spots or areas deficient in supply of infrastructure
Implications of the plans and programmes review	The importance of London's position as a leading global city and to support a strong, diverse and resilient economic structure providing opportunities for all.
	↓
Suggested IIA Objectives	To maintain and strengthen London's position as a leading connected knowledge based global city and to support a strong, diverse and resilient economy, providing opportunities for all

5.11 Employment

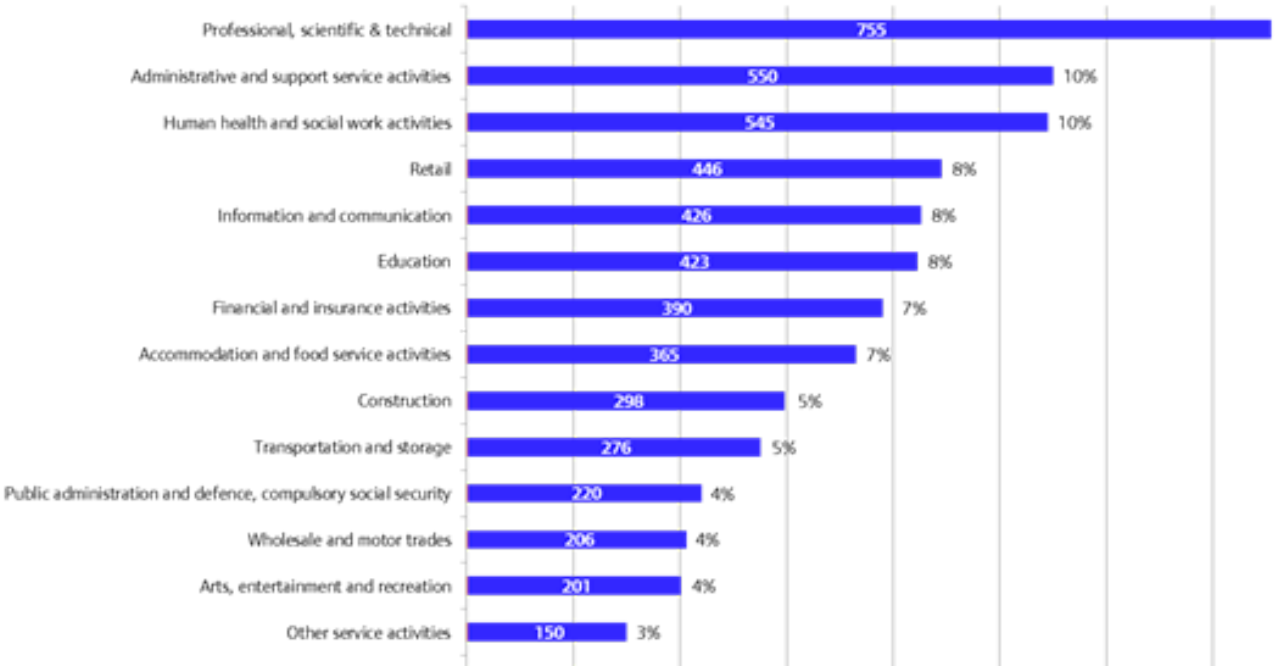
The operation of London's labour market

5.11.1 In 2016 London had a total of 5.7 million workforce jobs; this is projected to grow to 5.8 million by 2021, 6.3 million by 2031 and 6.7 million by 2041 - equivalent to over 46,000 net additional jobs per annum.[148.]

5.11.2 The CAZ covers London's geographic, economic and administrative core and brings together the largest concentration of London's financial and globally-oriented business services. Almost a third of all London jobs are based there and, together with Canary Wharf, it has historically experienced the highest rate of employment growth in London. Employment in the CAZ and Isle of Dogs is expected to grow substantially. By 2041, 1.4 million jobs are expected in the City of London and Westminster alone with a further 1.4 million spread across the remainder of the central sub-region (Camden, Islington, Kensington & Chelsea, Lambeth and Southwark). Tower Hamlets – containing Canary Wharf and the Isle of Dogs – will contain c174,000 jobs growth 2015 to 2041 and new employment centres are expected to emerge in the east of London, notably at Stratford.[149]

5.11.3 Outer London also contains significant levels of employment, for example Hillingdon, with more than 200,000 workforce jobs in 2015, and Hounslow, Barnet, Ealing, Croydon, Brent, Enfield and Bromley all with more than 100,000. Much of this employment is focused in town centres/retail parks, business parks, industrial locations and in health/educational activities. There was 2.1 million jobs in outer London boroughs in 2016 compared to 3.4 million in inner London. By 2041 this is expected to grow to 2.5 million and 4.2 million respectively - 14% and 19% increase.[150]

Figure 5.29: Jobs in London in 2015 by sector and proportion of the London total



Workforce jobs, ONS

148 Labour Market Update for London – December 2016
149 GLA Economics (2016) Economic Evidence Base, Chapter 8
150 Labour Market Update for London – December 2016

5.11.4 Figure 5.29 shows the total number of jobs in London by sector in 2015 and the proportion of total jobs each sector accounts for – demonstrating the diversity of London's economy. Professional, scientific and technical activities is the largest sector of employment, accounting for 755,000 jobs (13.6 per cent of the London total). Despite some perceptions that London's economy is dominated by Financial services, the sector only accounts for around 390,000 (7 per cent) of the London total. Indeed, other sectors like Health, Education and Retail all account for a higher proportion of London's jobs and tend to be more spatially spread than jobs in some of London's other service sectors.

5.11.5 Other distinct clusters of sectors by employment can be seen within London with Financial and insurance activities, and Professional, scientific and technical activities being of importance in Inner London; while employment in the Transportation and communication sector is generally more significant in Outer London.

5.11.6 London's employment profile has changed over the past 15 years. Manufacturing has been declining and jobs in professional services, health and education have been increasing. Overall there has been a loss of comparatively lower density employment and an increase in comparatively higher density employment uses. These sectoral trends are expected to continue with manufacturing and wholesale jobs forecast to decline by 41 per cent and 20 per cent respectively by 2041 (compared to 2015) while professional services jobs are forecast to increase by almost 50 per cent. Strong growth is also anticipated in information / communication (39 per cent), education (37 per cent), arts, entertainment and recreation (35 per cent), health (27 per cent), administrative / support services (26 per cent), accommodation and food services (25 per cent) and construction (23 per cent)[151].

Disparities between rates of employment among London's residents

5.11.7 In 2015 London had a marginally lower employment rate (72.9 per cent) than the national average (73.5 per cent), but this disguises significant variation between groups. Some groups such as parents, particularly mothers, and young people having significantly lower employment rates in London than the rest of the UK - 59.9 per cent parents in London compared to 68.8 per cent nationally and 47.1 per cent young people in London under 25 compared to 53.5 per cent nationally[152].

5.11.8 A greater proportion of men were in full-time work 87.2 per cent of all male workers compared to 66.5 per cent of all women workers[153].

5.11.9 Employment rates for disabled people and BAME groups in London are marginally higher than rates for the same groups in other parts of the country in 2015, 50.1 per cent in London compared to 49.2 per cent in UK for disable people and 64.9 per cent for London compared to 62.9 per cent for UK for BAME groups[154].

5.11.10 There were 283,000 unemployed adults in London in 2015, which is down from a peak of 405,900 in 2011. This brought the unemployment rate down to 6.1 per cent in 2015; however this is somewhat higher than the national rate of 5.3 per cent. The unemployment rate was higher in inner London than outer London in 2015 with 6.4 per cent and 5.9 per cent

151 GLA Intelligence Unit, Long term labour market projection, June 2016
152 ONS Labour Force Survey
153 GLA Economics (2016) Economic Evidence Base, Chapter 9
154 Ibid

respectively[155].

5.11.11 The unemployment rate for people with ethnic minority backgrounds was slightly lower in London (9.2 per cent) than the national level (9.5 per cent), but higher for disabled people, 10.5 per cent nationally compared to 11.6 per cent in London. Across London, Barking and Dagenham had the highest unemployment rate of 10.4 per cent in the year to June 2015, but this has been steadily falling from a peak of 14.8 per cent in 2012-2013. Richmond upon Thames had the lowest unemployment at a steady 4.6 per cent[156].

5.11.12 Nationally 44.3 per cent of working age disabled people were economically inactive; which is nearly 4 times higher than for non-disabled people (11.5 per cent)[157]. Disabled people are more likely to be unemployed than non-disabled people. In March 2013, the unemployment rate for disabled people stood at 12 per cent, compared to 7.6 per cent of non-disabled people[158]. However the employment rate gap between disabled and non-disabled people had narrowed from 37.2 per cent in 2006 to 32.8 per cent in 2013159. Studies show that the two most common barriers to accessing work amongst adults with impairments were a lack of job opportunities and difficulties with transport.

5.11.13 In 2015, self-employment accounted for 18.1 per cent of total jobs in London (equivalent to around one in every seven jobs). In London since the recession in 2008, self-employment increased by around 32 per cent, which is higher than the average growth of 22 per cent in the UK as a whole[160].

5.11.14 The number of people in part-time work in London has risen since the recession, from 20 per cent in 2008 to 22 per cent in 2015, but it is still below the UK average of 25 per cent. For males, in part-time employment in London, this figure is 12 per cent of total male employment in line with the UK average. For females in part-time employment in London, this figure is much higher at around 33 per cent of total female employment; however this is lower than the UK average at 41 per cent. As a result, women in London hold 66 per cent of part-time jobs in London, compared to 70 per cent in the UK as a whole.

5.11.15 Analysis from GLA Economics suggests that women may appear to be 'disadvantaged' in comparison to men due to individual characteristics and factors which are peculiar to London, such as the significantly higher cost of childcare, transport and, more generally, the cost of living which can influence the opportunity cost of women working[161].

5.11.16 The difference between under and over employment rates can provide an indication as to the efficiency of the labour market at meeting demands for working more and fewer hours. In London, the underemployment rate has exceeded the over employment rate in each year since 2009, peaking at 2.6 percentage points difference in 2013. Suggesting that there has recently

155 Ibid

156 Ibid

157 Nomis, (2013), The Annual Population Survey March 2013, retrieved from NOMIS: www.nomisweb.co.uk (Further information, please contact Nomis at: support@nomisweb.co.uk

158 Ibid

159 Ibid

160 GLA Economics (2016) Economic Evidence Base, Chapter 9

161 GLA Economics (2015). Part-time employment in London, GLA Economics, Current Issues Note 42. Available at: https://www.london.gov.uk/what-we-do/business-and-economy/business-and-economy-publications/cin-42-part-time-employment-london

been net underemployment in London – there are more workers wanting more hours of work than less – which could be an indication of slack in the labour market. In contrast, there has been net over employment in 2014 and 2015 across the UK as a whole. An impact of net under employment is that individuals are not working to their full capacity[162].

Disparity between wages and cost of living, including take-up of London Living Wage

5.11.17 In 2015, the average (median) gross hourly wage was £17.16 for full-time jobs and £9.60 for part-time jobs. However 20 per cent of the capital's workforce was paid below the London Living Wage (£9.40 per hour in 2015) compared to 12.8 per cent in 2008. There are a number of factors that may explain this - the effect of jobs growth in low paid sectors, uplifts in the London Living Wage rate above actual increases in earnings, and more part-time working.

5.11.18 Low pay in London disproportionately affects younger workers and women. Nearly 50 per cent of workers aged 18 to 24 were paid less than the London living wage rate in 2015. 100,000 more women earned below this level of pay than men, 57 per cent of the total[163].

Figure 5.30: Proportion of jobs below London Living Wage

Age group	Proportion of employee jobs below the living wage - Male	Proportion of employee jobs below the living wage - Female
18-24	48	48
25-34	17	19
35-44	11	19
45-54	10	18
55-64	13	19
65+	22	27

London data above from Annual Survey of Hours and Earnings (2014 - provisional), ONS

Growth of low paid employment

5.11.19 In 2015, 22 per cent of people in London are employed part-time. Since 2004, the number of part-time workers in London has grown by almost 30 per cent, compared with 17 per cent growth for full-time workers.

5.11.20 GLA Economics research found that on a pro-rota basis part time employees are much more likely to be low-paid than full-time employees[164]. Moreover over 50 per cent of part-time male workers earn less per hour than the London Living Wage. Since 1997, 40-50 per cent

162 GLA Economics (2016) Economic Evidence Base 2016, Chapter 9

163 Ibid

164 Hoffman, J., February 2014, 'Working Paper 59: Low pay in London'. GLA Economics - low pay as defined by being 'hourly pay excluding overtime below the 20th percentile point in the pay distribution for all London employees'

of employees in the social care sector are considered to be in low pay, 50-60 per cent for the retail sector, 60-70 per cent for the hospitality and catering sector and 75-85 per cent for the cleaning sector. Moreover in three of four of these 'low pay' sectors, the proportion of 'low paid' employees was at a peak in 2012 suggesting that the difference between these sectors and the non-'low pay' sectors may be increasing and indeed the differences in median pay have increased[165].

Zero-Hours Contracts

5.11.21 Zero hour contract also has an influence of the security of people's employment. Figure 5.31 shows the growth in zero hour contracts in London.

Figure 5.31 Trends in Zero Hour Contracts

ONS Labour Force Survey

5.11.22 Between October and December 2015, there were 801,000 people in employment on zero hours contracts. People on zero hours contracts are more likely to be female or in young or older age groups. Sector which are more prone to using zero hour contracts include Accommodation & Food, Health & Social Work, Elementary and Caring, Leisure & Other Service occupations[166].

165 ibid

166 GLA Economics (2016) Economic Evidence Base 2016, Chapter 9

Key issues	• Disparities between rates of employment among London's residents • Disparity between wages and cost of living • Lack of diversity in jobs provided • Growth of low paid employment and zero hours contract
Opportunities	Provision of suitable employment space to meet different sectors requirements
Implications of the plans and programmes review	Employment growth in different sectors ensuring a diverse economy providing opportunities for all. Productivity puzzle.
	
Suggested IIA Objectives	• To maintain and strengthen London's position as a leading connected knowledge based global city and to support a strong, diverse and resilient economy, providing opportunities for all • To ensure the education and skills provision meets the needs of London's existing and future labour market and improves life chances for all

5.12 Education and Skills

The education system and educational and vocational attainment

Increasing demand for school places to meet growing needs

5.12.1 London's school-age population is growing and is projected to reach nearly 1.4 million by 2041, up from 1.2 million in 2014. This will place increased pressure on school places. In January 2015, there were a total of 3,119 schools in London. Of these, 1,800 were state-funded primary schools and 479 were state-funded secondary schools. London had 555 independent schools (fee paying private schools); the highest in any region. Between 2014/5 and 2024/5, demand for state funded primary school places is projected to increase by between 60-67,000 pupils, however the pressure is predicted to be most severe at secondary school level, where an additional 105-122,000 pupils are predicted in that same period. Over 600 new schools and colleges will be needed in the years up to 2050 to meet this growing demand[167].

Expensive and insufficient childcare provision

5.12.2 The number of pre-school age children (0-4 years) in London has also increased by over 100,000 since 2001. The numbers are now projected to stay around this level (approximately 620,000) for the next 25 years with higher numbers of this age group in outer London boroughs such as Newham (28,000), Enfield (25,000) and Waltham Forest (22,000). The Family and Childcare Trust reports that childcare in London for under 2's is 34 per cent more expensive than childcare in the rest of England. Although there are legal requirements for councils to meet childcare needs of local constituents, a recent survey conducted by the Family and Childcare Trust found that 17 local authorities in London did not have enough free early education places. The relatively high cost of childcare as well as lack of availability in some areas, significantly impacts on parents returning to work after having children, particularly mothers[168].

Large spatial variations in educational performance across London

5.12.3 London is home to more than 40 universities and specialist higher education (HE) institutions. London's universities make a significant contribution to its economy and labour market. HESA records show that around 370,000 students studied at a London Higher Education institution in 2014/15 (16 per cent of all UK students).

5.12.4 Data from London Higher found that over 100,000 overseas students study in London, comprising 28 per cent of all students in the capital; with 24 per cent of all overseas students in the UK study in the capital. With the cost of living so high in London it is important that adequate provision of student accommodation is made to reflect students needs across London. The London Plan estimates that there could be a requirement for some 20,000 – 31,000 places between 2015 to 2025.

5.12.5 Data from six months after graduation for the 2012/2013 cohort highlights the dominance of London as a graduate employer with 35.6 per cent of graduates in London neither lived nor

167 GLA Economics (2016) Economic Evidence Base 2016, Chapter 8

168 Family and Childcare Trust, 'Childcare Costs Survey 2015'

studied in the area previously, higher than in any other UK region. Almost 85 per cent of these had professional and managerial jobs.[169]

Higher Education

5.12.6 London is home to more than 40 universities and specialist higher education (HE) institutions. London's universities make a significant contribution to its economy and labour market. HESA records show that around 370,000 students studied at a London Higher Education institution in 2014/15 (16 per cent of all UK students).

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5.12.9 Data from six months after graduation for the 2012/2013 cohort highlights the dominance of London as a graduate employer with 35.6 per cent of graduates in London neither lived nor studied in the area previously, higher than in any other UK region. Almost 85 per cent of these had professional and managerial jobs[170].

Londoners struggle with the transition from education to work

5.12.10 Whilst London attracts a significant number of graduates from elsewhere into the workplace, for Londoners themselves, the transition from education into the labour market for young people in London comes with its challenges, with a youth unemployment rate of 17.9 per cent for 16-24 year olds compared to the England average of 14.4 per cent[171]. There is a lack of support for transitions from education to work, especially for young women, and many young people therefore struggle with this.

Business unable to access the right skills to meet their growth needs

5.12.11 London has the most skilled professionals in the UK with over 57 per cent of Londoners possessing an NVQ level 4 or higher compared to 41.6 per cent of the rest of UK. Approximately three in every five (60.2 per cent) workers in London had tertiary education as their highest qualification in 2014. This is higher than many other global cities such as New York, Tokyo and Paris. A further 25.3 per cent of workers in London had upper secondary or post-secondary education which is the equivalent of GCSE grades A*-C and A Levels. The remaining 14.6 per cent of London's workforce had lower secondary school education (i.e. GCSE grades D-G) or less as their highest qualification. Only 4.6 per cent of Londoners have no qualifications compared to 5.1 per cent nationally[172].

5.12.12 According to the London Business Survey, 70 per cent of businesses in London rate the capital highly as a place to do business in terms of the availability of skilled staff with only 5 per cent

169 GLA Economics (2016) Economic Evidence Base, Chapter 8,
170 Ibid
171 GLA Economics (2016) Economic Evidence Base, Chapter 9
172 GLA Economics, 2016, 'London in comparison with other global cities'.Current Issues Note.

of businesses rating the capital poorly on this[173]. However, despite these generally positive perceptions of London's labour market, there is evidence of skills shortages, particularly at middle and high skill level occupations. In total, there are almost 223,000 cases where London employers considered existing staff not to be fully proficient in their roles (equivalent to 5 per cent of all those employed). As a proportion of all employment, these skills gaps are most prevalent in administrative/ clerical, sales and customer service, and elementary occupations with around half of affected employers experiencing loss of business to competition and/or delays in developing new products as a result[174].

5.12.13 London has a higher proportion of workers born in EU countries than the rest of the UK[175]. London's ability to attract skilled workers is an important factor in its success but some businesses are concerned that the supply of skilled labour is a potential constraint to future growth. Businesses have sought assurance on the status of current EU staff in London as there is a concern that stricter immigration controls limiting the free movement of labour from the EU, which seem likely given the Referendum outcome, may restrict the supply of labour to the London economy.

Key issues	Insufficient school places to meet growing needs Large variations in educational performance across London Lack of support for transitions from education to work, especially for young women Maintaining London's status as an international city of learning, research and development
Opportunities	Promote London as centre for excellence in learning and research More co-ordinated approach to work with local authorities to ensure sufficient good quality school places in the right locations
Implications of the plans and programme review	The importance of ensuring a world class education system and that Londoners have the right skills to access a diverse range of jobs
	↓
Suggested IIA Objectives	To ensure the education and skills provision meets the needs of London's existing and future labour market and improves life chances for all

173 GLA Economics (2014) , 'London Business Survey 2014', London as a business location, Table: LBL1

174 UKCES Employer Skills Survey 2015, May 2015, table 72/1.

175 GLA Economics (2016) Economic Evidence Base 2016, Chapter 6

5.13 Culture

London's culture and cultural tourism

5.13.1 London's culture sector and the creative industries deliver both economic and social benefits for the capital. As well as one of London's fastest growing sectors, culture also plays a role in bringing people together and generating civic pride.

5.13.2 In 2012, the GVA of the creative industries in London was estimated at £34.6 billion, accounting for just under half (47.6 per cent) of the UK total (£72.7 billion); the creative industries group contributed 10.7 per cent of total GVA in London London's creative industries specialise in music, performance and visual arts (75.8 er cent of total UK GVA generated in London), and Film, TV, video, radio and photography (66.4 per cent of total UK GVA generated in London)[176].

5.13.3 The EU is the largest export market for the UK creative industries, totalling 56 per cent of all overseas trade in the sector[177]. The creation of the EU Digital Single Market is expected to contribute £3b to the economy and create 3.8m jobs. Since 2011, over 60 international cities have launched aggressive policy initiatives to increase their position as creative and cultural capitals[178]. It is unclear what impact leaving the EU will have on cultural and creative industries.

5.13.4 Culture is the reason 4 out of 5 visitors choose to visit the capital. 18.6m international and 12.9m domestic visitors visited London in 2015 making it a record breaking year at 31.5m visits. In 2013, GLA Economics estimated that cultural tourism supported 80,000 jobs and contributed £3.2 billion of GVA to London, just under a third of the overall contribution from the tourism sector as a whole. London's night-time economy - a key element of the London's culture - contributed £17.7bn to £26.3bn in Gross Value Added (GVA) to the UK economy in 2014[179]. The opening of the night tube in August 2016 is expected to increase the value of the night time economy significantly further with TfL suggesting c£77m per year.

5.13.5 In 2014, there were 795,800 jobs in the creative economy in London, equivalent to 16.3 per cent of total jobs in the capital (compared to 7.4 per cent of the total number of jobs in the rest of the UK)[180]. 80.2 per cent of the total number of jobs in the creative economy were filled by people from the White ethnicity group compared to 19.8 per cent of jobs filled by BAME groups[181]. London's unique and skilled creative workforce, however, is under threat as the rising costs of living are forcing talent out of London. The UK's exit from the European Union may also have a huge impact on London's ability to attract and retain the best international creative talent.

5.13.6 London has 857 art galleries, 241 theatres, 860 cinema screens, hosts 271 festivals or events, 10 major concert halls, 13 national museums, 339 night clubs, 320 live music venues, 4

176 GLA Economics (October 2015), The Creative Industries in London

177 http://www.creativeindustriesfederation.com/news/david-cameron-meets-the-fed-as-members-vote-remain (follow up with Eliza on origin of stat)

178 Leo Hollis (2013) Cities are Good for You

179 London's 24 Hour Economy, London First & EY

180 GLA Economics (October 2015), The Creative Industries in London

181 Ibid

UNESCO world heritage sites and 353 public libraries[182]. Culture plays a significant role in place-making with 84 per cent of Londoners thinking that the city's cultural scene plays an important role in ensuring a high quality of life. 75 per cent of Londoners are satisfied with the city's cultural offer and say that it is London's cultural offer that makes living in London 'worth it' despite big problems, like housing[183].

5.13.7 However despite this positive general picture, London has low levels of participation in culture from resident Londoners - particularly with Londoners from low socio-economic backgrounds. London diverse population also experiences inequality in terms of access to cultural venues and activities and there is patchy levels of cultural provision across London's boroughs. BME groups were less likely to have visited a heritage site in the previous years compared with the white group (56 per cent compared to 75 per cent respectively), less likely to have engaged with the arts (68 per cent compared to 78 per cent respectively), and less likely to have visited a museum or gallery (43 per cent compared to 53 per cent respectively), but more likely to have visited a library (47 per cent compared to 33 per cent respectively)[184]. In 2010, 39 per cent of Londoners said they took part in culture at least weekly. This dropped to 23 per cent in 2016.

5.13.8 London's cultural infrastructure is also not sufficient to allow the industry to grow and thrive. It is losing essential spaces and venues for live cultural production and consumption including pubs, clubs, and music venues. Over 103 grassroots music venues have been lost in the last 8 years, pubs in London are closing at a rate of 10 per week[185] and it is set to lose 30 per cent of creative workspaces over the next 5 years[186].

5.13.9 Red tape and licensing is also stifling London's creativity and cultural growth. Creative businesses and artists struggle to secure long term financing and business support as their activities are perceived to be 'risky' or of non-commercial value. A 2010 survey found that, nationally, 79 per cent of studio spaces were rented and 21 per cent owned. Many buildings were on short-term leases, with 64 per cent on leases of less than five years. In London these pressures are particularly severe with over 30 per cent of current London studios set to disappear within 5 years impacting some 3,500 artists[187].

5.13.10 Funding for the arts has also undergone significant cuts over the past 5 years, particularly at the Local Authority level. On average, councils' spend on cultural services in London fell in real terms by 24 per cent between 2010/11 and 2013/14, while their investment in London-based NPOs fell by 23 per cent from 2010/11 to 2012/13[188].

5.13.11 Arts Council England has already shifted funding outside the capital from 40 per cent to 20 per cent with a further 5 per cent expected by 2018[189].

182 BOP Consulting (2015), World Cities Culture Report

183 GLA Intelligence, London Annual Survey, 2015

184 Crossick & Kasznyck, "CultureUnderstanding the Value of Arts and Culture", Arts & Humanities Research Council,

185 Campaign for Real Ale, http://www.camra.org.uk/home

186 Arts Council, (2016), Making Space: Developing and Sustaining Affordable Artists' Studios and Creative Workspaces,

187 Ibid

188 London local government's support for arts and culture, London Councils 2015

189 Arts Council England

Key issues	• Loss of pubs, cinemas, live music and other cultural venues • Inequality in access to cultural venues • Low levels of participation • Red tape stifles creativity / talent development • Lack of community led engagement in planning and development schemes for local area • Despite the wide ranging economic and social benefits it brings, culture is a low priority on national and local development agendas.
Opportunities	• Development of a cultural infrastructure plan • Ask Amanda / Andrew
Implications of the plans and programme review	The economic and social benefits of culture
	
Suggested IIA Objectives	To ensure the education and skills provision meets the needs of London's existing and future labour market and improves life chances for all

Environment

5.14 Air Quality

The condition of the air with respect to the presence (or absence) of pollutants in the air e.g. NOx, NO2, PM and the resulting impact this has on London's compliance with legal standards, public health and inequality.

5.14.1 Since the passage of the Clean Air Act in 1956 there has been significant progress made in improving air quality in the capital. Reductions in the levels of benzene, lead and sulphur dioxide pollution have greatly improved health and quality of life. London now meets eight of the nine legal limits set by the National Air Quality Regulations, underlining the ability of effective and coordinated action to improve the air quality. However despite this there are 33 Air Quality Management Areas (AQMA) across London, most designated for road transport pollutant emissions with 4 AQMAs designated for other transport and industrial emissions.

5.14.2 Scientific research has shown air pollution has a great impact on health. Lifelong exposure to current concentration of particulates in the air in London has been calculated to reduce average life expectancy by about 9 months (based on a child born in 2008). The London Health Commission states that 7 per cent of all adult deaths in London are attributable to air pollution. Mortality is not the only air pollution related health effects, in 2010 - London air pollution was associated with over 3,000 hospital admissions as well as increased sensitivity to allergens, pre-natal exposure linked to low birth weight and increased risks of chronic disease later in life. The latest health evidence suggests that the smaller particles and gases which are invisible to the human eye may be even more deadly with a wider range of health effects. Two pollutants remain a specific concern; particulate matter (PM_{10} and $PM_{2.5}$) and nitrogen dioxide (NO_2).

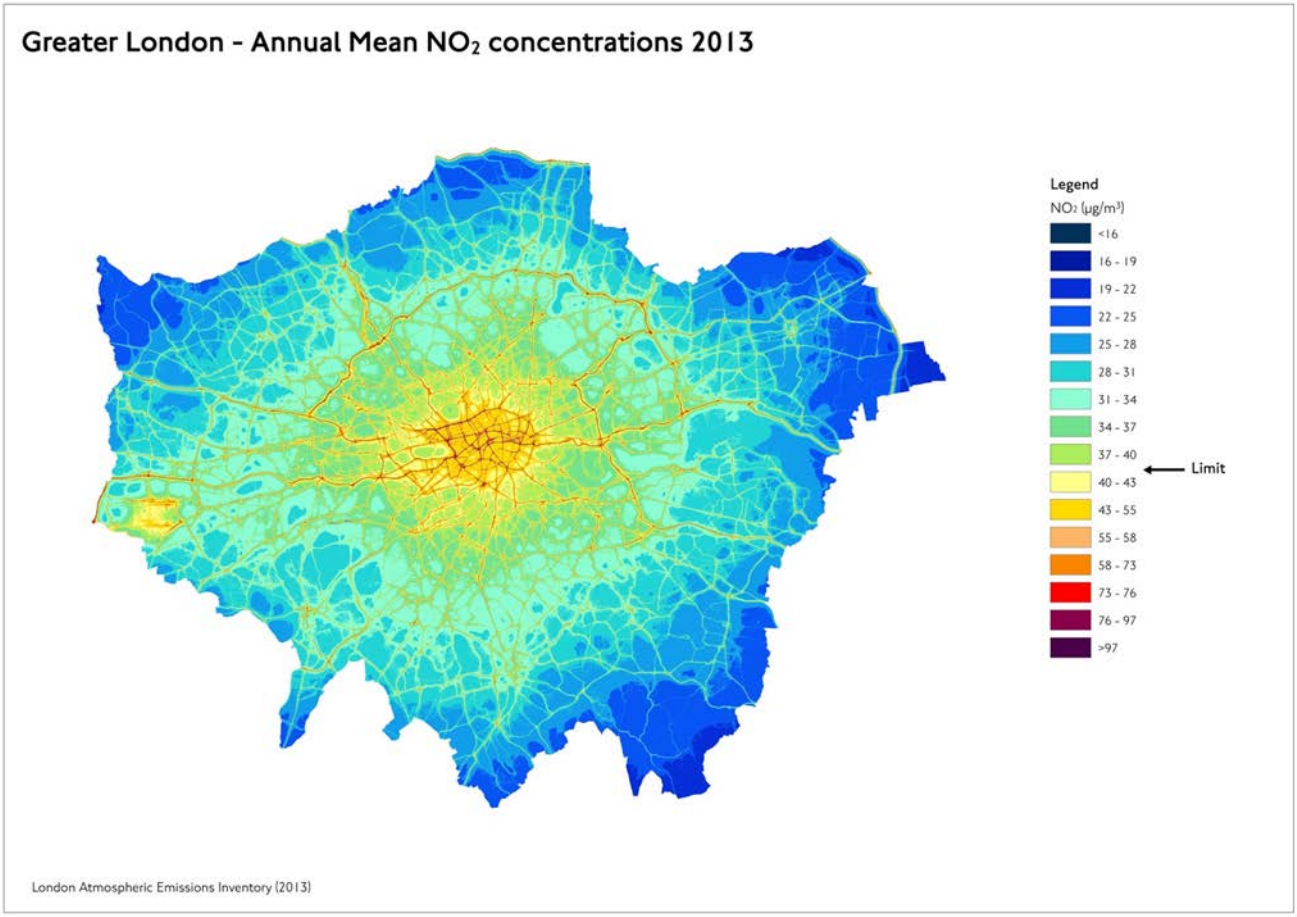
5.14.3 Exposure to particles even in the short term (days to months) causes increases in hospital admissions and premature deaths and increases in the number of GP visits.[190]. It is estimated that in 2008 there were over 4,000 deaths brought forward attributable to long-term exposure to small particles. This amounts to between 6 and 9 per cent of all deaths.[191] Whilst London is meeting legal limits for particulate matter, as this pollutant is damaging to health at any level it is important to remain focused on reducing it.

5.14.4 In addition to the UK Air Quality Strategy Objectives and EU limit values, the World Health Organisation (WHO) has set a guideline value for PM2.5 of 10µgm-3 - although WHO does not set timeframes for when guidelines should be met. The 2014 Local Air Quality Network Summary Report reports that no sites achieved this WHO guidance value.

190 Transport for London (2014), Transport Action Plan

191 Ibid

Figure 5.32: Annual Mean NO_2 Concentration 2013



5.14.5 Figure 5.32 shows NO_2 levels concentrations across London. London, along with a large number of other UK and European cities, is exceeding the requirements of the Ambient Air Quality Directive 2008 for nitrogen dioxide (NO_2). Any area in yellow, red or purple exceeds the legal standards - including in central and Inner London, on the major road network and at Heathrow Airport. In 2014, 39 out of 67 sites measured in London did not achieve the annual mean objective for NO_2 and 8 sites recorded an annual mean of twice the legal limit or above. 14 sites exceeded the hourly mean objective for NO_2[192].

5.14.6 The number of Londoners exposed has been declining, however it is estimated that in 2020 500,000 people will still be exposed to levels of NO_2 above the EU limit value. A more accurate estimate of the number of people projected to be exposed to level of NO_2 above the EU limit value in 2020 and beyond will be able to be determined after the London Atmospheric Emissions Inventory (LAEI) 2013 concentration data has been published. It is anticipated that these data will be available later in the year (2016/17).

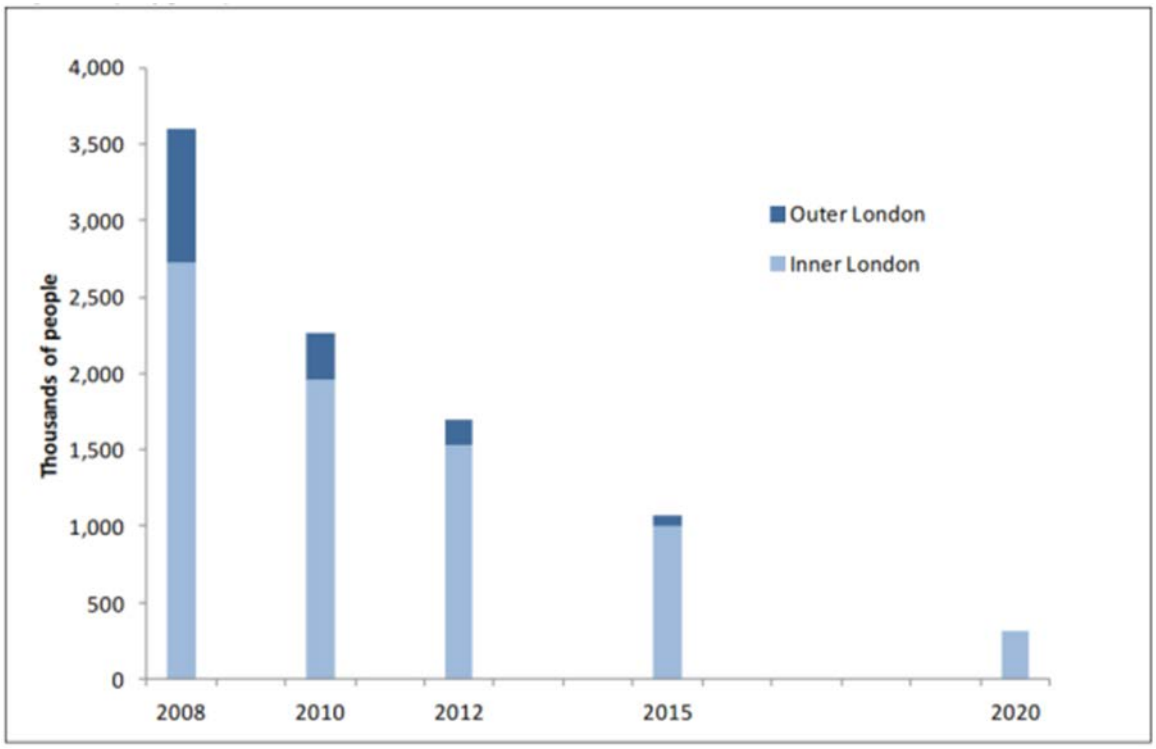
5.14.7 Analysis undertaken GLA Economics shows populations living in the most deprived areas are on average currently more exposed to poor air quality than those in less deprived areas. 51 per cent of the Local Super Output Areas within the most deprived 10 per cent of London have concentrations above the NO_2 EU limit value. This is in contrast to the 10 per cent least

192 Environmental Research Group and King's College London, 2016 – London Air Quality Network Summary Report

deprived areas, which are on average 1 per cent above the NO_2 limit value[193]. According to the GLA London Atmospheric Emissions Inventory exposure analysis 2013 there were 1,400,000 vulnerable people exposed to the health risks associated with exceeding the EU limits for NO_2.

5.14.8 Those in deprived areas are also much more likely to have pre-existing cardio-respiratory diseases. Thus they are both more exposed and also more susceptible to poor air quality effects. Therefore, reducing air pollution could help to reduce overall health inequalities.

Figure 5.33: Estimate of population exposed to NO_2 concentrations in exceedance of the EU Air Quality Objective, 2008-2020



Aether 2013

5.14.9 Newham, Brent, Redbridge, Hackney and Tower Hamlets are the boroughs that have the highest proportion of most deprived populations (30 per cent most deprived) in London's areas of worst air quality. Tower Hamlets, Camden, Southwark, Islington and City of Westminster are the boroughs that have the highest number of people living in London's worst air quality areas. These boroughs in particular need targeted action to reduce inequalities in access to clean air. The implementation of ULEZ, retro-fitting of buses and licensing new taxis to be ZEC from 2018 will also help to improve air quality by 2025, however Defra's projections show that London will still exceed limit values in 2020[194].

5.14.10 Evidence shows overall, there has been a gradual reduction in all of the major air quality metrics, such as NO_2, PM_{10}, $PM_{2.5}$ and NO_x concentrations at background sites in Inner and Outer London and Outer London roadside sites. Inner London NO_2 roadside sites have a more variable trend but have seen a steeper decline from 2012. This decline is also reflected in the Inner London PM_{10} roadside sites.

193 GLA Economics (2016), Economic Evidence Base, Chapter 7

194 Defra, 2015 – Air Quality Plan

5.14.11 This analysis is supported by analysis at most individual monitoring sites, although the dynamic nature of air pollution and the way it is affected by multiple factors (temporary issues like construction activity, weather, local road layouts etc.), mean concentrations at some sites can go up while the overall trend across the city is improving.

Key issues	• High levels of NO_x, PM_{10} and $PM_{2.5}$ emissions from road transport • Little to no predicted reduction in PM_{10} and $PM_{2.5}$ emissions from road transport between 2013 and 2030 • London is not compliant with legal limit values for NO_2 • Large numbers of the population are exposed to levels of NO_2 above the EU limit value • Exposure to poor air quality is unequal across London and some areas are more exposed to poor air quality than others
Opportunities	• Opportunities to extent policies such as ULEZ. • Technological developments such as the availability of cheaper electric vehicles. • Integration of green infrastructure enhancements in new development • Shift to decentralised energy • Enhance London's position as a world leader in ultra low emission technology
Implications of the plans and programme review	The urgent need to meet mandatory standards for air quality and cut the annual number of premature deaths from air pollution-related diseases by almost 40 per cent by 2020
	
Suggested IIA Objectives	To reduce emissions and concentrations of harmful atmospheric pollutants, particularly in areas of poorest air quality, and reduce exposure

5.15 Climate Change

Climate Change Mitigation refers to efforts to reduce or prevent emission of greenhouse gases. Mitigation can mean using new technologies and renewable energies, making older equipment more energy efficient, or changing management practices or consumer behaviour

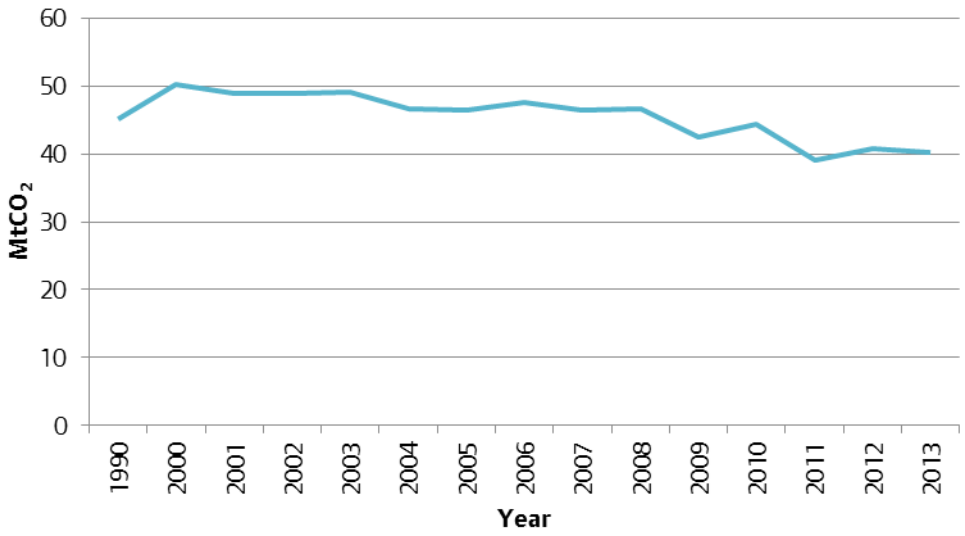
Mitigation

5.15.1 Climate change mitigation refers to efforts to reduce or prevent emission of greenhouse gases (GHG). These emissions are altering the composition of the atmosphere and contributing to climate change. Mitigation can mean using new technologies and renewable energies, making older equipment more energy efficient, or changing management practices or consumer behaviour. Carbon dioxide (CO_2) is the most abundant GHG globally, and concentrations in the atmosphere have risen from around 280 ppm in 1900 to over 400ppm in 2016. The United Nation's Intergovernmental Panel on Climate Change (IPCC) estimate that CO_2 concentrations must be stabilised at 450ppm to have a fair chance of avoiding global warming above 20C, which could carry catastrophic consequences. To help meet this global challenge, the UK is committed through the Climate Change Act (2008) to reduce CO_2 emissions by at least 80 per cent on 1990 levels. For London, alongside wider national initiatives, in 2011 the Mayor committed to reducing the capital's emissions of CO_2 by 80 per cent by 2050, relative to 1990 levels. The Mayor has also committed to making London a zero carbon city by 2050.

5.15.2 The GLA maintains the London Energy and Greenhouse Gas Inventory (LEGGI) to record the city's progress against the GHG reduction target. It uses data on energy use from the Department of Energy and Climate Change (now Business, Energy and Industrial Strategy) and Transport for London (TfL). The data is presented on an "end user" basis; therefore emissions from the production and processing of fuel are reallocated to the consumers, to reflect the total emissions for each fuel use. The fuel use is multiplied by a CO_2 equivalent (CO_{2e}) emissions factor. The latest data available is for 2014, where it is estimated to be 37.8 Mt CO_{2e}.

5.15.3 Since 1990, London's CO_{2e} emissions have fallen by 16 per cent (Figure 5.34). This reduction in GHG emissions is largely due to, reduced gas use, a lower carbon national electricity supply and a shift towards the service industry, which is less energy intensive than industrial or manufacturing processes. This 16 per cent reduction has been against a 26 per cent increase in London's population since 1990 to over 8.5 million in 2014. Indeed, per capita emissions have reduced by 34% since 1990 and at 4.4 tonnes per person per year, London's CO_2 emissions are the lowest in the country (on a regional basis).

Figure 5.34 London's CO_{2e} Emissions



London Energy and Greenhouse Gas Inventory

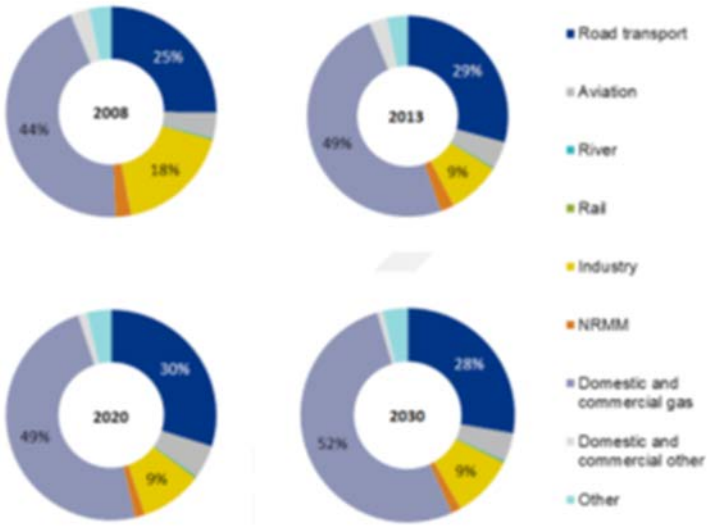
5.15.4 In 2014, 35 percent of emissions were generated from dwellings, 42 per cent from businesses, and 23 per cent from London's transport. The vast majority of GHG emissions are therefore from heating and powering buildings. Not only do new buildings need to be low carbon and energy efficient, but it is important that the existing building stock is also as energy efficiency as possible.

5.15.5 London is set to miss its target to reduce emissions by 60 per cent on 1990 levels by 2025. To get close to the 2025 target and make sure London is on course to reducing GHG emissions by at least 80 per cent by 2050 immediate action needs to be taken to reduce energy demand, be more effective in supplying affordable local low carbon energy and support de-carbonisation of the national electricity grid. London may well have to go beyond an 80 per cent reduction to meet the Mayor's ambition for a zero carbon London by 2050 and to help keep global temperature increase to less than 1.5 degrees as globally agreed through the UNFCCC negotiations in Paris. This is known as the 'Paris Agreement' and is set to come into force in 2020.

5.15.6 As illustrated in Figure 5.35, road transport also currently contributes significantly to emissions of CO_2. Other forms of transport such as rail and river contribute only a small amount to CO_2 emissions in comparison to road transport and other non-transport contributors such as non-road mobile machinery (NRMM)[195], domestic and commercial gas and domestic and commercial other fuels. In 2013 road transport made up approximately 29 per cent of total CO_2 emissions in London, compared with approximately 25 per cent in 2008 and 26 per cent in 2010 (LAEI, 2013).

[195] Non-road mobile machinery (NRMM) - efers to mobile machines, transportable industrial equipment or vehicles which are fitted with an internal combustion engine and not intended for transporting goods or passengers on roads.

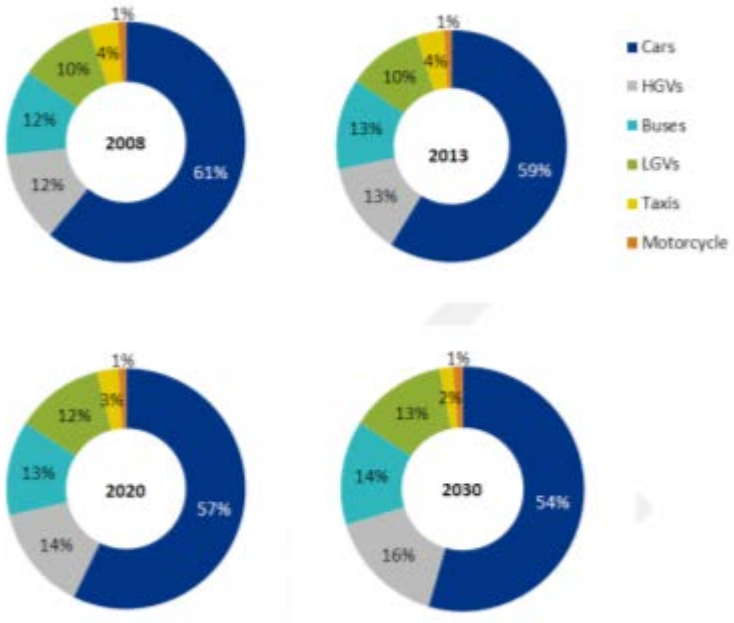
Figure 5.35: CO_2 Emissions 2008 - 2030



Jacobs adapted from LAEI, 2013

5.15.7 Of transport's contribution to CO_2 emissions, cars make the greatest contribution followed by HGVs and buses. Figure 5.36 shows that cars will continue to make the greatest contribution to CO_2 emissions, however their contribution in comparison to HGVs and buses decreases to 2030. CO_2 emissions from HGVs and buses are expected to increase. LAEI forecasts bus CO_2 to decrease between 2013 and 2020, before increasing slightly to 2030 – but still well below 2013 levels and prior.

Figure 5.36 Road transport's contribution to total CO_2 emissions by mode, 2008 – 2030



Jacobs adapted from LAEI, 2013

5.15.8 Changing patterns of land use, such as the loss of industrial land within London and moves towards different models in the logistics sector, increasingly suggest there may be greater demand for larger logistics hubs outside London and more and smaller facilities within. A move towards a hub and spoke model has implications for spatial movement patterns, in particular white van traffic generation as they often provide the last leg in the journey for goods ordered online.

5.15.9 As shown in Figure 5.37 while total CO_2 emissions from transport are expected to decrease over time, transport's overall contribution to CO_2 emissions remains around the same, falling by a total of 2 per cent by 2030.

Figure 5.37: Total road transport CO_2 emissions (tonnes), 2008 – 2030

	2008	2013	2020	2030
Total road transport emissions for the GLA (tonnes)	7,337,105	6,651,511	6,106,822	5,728,930
Road transport contribution to total CO_2 emissions for the GLA (per cent)	25 per cent	29 per cent	30 per cent	28 per cent

LAEI, 2013

5.15.10 The requirement for transportation within, to and from London will continue to grow and so it is imperative that the transport sector is decarbonised, including private vehicles which are overwhelmingly currently reliant upon fossil fuels (petrol and diesel).

5.15.11 London is a global city and should play a leading role in reducing greenhouse gas emissions both within London's boundary and outside of the capital. Arguably London has fallen behind other global cities in efforts to mitigate climate change and it is important that London re-establishes its position as a leader in the low carbon economy. This is essential to London's economic competitiveness and also our ability to influence and assist other cities to transition to a low carbon future.

Key issues	• London is not currently meeting the Mayor's CO_2 emission target of 60 per cent reduction of 1990 levels by 2025 • Transport will continue to contribute significantly to CO_2 emissions • Inefficient existing building stock • CO_2 emissions from buildings continue to rise • London is no longer a global leader in terms of transitioning towards a low carbon economy
Opportunities	• Transition to a low carbon economy, enhancing London's position as a world leader in low carbon good and services. • Reducing fuel bills by reducing demand for energy • Potential for positive health benefits by helping reduce air pollution through the generation and supply of clean (low or zero emission) energy for buildings and transport. • Reducing carbon emissions by shifting to more sustainable modes of transport
Implications of the plans and programmes Review	Review options to achieve zero net carbon emissions by 2050. Need to design buildings and spaces to adapt and mitigate the effects of climate change, including overheating, flooding, droughts and more extreme weather events. The Mayor has a commitment to reduce London's CO_2 emissions by 60 per cent by 2025
	
Suggested IIA Objectives	To help tackle climate change through reducing greenhouse gas emissions and moving towards a zero carbon London by 2050

Climate Change Adaptation

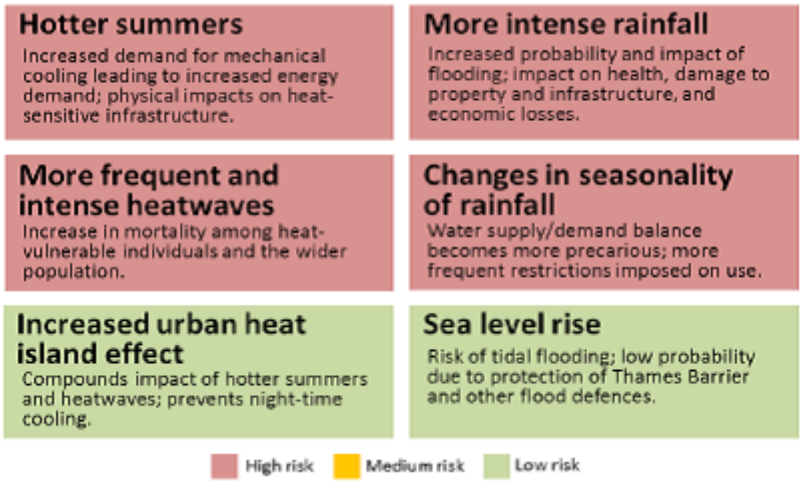
Climate Change Adaptation is the adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities.

5.15.12 Climate change is one of the key challenges facing the UK and the world today. It poses many environmental risks; including extended period of dryness and heat in the summer which could lead to drought; heightened flood risk due to more intensive and prolonged rainfall, particularly in winter months; and sea level rise and changes in wave patterns and strength which may result in increased erosion of coastal areas. Such environmental effects may also have significant socio-economic and health implications, particularly for nations and regions less able to mitigate or adapt to changes.

5.15.13 The changing climate and associated extreme weather events such as higher summer temperatures; warmer winters; more seasonable rainfall; wetter winters; and rising sea levels are applying pressure to London's infrastructure including transport, homes, public buildings and businesses.

5.15.14 Analysis from the Carbon Disclosure Project outlined six current and anticipated effects of climate change for London, which are shown in the following diagram.

Figure 5.38: Current and anticipated effects of climate change in London



Carbon Disclosure Project, data provided for the CDP Cities 2013 report, GLA, 2013

5.15.15 The impacts of climate change are set to increase with London facing the following risks:

- **Flood risk** - London is relatively well protected against tidal flooding, but parts of London are vulnerable to river, surface water, groundwater and sewer flooding.
- **Drought** - if there are two consecutive dry winters, London is at risk of drought conditions and water supply restrictions.
- **Heat risk** - London is getting hotter: extreme hot weather events occurring more frequently, changing demographics, increased urban development and densification are all contributory factors.

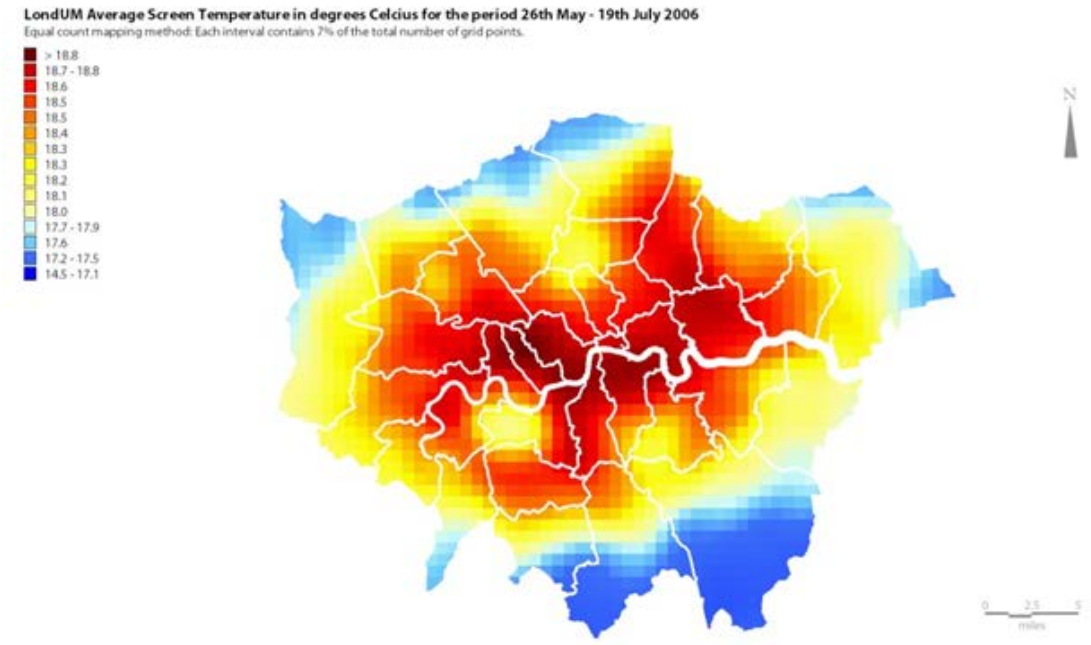
Flood risk and drought (water supply) will be explained in more detail in sections 5.18 and 5.17.

Heat Risk

5.15.16 Higher average temperature are likely to intensify the Urban Heat Island (UHI) effect which can result in the centre of London being up to 10°C warmer than its surroundings. Summer heatwaves may make the built environment uncomfortable, and can affect the health of Londoners, particularly vulnerable people. The Urban Heat Island effect is most intense at night and is mainly experienced within the Central Activities Zone. According to the Heatwave Plan for England by 2080, the temperature in towns and cities could rise by 10°C, peaking at up to 40°C (104F) in London.[196]

5.15.17 Heat islands can develop in fairly large areas within a city, or in smaller 'pockets' around individual buildings or along streets. London has a fairly pronounced UHI due to its size and density as shown below. The variation of temperature can depend upon the nature of the land cover with parks and lakes cooler than adjacent areas covered by buildings which absorb and trap heat.

Figure 5.39: Summer Urban Heat Island 2006 - average surface temperatures over the summer period of 2006



Development of a Local Urban Climate Model and its Application to the Intelligent Development of Cities (LUCID), (University College London)

5.15.18 The UK Climate Change Projections 2009 (UKCP09) show what the major changes to the UK's climate would most likely be in the absence of action to cut global emissions. In summary, the UK will experience warmer, wetter winters, hotter and drier summers, sea level rises, and more severe weather. Based on a 'medium emissions' pathway, which according to the Climate Committee is the one that the world is currently most closely following, the South East

196 Hajat, S; Vardoulakis, S; Heaviside, C; Eggen, B (2014), Heatwave Plan for England, 2004, Climate change effects on human health: projections of temperature-related mortality for the UK during the 2020s, 2050s and 2080s. Journal of epidemiology and community health.

could see average summer temperature increases of 3.9°C by the 2080s. At the same time there could be a 22 per cent decrease in average summer rainfall in the South East. Very cold winters will still occur, but will occur less frequently. The UKCPO9 projections also suggest that by 2050, one third of London's summers may exceed the Met Office current heat wave temperature threshold (day time temperature of 32°C and night time temperature of 18°C).

5.15.19 The main causes of illness and death during periods of high temperatures are related to respiratory and cardiovascular conditions. Elderly people over 65 years old in urban areas (especially those over 75 or living alone as well as low levels of social connection), people with compromised health, pregnant women and children up to the age of four are also particularly at risk. In the absence of any approaches to address urban heat risk, heat-related deaths would be expected to rise by around 257 per cent, more than double, by the 2050s from a current annual baseline of around 2,000 deaths.[197]

5.15.20 The intensification of development in London to accommodate a growing population is likely to increase the UHI effect and further increase the risk of overheating. The University College London's LUCID project shows that many of London's dwellings are vulnerable to heat. The monitoring of 36 London's dwellings during a hot spell demonstrated that night time bedroom temperatures were above the upper comfort threshold recommended by Chartered Institute of Building Services Engineers (CIBSE). It concluded that the thermal performance of buildings is a bigger influence on the internal temperatures of buildings than the location in the urban heat island.

5.15.21 In addition, future increases in electricity demand for cooling, as a result of rising temperatures, could affect London's energy supply. For example, extremely high demands on London's power supply network due to high cooling demand could lead to subsequent 'brown outs' meaning a reduction in or restriction on the availability of electrical power in a particular area.

5.15.22 The effects of climate change also pose a significant risk to London's economy. For example, hotter summers and more frequent and intense heatwaves may reduce productivity and economic output as a result of heat-related illness, as well as impacting infrastructure, for example road and rail infrastructure failure and/or increased calls on electricity supply for air conditioning.

197 Hajat, S; Vardoulakis, S; Heaviside, C; Eggen, B (2014) Climate change effects on human health: projections of temperature-related mortality for the UK during the 2020s, 2050s and 2080s. Journal of epidemiology and community health. 0, p1-8

Key issues	• Increase in extreme weather events such as flood risk, drought and heat risk and associated impacts • Changing demographics such as an ageing population and more under five year olds increasing the number of potentially vulnerable people. • Design of building causes a larger variation in temperature exposure than the Urban Heat Island (UHI) effect
Opportunities	• Promotion of sustainable building design to reduce the urban heat island effect • Maximise amount of green coverage to help reduce effects • Use of other Mayoral Strategies to raise awareness and promote behaviour change. • Making use of green infrastructure associated with transport networks for climate change adaptation, i.e. sustainable drainage, energy generation water conservation
Implications of the plans and programmes review	Need to design buildings and spaces to adapt and mitigate the effects of climate change, including overheating, flooding, droughts and more extreme weather events. The Mayor has a commitment to reduce London's CO_2 emissions by 60 per cent by 2025
	
Suggested IIA Objectives	• To ensure London adapts and becomes more resilient to the impacts of climate change and extreme weather events such as, flood drought and heat risks • To help tackle climate change through reducing greenhouse gas emissions and moving towards a zero carbon London by 2050

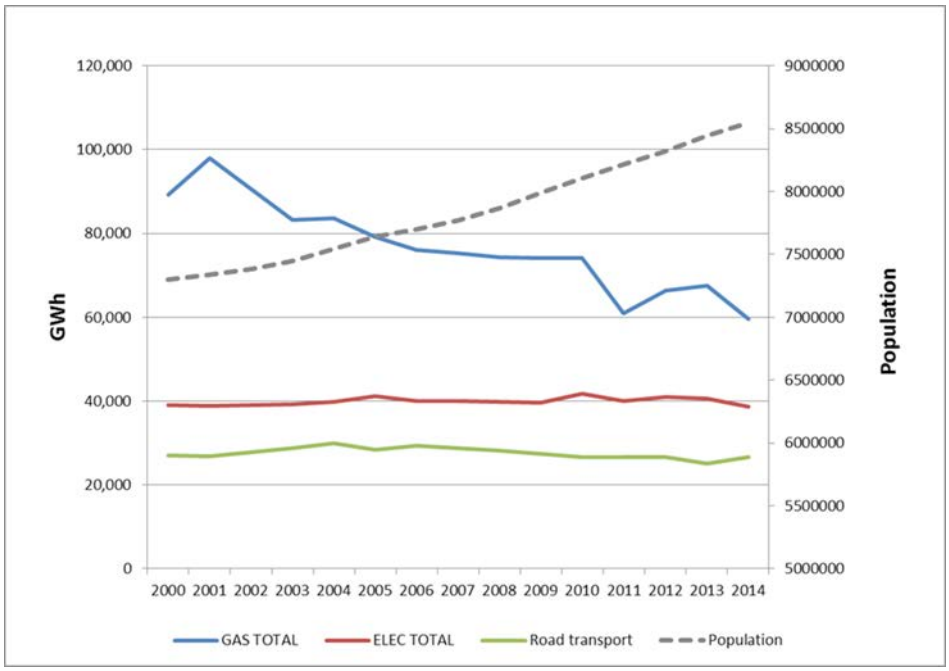
5.16 Energy Use and Supply

The supply of and demand for energy by industry, transport and households

5.16.1 Reducing overall energy consumption and being more energy efficient is vital to reducing greenhouse gas emissions and contributing to a secure energy future. Reducing energy consumption through more efficient buildings and appliances can also help to tackle issues of energy affordability and fuel poverty[198].

5.16.2 The demand for energy and its form changes by season. In the winter months, consumption of gas is higher due to use of central heating for buildings. However in the summer months, there is a general shift towards higher electricity use from air conditioning to cool buildings. Consumption can also vary from year to year depending on the weather.

Figure 5.40: Energy use in London 2000 to 2014



5.16.3 London consumed an estimated 133,960 GWh of energy in 2014.[199] This is a 17 per cent reduction on 1990 levels, despite a population increase of 26 per cent. In 2014, 40 per cent of energy was domestic use, 36 per cent from workplaces (the industrial and commercial sector) and 24 per cent from the transport sector[200].

5.16.4 Of the total amount of energy consumed in 2013, 48 per cent was Gas with 29 per cent electricity. However, because of its higher carbon intensity than gas, electricity contributes a proportionally larger amount to London's overall CO_2 emissions. Coal, one of the most carbon intensive fossil fuels, only makes up <1 per cent of the total energy used. Almost all of this is

198 UK Government (2016) Fuel poverty statistics [online]. Available from: www.gov.uk/government/collections/fuel-poverty-statistics.

199 Department of Energy and Climate Change (DECC) and TfL

200 London Energy and Greenhouse Gas Inventory 2013

from the industrial and commercial sector. Over one fifth (21 per cent) of energy consumed (29,569 GWh) is from petroleum, primarily used in the transport sector – including rail transport[201].

5.16.5 Gas usage has decreased since 1990, and this trend is expected to continue despite projected population growth, however it is very much dependent upon national energy policies. Electricity usage has stabilised despite the increase in population, largely due to increased efficiency of appliances. However, it is expected that demand for electricity to rise as population continues to grow and heating and transportation are increasingly electrified, in favour of electricity from a decarbonised grid.

5.16.6 London, as most cities, has limited renewable energy potential. Such energy sources currently contribute only a small fraction of London's energy, accounting for 2 per cent of consumption. In 2014 renewable energy generation was 640GWh, down from 700GWh in 2013 – predominantly due to reduced generation from municipal solid waste combustion plants - and projected uptake remains well below the Mayor's target of 8550GWh by 2026[202]. Despite an increase in photovoltaics delivered on new developments, London has one of the lowest solar installation rates in the UK.

5.16.7 Capacity of the energy supply is also a concern. Significant new investment is already urgently needed in electricity substations capacity and distribution to keep up with demand and to accommodate the step change in the rate of house delivery that is required.[203] One in five substations has less than 7 per cent spare capacity.

5.16.8 Fuel poverty continues to be an issue in London, with 9.8 per cent or 326,114 households meeting the Government's 'low income high cost' definition of fuel poverty (compared to 10.4 per cent across England). However as the definition favours larger homes, there may be many households in smaller properties who also struggle to pay their fuel bills despite not meeting the definition. Across London, this varies with areas in the North East and North West with higher rates of fuel poverty than the England average, including 14.9 per cent in Newham and 12 per cent in Brent[204].

5.16.9 One way of helping to tackle energy affordability (including fuel poverty) is to improve the efficiency of London's buildings and transport. Retrofitting is a huge challenge in London. Over 80 per cent of the buildings standing today will still be occupied in 2050. There are around 3.4 million homes in London, the vast majority of which will need to be retrofitted with building fabric measures (such as cavity wall insulation) and potentially on site renewable energy generation to reduce the energy demand, if GHG reduction targets are to be met. In 2013 around 25 per cent of homes in London were in Energy Performance Certificate Bands E to G (representing poor energy efficiency) This proportion varied widely by tenure, from 13 per cent of housing association homes to 39 per cent of owner occupied homes.[205] A large

201 Ibid

202 Mayor of London, London Plan AMR 2014/15

203 Mayor of London, London Infrastructure Plan 2050

204 BEIS (2016) 2014 sub-regional fuel poverty data: low income high costs indicator [online]. Available from: https://www.gov.uk/government/statistics/2014-sub-regional-fuel-poverty-data-low-income-high-costs-indicator.

205 DCLG (2013) English Housing Survey: Energy efficiency of English housing [online]. Available from: www.gov.uk/government/uploads/system/uploads/attachment_data/file/445440/EHS_Energy_efficiency_of_English_housing_2013.pdf.

proportion of London's homes and workplaces are difficult to treat and offer numerous barriers to retrofit that must be overcome.

5.16.10 Existing energy resources are not being utilised as effectively as they could by, for example existing energy sources such as waste heat from industrial processes could be used to heat buildings. To encourage more effective use of energy, the Mayor has set a target of meeting 25 per cent of London's energy demand by 2025 from local production, i.e. decentralised energy: combined heat and power, solar technologies and energy from waste. However, as of 2014 it is estimated that only 5 per cent of London's energy demand was met from decentralised energy[206].

5.16.11 Managing demand is essential in reducing energy use. Electricity generation in the UK is designed to ensure that peak demand for electricity can always be met. Nationally, more electricity is frequently being generating than is used. With power generation in the UK predominantly fossil fuel based additional greenhouse gas emissions are created that could be avoided. By managing peak demand for electricity within London more effectively could potentially avoid the need for new generation infrastructure. This can be achieved through demand side responses (DSR) and smart energy systems. However, such smart energy systems are embryonic and require rapid development and deployment to prevent unnecessary investment in new (potentially carbon intensive and costly) generation technologies.

206 DECC (2015) Combined Heat and Power in Scotland, Wales, Northern Ireland and the revions of England in 2014 [online]. Available from: www.gov.uk/government/uploads/system/uploads/attachment_data/file/462358/Regional_CHP_2014.pdf.

Key issues	• Relatively high and ineffective use of fossil fuels contributing towards London's GHG emissions. • Insufficient low carbon energy supply • High number of Londoners in fuel poverty. • Energy-inefficient building stock & transport. • Un-utilised local energy resources • Increasing electricity demand and need to manage peak electricity demand
Opportunities	• Transition to a low carbon energy supply to help meet GHG reduction targets. • Stimulate the market for installation of energy efficiency measures, renewables deployment, low carbon innovation. • Enhance London's position as a world leader in low energy – setting an example to other cities heavily reliant upon fossil fuels. • Reducing fuel bills by reducing demand for energy and therefore tackling fuel poverty. • Utilising London's secondary heat resource. • Potential for positive health benefits by helping reduce air pollution through the generation and supply of clean (low or zero emission) energy for buildings and transport.
Implications of the plans and programmes review	Widening supply and demand gap. Greater efficiencies, use of renewable energy sources, and importance of low carbon economy.
	
Suggested IIA Objectives	To manage and reduce demand for energy, achieve greater energy efficiency, utilise new and existing energy sources effectively, and ensure a resilient smart and affordable energy system

5.17 Water Resources and Quality

The supply of water and the quality of water within all water bodies

5.17.1 The Blue Ribbon Network is London's strategic network of water spaces and covers the River Thames, canals, tributary rivers, lakes, reservoirs and docks alongside smaller waterbodies. Every London borough contains some element of the network – 17 boroughs border the Thames and 15 contain canals. Many boroughs contain both rivers and canals.

Figure 5.41: Blue Ribbon Network

Source Environment and Scientific Services, Bristish Waterways

5.17.2 The Environment Agency is responsible for water quality and resources – it is their responsibility to decide how much water can be taken from the environment for people and businesses to use, without damaging the environment or compromising existing lawful users and they must also control the volume and quality of discharges made to rivers. Water is supplied to customers in London by four water companies. Thames Water is the largest, the other three (Affinity Water, Essex & Suffolk Water, and Sutton & East Surrey Water) are regional suppliers. The majority (around 80 per cent) of London's water is drawn from rivers, principally the Thames to the west of London and the River Lee in North London. Most of the rest of London's supplies comes from abstracting groundwater.

5.17.3 Water resources are already under pressure in London and the south east with a risk of a drought if there are two consecutive dry winters. Such a situation occurred during the winters

of 2010-11 and 2011-12 in the run up to the 2012 Olympic & Paralympic Games London was in a drought situation. This was only eased by having a significantly wet spring and could easily have become a more severe situation. Severe droughts may have significant economic, social and potentially health implications.

5.17.4 The relatively dry nature of the South East, combined with the high population density, especially within London, means that water resources are under significant pressure. This pressure is exacerbated by London not only having one of the highest rates of water use in the country but also having some of the highest rates of leakage from the water supply distribution network.

5.17.5 Measures to reduce demand, such as increased water efficiency, reduced leakage and increasing use of water meters are needed throughout London. This will help to manage the supply-demand balance over the short term. However, with a rapidly growing population and some restrictions on water abstraction for environmental reasons, it is also clear that there is a need for new additional water resources in order to maintain a secure water supply-demand balance. Thames Water has identified that a significant new water resource will be required by the mid-2020s.

5.17.6 Water quality in rivers, lakes and streams is measured through the River Basin Management Plan[207]. Within London, there are 64 separate waterbodies (not including the tidal Thames – which is measured separately because it is a tidal waterbody). The ratings of the 64 waterbodies are outlined in Figure 5.42. Of the 64 waterbodies, none are very good, only 2 are good, 49 are moderate, 10 are poor and 3 are bad. This is a poor reflection of London's waterbodies given that the EU Water Framework Directive aims to get all waterbodies to Good Status or at least to Good Potential.

Figure 5.42: Assessed condition of London's 64 waterbodies

Bad	Poor	Mod	Good	V Good	All WBs
3	10	49	2	0	64

5.17.7 The reasons for poor water quality are many and varied. Industrial pollution is quite rare; however the treated effluent from sewage treatment works makes up a significant part of the base flows for some rivers. A significant concern is the numerous wrongly corrected sewers that allow untreated waste water to discharge into rivers. It is clear that more action is needed to prevent this kind of pollution. Equally concerning is the impact of storms over the outer London area. This has the effect of washing the urban area, the roofs, streets, footpaths etc. of any dust, debris and litter that has accumulated. This can include significant amounts of hydrocarbons that have dripped or spilt from vehicles onto roads, together with bits of metal and tyre rubber. Any organic matter such as dog faeces will get washed into the rivers, along with other litter than has been left in the open environment.

5.17.8 The problem does not occur in inner London where rainwater discharges into the combined sewer system and is transferred to sewage treatment works. The exception in inner London is

207 Defra (2015) Water for life and livelihoods – Part 1: Thames river basin district. River basin management plan [online]. Available from: www.gov.uk/government/uploads/system/uploads/attachment_data/file/500548/Thames_RBD_Part_1_river_basin_management_plan.pdf.

when the rainfall is sufficiently intense to cause the combined sewer system to overflow. In these cases the untreated sewage is discharged to the Thames without treatment. The Thames Tideway Tunnel project is currently under construction in order to virtually eliminate this as a problem.

Key issues	• Need to reduce per capita water consumption • Need to plan for and deliver additional new water resources • Need to improve the quality of water in London's waterbodies • Need to improve the physical form of London's waterbodies
Opportunities	• Improved river corridors and water quality can improve the public realm and ecological value of London's Environment • Reduced water consumption can reduce the need/scale of new water resources
Implications of the plans and programmes review	Identified need to focus on the protection, improvements and sustainable use of the water environment.
	
Suggested IIA Objectives	To protect and enhance London's water bodies by ensuring that London has a sustainable water supply, drainage and sewerage system

5.18 Flood Risk

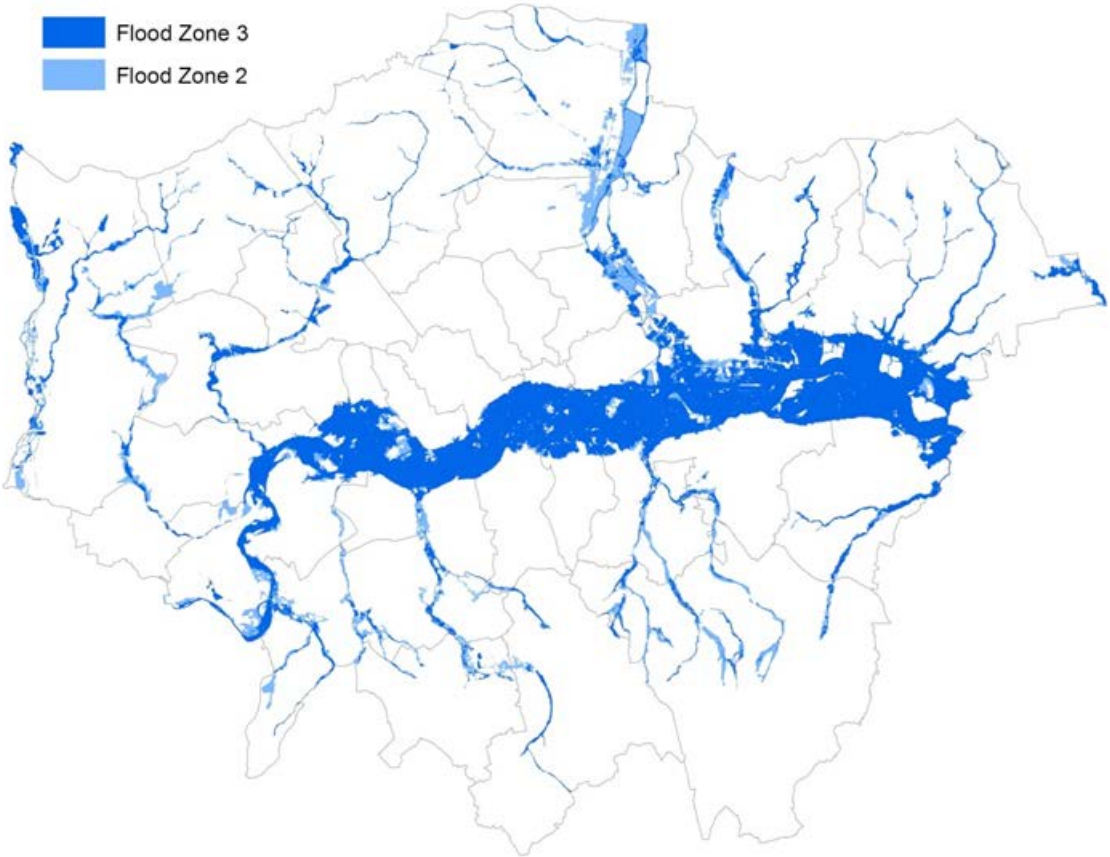
The probability of and potential consequences of flooding from all sources which includes flooding from rivers and the sea, directly from rainfall on the ground surface and rising groundwater, overwhelmed sewers and drainage systems and from reservoirs, canals, lakes and other artificial sources

5.18.1 London always has had and will continue to have a degree of flood risk. It is a major issue for London and the probability of flooding is increasing with climate change.

5.18.2 In order to accommodate London's growth, more housing and other forms of development are required, of which some will need to be built in areas with a degree of flood risk. It is important to minimise the number of buildings and people who are located in areas at high risk of flooding. It is also important to ensure that buildings within areas of lower risk are nonetheless prepared and resilient, should flooding occur.

5.18.3 There are many sources of flooding, including tidal, fluvial, surface water, ground water, sewer and reservoir. Currently 14 per cent of London is at risk of tidal and fluvial flooding (the extent of Flood Zones 2 and 3) and 3 per cent of London is at risk of surface water flooding.

Figure 5.43: Flood Zone 2 and 3 in London



GLA, 2014 – Regional Flood Risk Appraisal

5.18.4 Many parts of London, notably extensive areas on both north and south banks of the Thames are within Flood Zones 2 and 3. These areas have well-built flood defences that currently provide a high level of protection commonly referred to as in excess of 1 in 1000 year. There are plans, Thames Estuary 2100, to continue that protection through the current century, taking into account climate change and sea level rise as it occurs. Therefore these areas can be considered to be at low risk of flooding. New development can safely be built in these areas provided that appropriate layout, design and management issues are built into developments to ensure that they are safe, resilient and can recover in the unlikely event of a flooding incident. Furthermore as most new buildings in London are multi storey, and any flooding that does occur is only likely to affect ground and basement levels, the use of upper floors of buildings can be considered safe for residential development, with caveats about how people in such buildings would cope in the event of a flood.

5.18.5 Development in flood zone 3b (the functional floodplain) should be avoided for all but the water dependent forms of development which by their very nature have to be next to rivers – for example a sailing club.

5.18.6 Surface water flooding can be caused or exacerbated by blockages to the drainage network. New surface water drainage networks are normally designed to cope with storms of a 1 in 30 year intensity, however many existing systems may be constructed to different standards.

5.18.7 In central and inner London, surface water flood risk tends to occur in lots of small, localised areas representing slightly lower ground than the surrounding land. Basement properties and entrances to sub surface car parks, servicing yards etc can be at particular risk of ingress of water. In the rest of London, surface water flooding is often directed to the valleys of those streams which form the naturally lower land areas. Most of these areas are immediately adjacent to built development or even underneath buildings and in such cases those buildings may lie within risk areas. Buildings with large roof areas, such as mainline rail termini, hospitals, schools, retail warehouses are particularly prone to surface water risks under heavy rainfall situations.

5.18.8 Reducing the number of properties and people at high risk from flooding and improving the resilience of infrastructure and utilities to flooding is a key challenge for London.

5.18.9 Many of London's remaining large brownfield areas are either substantially or partially within Flood Zones 2 and 3 (37 per cent of the area within Opportunity Areas). However, alternative sites for large scale development within London do not exist without encroaching into Green Belt, Metropolitan Open Land or other protected spaces.[208]

5.18.10 Redevelopment, especially at a large scale, often offers opportunities to reduce flood risk, including de-culverting and the re-naturalising of tributary rivers, increasing flood storage capacity, designing the least vulnerable uses to be in the higher flood risk areas and installing sustainable drainage systems. Examples of such flood risk reductions have been demonstrated through major developments like Ram Brewery, Wandsworth, the Queen Elizabeth Olympic Park and many other river restoration schemes throughout London.

5.18.11 Sustainable drainage is now a normal element of most large scale planning application. Many of the strategic planning applications that are referred to the Mayor aim for Greenfield run-off

[208] Mayor of London (2014) – Regional Flood Risk Appraisal, GLA

rates, or close to that, and almost all are designed to achieve at least a 50 per cent reduction on the existing rainwater discharge rates. The Mayor is also focused on retrofitting sustainable drainage measures to existing buildings and published the London Sustainable Drainage Action Plan in December 2016.[209]

Key issues	• Risk of flooding to property and people from river, surface water, tidal, sewer, ground water and reservoir • Increase in run-off and potential contamination and disruption of flows
Opportunities	• New development has the potential to manage and reduce flood risk to the development and to the wider local area. • Increased resilience through retrofitting could have long term financial and social benefits • Increased sustainable drainage can improve flood risk, water quality and the urban realm more generally
Implications of the plans and programmes review	A need to ensure that development is designed not to increase flood risk, to encourage the use of Sustainable Urban Drainage Systems (SUDS) and that all elements of policy require review to ensure that flood risk is integrated with the management of the rest of London's Environment.
	
Suggested IIA Objectives	To manage the risk of flooding from all sources and improve the resilience of people and property to flooding

209 Mayor of London (2016) London Sustainable Drainage Action Plan, GLA

5.19 Natural Environment and Natural Capital

The diversity of habitats and species, and the services provided by London's green infrastructure.

5.19.1 The richness of London's natural environment includes private gardens, parks and open spaces and green corridors along canals and railways as well as on the River Thames and its tributaries. There is evidence of psychological, physical and social benefits of proximity to, and engagement with, the natural environment. Vegetation, particularly trees, can contribute to air quality improvements and help to reduce the effects of the urban heat island. Increased vegetation also helps to reduce surface run-off. There is strong evidence that people with better access to the natural environment tend to be happier and less prone to mental illness: nature has positive effects on mood, concentration, self-discipline, and physiological stress. Whilst difficult to study, there is also a possible link between access to green space and increases in physical activity as well as the contribution of the natural environment to social cohesion, particularly for well design and maintained green spaces.

5.19.2 The Mayor's Biodiversity Strategy (2002) noted that two-thirds of London's land area is occupied by green spaces and water. Of this, about a third is private gardens, a third parks or in sports use and a further third is semi-natural habitat, such as grasslands, woodlands and rivers.

5.19.3 Since the publication of the Biodiversity Strategy, more detailed land-cover assessments and analyses have been undertaken by Greenspace Information for Greater London using more sophisticated GIS based data. Consequently, it is not feasible to undertake a direct, like-for-like comparison between the land-cover figures published in the Biodiversity Strategy and current land-cover figures because current data would need to be derived from multiple (not fully compatible) datasets. Nevertheless, Figure 5.44 compares data on land cover and habitats where there is comparable data.

Figure 5.44: Land cover and habitats

Biodiversity Strategy estimate versus recent recorded coverage		
Habitat or land-use	Biodiversity Strategy (2002)	Most recent data*
Total green space (including gardens)	c. 65 per cent of London's land area	57 per cent of London's land area
Total green space (excluding gardens)	32 per cent	33 per cent
Private gardens	c. 33 per cent	22 per cent of which 14 per cent is vegetated space
Total tree canopy cover	c.20 per cent	19.5 per cent**
SINC	29855 ha	30679 ha (2013 data)
Woodland	c. 7000 ha	7569 ha (2009-10 data)

Biodiversity Strategy estimate versus recent recorded coverage		
Chalk Grassland	c. 300 ha	301ha (2009-10 data)
Reedbed	c. 125 ha	142 ha (2009-10 data)
Acid Grassland	c. 1300 ha	1491ha (2009-10 data)
Heathland	c. 80 ha	55 ha (2009-10 data)
* Greenspace Information for Greater London datasets, 2013 ** GLA (2015) Measuring Tree Canopy Cover in London [online]. Available from: www.london.gov.uk/sites/default/files/measuring_tree_canopy_cover_2015.pdf.		

5.19.4 The data in Figure 5.44 suggest that the biggest reduction in green space in London is vegetated garden space[210]. However, these figures probably do not take into account the loss of ephemeral habitats associated with some brownfield sites awaiting redevelopment as these sites are less easy to classify and are not always identified during land-cover or habitat surveys.

5.19.5 Garden green space and vegetated brownfields are particularly important in an urban context because:

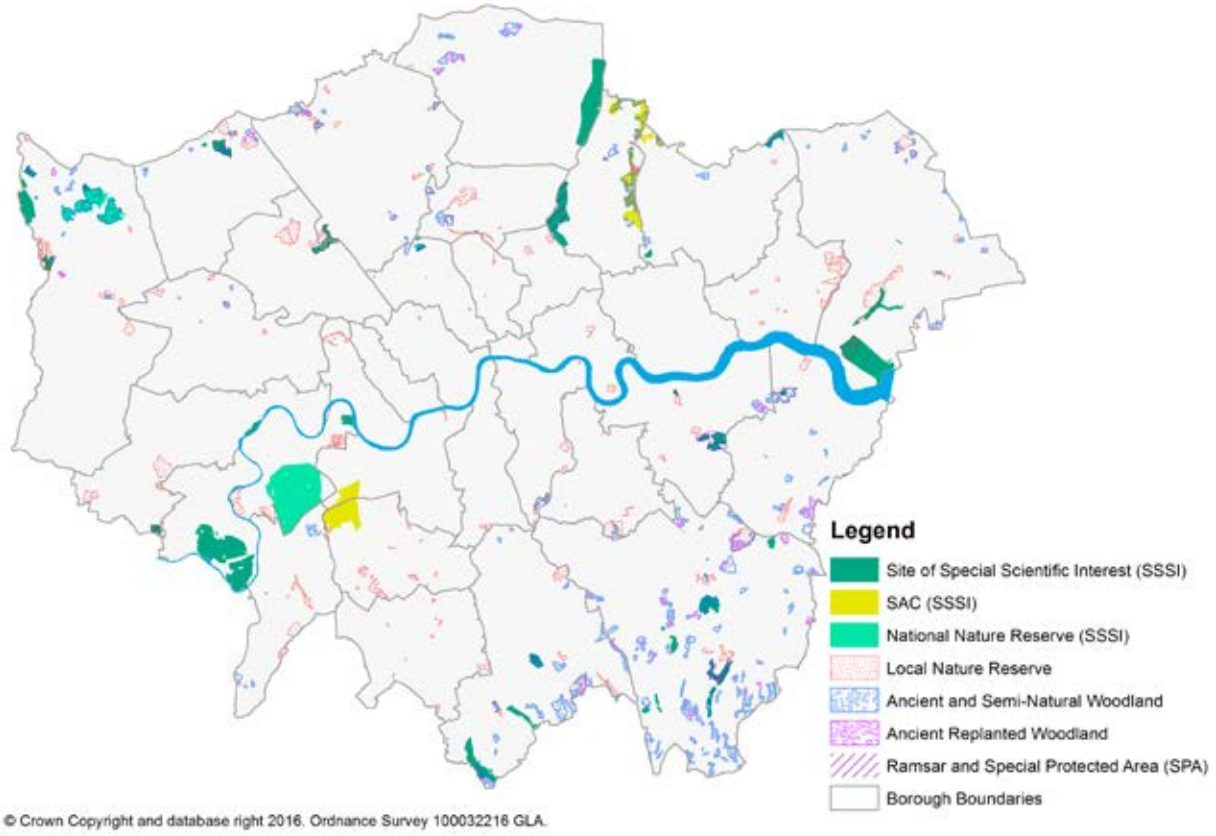
- gardens comprise a significant proportion of London's green space resource and are places where people can interact with nature most often, and,
- ephemeral habitats associated with some brownfield sites can provide conditions that mimic sparsely vegetated habitats such as beaches, dunes, and heathlands, that support a wide range of rare or unusual wildlife, particularly invertebrates.

5.19.6 There are numerous statutorily designated nature conservation sites and priority habitats within the GLA administrative boundary. These are shown on Figure 5.45 and comprise:

- Three SACS – Richmond Park in Richmond Upon Thames, Wimbledon Common in Merton and Epping Forest in Waltham Forest;
- Two SPAs – the Lee Valley in Waltham Forest and South West London Waterbodies in Hounslow;
- Two Ramsar Sites – the Lee Valley in Waltham Forest and South West London Waterbodies in Hounslow;
- 38 SSSIs – six in Hillingdon; five in Bromley and three each in Havering, Croydon, Bexley and Waltham Forest. The area of land within SSSIs in London considered to be in favourable or recovering condition has increased from 73 per cent in 2000 to 93 per cent in 2012
- Three NNRs – Ashtead Common in Kingston-upon-Thames, Ruislip Woods in Hillingdon and Richmond Park in Richmond-upon-Thames;
- 144 LNRs – present in all boroughs except for the City of London, Newham and Kensington and Chelsea;
- Areas of Ancient and Semi-natural Woodland can be found in 17 boroughs;
- Areas of Ancient Replanted Woodland can be found in 10 boroughs.

210 GiGL (N/D) London: Garden City? [online]. Available from: www.gigl.org.uk/partnershipcasestudy/garden-research/

Figure 5.45: Statutory Designated Sites

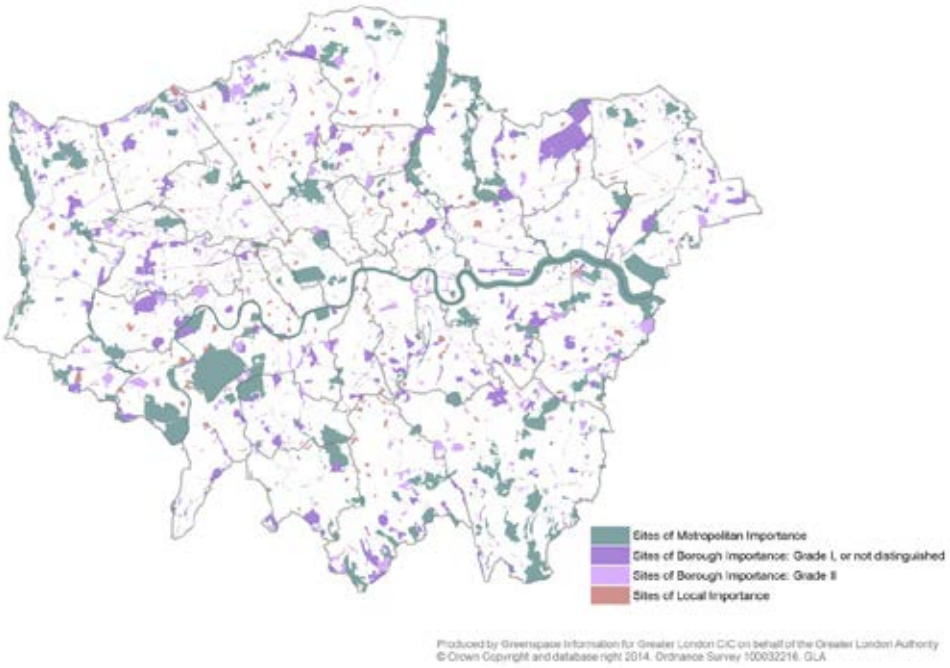


5.19.7 The HRA is required to consider whether there is likely to be any significant likely effects of the new London Plan on all European level sites including SAC/SPA and Ramsar sites. Appendix C details the baseline situation for each of these sites. The HRA will be published for consultation alongside the IIA and draft London Plan.

London's Sites of Importance for Nature Conservation

5.19.8 Other important wildlife sites in Greater London are identified as Sites of Importance for Nature Conservation (SINCs).

Figure 5.46 Distribution of Sites of Importance for Nature Conservation in London



5.19.9 SINCs are recognised by the GLA and London borough councils as London's important wildlife sites. In total, over 1,400 SINCs have been identified, covering nearly 20 per cent of the capital.

Figure 5.47 Sites of Importance for Nature Conservation in London

Grade	Area (ha)	per cent of Greater London
Metropolitan	16,249	10.19
Borough	12,652	7.93
Local	1,778	1.12
Total	3,0679	19.24

Figures calculated from GiGL SINC dataset (December 2013)

5.19.10 These are variously graded as Metropolitan, Borough and Local depending upon the relative importance and value of the SINC

- Sites of Metropolitan Importance – About 140 Metropolitan sites have been identified.

They include nationally important wildlife sites such as Richmond Park, Epping Forest and Rainham Marshes, and places such as Sydenham Hill Woods, Eastbrookend Country Park and Hounslow Heath;

- Sites of Borough Importance – there are almost 800 borough sites identified to date. They include woodlands, rivers, grasslands and parks where nature conservation is a primary objective of land management;
- Sites of Local Importance – provide Londoners with access to nature in their local area. Includes parks and green spaces where there is some intrinsic nature conservation value. About 460 Local sites have been identified

5.19.11 Whilst SINC coverage has increased since 2002; there has been losses across London at specific sites.

5.19.12 SINCs are semi-natural so require constant management to maintain their wildlife value. The percentage of SINCs reported to be under positive conservation management has increased from 42 per cent in 2009 to 50 per cent in 2010 and 59 per cent in 2011.

5.19.13 London's SINC network also includes Sites of Special Scientific Interest (SSSI) – those sites which have a statutory nature conservation designation. The condition of these sites are monitored at a national level. The area of land within SSSIs in London considered to be in favourable or recovering condition has increased from 73 per cent in 2000 to 93 per cent in 2012.

London's urban forest

5.19.14 London's urban forest comprises areas of extensive woodland, wooded landscapes in parks and open spaces, trees in residential gardens and street trees. The total area of London's urban forest appears to have remained relatively static over the past 10 years, with estimated coverage of c20 per cent.[211] Valuing London's Urban Forest - the report of the London i-Tree Eco Project – indicates that London's trees provide at least £133M of benefits every year in terms of air pollution removal, carbon sequestration and reducing the surface run off.[212]

London's gardens

5.19.15 Private gardens provide many people with daily contact with nature and form a pleasant component of residential areas. A single garden may provide habitat for a range of plants and wildlife and collectively they are an important resource for conserving species such as hedgehogs, amphibians and pollinating insects.

5.19.16 A report[213] on changes in London's domestic gardens shows that between 1998-99 and 2006-08:

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211 Mayor of London (2015) Measuring Tree Canopy Cover in London [online], GLA. Available from: www.london.gov.uk/sites/default/files/measuring_tree_canopy_cover_2015.pdf

212 Treeconomics London, (2015), "Valuing London's Urban Forest: Results of the London i-Tree Eco Project" http://www.forestry.gov.uk/pdf/2890-Forest_Report_Pages.pdf/$FILE/2890-Forest_Report_Pages.pdf. Monetised annual benefits outlined on page 10; benefits of tree planting provided on pages 16 and 17.

213 London Wildlife Trust and Greenspace Information for Greater London, London: Garden City?,

- The area of vegetated garden land declined by 12 per cent, a loss of 3,000 ha.
- The amount of hard surfacing in London's gardens increased by 26 per cent or 2,600 ha.
- The area of garden buildings (sheds etc.) increased by 55 per cent or 1,000 ha.
- The amount of garden lawn decreased by 16 per cent or 2,200 ha.

5.19.17 The changes in garden cover are primarily due to many small changes to individual gardens as part of their management and use by homeowners, rather than large scale changes or housing development on garden land (although this can result in significant loss of garden land at a local level). A more proactive policy approach to the intensification of suburbs to increase housing delivery may further reduce the garden coverage over London.

Areas of Deficiency in access to open space

5.19.18 London's publicly accessible green spaces make up about 16 per cent of the capital. The Figure 5.48 below shows the amount London that is deficient in terms of access to different types of open space based on the London Plan benchmarks.

Figure 5.48: Access Open Space

London Plan Benchmarks	Per cent of area deficient in access to public open space
>8.0km away from Regional Parks	65 per cent of Greater London
>3.2km away from Metropolitan Parks	26 per cent of Greater London
>1.2km away from) District Parks	45 per cent of Greater London
>400m away from) Local, Small and Pocket Parks	50 per cent of Greater London

5.19.19 Merging all these different layers of deficiency results in 86 per cent of London being deficient in access to at least one type of public open space. However, despite these apparent deficiencies, it should be recognised that some parts of suburban London contain homes with large gardens and therefore lack of access to small local parks may not be a significant issue for some residents. Similarly, Londoners living on the periphery of London may be less concerned about lack of access to Metropolitan or Regional parks in London because of the proximity of similar facilities in the Green Belt around London.

Areas of Deficiency in access to nature

5.19.20 Areas of Deficiency in Access to Nature are those areas in London where people have to walk more than 1 km to reach a SINC of at least borough importance. Since 2006, the area of London defined as being deficient in access to nature has fallen from 22 per cent to 16 per cent. Almost 25,000ha of London was classified as being deficient in access to nature in 2010, which is over 9,000 ha less than in 2006. Much of this decrease is likely to have been achieved either by creating better access to sites where there has previously been none or creating new access points to sites already accessible to the public. The creation or restoration of

habitats that has resulted in the increase in the area of SINCs will also have made an important contribution as some Sites of Local Importance will have been upgraded to Sites of Borough Importance.

London's bird populations

5.19.21 Between 1994 and 2011, 21 of the 33 bird species monitored by the British Trust for Ornithology increased significantly in London, whilst 7 species declined significantly during this same period. These trends largely mirror national trends. This suggests that there are no particular nature conservation or land management issues which need to be addressed specifically in London, especially as the actual causes for declines are undetermined. However, loss of nest sites in buildings (resulting from the trend to seal buildings for energy efficiency reasons) and the loss of vegetated areas in gardens may well be a reason for the decline is species such as house sparrow, starling, blackbird and swift.

5.19.22 Where tailored conservation efforts have been undertaken for particular species, which have an urban or London affiliation, there have been some notable successes, particularly with the creation of biodiverse green roofs, the provision of nest-boxes and protection of nest-sites.

Natural Capital

5.19.23 Comprehensively valuing the services and benefits provided by the natural environments is becoming more important so that these are properly accounted for when deciding, for example, how to enhance resilience or improve public health when compared to other alternatives. A study undertaken by Natural England estimated that the savings to the NHS through having increased access to green space for every household in England equated to £2.1 billion per annum.[214]

5.19.24 Analysis by GLA Economics modelling suggests that house prices within 600 metres of a regional or metropolitan park were between 1.9 per cent and 2.9 per cent higher as a result of that proximity.

5.19.25 Programmes of planting trees in urban areas provide a range of both environmental and wellbeing benefits. These include aesthetic improvements to areas becoming a focal point for residents; but they can also act as a means of carbon storage, improve biodiversity, help to reduce localised flooding, and potentially enable reductions in energy usage through helping to cool areas in the summer and provide insulation in the winter. The London i-Tree Eco assessment has looked to provide monetised costs for the environmental benefits and replacement costs of trees currently in the capital; estimating that London's existing urban forest provides total benefits of £132.7 million per annum.[215]

214 Natural England, (2009), "Our Natural Health Service: The role of the natural environment in maintaining healthy lives".

215 Treeconomics London, (2015), "Valuing London's Urban Forest: Results of the London i-Tree Eco Project" http://www.forestry.gov.uk/pdf/2890-Forest_Report_Pages.pdf/$FILE/2890-Forest_Report_Pages.pdf. Monetised annual benefits outlined on page 10; benefits of tree planting provided on pages 16 and 17.

Key issues	• Loss of biodiversity and reduced ecological resilience as a result of increased pressure for development and intensification of existing development • Decrease in Areas of Deficiency in Access to Nature, however increased recreational pressure on existing habitats and green spaces • Impact of climate change
Opportunities	• Improve protection for existing sites identified as being of value for nature conservation and ecosystem services. • Opportunities for increasing integration green infrastructure into the built environment e.g. green roofs and walls, nature-based sustainable drainage. • Improvements to the design and management of parks and open spaces, and the connections between them, to ensure all of the existing network has a richer ecology and is more accessible and permeable. • New typologies of green spaces, and the choice of habitats and species in landscape design, to optimise climate change adaptation benefits and to ensure resilience of existing landscapes • Promotion of the concepts of natural capital, natural capital accounting and ecosystem services in order to build a more robust business-case for the investment in green infrastructure by highlighting the wider economic and social benefits
Implications of the plans and programmes review	Opportunities to integrate biodiversity and the network of green spaces to provide a range of sustainability benefits, i.e. healthy living, improving air and water quality, cooling the urban environment, enhancing biodiversity and ecological resilience. This could include both enhancing existing habitats and providing new areas for biodiversity as opportunities arise.
	
Suggested IIA Objectives	To protect, connect and enhance London's natural capital (including important habitats, species and landscapes) and the services and benefits it provides, delivering a net positive outcome for biodiversity

5.20 Townscape, Landscape and Public Realm

Landscape and townscape is the visual aesthetic of the natural or built environment.

The public realm refers to the quality (including the perception) of publically accessed spaces and places between buildings (streets, footpaths, cycle paths, roads, parks, open spaces etc.)

5.20.1 The social, cultural, environmental and economic relationships between people and their communities are reinforced by the physical character of a place.

5.20.2 The landscape takes its character from a combination of elements, including topography, watercourses, land use and pattern, vegetation, open space and cultural heritage features. Landscapes vary considerably in character and quality, and are often considered a key component of the distinctiveness of any local area or region.

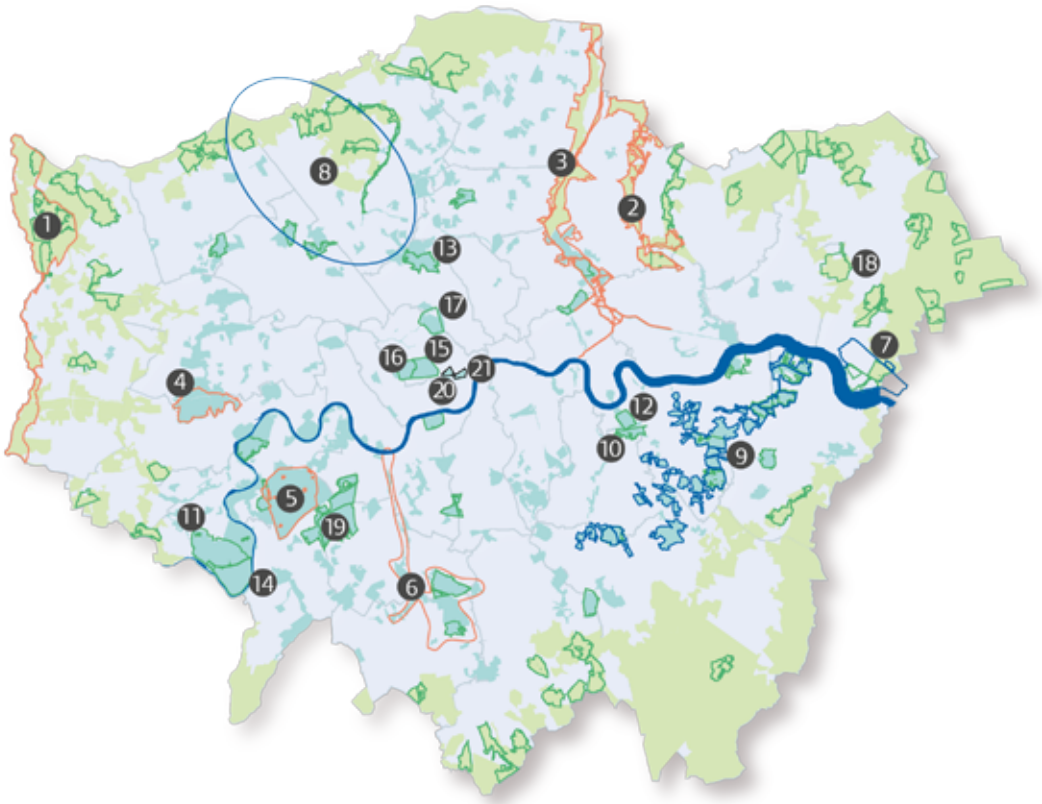
5.20.3 London possesses a wide range of parks and open space, which provide some of the capital's key public assets. Around two-thirds of London's 1,600 square kilometres is occupied by green spaces or water. Approximately a third of this is private gardens, another third is parks or sports facilities and the remaining third is semi-natural habitat, such as grasslands, woodlands and rivers.[216].

5.20.4 In addition to the Green Belt, which forms 22 per cent of London's land area, 10 per cent of London is designated Metropolitan Open Land (MOL) within the built environment (this includes spaces such as Richmond Park and Hampstead Heath)

5.20.5 Figure 5.49 shows London's open space network including Metropolitan Open Land (MOL), Green Belt and parks.

216 Mayor of London (2002), Mayor's Biodiversity Strategy, GLA

Figure 5.49: London's Open Space Network.



London's Royal, Regional and Metropolitan Parks

Metropolitan Open Land
Green Belt

Regional Parks
1. Colne Valley
2. Epping Forest
3. Lee Valley
4. Osterley Park
5. Richmond Park*
6. Wandle Valley

Regional Park Opportunities
7. London Riverside Conservation Park
8. Northern Area
9. South East Green Chain

Metropolitan Parks
10. Blackheath
11. Bushy Park*
12. Greenwich Park*
13. Hampstead Heath
14. Hampton Court Home Park
15. Hyde Park*
16. Kensington Gardens*
17. Regents Park*
18. Thames Chase Community Forest
19. Wimbledon Common

Other Royal Parks
20. Green Park*
21. St James's Park*

* Indicates a Royal Park

Source: The GLA

5.20.6 London also includes 22 Natural Landscape Areas (NLAs). A Natural Landscape Area is an area which is an original watercourse, contains vegetation typical of the soils and geology of its area and/or allows an appreciation of the wider geomorphology and natural topography of London.

5.20.7 The network of rivers, canals, lakes and docks in London is what the London Plan calls the Blue Ribbon. The network brings together a huge range of different places, used for many different purposes, but which share the unique attribute of water. These water spaces are relatively scare and past policies have sought to protect and enhance them. More detail on these is discussed in section 5.18.

5.20.8 London's publicly accessible green spaces make up about 16 per cent of the capital. However, large areas of London are classified as deficient access to parks.

- 26 per cent of Greater London is deficient in access (i.e. >3.2km away from) to a Metropolitan Park
- 45 per cent of Greater London is deficient in access (i.e. >1.2km away from) to a District Park
- 50 per cent of Greater London is deficient in access (i.e. >400m away from) to a Local Park

5.20.9 Private gardens provide many people with daily contact with nature. However, the area of vegetated garden land has declined by 12 per cent (3,000ha) between 1998 and 2008 with the amount of garden lawn decreased by 16 per cent (2,200 ha). Again, more detail can be found in the Natural Environment section.

5.20.10 Townscape includes the buildings and the activities and spaces between them. London's historic character is also synonymous with townscape and landscape features, the importance of which is discussed in section 5.21.

5.20.11 The scale, form and layout of buildings shape the public realm and create the character and density of an area. Generally density is related to the scale and height of buildings, although tall buildings do not necessarily have a high density. Density is mainly referred to for housing developments.

5.20.12 Housing density in London increased from the late 1990s to the early 2000s but has been relatively constant over recent years for development in London as a whole. However, over 50 per cent of development is currently being permitted at densities above the London Plan policy maximums for its location. The policy maximum for housing density is set out in the London Plan Sustainable Residential Quality (SRQ) density matrix. Figure 5.50 below compares the residential density achieved for each scheme against the optimal density range set out in SRQ density matrix in the London Plan, taking into account both the site's Public Transport Accessibility Level (PTAL) and its setting as defined in the London Plan.

Figure 5.50: Residential approvals compared to the density matrix

Financial Year	Per cent of unit approvals		
	Within range	Above range	Below range
2006/07	36 per cent	60 per cent	4 per cent
2007/08	40 per cent	55 per cent	5 per cent
2008/09	41 per cent	53 per cent	7 per cent
2009/10	39 per cent	56 per cent	6 per cent
2010/11	37 per cent	58 per cent	5 per cent
2011/12	40 per cent	55 per cent	5 per cent
2012/13	58 per cent	37 per cent	5 per cent
2013/14	43 per cent	50 per cent	7 per cent

Financial Year	Per cent of unit approvals		
	Within range	Above range	Below range
2014/15	41 per cent	51 per cent	8 per cent

London Plan Annual Monitoring Report 12 (2014/15)

5.20.13 Tall buildings can have a significant impact on the surrounding environment, particularly in terms of their impact on the townscape and local micro-climate. Protected strategic and local views are an important consideration when considering the location and height of tall buildings, these protected views are discussed in section 5.21. Data from the London Development Database shows that between 2000 and 2015 planning permission was granted for approximately 800 proposals which included a tall building (10+ storey). The majority of these were for buildings of 15 storeys or less, and 70 per cent were for buildings of 20 storeys or less. Of these, only 247 were completed and only 18 per cent of the completions included tall buildings of 20 storeys or more.

5.20.14 The public realm is an important feature of the townscape and refers to streets, footpaths, cycle paths, roads, street furniture, public spaces and landscaping etc. Perceptions of the public realm are most commonly related to the maintenance of pavements and roads, the cleanliness of open spaces and the quality of local parks. Other elements which influence perceptions include traffic congestion, road markings, the provision of seating, suitably designed dropped kerbs, signage directions and the extent to which streets are cluttered with signs and street furniture. The quality and inclusiveness of the public realm has a significant influence on quality of life because it affects people's sense of place, security and belonging, as well as having an influence on a range of health and social factors.

5.20.15 There has been a slight increase in the proportion of Londoners who think that the quality of their local area has got 'a lot' better over the past year, from 7 per cent in 2011 to 11 per cent in 2012. The main aspects that Londoners are either most satisfied or most dissatisfied with are the quality and cleanliness of open spaces and pavements, and whether parks are well maintained and free of litter. Inner Londoners are significantly more likely to say this than those living in outer London boroughs.

5.20.16 The design of streets is also an important element in the improving people perception of the public realm. It can encourage active travel including walking and cycling which in turn can improve people's physical activity and helps tackle health issues such as obesity. Attractive streets can also encourage people to socialise and play, building stronger social networks and reducing social isolation, both of which are important for physical and mental health. The provision of shade through trees can help to protect people from sun damage and enables people to cool and regulate their body temperature; and the provision of resting places can help people who have mobility impairments and need places to stop and rest to break up a longer walking and/ or cycle distance.

5.20.17 The intensification of London could impact the physical character of London's landscape and townscape, and can result in loss of sense of place if poorly designed.

Key issues	• Poor quality public realm in some parts of London which can discourage active travel • Deficiencies in open spaces in some parts of the city • Risk of poor design, lack of legible neighbourhoods and sense of place
Opportunities	• To promote high quality design to create and maintain a safe and attractive public realm which encourages people to walk and cycling, promoting a sense of place and reducing the need to travel. • To promote the provision and use of green linkages and connections
Implica-tions of the plans and programmes review	Importance of creating and maintain a safe and attractive public realm which encourages people to walk and cycling, promoting a sense of place and reducing the need to travel.
	
Suggested IIA Objectives	• To contribute to safety and security and the perceptions of safety • To create attractive, mixed use neighbourhoods ensuring new buildings and spaces are appropriately designed that promote and enhance existing sense of place and distinctiveness, reducing the need to travel by motorized transport

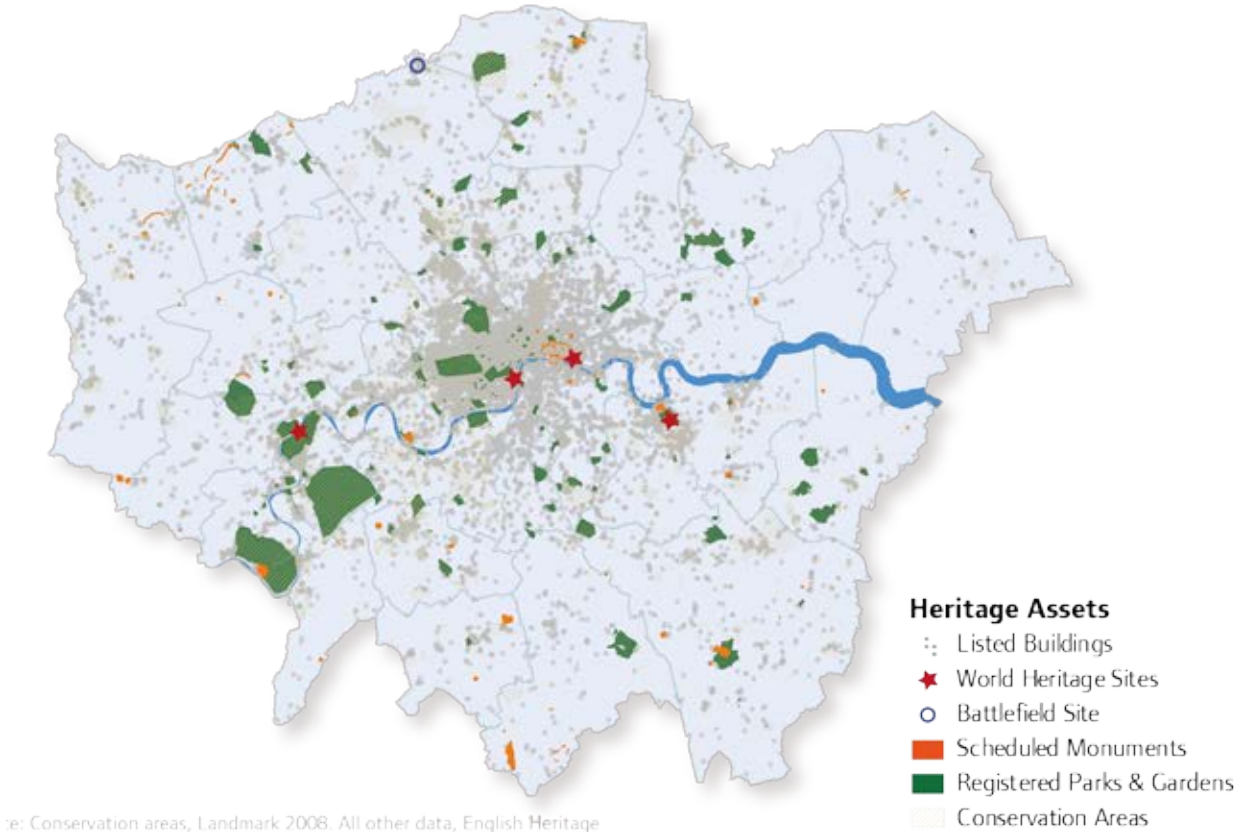
5.21 Historic Environment

London's heritage including designated heritage assists such as listed buildings, registered historic parks and gardens and other natural landscapes, conservation areas, World Heritage Sites, registered battlefields, scheduled monuments, archaeological remains and memorials and historic views and settings.

5.21.1 London's built and landscape heritage provides a depth of character that has immeasurable benefit to the city's economy, culture and quality of life. One of the things that makes London distinctive is the way it combines the old and the new. London's heritage assets and historic environment make a significant contribution to the city's culture by providing easy access to the history of the city and its places. Recognition and enhancement of the multicultural nature of much of London's heritage can help to promote community cohesion. In addition to buildings, people can perceive the story of the city through plaques, monuments, museums, artefacts, photography and literature.

5.21.2 London's designated and non-designated heritage assets range from the Georgian squares of Bloomsbury to Kew Gardens (Victorian) and the Royal Parks, and include ancient places of work like the Inns of Court (medieval in origin), distinctive residential areas like Hampstead Garden Suburb (early twentieth century) and vibrant town centres and shopping areas like Brixton and the West End. This sheer variety is an important element of London's vibrant economic success, world class status and unique character.

Figure 5.51: Spatial distribution of designated assets in London, 2013



5.21.3 Designated assets[217] currently include

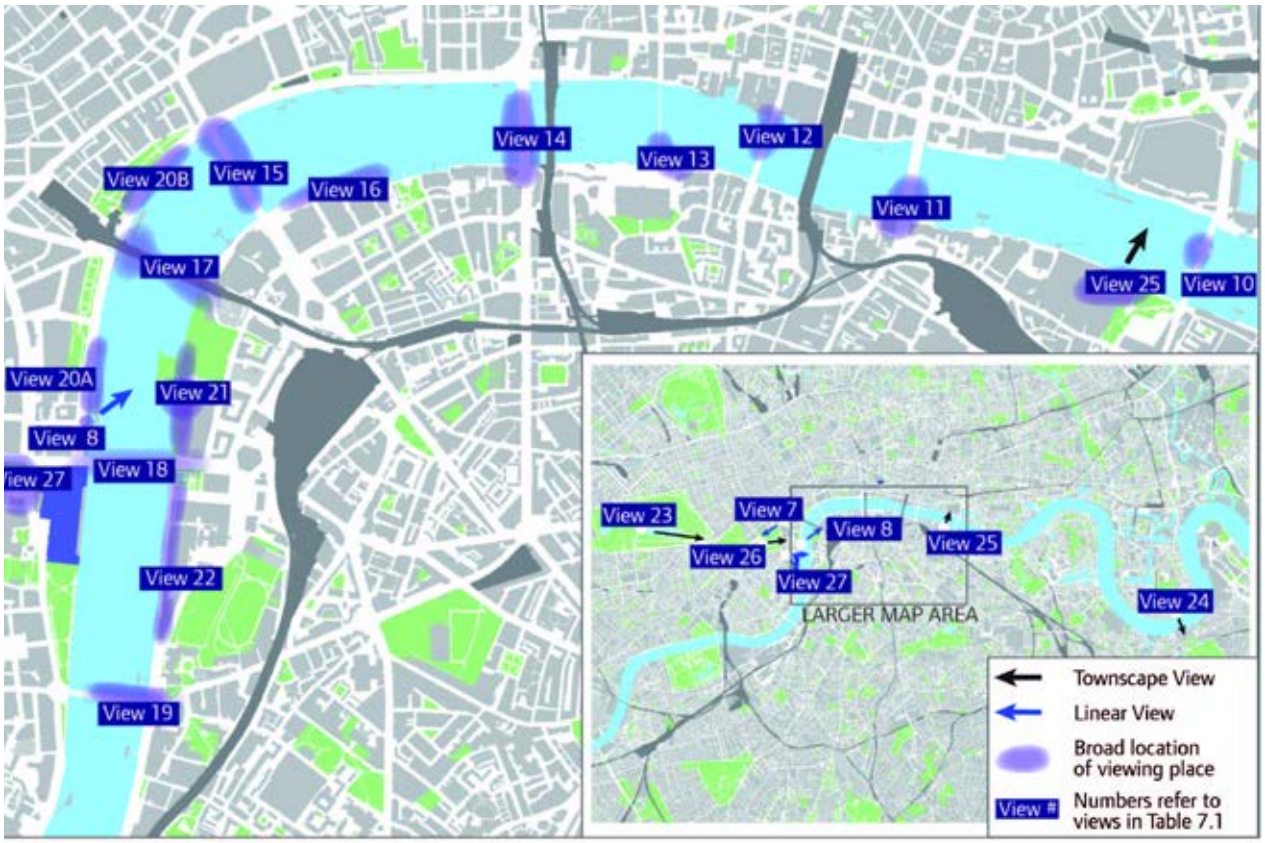
- 4 UNESCO World Heritage Sites, including the Royal Botanic Gardens, Kew, Maritime Greenwich, the Tower of London and the Palace of Westminster;
- 199 scheduled monuments, including over one quarter (57) in the City of London, 17 in Croydon and 16 in Harrow;
- Over 150 registered parks and gardens;
- 1 registered battlefield, London Borough of Barnet;
- 18,912 listed buildings (591 Grade I, 1,394 Grade II* and 16,927 Grade II); and
- Over 1,000 Conservation Areas.

Protected views

5.21.4 There are 27 designated views in the London Plan comprising 3 types; London Panoramas, River Prospects and Townscape Views. These views include significant buildings or urban landscapes that help to define London at a strategic level. The Mayor seeks to protect the composition and character of these views, particularly if they are subject to significant pressure from development. New development will often make a positive contribution to the views however, in other cases development may compromise the setting or visibility of a key landmark.

5.21.5 The majority of views are focused along the river Thames, see figure 5.52.

Figure 5.52: River Prospects



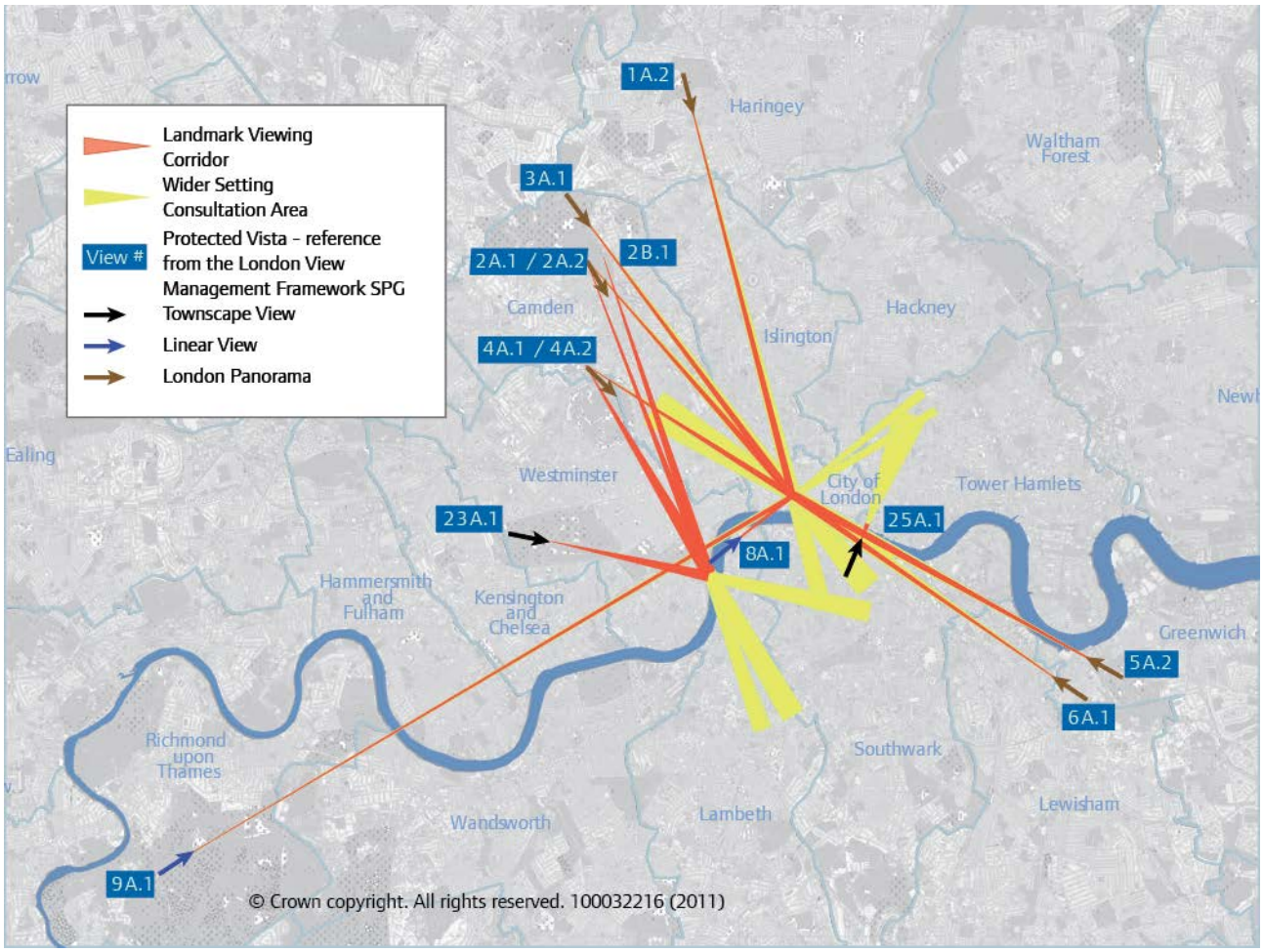
London Plan 2016

[217] Mayor of London (2016), The London Plan, GLA

5.21.6 Within some views, a Protected Vista to a strategically important landmark (St Paul's Cathedral, the Palace of Westminster and the Tower of London) is also defined. These views have stronger protection than the other types of views in that a height threshold for development is defined directly between the viewing point and the strategically important landmark (Landmark Viewing Corridor). Figure 5.53 shows these Protected Vistas.

5.21.7 In addition to strategic views, London boroughs also define views that are of local importance.

Figure 5.53 Protected Vistas



London Plan 2016

Heritage at Risk

5.21.8 The amount of heritage at risk provides one indication as to how the historic environment is being managed. As shown in the Figure 5.54 from the London Plan Annual Monitoring Report for 2014-15, designated assets at risk from neglect or decay in London in 2015 included 62 conservation areas, 492 listed buildings, 31 scheduled monuments and 9 registered parks and gardens. This makes up 12.2 per cent of the total 5,478 national designated assets at risk. The number of assets at risk in London has reduced since 2014 with 4 fewer designated assets at risk in 2015 than in 2014.

Figure 5.54 Heritage at Risk - Number and condition of designated heritage assets

	2011		2012		2013		2014		2015	
	No.	% at risk	No.	% at risk	No.	% at risk	No.	% at risk	No.	% at risk
World heritage sites	4	0	4	0	4	0	4	0	4	0
Listed buildings#	18,745	2.53	18,854	2.8	18,872	2.7	18.896	3	18,936	2.59
Conservation areas	1,000	6.4	949	6.8	1,009	6.3	1,017	6.3**	1,021	6%**
Scheduled monuments	154	22.7	154	22.7	155	20.6	156	19.9	158	19.6
Registered parks and gardens	149	5.4	150	8	150	7.3	150	7.3	150	6
Registered battlefield	1	0	1	0	1	0	1	0	1	0

English Heritage

* designated by UNESCO

does not include places of worship

** 954 of the 1,021 conservation areas in London have been surveyed through the Conservation Areas at Risk survey and 62, or 6%, are considered 'at risk'.

5.21.9 In terms of decay, acidified air pollutants can accelerate the degradation of valuable buildings, especially cultural monuments such as older sandstone and limestone buildings. Other cultural monuments, such as rune stones and rock carvings, also display evidence of serious damage as a result of acidifying air pollutants.

5.21.10 London is a very dynamic, complex urban environment in which pressure for development is high. Due to this intense pressure, it is often the setting of heritage assets that are at most risk. Whilst all of London's World Heritage Sites are sensitive to development around them, the location of the Tower of London and the Palace of Westminster in the Central Activities Zone means their settings are under significant development pressures with both being opposite Opportunity Areas - Waterloo and London Bridge.

Key issues	• Heritage assets at risk from neglect, decay, inappropriate development and air pollution • Views and vistas to heritage assets are at risk from increased development pressures • Pressure of development on the settings of heritage assets.
Opportunities	London's heritage assets create the city's sense of place and provide richness in the urban fabric, as well as being an economic asset for the city, attracting tourists, businesses and their employees
Implications of the plans and programmes review	Conserve and enhance designated and non-designated heritage assets and their settings.
	
Suggested IIA Objectives	To conserve and enhance the existing historic environment, including sites, features, landscapes and areas of historical, architectural, archaeological and cultural value in relation to their significance and their settings.

5.22 Geology and Soils

The natural and man-made geological footprint of land

The variety of rocks, minerals, landforms, and natural processes, such as weathering, erosion and sedimentation that underlie and determine the character of the landscape and issues such as flood management and food-growing.

Geology and geodiversity

5.22.1 The underlying geology and the man-made substrates of former buildings and demolition rubble that overlays much of London's underlying geology can have a profound effect on matters such as sub-surface hydrology and the types of landscapes that can be created, managed and maintained in the urban environment. London has a range of distinctive natural landscapes shaped by geological processes, such as undulating chalk downlands in south London and the river terraces of north London.[218]

5.22.2 London's geological sites are protected through their designation as Sites of Special Scientific Interest (SSSIs), Regionally Important Geological Sites (RIGS) or Locally Important Geological Sites (LIGS). There are seven geological SSSIs in London including Abbey Wood, Wansunt Pit, Elmstead Pit, Gilbert's Pit, Harefield Pit, Harrow Weald and Hornchurch Cutting. Four are in favourable condition and three are in unfavourable condition.[219]

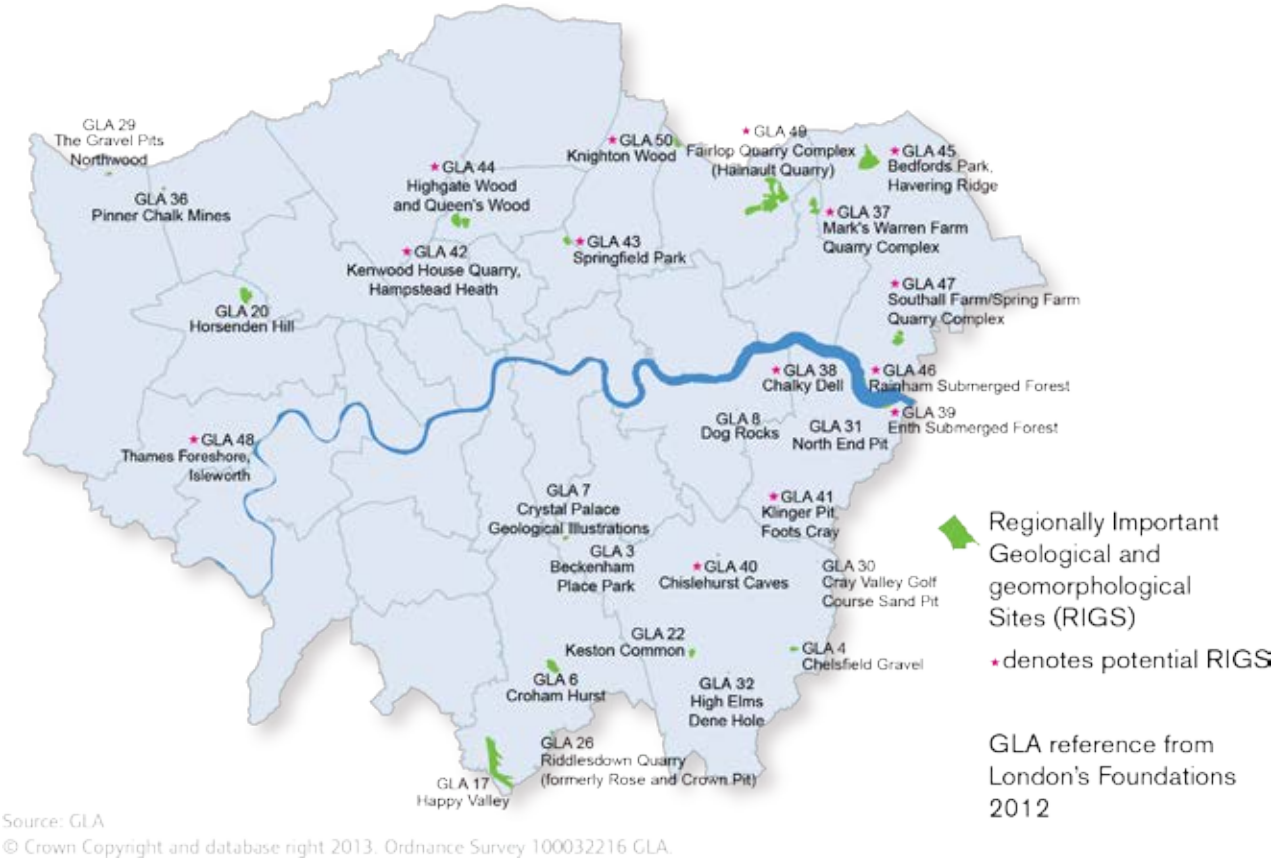
5.22.3 RIGS complement the SSSIs coverage and are the most important places for geology and geomorphology outside the statutory network. Existing RIGS and potential RIGS in London are shown in Figure 5.55.

5.22.4 Sustainable conservation, management and interpretation of London's underlying geology is important as they provide an important resource for education and research. Understanding underlying geology helps to ensure the development of techniques of construction and land management that ensure the most sustainable approaches to development are taken.

218 Capita Symonds (2012) London Geodiversity Action Plan 2014-2018

219 Ibid

Figure 5.55: Regionally Important Geological and geomorphological Sites (RIGS), 2013



GLA and London Geodiversity Partnership, 2012

Soils

5.22.5 Soil is a fundamental natural resource and plays an important role in urban areas in supporting food growing, improving drainage and can help shape the quality of London's green spaces. Soil degradation over time from erosion, organic matter decline, pollution, compaction and direct loss caused by surface sealing by development can result in such important functions being lost. Pressure on soils is likely to increase in the future with expected population growth and needs to be managed carefully during construction and development to avoid further soil degradation.

5.22.6 Some soils in London have high levels of contamination from substances that are a legacy of former industry and the incorporation of rubble and waste into soils as a consequence of cyclical regeneration and renewal of London's built environment. This includes industrial land such as old gas works, chemical plants, oil refineries, petrol stations, metal works and munitions factories as well as former landfills, waste handling and disposal facilities. Contamination can also occur through the use of toxic materials by the transport industry, including fuel and oil spills from motor vehicles, and chemicals used for the preservation of wooden railroad ties.

5.22.7 Risk of increased soil degradation is often highest during construction of new developments or infrastructure, for example, through compaction from machinery use and risk of erosion when left exposed to wind and rain.

5.22.8 Some of London's larger brownfield sites may be contaminated by past land use practices. Contamination can pose a significant risk to human health and the environment; however not all land that is contaminated presents an environmental or human health risk. The real or perceived costs of remedial treatment of land can act as a significant barrier to successful regeneration, particularly if contamination issues and their solutions are not identified early and integrated into the redevelopment of a site. Risks and uncertainty regarding land contamination may inhibit the redevelopment of brownfield land and in some cases this may contribute to long term dereliction. In addition, the costs for remediation can reduce the contribution available for social infrastructure and other obligations such as affordable housing or even require a public subsidy before development can be contemplated. An assessment of the risks associated with developing contaminated or potentially contaminated land is therefore essential to inform decisions about the appropriate level of treatment, clean up or remediation that may be required.

Key issues	• Threat to London's geodiversity as a result of increased demand for development • Modifications to the landscape and subsequently geomorphological processes • Remediation of contaminated land
Opportunities	• Focus on prevention and remediation of soil contamination • Co-ordinated approach to bring derelict land back into use with high abnormal costs
Implications of the plans and programmes review	Identified need to focus on prevention and remediation of environmental damage, including land contamination. Need to increase efforts to reduce soil degradation and remediate contaminated sites.
	
Suggested IIA Objectives	To conserve London's geodiversity and protect soils from development and over intensive use

5.23 Materials and Waste

Materials - new and used, suitable for the design, build, and operation of products, assets and infrastructure. These include primary raw materials such as aggregates and minerals as well as manufactured, reused, recycled and re-manufactured products

Waste – discarded materials substances or objects which have no further use in their present form that are prepared for reuse or recycling ahead of disposal. Disposal is the only option for some hazardous or contaminated wastes materials.

5.23.1 Waste is currently defined as anything that is discarded. In 2012 London produced c.15 million tonnes (mt) of waste and this comprised:

- 3.0mt (20 per cent) is Local Authority Collected Waste (LACW – also referred to in the London Plan as Household waste) – collected by or on behalf of London boroughs and disposed of by boroughs individually or collectively
- 4.7mt (32 per cent) is Commercial & Industrial Waste (C&I) waste from shops/offices/ restaurants – collected and disposed of by private sector waste contractors.
- 7.2mt (48 per cent) is Construction, Excavation and Demolition Waste (CE&D) – waste generated by development activity, and collected and disposed of by private sector waste companies[220]

5.23.2 Undertaking waste research for the GLA in 2014, SLR Consulting[221] found that in 2012 London was:

- dealing with almost half of its own waste within its boundaries
- exporting 7.97mt of waste, of which 3.95mt (49 per cent) went to landfill – 2.05 to landfill sites in the South East and 1.84mt to East of England

Wasteful economy increasing cost and environmental impact

5.23.3 Landfilling waste is expensive (£100 per tonne, £84 of which is the landfill tax rising to £86 from April 2017), unpopular with those receiving it (particularly in the South and South East) and increasingly a short-medium term solution. Landfills receiving London's waste are expected to close by 2025 and they are not being replaced. London's local authority collected waste sent to landfill and incineration in 2013/14 produces around 252,000 tonnes of lifecycle CO_2eq emissions. Alternatively London's waste sent for recycling that year saved 95,000 tonnes of lifecycle CO_2eq emissions, as a result of avoiding emissions that would have otherwise happened from manufacturing original materials.[222]

5.23.4 The cost of managing London's waste is estimated to be more than £2b per year, including around £720m on managing waste in the control of local authorities.223 Waste costs are expected to increase without a step change in waste reduction and performance improvement in recycling. London's waste presents significant economic and social opportunities. Managing

220 Mayor of London, London Plan Annual Monitoring Report 2014/15

221 SLR, Global Environmental Solutions – Waste Arising Study Review for the Revised London Plan, 2014

222 Greenhouse gas emissions performance standard for London's local authority collected waste – 2014/15 update, GLA April 2016.

223 GLA Waste modelling 2016/17. Data available on request.

more waste locally by optimising existing waste facilities and building new reuse and recovery facilities, can deliver benefits to local communities in the form of new products, employment and low carbon energy. Research224 undertaken for the GLA and the London Waste and Recycling Board (LWARB) estimate London transitioning to the circular economy through waste reduction and significant improvement in reuse and recycling performance could bring £7bn of benefits to London and generate 12,000 new jobs by 2036.

Increasing demand for land putting waste sites at risk

5.23.5 Waste sites are safeguarded under London Plan policy, however many are at risk due to increasing demand for other land uses in particular for new housing, particularly in north and east London. Between 2010 and 2015, a total of 525ha of industrial land was transferred to other uses or 105ha per annum compared with the London Plan/SPG recommended rate of release of 36.6 ha per annum.[225] Loss of industrial land in excess of London Plan release benchmarks could have impact on long term strategic site availability for managing waste.

5.23.6 This is best understood by viewing the London waste map by overlaying the planned Housing zones and Opportunity Area at https://maps.london.gov.uk/webmaps/waste/. Some sites have already been lost housing development with replacement capacity elsewhere yet to be found. Identifying and safeguarding sites for waste allows for local waste management solutions to be found, including opportunities for reorientation and intensification to maximise these assets and free up underutilised sites for other uses. Boroughs cannot be forced to use these, particularly if more affordable solutions exist elsewhere.

Low recycling performance against stretching recycling targets

5.23.7 London's recycling rate for local authority collected waste has increased steadily from 2002 to 2012, reaching 30 per cent in 2012 and remaining therefore the past four years against a 2015 target of 45 per cent. This is the lowest in England (average 44 per cent).[226] Recycling performance in flats is particularly low, estimated to be around 10 per cent.

5.23.8 London did not meet the Mayor's 45 per cent municipal waste recycling performance by 2014/15 and will need significant improvement to meet targets to recycling 50 per cent by 2020 and 60 per cent by 2030. A number of contributing factors have been identified for this performance including;

- London being a highly diverse and transient city which can make communicating recycling services difficult
- There are 33 waste collection authorities each delivering their own set of services depending on specific circumstances. This can make things confusing particularly when residents move between boroughs
- London is a rapidly growing city against a backdrop of limited suitable available space for new housing. Around half of the housing stock is high rise flatted accommodation with limited easily accessible storage space for recycling compared to separate households served by kerbside collection services

224 Towards a circular economy, LWARB 2015 and Employment and the circular economy – job creation through resource efficiency in London, LWARB 2015. Accessed at http://www.lwarb.gov.uk/what-we-do/accelerate-the-move-to-a-circular-economy-in-london/

225 AECOM "Industrial Land Supply and Economy Study 2015", published GLA March 2016

226 Local authority waste statistics: https://www.gov.uk/government/statistical-data-sets/env18-local-authority-collected-waste-annual-results-tables

- London has less garden space than other regions, producing less garden waste that could contribute to recycling performance
- A continued focus on weight based recycling targets becoming harder to reach with light weighting of materials and less paper in the waste stream with an increasing transition from the paper to digital economy.

5.23.9 The Mayor is not a waste planning authority, a waste collection authority or a waste disposal authority. In London, these statutory responsibilities lie with boroughs, either individually or acting together jointly, and with statutory waste disposal authorities. However, the Mayor is able to exercise strategic oversight through ensuring that:

- borough waste strategies and contracts are in general conformity with his Mayor's Municipal Waste Management Strategy
- borough waste plans are in general conformity with the London Plan
- waste facilities generating energy from waste meet the Mayor's London Plan carbon intensity floor policy

5.23.10 The Mayor's powers to directly influence waste contracts are limited to the boroughs' contracts for LACW which should be in general conformity with the Mayor's Municipal Waste Strategy. Waste contracts do not respect administrative boundaries and waste flows across boundaries (some of London's waste is currently dealt with in Germany and the Netherlands). Waste contracts are regulated under EU procurement open market rules, awarded on cost and frequently let for long periods. In practice, Mayoral intervention focusses on whether contracts support achievement of the Mayor's reduction, recycling and CO_2 reduction targets – not regional self- sufficiency targets. The Mayor chairs the London Waste and Recycling Board (LWARB). He can influence waste management in London by helping to fund new facilities in London, supporting borough recycling initiatives and spreading best practice.

5.23.11 London Plan Policy 5.16 sets these recycling targets:

- LACW – exceeding 45 per cent recycling/composting levels by 2015, 50 per cent by 2020 and aspiring to reach 60 per cent by 2031
- C&I – exceeding 70 per cent recycling/composting levels by 2020
- CE&D – exceeding 95 per cent recycling and reuse by 2020

5.23.12 Current waste recycling performance (2014/15) is:

- LACW – 34 per cent
- C&I – 52 per cent
- CE&D – 85 per cent

5.23.13 The Mayor's 65 per cent recycling target by 2030 will be met if the current London Plan's 2031 targets of 60 per cent LACW and 70 per cent C&I are fulfilled. To achieve this it will be necessary to retain the focus on boosting recycling performance through local authority and commercial waste services, and to ensure that London has sufficient waste infrastructure it can access both in and outside of London.

Waste Apportionment

5.23.14 Waste apportionment is a long-standing waste planning methodology which recognises that for any given area, waste arisings (the amounts of waste produced) do not always match the

land available for waste management (processing, transferring, landfilling). This mismatch is particularly acute in London. Waste apportionment in the current London Plan redistributes waste to be managed around the capital, in effect shifting the balance of waste management activity from central/inner to outer London. Before apportionment can take place, arisings for LACW and C&I are calculated, and the London totals are then distributed along sustainability principles through an apportionment model to each borough for each milestone year. Arisings expected to increase with major construction projects including Crossrail 2, Thames Tideway Tunnel, Bakerloo line extension as well as Opportunity Areas and 31 Housing Zones. To support this process, London Plan Policy 5.17 Waste Capacity requires boroughs (individually or in partnership with others) to allocate sufficient sites to deal with their apportionment – and not their arisings.

5.23.15 The Government's policy approach to waste apportionment has changed recently. In October 2014, PPS10 (previous national guidance on waste) was rescinded and replaced by the National Planning Policy Framework (NPPF) and its attendant National Planning Practice Guidance (NPPG). For London, the NPPG's approach to waste is more subtle than that of the PPS, with apportionment no longer set as an absolute requirement. Boroughs still have to plan for the management of their waste but are instead advised to 'have regard' to London Plan apportionments. Boroughs' local waste plans will still need to be in general conformity with the London Plan. In addition, Government guidance now expects waste planning authorities to allocate sufficient land to deal with a much wider set of waste streams, seven in total (up from two) – LACW, C&I, CD&E, Hazardous, Waste Water, Low level Radioactive and Agricultural.

5.23.16 The London Plan's existing apportionment methodology was developed in 2006 by Jacobs for the GLA and has remained unchanged since – that is to say recent iterations of the Plan have held steady the proportion of London's waste apportioned to each borough, though the actual tonnages apportioned have been refreshed each time in line with updated arisings data. It has been agreed updated arisings forecasts for the LAC, C&I, CD&E and Hazardous waste streams should be prepared for the new London Plan, and these four waste streams should be considered to be apportioned through an updated apportionment model. A technical brief has been prepared for this work, and procurement is underway (December 2016).

5.23.17 In his manifesto the Mayor states he sees waste as "an opportunity to create jobs in reuse, repair, re-manufacturing and materials innovation". It is considered that 'Circular Economy' principles are a good match for meeting, and even exceeding, the Mayor's aspirations in this field. Under a Circular Economy, materials and assets are kept at their highest value at all times for as long as possible – and waste is avoided through sourcing reused and reusable materials. The potential benefits of a Circular Economy extend far wider than waste reduction to include job creation, economic growth and carbon reduction.

Non-efficient movement of freight

5.23.18 Almost 90 per cent of all freight lifted in London is moved by road, with river (5.3 per cent), rail (4.3 per cent) and air (1.1 per cent) transport accounting for the remainder. However, rail and water transport are being increasingly used for the excavation of material from major transport infrastructure projects in London. Crossrail aims to ensure that 85 per cent of the

excavated material is transported by rail or water. The Lee Tunnel sewage project is also making use of river transport for excavated material as well as the Thames Tideway sewage project.[227]

5.23.19 Freight activity across London has been increasing. By 2014, LGV vehicle kilometres and HGV vehicle kilometres were 20 per cent and 4 per cent higher respectively than they were in 1994-1999. This growth is expected to continue.[228]

5.23.20 Key factors leading to increased freight vehicle kilometre include:

- Increased business-to-customer (e.g. e-commerce and click and collect etc.) deliveries;
- Increased business-to-business (e.g. just-in-time) deliveries which has reduced stock-holding capacity;
- Reduced number of distribution centres due to release of industrial land to other uses;
- Relocation of freight / logistic hubs to areas with good highway accessibility e.g. motorway hubs / M25;
- Growth in sub-contracting / self-employment due to industry fragmentation of supply chain to create more flexible and agile supply chains;
- Lengthening of supply chains as a result of broadened customer demand for choice.

5.23.21 These trends are expected to continue, and unless other measures are undertaken to reduce freight vehicle kilometres (e.g. consolidation of practices, substitution of postal deliveries, new methods of delivery), London will see an increase freight traffic and a higher proportion of van traffic resulting in less efficient utilisation of road capacity, greater road congestion (and costs) and further worsening of air quality issues.

227 University of Westminster (2014) London Freight Data Report: 2014 Update. Prepared by Julian Allen, Michael Browne and Allan Woodburn for Transport for London. 1 December

228 University of Westminster (2014) London Freight Data Report: 2014 Update. Prepared by Julian Allen, Michael Browne and Allan Woodburn for Transport for London. 1 December

Key issues	• Increasing pressure on waste sites and infrastructure including wharves in London to meet demand • Wasteful economy increasing disposal costs and climate change impact • Low municipal waste recycling rate and inconsistent recycling service provision falling short of stretching recycling targets • Fragmented waste governance resulting in inconsistent recycling service provision and performance across London • Likely increase in waste arisings in particularly construction materials to meet the needs of London's growing population
Opportunities	• Reducing waste and increasing recycling performance will lower London's waste management bill and environmental impact • Managing waste more locally by optimising existing facilities and building new reuse and recovery facilities, will deliver benefits to local communities in the form of new products, employment and low carbon energy.
Implications of the plans and programmes review	A need to apply principles of circular economy when aiming for waste reduction, reuse, re-manufacturing and recycling in all construction and operational practices. Review of London's waste management capacity projected alongside expected waste arisings to inform infrastructure gaps and need.
	
Suggested IIA Objectives	To keep materials at their highest value and use for as long as possible. To significantly reduce waste generated and achieve high reuse and recycling rates

5.24 Noise and Vibration

Unwanted sound and vibration that causes disturbance

5.24.1 There is no single definition of noise. Noise can be defined as unwanted sound. Ironically, it is often referred to as the silent polluter in that its effects can be hard to establish. This is because the problem is psychological: differences in perception such as the type or loudness of music.

5.24.2 Noise disturbance can be associated with health impacts such as sleep disturbance, stress, anxiety, high blood pressure, poor mental health in adults and school performance and cognitive impairment in children. The adverse impacts of that stress are clearly documented, resulting in higher rates of cardiovascular disease and deteriorating mental health.

5.24.3 A level of 57dB represents the 'onset of significant community annoyance' and in London alone two million people (42 per cent of the population) are exposed to more than 55dBLden.[229] Different groups of people are affected differently, for example younger people are differentially affected by noise, particularly at night, as they spend more time in bed than older people.

5.24.4 Three types of noise are defined in the Noise Policy Statement for England (NPSE) (March 2010). These are:

- environmental noise - which includes noise from transportation sources;
- neighbour noise - which includes noise from inside and outside people's homes; and
- neighbourhood noise - which includes noise arising from within the community such as industrial and entertainment premises, trade and business premises, construction sites and noise in the street.

5.24.5 London is becoming an increasingly noisy city .The main source of ambient noise in London is road traffic, followed by rail. In urban areas, most vehicle noise comes from engines because, at low speed, engine noise dominates over the noise generated by tyres and road surfaces. However other activities such as construction, busy high streets, or a greater vibrant night time economy will also impact noise levels.

5.24.6 Figure 5.56 identifies the number of people exposed to roadside and railway noise above the threshold in London in 2011.

Figure 5.56: Number of people exposed to roadside and railway noise above threshold in London, 2011

Type	>55dB	>65dB	>75dB
Roadside	2,378,200	1,027,200	99,200
Roadside – night	1,665,400	649,400	900
Railway	252,200	158,100	15,200

229 GLA Economics (2016) Economic Evidence Base

Type	>55dB	>65dB	>75dB
Railway – night	388,700	95,100	6,400

Defra

5.24.7 Respondents to the TfL Perceptions of the Travel Environment Survey (2012) were asked to consider noise generated from different transport modes in their area, the extent to which they are disturbed by transport-related noise and the impact this has on their quality of life. In general, satisfaction with the level of transport related noise has shown a steady increase over recent years; achieving a mean satisfaction rating of 76 out of 100 in 2012. There has also been a significant increase in the proportion of Londoners giving a very high satisfaction rating; this is up from 31 per cent in 2011 to 35 per cent in 2012. However, the most common cause of noise disturbance remains road traffic, with 41 per cent of Londoners disturbed by this in 2012.

5.24.8 Aviation noise also affects many people in London. A 2013 report from TfL noted that 766,100 people lived within the ≥55 Lden contour of Heathrow and at least another 17,800 people living within the ≥55 Lden contour of London City airport. This indicates that aviation noise is a significant environmental issue in London.[230] The number of flights, particularly at night, can affect people's experience of uncomfortable levels of noise.

5.24.9 In August 2016 TfL launched the 24 hour tube and there are plans to extend these to other parts of the network. This will introduce noise at times of the day that were previously less noisy, potentially impacting on sleep patterns for some residents.

5.24.10 The Environmental Noise (England) Regulations 2006 require Defra to produce noise action plans for large urban areas. Defra established a procedure by which boroughs could approach them to designate quiet areas in their boroughs. Consultation with the Mayor is not required so the Mayor would be unaware if any boroughs approach Defra to define quiet areas. Providing residents with quiet areas will reduce stress levels and improve mental health and it will be a function of the planning system to ensure that any designated or candidate quiet areas retain this characteristic as new development comes forward.

5.24.11 Changes of land uses will result in different patterns of noise. Between 2001 and 2015 1,306ha of industrial land was lost (16 per cent of the total) to other uses (residential, offices, retail, leisure etc).[231] These newer uses are often less 'noisy' than what was there previously. However, complaints about noise tend to rise due to the proximity of competing uses. Considering the environment into which new development will be located is an important function of the planning system and noise will obviously be a key determinant. Solutions such as triple glazing and sealed windows may 'solve' the problem but could offer poor residential amenity to new residents. The NPPF (March 2012, para 123) is clear that existing businesses should not "have unreasonable restrictions put on them because of changes in nearby land uses since they were established."

230 Ibid

231 AECOM Industrial Land Supply and Economy Study 2015, published GLA March 2016

Key issues	• Parts of the population are exposed to roadside and railway noise that exceeds the threshold • Increasing noise levels from night time economy, freight movement and deliveries associated with mixed use development • Lack of quiet and tranquil places for relaxation and enjoyment
Opportunities	• Reduce number of people exposed to high levels of noise from roads, railways and aircraft • Use of insulation to reduce noise disturbance • Minimise locating noisy activities adjacent to noise sensitive receptors
Implications of the plans and programmes review	A need to minimise noise and vibration levels and the number of people exposed to high levels of noise from development, activities and use.
	
Suggested IIA Objectives	To minimise noise and vibration levels and disruption to people and communities across London and reduce inequalities in exposure

6 KEY ISSUES

This chapter provides a summary of the key issues identified across sustainability topics and their likely evolution in the absence of the new London Plan.

6.1 KEY ISSUES FOR THE LONDON PLAN

6.1.1 Key issues for the new London Plan are summarised in Figure 6.1.

Figure 6.1: Key issues

Topic	Key Issues	Evolution in the absence of the new London Plan
Demographic Change	• Significant increase in the population • Young profile • Ageing and more diverse population • Uncertainty of the composition of the population, including migration patterns	Increase in population and its composition will lead to increased pressure and competition for land for different types of development.
Social Integration and Inclusion	• Increasing aging and diverse population • Persistent causes of Multiple Deprivation • High levels of poverty in some parts of London, with rates of child poverty continuing to exceed national levels • Discrimination • Isolation • Population churn and impact on community cohesion • Gentrification	Benefits / dis-benefits of growth will affect groups of people differently.

Topic	Key Issues	Evolution in the absence of the new London Plan
Health and Health Inequalities	• Increasing health inequalities across the population • Londoners are living with complex health needs for longer period • Increasing and changing pressure on the health services and service provision • Differentials in life expectancy and healthy life expectancy across London • Widening social inequalities • Low levels of physical activity and increasing obesity levels across the population	• Obesity is a growing problem and is likely to continue. • Increased pressure on the health sector to deal with complex heath needs.
Crime, Safety and Security	• Increased threat of major incidents and unplanned events • Perceptions of lack of safety • Fear of crime creating barrier to activities leading to increased social isolation • Vulnerability of different groups of people at greater risk of crime • More vibrant night-time economy leading to increased risk of crime	Social isolation of some groups are likely to increase as their perception or fear of crime or anti-social behaviour will make them reluctant to go out and use facilities, services, including shops, green spaces, libraries, etc or the public transport, particularly at certain times of day.
Housing	• Lack of affordable housing • Under-supply of homes which meet the needs of Londoners (size, type, tenure) • High level of approvals, low level of completions • Increasing costs of housing relative to wages • Homelessness • Implications from major Government reforms to housing legislation and policy	The challenges to meet housing demand (including total requirements, size, type, tenure) are likely to increase.

Topic	Key Issues	Evolution in the absence of the new London Plan
Sustainable Land Use	• Inability for London to accommodate required growth within its boundaries • Unsustainable patterns of development within and across London's boundaries • Higher densities development • Competing pressures for land impacts on ability to provide social, physical and environmental infrastructure • Non-efficient use of land • Integration of land use and transport • Spatial impact and consequential development pressures resulting from decision on London's future airport capacity	Pressure for development and competition between different uses will increase, potentially leading to unsustainable patterns of use.
Connectivity	• Poor orbital connectivity by all modes of public transport in outer London • Poor connectivity across the River Thames in east London • Reduced transport connectivity across London as a result of congestion and overcrowding on services and roads • Reduced connectivity across London by walking as a result of congestion and overcrowding on pavements and footpaths • Increasing airport capacity will impact on the spatial and economic fabric of the city • Deficiencies in access to open space • Poor connectivity to green infrastructure for all	The issues of poor connectivity are likely to deteriorate further as a result of increased development or pressure on the transport system or public realm.
Accessibility	• Poor design of the built environment • Barriers to using public transport	Accessibility of the built environment and public transport may not improve or could deteriorate.

Topic	Key Issues	Evolution in the absence of the new London Plan
Economic Competitiveness	• Changing global economy • London's Productivity • Potential loss of agglomeration benefits • Increased pressure on London's infrastructure as a result of growth and increased economic activity • Risk that infrastructure could constrain economic growth • Lack of high speed and efficient connectivity (digital) across all parts of London • Loss of employment land as a result of increased pressure for housing • Insufficient amount of floorspace available to meet identified needs • Affordability of business space, particularly for small and medium sized enterprises and start-ups • Impact of mixed use development – night-time economy and residents • Impact on town centres as a result of a reduction in demand for retail floorspace	Without investment in London's infrastructure and land use policies to ensure the sufficient provision of employment and business space in terms of type, location and cost, there is a threat to London's position as a leading global city as well as the ability of local economies to serve local populations.
Employment	• Disparities between rates of employment among London's residents • Disparity between wages and cost of living • Lack of diversity in jobs provided • Growth of low paid employment and zero hours contracts	• Disparities between wages and cost of living and lack of diversity in jobs could be a further threat to the resilience of the London economy and objectives to provide opportunities for all. • There may also be impacts on to London's competitiveness in terms of its ability to attract a flexible labour force.

Topic	Key Issues	Evolution in the absence of the new London Plan
Education and Skills	• Insufficient school places to meet growing needs • Large variations in educational performance across London • Lack of support for transitions from education to work, especially for young women • Maintaining London's status as an international city of learning, research and development	• Inability of Londoners to access jobs may compromise London's economic competitiveness • Lead to increased levels of social deprivation and poverty
Culture	• Loss of pubs, cinemas, live music and other cultural venues • Inequality in access to cultural venues • Low levels of participation • Regulation/bureaucracy stifles creativity / talent development • Lack of community led engagement in planning and development schemes for local area • Despite the wide ranging economic and social benefits it brings, culture is a low priority on national and local development agendas. • Lack of funding opportunities / budget reductions	Continued loss of culture infrastructure leading to a lack of provision and participation.
Air Quality	• High levels of NO_x, PM_{10} and $PM_{2.5}$ emissions from road transport • Little to no predicted reduction in PM_{10} and $PM_{2.5}$ emissions from road transport between 2013 and 2030 • London is not compliant with legal limit values for NO_2 • Large numbers of the population are exposed to levels of NO_2 above the EU limit value • Exposure to poor air quality is unequal across London and some areas are more exposed to poor air quality than others	• Without additional measures to tackle the issue of air quality, London will continue to be non-compliant with legal limits with higher levels of exposure to pollutants. • Increasing economic growth and development will lead to increased emissions from construction, buildings, car use and congestion leading to localized air quality issues.

Topic	Key Issues	Evolution in the absence of the new London Plan
Climate Change	• London is not currently meeting the Mayor's CO_2 emission target • Transport will continue to contribute significantly to CO_2 emissions • CO_2 emissions from buildings continue to rise • London is no longer a global leader in terms of transitioning towards a low carbon economy • Increase in extreme weather events such as flood risk, drought and heat risk and associated impacts • Changing demographics such as an ageing population and more under five year olds increasing the number of potentially vulnerable people. • Design of building causes a larger variation in temperature exposure than the Urban Heat Island (UHI) effect	• The Mayor's CO_2 emissions targets are likely not be met if additional reduction measures are not put in place by the London Plan and other Mayoral strategies. • Climate change effects will continue including increased temperatures, potential droughts, severe storms and flooding. • The effects of climate change will not be experienced equally among London's population and are likely to increase existing inequalities.
Energy Use and Supply	• Relatively high and ineffective use of fossil fuels contributing towards London's GHG emissions. • Insufficient low carbon energy supply • High number of Londoners in fuel poverty. • Energy-inefficient building stock & transport. • Un-utilised local energy resources • Need to manage peak electricity demand	Without additional measures energy use is likely to increase – reducing London's sustainability
Water Resources and Quality	• Need to reduce per capita water consumption • Need to plan for and deliver additional new water resources • Need to improve the quality of water in London's waterbodies • Need to improve the physical form of London's waterbodies	Increase in demand for water and deterioration of water quality.

Topic	Key Issues	Evolution in the absence of the new London Plan
Flood Risk	• Risk of flooding to property and people from river, surface water, tidal, sewer, ground water and reservoir • Increase in run-off and potential contamination and disruption of flows	Without additional measures to prevent development in flood risk areas and mitigate against increasing flood risk, the number of people/properties at risk will increase
Natural Environment and Natural Capital	• Loss of biodiversity and reduced ecological resilience as a result of increased pressure for development and intensification of existing development • Decrease in Areas of Deficiency in Access to Nature and increased recreational pressure on existing habitats and green spaces • Impact of climate change and threat of new pests and diseases	• Increased development pressure will reduce the amount of green space available and reduce the quality of existing - with no funding / investment). • There will be an increase in air pollution hence causing indirect negative effects on air and water quality leading to deterioration of natural and built environment.
Townscape and Landscape	• Poor quality public realm in some parts of London which can discourage active travel • Deficiencies in open spaces in some parts of the city • Risk of poor design, lack of legible neighbourhoods and sense of place	Design challenges of the built / natural environment / public realm may not be consistently addressed.
Historic Environment	• Heritage assets at risk from neglect, decay, inappropriate development and air pollution • Views and vistas to heritage assets are at risk from increased development pressures • Pressure of development on the settings of heritage assets.	Heritage assets are likely to continue to be preserved through legislation. However it is their settings which will continue to be most at risk from increased pressure for development.
Geology and Soils	• Threat to London's geodiversity as a result of increased demand for development • Modifications to the landscape and subsequently geomorphological processes • Remediation of contaminated land	• Greater impacts on geology and soils from development • More innovative solutions to the reduce the impact of the costs of remediation are also needed

Topic	Key Issues	Evolution in the absence of the new London Plan
Materials and Waste	• Increasing pressure on waste sites and infrastructure including wharves in London to meet demand • Wasteful economy increasing disposal costs and climate change impact • Low municipal waste recycling rate and inconsistent recycling service provision falling short of stretching recycling targets • Fragmented waste governance resulting in inconsistent recycling service provision and performance across London • Likely increase in waste arisings in particularly construction materials to meet the needs of London's growing population	The amount of materials and waste produced is likely to increase with increased population / growth and no additional measures to help reduce it.
Noise and Vibration	• Parts of the population are exposed to roadside and railway noise that exceeds the threshold • Increasing noise levels from night time economy, freight movement and deliveries associated with mixed use development • Lack of quiet and tranquil places for relaxation and enjoyment	There is likely to be an increase in the population exposed to noise or noise related activity.

7 INTEGRATED IMPACT ASSESSMENT FRAMEWORK (TASK A4)

This chapter introduces the IIA assessment framework, against which the sustainability of the proposed policies within the new London Plan will be tested. It is structured around sustainability themes and complemented with the assessment guide questions which have been colour coded to represent different elements of the IIA assessment.

7.1 OBJECTIVES AND QUESTIONS

7.1.1 An important element of the IIA process is the determination of IIA objectives. An objective is a statement of what is intended, specifying a desired direction of change. The achievement of objectives is normally measured by using indicators and need to be specific and measurable. IIA objectives are used to show whether the objectives of the London Plan are beneficial for the achievement of sustainable development, to compare the sustainability effects of alternatives, or to suggest improvements.

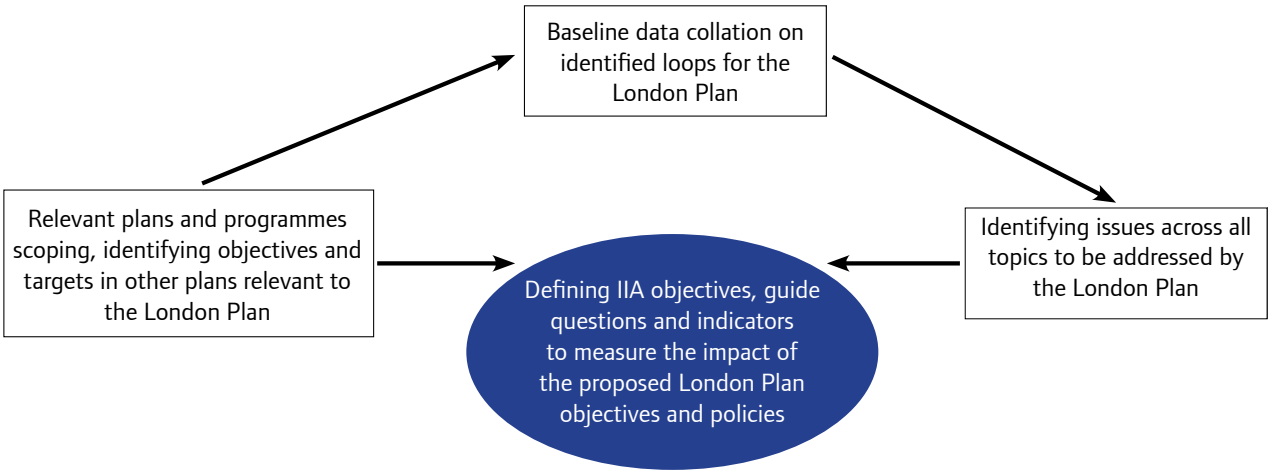
7.1.2 An objectives-led approach is considered to be most appropriate to assessing the London Plan as it enables assessment of the extent to which each aspect of the London Plan contributes towards delivery of each objective as opposed to just meeting prescribed targets. Thus a more qualitative approach is adopted that allows for a better identification and description of effects rather than attempting to assign a quantitative value, which is more limited and restrictive at this strategic level.

7.1.3 Draft IIA objectives have been developed in accordance with:

- The findings from the review of relevant plans and programmes and the baseline data (summarised in Chapter 4 [Appendix B] and Chapters 5 and 6);
- Consultation within the GLA and TfL (Steering Group)
- Feedback from key stakeholders following a workshop held in June 2016.

7.1.4 IIA objectives align with wider international, national and local environmental, health, social and economic policy objectives and form the basis of what the new London Plan and other Mayoral strategies will be appraised against. A diagram showing the process of the determination of IIA objectives is presented in Figure 7.1.

Figure 7.1: The process of the determination of IIA objectives.



7.1.5 It is intended that the IIAs for all Mayoral strategies will be assessed against the same IIA objectives, with guide questions being different and relevant to the strategy being assessed. During the preparation of each of the individual strategies, it may be determined that particular objectives are scoped out as they are deemed as not being applicable to the scope and intent of the strategy. In addition, the order of the IIA objectives may vary between the IIAs of the strategies to reflect the structure of the baseline for that particular strategy.

7.1.6 Alongside each draft IIA objective is a set of guide questions that will be used to assess whether the London Plan will help to achieve or conflict with the objective. These may be revised slightly as the strategy evolves, but will be based on the draft questions presented in Figure 7.3.

7.1.7 Guide questions are coloured to indicate which of the elements of the IIA the question addresses:

- Green = SEA
- Purple = EQIA
- Orange = HIA
- Red = HRA
- Blue = SA (Economic)
- Yellow = CSIA

7.1.8 A total of 24 IIA objectives have been derived for the assessment of the new London Plan. Figure 8.2 below shows the link between SEA Directive issues and IIA objectives (detailed list of the IIA objectives is presented in Figure 8.3).

Figure 7.2: Link between SEA Directive Issues and IIA objectives

SEA Directive Issue	IIA Objectives
Material Assets	5, 6, 23
Climatic Factors	14, 15, 16, 17, 19
Biodiversity	20
Fauna	20
Flora	20
Water	18
Soil	22
Air	14
Cultural heritage, architectural and archaeological heritage	13, 21
Landscape	7, 21
Population	2, 3, 9, 10, 12
Human health	3, 4, 8, 24

Figure 7.3: Integrated Impact Assessment framework

Topic	IIA objective	Assessment guide questions Will the strategy…? SEA, EQIA, HIA, HRA, SA CSIA
Equality and Inclusion	1. To make London a fair and inclusive city where every person is able to participate, reducing inequality and disadvantage and addressing the diverse needs of the population	• Reduce poverty and social exclusion? • Promote a culture of equality, fairness and respect for people and the environment? • Promote an inclusive design approach ensuring a barrier free environment for all, especially disabled people? • Provide opportunities for people to choose an active, fulfilling life? • Provide opportunities for Londoners to actively participate in the city's life, decision making and communities? • Provide opportunities for Londoners of every background to connect?
Social Integration	2. To ensure London has socially integrated communities which are strong, resilient and free of prejudice	

Topic	IIA objective	Assessment guide questions Will the strategy…? SEA, EQIA, HIA, HRA, SA CSIA
Health and health Inequalities	3. To improve the mental and physical health and wellbeing of Londoners and to reduce health inequalities across the City and between communities	• Improve access and equity of access to health and social care services and facilities? • Reduce differentials in life expectancy and healthy life expectancy across London? • Promote increases in physical activity, particularly in areas of health and social deprivation? • Reduce inequalities in levels of physical activity? • Improve the physical and mental health and wellbeing of communities? • Reduce inequalities in physical and mental health and wellbeing? • Support the provision of quality, affordable and healthy food?
Crime, safety and security	4. To contribute to safety and security and the perceptions of safety	• Reduce levels of crime? • Reduce the opportunity for crime and anti-social behaviour? • Create a travel environment that feels safe to all users during the day time and night time? • Increase security and resilience to major incidents? • Improve perceptions of safety and fear of crime to help remove barriers to activities leading to reduced social isolation?
Housing Supply, Quality, Choice and Affordability	5. To provide a quantum, type, quality and tenure of housing (including specialist and affordable provision) to better meet demographic change and household demand	• Help to facilitate the delivery of house building that meets the needs of Londoners? • Reduce homelessness and overcrowding? • Increase the range and affordability of housing? • Promote accessible and adaptable homes, improving choice for people who require them? • Improve insulation and energy efficiency in housing to reduce fuel poverty and ill-health? • Provide housing that encourages a sense of community and enhances the amenity value of the community?

Topic	IIA objective	Assessment guide questions Will the strategy…? SEA, EQIA, HIA, HRA, SA CSIA
Sustainable Land Use	6. Make the best and most efficient use of land so as to support sustainable patterns and forms of development?	• Make the best use of land through appropriate development on brownfield sites and use of existing transport network? • Ensure that higher densities development does not adversely impact on different groups of people? • Integrate land use and transport? • Promote regeneration and provide benefits for existing communities?
Design	7. To create attractive, mixed use neighbourhoods, ensuring new buildings and spaces are appropriately designed that promote and enhance existing a sense of place and distinctiveness, reducing the need to travel by motorized transport	• Conserve and enhance the townscape/ cityscape character? • Create and maintain a safe and attractive public realm which encourages people to walk and cycle? • Help to make people feel positive about the area they live in and promote social integration? • Encourage an inclusive design approach taking into account the needs of a variety of users • Help to improve the wider built environment and create a sense of place and 'vibrancy'? • Promote high quality design and sustainable design and construction methods? • Improve legibility and ease of use of the built environment for people with sensory or cognitive impairments? • Retain the spatial diversity of communities?
Accessibility	8. To maximise accessibility for all in and around London	• Improve accessibility to all public transport modes? • Increase equality of access to services and facilities? • Improve links between areas, neighbourhoods and communities?

Topic	IIA objective	Assessment guide questions Will the strategy…? SEA, EQIA, HIA, HRA, SA CSIA
Connectivity	9. To enhance and improve connectivity for all to, from, within and around London and increase the proportion of journeys made by sustainable and active transport modes	• Improve connectivity by public transport in outer London? • Improve connectivity across the River Thames by all modes of transport, particularly in east London? • Reduce traffic volumes and congestion on roads across all parts of London? • Reduce congestion on public pavements and footpaths, especially in central London? • Reduce severance and consequent inequalities for those groups who are more greatly affected by severance (e.g. people on low incomes, disabled people, children and young people, older people and people dependent on walking and using public transport for travel)? • Encourage a modal shift to more sustainable forms of travel as well as encourage greater efficiency (e.g. through car-sharing)? • Reduce the overall need for people to travel by improving their access to the services, jobs, leisure and amenities in the place in which they live? • Encourage active travel by creating safe, attractive routes?

Topic	IIA objective	Assessment guide questions Will the strategy…? SEA, EQIA, HIA, HRA, SA CSIA
Economic competi-tiveness and employment	10. To maintain and strengthen London's position as a leading, connected, knowledge based global city and to support a strong, diverse and resilient economic economy structure providing opportunities for all	• Help maintain London as an internationally competitive city? • Increase London's productivity? • Facilitate the provision of the right type of employment land and floorspace in the right place to ensure that London remains economically competitive? • Help generate satisfying, secure and rewarding new jobs? • Create healthy, productive workplaces? • Help to provide employment opportunities in the most deprived areas, particularly to disadvantaged groups, and stimulate regeneration? • Minimise barriers to employment (e.g. transport, financial, childcare)? • Help reduce overall unemployment, particularly long-term and youth unemployment? • Improve the resilience of business and the economy? • Help to diversify the economy? • Encourage business start-ups and support the growth of businesses, particularly SMEs? • Enable people with physical and mental health conditions and disabilities to stay in employment? • Support social enterprise, voluntary and community sectors? • Support small, local retail offers? • Support working families?
Infrastruc-ture	11. To ensure that provision of environmental, social and physical infrastructure is managed and delivered to meet population and demographic change in line with sustainable development and to support economic competitiveness	• Ensure that provision of environmental, social and physical infrastructure support economic competitiveness and housing delivery? • Unlock land that has capacity for housing development? • Provide accessible infrastructure to connect new housing developments to key services? • Ensure equity of access to environmental, social and physical infrastructure?

Topic	IIA objective	Assessment guide questions Will the strategy…? SEA, EQIA, HIA, HRA, SA CSIA
Education and Skills	12. To ensure the education and skills provision meets the needs of London's existing and future labour market and improves life chances for all	• Help to improve learning and the attainment of skills to the right employment opportunities? • Ensure provision of sufficient school places to meet growing needs across London? • Support transitions from education to work? • Support London's status as an international city of learning, research and development? • Support adult education to improve social mobility and life chances for all ages? • Support early years education and support, particularly in areas of deprivation? • Encourage education and training that meets the needs of business, including vocational training?
Culture	13. To safeguard and enhance the Capital's rich cultural offer, infrastructure, heritage, natural environment and talent to benefit all Londoners while delivering new activities that strengthen London's global position	• Improve accessibility for all to cultural venues? • Improve participation by all in cultural activities and support cultural activities that promote social integration? • Help to provide cultural infrastructure needed to sustain and strengthen a growing sector? • Provide access to affordable cultural activities in areas of deprivation?

Topic	IIA objective	Assessment guide questions Will the strategy…? SEA, EQIA, HIA, HRA, SA CSIA
Air quality	14. To reduce emissions and concentrations of harmful atmospheric pollutants, particularly in areas of poorest air quality, and reduce exposure	• Reduce NO_x, PM_{10} and $PM_{2.5}$ emissions? • Reduce the number of people exposed to particulates and NO_2 concentrations, particularly vulnerable people? • Reduce inequalities in terms of access to clean air across London, particularly for those: » who live in deprived areas? » who live, learn or work near busy roads or construction sites? » who are more vulnerable? • Improve air quality around areas which may have high concentrations of vulnerable people such as schools, outdoor play areas, care homes and hospitals? • Help to achieve national and international standards for air quality? • Reduce costs to the economy resulting from premature deaths due to poor air quality?

Topic	IIA objective	Assessment guide questions Will the strategy…? SEA, EQIA, HIA, HRA, SA CSIA
Climate change adaptation and mitigation	15. To ensure London adapts and becomes more resilient to the impacts of climate change and extreme weather events such as flood, drought and heat risks	• Protect London from climate change impacts? • Improve the micro-climate and ameliorate the impact of the heat island effect on Londoners? • Help London to function during a flood event or heavy rainfall? • Help London to function during periods of drought? • Reduce impacts on groups more vulnerable to the effects of climate change e.g. older people are more vulnerable to excess heat?
	16. To help tackle climate change through reducing greenhouse gas emissions and moving towards a zero carbon London by 2050	• Help London meet its emission targets? • Reduce transport's contribution to CO_2 emissions? • Reduce the built environment's contribution to CO_2 emissions? • Facilitate investment in green technologies, equipment and infrastructure that reduce GHG emissions? • Promote the transition to a low carbon economy? • Reduce carbon emissions by shifting to more sustainable modes of transport?
Energy use and supply	17. To manage and reduce demand for energy, achieve greater energy efficiency, utilise new and existing energy sources effectively, and ensure a resilient smart and affordable energy system	• Increase the proportion of energy both purchased and generated from renewable and sustainable resources? • Contribute to the provision of smart and affordable energy system? • Reduce the demand and need for energy? • Promote generation of energy locally? • Ensure that any supply shortages are addressed? • Promote and improve energy efficiency? • Reduce impacts of fuel poverty, particularly for vulnerable groups? • Promote the transition to a low carbon economy?

Topic	IIA objective	Assessment guide questions Will the strategy…? SEA, EQIA, HIA, HRA, SA CSIA
Water resources and quality	18. To protect and enhance London's water bodies by ensuring that London has a sustainable water supply, drainage and sewerage system	• Improve the quality of waterbodies helping to meet the objectives of the Water Framework Directive? • Reduce discharges to surface and ground waters? • Support necessary improvements to the water systems infrastructure (water supply/ sewerage)? • Reduce abstraction from surface and ground water sources? • Reduce water consumption through the promotion of demand management? • Protect and enhance the character and use of London's riverscapes and waterways?
Flood risk	19. To manage the risk of flooding from all sources and improve the resilience of people, property and infrastructure to flooding	• Minimise the risk of flooding from all sources of flooding to people, property, infrastructure? • Manage residual flood risks appropriately and avoid new flood risks? • Seek to minimise new development in areas prone to flood risk or mitigate the potential for such risk? • Promote sustainable urban drainage?

Topic	IIA objective	Assessment guide questions Will the strategy…? SEA, EQIA, HIA, HRA, SA CSIA
Natural Capital and Natural Environment	20. To protect, connect and enhance London's natural capital (including important habitats, species and landscapes) and the services and benefits it provides	• Protect and enhance the character of local greenscapes? • Bring nature closer to people, particularly in most urbanised parts of the city and improve access to areas of biodiversity interest? • Help to acknowledge monetary value to natural capital of London? • Conserve, enhance or create natural and semi-natural habitats of recognised ecological value and/or the green corridors that link them enhancing the ecological function and carrying capacity of the greenspace network? • Avoid damage to sites, protected species and habitats, especially where there is a designation of international, national, regional or local importance? • Promote, educate and raise awareness of the enjoyment and benefits of the natural environment to all? • Promote and support the function of the Blue Ribbon Network? • Specifically address deficiencies in access to open space? • Create green spaces that are safe and accessible to all? • Promote sensory environments and play spaces?
Historic Environment	21. To conserve and enhance the existing historic environment, including sites, features, landscapes and areas of historical, architectural, archaeological and cultural value in relation to their significance and their settings.	• Conserve and enhance sites, features and areas of historical, archaeological and cultural value/potential? • Respect visual amenity? • Minimise the impact on the setting of heritage assets? • Promote improved accessibility for all within existing historic/cultural/archaeological environments and their landscapes through inclusive design and management? • Support and enhance cultural heritage?

Topic	IIA objective	Assessment guide questions Will the strategy…? SEA, EQIA, HIA, HRA, SA CSIA
Geology and soils	22. To conserve London's geodiversity and protect soils from development and over intensive use	• Promote the use of brownfield land? • Prevent further soil degradation or erosion? • Restore degraded soil? • Minimise the risk of health impacts through contamination? • Maximise the potential benefit of access to new employment and housing as a result of remediation?
Materials and waste	23. To keep materials at their highest value and use for as long as possible. To significantly reduce waste generated and achieve high reuse and recycling rates	• Promote the principles of circular economy when aiming for waste reduction, reuse, re-manufacturing and recycling? • Maximise use of innovative waste management techniques including smart technology? • Help develop more efficient and sustainable freight transportation? • Minimise negative impacts of waste processing and disposal on vulnerable groups?
Noise and vibration	24. To minimise noise and vibration levels and disruption to people and communities across London and reduce inequalities in exposure	• Reduce the number of people exposed to high levels of noise with the potential to cause annoyance, sleep disturbance or physiological effects? • Help reduce actual noise levels and disturbances from noise? • Minimise and reduce road, rail and aviation noise and vibration levels and disruption? • Improve people's access to quiet/ tranquil spaces? • Reduce night time noise in residential areas?

7.2 COMPATIBILITY TESTING

7.2.1 A compatibility test of the IIA objectives has been carried out using a framework presented in Appendix D. As there can be tensions between objectives that cannot be resolved, the compatibility assessment has clarified these so that subsequent decisions will be informed, and mitigation or alternatives can be considered.

7.2.2 Testing of the compatibility of the IIA objectives highlighted some potential tensions between objectives. Some natural potential incompatibility emerged between IIA objectives that require development (such as improving transport connectivity and provision of housing) and environmental objectives. Therefore, finding the right balance between these objectives is important for achieving sustainable development. For example, the protection of heritage assets could constrain some opportunities for additional development but on the other hand an attractive environment including heritage assets could be a factor that helps to attract and retain businesses. Economic growth could result in greater waste generation however application of circular economy principles could assist in addressing this.

Key

	Compatible
	Neutral
	Incompatible

7.3 ASSESSMENT METHODOLOGY OF LIKELY SIGNIFICANT EFFECTS

7.3.1 The IIA will identify, describe and evaluate the likely significant effects of implementing London Plan against the IIA objectives using the assessment guide questions. It will do this for the area within the GLA administrative boundary plus certain places beyond the GLA administrative boundary which could still be affected by the proposals in the London Plan. This may include growth corridors, water bodies and some European designated sites and forms the spatial scope of the assessment.

7.3.2 Any likely effects identified as a result of implementing the London Plan will be described according to criteria presented within the SEA Regulations including a description of the probability, duration, frequency and reversibility of impacts. As the new London Plan covers a period up to 2041, the temporal scope of the IIA is proposed as follows:

- Short term effects – those effects that occur within the first five years of implementation of the new London Plan;
- Medium term effects – those effects that occur between six and fifteen years following the adopted of the new London Plan;
- Long term effects – those effects that will occur beyond fifteen years.

7.4 PREDICTING THE EFFECTS OF THE LONDON PLAN AGAINST THE IIA OBJECTIVES

7.4.1 Testing the proposed policies in the London Plan against the IIA objectives will use symbol based scoring system and provide a brief commentary explaining and expanding on the scoring. Impacts identified will be considered relative to their significance as per Figure 7.4.

Significance takes into account the magnitude, duration and permanency of the impact, along with consideration of potential secondary and cumulative impacts. For the purposes of this assessment major effects (positive or negative) will be considered significant.

Figure 7.4: Significance ratings and definition

Scale of effect		Definition
+ +	Major positive effect	New London Plan contributes greatly towards achieving the IIA objective
+	Minor positive effect	New London Plan contributes to achieving the IIA objective
0	Neutral or no effect	New London Plan does not impact upon the achievement of the IIA objective
-	Minor negative effect	New London Plan conflicts with the IIA objective
- -	Major negative effect	New London Plan greatly hinders or prevents the achievement of the IIA objective
?	Uncertain	New London Plan can have positive or negative effects but the level of information available at a time of assessment does not allow to make a clear judgement

7.4.2 The assessment will identify cumulative and secondary effects of the strategy.

Secondary impacts are impacts that are not direct results of the new London Plan but occur away from the original impact or as a result of a complex pathway e.g. development that changes the water table and impacts the ecology of a nearby wetland.

7.4.3 The assessment will consider two types of cumulative effects:

- Intra-strategy: those which arise from two or more impacts occurring simultaneously, whereby an impact that may not have a significant effect on its own may, combined with others, produce a cumulative effect.
- Inter-strategy - significant effects of the London Plan acting in combination with the impacts of other Mayoral Strategies.

7.5 MONITORING AND DIFFICULTIES ENCOUNTERED

7.5.1 The role of the IIA monitoring involves measuring the IIA indicators which may establish a causal link between implementation of the London Plan and the likely significant effect being monitored. It is a requirement of the SEA Directive to establish how the significant effects of implementing the London Plan replacement will be monitored. However, as ODPM Guidance (ODPM, 2005) notes, 'it is not necessary to monitor everything, or monitor an effect indefinitely. Instead, monitoring needs to be focused on significant sustainability effects'. Monitoring should therefore be focussed upon significant effects that may give rise to irreversible damage, with a view to identifying trends before such damage is caused (or

uncertain effects where monitoring would enable preventative or mitigation measures to be undertaken).

7.5.2 Monitoring is also used, where appropriate, during implementation of the plan to make good deficiencies in baseline information in the IIA. It enables unforeseen adverse effects to be identified at an early stage, and is a way of demonstrating success in delivering the London Plan targets and reducing its environmental, social and economic effects.

7.5.3 The London Plan recognises 'that in a city as dynamic as London it is impossible to anticipate all the ways in which change will happen… and that it is vital that that we can adjust, especially to changes that could give rise to re-consideration of the Plan's direction or policies…'. In this way the Plan recognises (and emphasises) the importance of the Plan - Monitor - Manage process (paragraph 8.8).

7.5.4 Existing monitoring measures include the London Development Database, which monitors planning applications, permissions and completions across London for development trends. The database also supports the production of the London Plan Annual Monitoring Report (AMR). The AMR is a key element in the Plan – Monitor- Manage cycle. The current London Plan uses a set of 24 key performance indicators (KPIs). Monitoring is also undertaken by the London Sustainable Development Commission (LSDC).

7.5.5 A review is needed on the monitoring framework of the London Plan, specifically the KPIs, to assess their continued appropriateness of assessing the implementations of the London Plan and its potential impact on sustainability objectives.

7.5.6 The development of IIA objectives and indicators and the collection of baseline information inform each other. The IIA objectives are linked to provisionally suggested indicators to measure progress towards them. A full list of suggested indicators is presented in Appendix G.

7.5.7 A full IIA monitoring framework will be developed at the next stage of the IIA process where measures proposed for monitoring will be clear, practicable and linked to the indicators and objectives used in the IIA.

8 NEXT STEPS

This chapter outlines remaining stages of the IIA process, describes the London Plan assessment template and summarises engagement which has taken place to date.

8.1 REMAINING STAGES OF THE IIA

Identifying options, choosing preferred options and proposing measures to mitigate (Stage B)

8.1.1 Proposed policies within the new London Plan will be informed by the issues that London faces which have been identified in this IIA Scoping report. The IIA of the London Plan will appraise London Plan objectives and policy options against IIA objectives outlined in the IIA Framework in order to assess their compatibility and effects across all sustainability topics.

8.1.2 An example of how the table for the IIA of the London Plan will look is shown in Figure 8.1 below. Impacts will be commented on, and mitigation measures for such impacts are proposed, whether that is through rewording of the policy or mitigation by using other policies or proposals in the London Plan.

8.2 PROPOSED STRUCTURE OF THE IIA REPORT

8.2.1 The IIA report will contain the necessary information to be compliant with the relevant SEA/SA legislation and guidance. It will consist of sections that provide information describing the context of the assessment, including an overview of the proposed new London Plan and any alternative options considered, a summary of the methodology for undertaking the assessment, the assessment itself, and the conclusions and recommendations arising from the assessment process. The consideration of cumulative effects in the IIA report is also highlighted within the methodology.

8.2.2 The proposed approach reflects the requirements of SEA/SA, feedback from consultees to date and experience gained from previous SEA/SAs. It recognises that many policies are inter-related and do not act in isolation and therefore sustainability effects are also inter-related.

8.2.3 Responses received to the consultation on this IIA Scoping Report will be incorporated into the draft IIA Report. The proposed structure and contents of the IIA report are presented below.

Figure 8.1: London Plan assessment template

Objective	Assessment criteria Will the strategy…	Assessment								Direct (D) or indirect (I) effects	Temporary (T) or Permanent (P)	Spatial consideration: Local, London, Wider	Receptors and/or affected groups	Summary against overall objective	Potential cumulative effects	Mitigation / policy input
		SEA	SA	EqIA	HIA	CSIA	ST (0-4 years)	MT (5-9 years)	LT (10+ years)							
To reduce emissions and concentrations of harmful atmospheric pollutants, particularly in areas of poorest air quality and reduce exposure	Reduce Nox, PM10 and PM2.5 emissions Other guide questions to be included						0	?	-	D	P	GL	This will set out who it will affect. Key groups or communities to be considered include: - Older and young people - Socio economic groups (variable) - Asylum seekers and refugees - Women and men - Black and ethnic minority people (including Gypsy and Traveller communities); - Disabled people - Faith communities - Lesbian, gay, bisexual and transgender people This includes the vulnerability of the receptor.	This describes how the policy addresses the IIA objective. It may include confirmation that the policy aligns with the objective, or whether there is a focused policy on this topic. Any identified affects which conflict with the policy will be described.	This will set out whether the proposed policy could have cumulative effects with other policies or where there are links to other policies or initiatives.	This will identify where further work may be required to better align policies, make recommendations for additional provisions to be included or recommendation rejection of a policy.
		This highlights which of the assessments must consider this objective. The colour coding helps users navigate through the report					Noting the uncertainty around when policy will be implemented effects are categorised as being likely to occur in the: short term (0-4 years), medium term (5-9 years), or long term (10+ years). The assessment levels of effect to be applied are set out below. ++ Very positive effect + Positive effect ? Uncertain - Negative effect -- Very negative effect 0 Neutral / no effect Combined symbols are sometimes used in the assessment (e.g. '+/ ?' or '- / ?'). Where this occurs, it is because there is a strong likelihood of positive/negative effects but that there is insufficient information to achieve certainty at this stage. Alternatively, there may be a combination of positive or negative effects, depending on how the option under consideration is eventually delivered.			The assessment will seek to categorise if the effects are direct, indirect, temporary and/or permanent. The likely spatial extent is also set out to consider if the effect will be a local, London or a wider concern.						

8.3 PREPARING THE IIA REPORT (STAGE C)

Figure 8.2: IIA Report Strucure

Structure of report	Information to include
Non-technical summary	Summary of the IIA process Summary of the likely significant effects of London Plan How to comment on the report
Methodology used	Approach adopted in the IIA Who was consulted, and when Difficulties encountered in compiling information or carrying out the assessment
Background	Purpose of the IIA London Plan objectives
IIA objectives, baseline and context	Relationship with other policies, plans and programmes and sustainability objectives Environmental, social and economic baseline characteristics Key environmental, social and economic issues and problems identified Data limitations IIA objectives, guide questions and indicators
Assessment of London Plan options and policies	Main strategic options considered Comparison of the significant environmental, social and economic effects of the options The preferred option and explanation of choice
Conclusions and recom-mendations	Significant, secondary, cumulative and synergistic effects Proposed mitigation measures Monitoring suggestions Separate sections to draw out the main EqIA and HIAs impacts to demonstrate complianc

8.4 CONSULTING ON THE DRAFT IIA REPORT (STAGE D)

8.4.1 Stakeholder consultation or engagement is an integral component of any assessment and is of particular importance in the context of the IIA. Its basis lies in both statutory requirements and non-statutory best practice, and both have been used to inform how best to integrate consultation within the IIA to maximise its benefit.

8.4.2 There will be two periods of formal consultation:

- Consultation on the IIA Scoping Report for the consultation period of five weeks with the dissemination of this IIA Scoping Report to statutory consultees and other key stakeholders (February 2017);
- Consultation on the publication of the Draft new London Plan and accompanying IIA Report, with public stakeholders being invited to comment upon the findings of the IIA Report and its recommendations (Autumn 2017).

8.4.3 A Statement will be prepared and made publicly available to outline how the responses to public consultation on the Draft new London Plan and the accompanying IIA Report have been taken into account in finalising and adopting the new London Plan.

8.5 MONITORING EFFECTS OF IMPLEMENTATION OF THE NEW LONDON PLAN (STAGE E)

8.5.1 The policies and objectives that have been devised, assessed and refined as a result of assessments and consultation will be monitored throughout the life of the London Plan following its publication. Monitoring, reviewing and updating of the new London Plan will be essential both to ensure it continues to be 'fit for purpose' but also is a way of demonstrating success in delivering its targets and reducing its environmental, social and economic effects.

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APPENDIX A STRATEGIC ENVIRONMENTAL ASSESSMENT

A.1 THE STRATEGIC ENVIRONMENTAL ASSESSMENT

A.1.1 The Mayor is required to undertake a Strategic Environmental Assessment (SEA) of any of his plans and programmes that are considered to have significant effects on the environment under the European Directive 2001/42/EC (known as the SEA Directive). The SEA Directive was transposed into UK law through the Environmental Assessment of Plans and Programmes Regulations 2004 (Statutory Instrument 2004 No.1633). The purpose of the Directive is to ensure that environmental considerations are integral to the preparation and adoption of the plan or programme.

A.1.2 The objective of SEA as set out in the Directive is:

A.1.3 "to provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes with a view to promoting sustainable development"

A.1.4 The SEA Regulations requires an environmental report to be prepared, and made available to the public, which identifies, describes and evaluates the likely significant effects on the environment of implementing the strategy and the reasonable alternatives taking into account the objectives and the geographical scope of the strategy.

A.1.5 As per the SEA Regulations, an assessment of the likely significant effects on the environment should be undertaken through assessing issues such as: air quality; biodiversity, flora and fauna; climate change; energy use and generation; flood risk; geology and soils; heritage; health, landscape, townscape and public realm; materials and waste; noise and vibration; water resources and quality.

A.2 SUSTAINABILITY APPRAISAL

A.2.1 A Sustainability Appraisal (SA) is required under the Planning and Compulsory Purchase Act 2004. It is based on the principles of SEA but is wider in focus and covers the other key considerations of sustainability that concern social and economic issues. The then Office of the Deputy Prime Minister (ODPM) released guidance for regional and local planning authorities on how to undertake a SA which integrates the requirements for SEA with broader sustainability objectives. The guidance considers that it is possible to satisfy the SA and SEA requirements through a single integrated approach, and it is this approach which has been undertaken for alterations to the London Plan since it was first published in 2004.

A.3 EQUALITIES IMPACT ASSESSMENT

A.3.1 The Mayor and GLA have "general public body duties" under equalities legislation and like all public bodies, have statutory duties to promote equality arising from the Equality Act 2010. The Mayor and the GLA also have an additional duty to promote equality of opportunity arising from the GLA Act 1999 (as amended).

A.3.2 The Equality Act 2010 includes a new single public sector equality duty ("the Duty") that brings together the previous race, disability and gender duties and extends coverage to the following:

- age
- disability
- gender reassignment
- pregnancy and maternity

- race
- religion or belief
- sex
- sexual orientation
- marriage and civil partnership (applicable only to the need to eliminate unlawful discrimination).

A.3.3 These are the grounds upon which discrimination is unlawful and are referred to as 'protected characteristics.' Further details of these protected characteristics can be found in Figure A1.

A.3.4 The Duty requires the Mayor and the GLA when exercising their functions to have due regard to the following:

1) **Eliminate unlawful discrimination, harassment and victimisation** and any other conduct which is unlawful under the Equality Act 2010
2) **Advance equality of opportunity** between people who share a protected characteristic, and those who don't have that characteristic. This means in particular:
   a) **Removing or minimising disadvantages** suffered by people who share a protected characteristic that are connected to that characteristic
   b) **Taking steps to meet the needs of people** who share a protected characteristic that are different from the needs of people who don't have that characteristic
   c) **Encouraging people** who share a protected characteristic **to participate in public life or in any other activity** in which their participation is disproportionately low
3) **Foster good relations** between people who share a protected characteristic, and those who don't have that characteristic. This means, in particular:
   a) **Tackling prejudice**
   b) **Promoting understanding**

A.3.5 Compliance with these duties may Involve treating some persons more favorably than others.

A.3.6 The Equal Life Chances for All framework (2014) further highlights the Mayor's commitment to tackling inequality, improving life chances and removing barriers that prevent people from reaching their full potential. This framework is currently being updated and will be published in February 2017 for consultation.

A.3.7 An Equalities Impact Assessment forms an integral part of an IIA. The likely disproportionate or differential effects on equality groups listed in Figure A1 will be identified through assessing issues such as: accessibility; air quality; climate change; crime and security; connectivity; employment; education and skills; energy use and supply housing; inclusion; landscape, townscape and public realm; noise and vibration, health and health inequalities.

Figure A1: Groups with protected characteristics

Protected characteristics as per Equality Act 2010	Definition of group as per Equality Act 2010	People within group referred to within this report
Age	A person belonging to a particular age (for example 32 year olds) or range of ages (for example 18 to 30 year olds).	Range of age groups. Infants (0-4); Children (5-17); working age (aged 24 – 65); older people (aged 65 and over)
Disability	A person with physical or mental impairment which has a substantial and long-term adverse effect on that person's ability to carry out normal day-to-day activities	Disabled people
Gender reassignment	A person who is at any stage in the transition process from one gender to another– from proposing to reassign their gender, to undergoing a process to reassign their gender, or having completed it.	Transgender (LGBT)
Marriage and civil partnership	A person in a civil partnership or marriage between same sex or opposite sex	People who are married or part of a same sex couple
Pregnancy and maternity	A person who is pregnant or expecting a baby and a person who has recently given birth	Mothers or expectant mothers, up to 26 weeks after giving birth
Race	A group defined by their race, colour and nationality (including citizenship) ethnic or national origins	Black, Asian and minority ethnic (BAME) or Gypsies and Travellers
Religion and belief	A person with religious and philosophical beliefs including lack of belief	People of religion or no religion
Sex	A man or a woman	Women
Sexual orientation	A person's sexual orientation towards the same sex, persons of the opposite sex or persons of either sex	Lesbian, Gay, Bisexual (LGB) or LGBT if also includes Transgender (separate protected characteristic)

A.4 HEALTH IMPACT ASSESSMENT

A.4.1 Under Section 41 (4) of the GLA Act, the Mayor has a duty to have regard to the impact of his strategies on the health of people in London and health inequalities between them. Section 30 of the GLA Act also confers a general duty for the Greater London Authority to exercise its power in a way which promotes improvements in health and reductions in health inequalities, including mitigation of any negative effects

A.4.2 A Health Impact Assessment (HIA) is a means of assessing the likely health effects of plans, programmes and projects. It seeks to inform and enhance the decision-making process, making decisions more holistic and robust by:

- Highlighting practical ways to enhance the positive health, health equality and well-being effects of a plan;
- Avoiding or reducing the negative health, health inequality and well-being effects.

A.4.3 The consideration of health and wellbeing will be fully integrated throughout the IIA as a whole, however similar to the Equalities Impact Assessment a separate assessment will be provided to allow particular audiences to focus on the impacts they are most concerned about.

A.4.4 The HIA for the IIA will draw upon the NHS Healthy Urban Design Unit (HUDU) checklist to create an approach which draws more widely on best practice, published guidance and proven techniques. It will identify the likely significant effects on human health through assessing issues such as: housing quality and design, access to healthcare services and other social infrastructure, access to open space and nature, air quality noise and neighbourhood amenity, accessibility and active travel, crime reduction and community safety, access to health food, access to work and training, social cohesion and lifetime neighbourhoods, minimising the use of resources and climate change.

A.5 COMMUNITY SAFETY IMPACT ASSESSMENT

A.5.1 There is a statutory requirement for the GLA to follow Section 17 of the Crime and Disorder Act 1998. Section 17 places a duty on the GLA to have due regard, when preparing plans and strategies, to the likely effect of these plans and strategies on, and the need to do all that it reasonably can, to prevent crime and disorder in its area. The Police and Justice Act 2006 has broadened the scope of Section 17 to encompass misuse of drugs, alcohol and other substances, anti-social behaviour and behaviour adversely affecting the environment.

A.5.2 The IIA process will incorporate a specific Community Safety Impact Assessment (CSIA) which will identify the likely significant effects on crime and safety through assessing the implications of issues such as: accessibility; crime and security; connectivity; economic competitiveness; inclusion; landscape, townscape and public realm; noise and vibration. This will be undertaken in close dialogue with other assessment streams, particularly the SEA and HIA elements.

A.6 HABITATS REGULATION ASSESSMENT

A.6.1 The GLA is also required to undertake a Habitats Regulation Assessment (HRA) in relation to habitats of particular significance in and around London.

A.6.2 Embedded within Article 6(3) and (4) of the Habitats Directive is the requirement for the assessment of plans and projects that may have significant effects on European sites. The Habitats Directive was brought into effect in England by the Conservation of Habitats and Species Regulations 2010 (as amended), which also transpose the Directive's requirement to undertake assessment for both projects and plans likely to have significant effect on European sites.

A.6.3 Sites protected under the Conservation of Habitats and Species Regulations 2010 include

Special Areas of Conservation (SAC); Special Protection Areas (SPA) and European Offshore Marine Sites (EOMS). Together these make up the Natura 2000 Network of European sites. In England, as a matter of policy, Ramsar sites (identified under the Ramsar Convention), proposed SACs and potential SPAs are subject to the same procedures as SACs and SPAs.

A.6.4 A plan or project, such as the London Plan, cannot be given effect or consent unless it can be determined that it would not have an adverse effect on the integrity of European sites or, where there are no alternative solutions, there are imperative reasons of overriding public interest for the plan or project to proceed, and compensatory measures are secured to ensure the coherence of the Natura 2000 network.

A.6.5 An HRA is undertaken to determine the likely effect on the integrity of European sites and comprises two stages:

- Stage 1: Screening Assessment; and
- Stage 2: Appropriate Assessment.

A.6.6 A Stage 1 assessment is necessary to identify whether the strategy would result in likely significant effects on European Sites. If screening concludes that there would be no likely significant effects, then no further assessment is required. If screening cannot discount likely significant effects (beyond reasonable scientific doubt, as required under law), a Stage 2 assessment is required.

A.6.7 The Stage 1 assessment cannot be fully carried out until further detail on the proposed strategy is known.

A.6.8 Although the integrated approach of the IIA seeks to avoid the need to undertake separate assessments, the HRA will be undertaken separately to the IIA due to the specific requirements of HRA and its site-specific focus. This assessment will therefore be carried out alongside the IIA with the results being feed into the IIA process itself.

A.6.9 Baseline information on the location of Natura 2000 sites is included in Appendix C.

APPENDIX B SUMMARY OF THE MOST RELEVANT PLANS AND PROGRAMMES

Topic	Document Title	Key objectives, targets and indicators relevant to the London Plan and IIA	Implications for IIA
Social Integration and Inclusion	Equality Act 2010	This Act brings together over 116 separate pieces of legislation providing a legal framework to protect the rights of individuals and advance equality of opportunity for all. Requires public bodies to have due regard to the need to eliminate discrimination, advance equality of opportunity and foster good relations between different people when carrying out their activities; requiring the assessment of emerging strategies policies and programmes' impact on equality and consider what actions, if any, may be appropriate to improve upon any identified adverse impacts.	Ensure that potential impacts on all protected characteristics are taken into account in developing the IIA Framework **IIA Objectives 1, 2**
Social Integration and Inclusion	GLA's Equal life chances for all (revised 2014)	Sets out an approach that aims to bring Londoners together rather than dividing them. The framework promotes outcomes which will be delivered through the Mayoral Strategies.	Ensure that the framework and the strategies objectives are reflected throughout the IIA framework. **IIA Objectives 1, 2**
Health and Health Inequalities	National Planning Policy Framework (March 2012)	Paragraph 69 states that the planning system can play an important role in facilitating social interaction and creating healthy, inclusive communities. Local planning authorities should create a shared vision with communities of the residential environment and facilities they wish to see. It sets out the key priorities in achieving healthy communities in regards to access to open space, social infrastructure, safe and accessible environment, etc.	Ensure the range of objectives in the promotion of healthy communities is reflected in the IIA Framework. **IIA Objective 3**
Health and Health Inequalities	Child Obesity Plan (2016)	National plan to reduce child obesity through improved diet and increasing physical activity.	Ensure that the objectives are reflected in the IIA framework. **IIA Objective 3**
Health and Health Inequalities	London Health and Care Collaboration Agreement and London Devolution Deal (2015)	Sets out an ambition for transformation of health in London and agreement to explore devolution in key areas, including prevention, integration and NHS estates.	Ensure that the objectives are reflected in the IIA framework. **IIA Objective 3**
Health and Health Inequalities	Better Health for London: next steps 2014	Sets out ten ambitions to make London the healthiest world city, shared by the Mayor of London, Public Health England, NHS England, London Councils and the Office for London CCGs.	Ensure that the objectives are reflected in the IIA framework. **IIA Objective 3**
Health and Health Inequalities	Mayors Health Inequality Strategy Delivery Plan 2015-2018 Indicator Report	Sets out indicators of health inequalities in London which will be published annually.	Ensure that the objectives / indicators are reflected in the IIA framework where relevant. **IIA Objective 3**

Topic	Document Title	Key objectives, targets and indicators relevant to the London Plan and IIA	Implications for IIA
Health and Health Inequalities	The London Health Inequalities Strategy (2010)	Sets out a framework focusing on improvement of physical health and mental well-being of all Londoners.	Ensure that the objectives of the Strategy are reflected in the IIA framework. **IIA Objective 3**
Crime, Safety and Security	Crime and Disorder Act 1998	The Act obliges local authorities, the police and other local bodies to draw up crime and disorder strategies covering their areas – including created an Anti-Social Behaviour Order as well as creating a number of other new orders and offence types.	Ensure provisions are taken in to account in the development of the IIA Framework. **IIA Objective 4**
Crime, Safety and Security	Police and Justice Act 2006 (as amended)	The Act established the National Policing Improvement Agency (NPIA). The NPIA is no longer in existence and its functions have been transferred to a number of agencies including the Home Office, the Serious Organised Crime Agency and the College of Policing. The Act also grants the Home Secretary additional powers to intervene over underperforming police forces, allows the police to impose electronic tags and curfew restrictions on granting conditional bail and permits the Home Secretary authority to widen the list of professions allowed to issue Fixed Penalty Notices.	Ensure provisions are taken in to account in the development of the IIA Framework. **IIA Objective 4**
Crime, Safety and Security	National Planning Policy Framework (March 2012)	Paragraph 58 requires planning policy to ensure that developments create safe and accessible environments where crime and disorder, and the fear of crime, do not undermine quality of life or community cohesion.	Reflect objectives in the IIA Framework. **IIA Objective 4**
Crime, Safety and Security	Mayor's Office for Policing and Crime's (MOPAC) Police and Crime Plan 2013-16 (March 2013)	Sets out the Mayor's priorities for policing.	Reflect objectives and priorities in the IIA Framework. **IIA Objective 4**
Crime, Safety and Security	Mayor's Safer Streets for London Plan (2013)	Sets challenging targets to reduce the number of KSIs by 40 per cent by 2020 from a baseline 2005 – 2009 average. Reducing injuries on the Capital's roads, as a result of criminal and ASB is one way to contribute to achieving this target.	Reflect targets in the relevant indicators in the IIA framework. **IIA Objective 4**
Crime, Safety and Security	London Assembly Police and Crime Committee report, Policing the Night-Time Economy (March 2016)	Assesses the challenges associated with policing London's growing Night time Economy. The report makes a number of recommendations, including: • MOPAC should lobby the Home Office for the introduction of a national definition of 'alcohol-related' crime. • MOPAC should examine whether changes to licensing arrangements in London could alleviate any identified pressure on policing. • The Met Police and MOPAC should review the demand that the NTE places, and will place in the future, on borough-based policing. • NHS England should press for the sharing of information between London hospitals and the Met to be a mandatory requirement, to help inform crime reduction responses.	Reflect challenges in the IIA assessment framework **IIA Objective 4**
Housing	Housing and Planning Bill (DCLG 2015/16)	Through this Act, the Government aims to take forward proposals to build more homes that people can afford, give more people the chance to own their own home, and ensure the way housing is managed is improved.	Reflect on implications of proposals in the IIA Framework. **IIA Objective 5**

Topic	Document Title	Key objectives, targets and indicators relevant to the London Plan and IIA	Implications for IIA
Housing	National Planning Policy Framework	Paragraphs 46 – 53 sets out how local authorities should ensure an appropriate supply and choice of housing to meet their needs.	Reflect guidance in the IIA Framework **IIA Objective 5**
Housing	Outer London Commission Sixth Report: Barrier to Housing Delivery (March 2016)	The report sets out an analysis of barriers to housing delivery in London and sets out 14 recommendations that collectively could help to boost housing delivery in London.	Reflect recommendations of report in IIA Framework **IIA Objective 5**
Housing	Outer London Commission Seventh Report: Accommodating Report (March 2016)	The report suggests that in developing a new London Plan, the Mayor should take a threefold approach to accommodating growth through: • greater efficiencies in the way existing capacity is used; • sustainable intensification of selected parts of the city; and • partnership working to realise the potential of the wider metropolitan region	Reflect recommendations of report in IIA Framework **IIA Objectives 5, 6**
Housing	GLA Equal life chances for all (revised 2014)	Sets out an approach that aims to bring Londoners together rather than dividing them. The framework promotes outcomes for a diverse range of communities and seeks to bring real changes to the quality of life for all Londoners, and sets out additional guidance and principles on how the objectives of the Mayors Equality framework should be met.	Ensure that the framework and the strategies objectives are reflected throughout the IIA framework. **IIA Objectives 1, 5**
Housing	GLA Housing Strategy 2014	The Strategy sets out a range of proposals to increase housing delivery across all tenures and improve the housing offer for working Londoners. It includes proposals to provide the long-term stable funding necessary to deliver new homes; to bring land forward for development; and to reinvigorate the housing market by attracting new players (including smaller house builders) to better meet the needs of a growing city.	**IIA Objective 5**
Sustainable Land Use	National Planning Policy Framework (March 2012)	Paragraph 6 and 7 set out the three dimensions to sustainable development: economic, social and environmental, and makes clear that the purpose of the planning system is to contribute to the achievement of sustainable development.	Reflect objectives of NPPF in the IIA Framework. **IIA Objective 6**
Sustainable Land Use	Airport Commission's Final Report July 2015	Sets out the Airport Commission's analysis and recommendations to the Government of different options for expanded airport capacity in the South East of England.	Reflect potential implications of recommendations in the report in the IIA Framework. **IIA Objectives 6, 9, 11**
Sustainable Land Use	Outer London Commission's 7th Report: Accommodating London's Growth	The report suggests that in developing a new London Plan, the Mayor should take a threefold approach to accommodating growth through: • greater efficiencies in the way existing capacity is used; • sustainable intensification of selected parts of the city; and • partnership working to realise the potential of the wider metropolitan region	Reflect recommendations of report in IIA Framework. **IIA Objectives 5, 6, 10**
Accessibility	National Planning Policy Framework (March 2012)	Paragraph 61 states that securing high quality and inclusive design goes beyond aesthetic considerations.	**IIA Objectives 7, 8**

Topic	Document Title	Key objectives, targets and indicators relevant to the London Plan and IIA	Implications for IIA
Accessibility	GLA Equal life chances for all (revised 2014)	Sets out an approach that aims to bring Londoners together rather than dividing them. The framework promotes outcomes for a diverse range of communities and sets out objectives based on a range of indicators.	Ensure that the strategies objectives are reflected throughout the IIA framework **IIA Objectives 1, 8**
Accessibility	The London Health Inequalities Strategy (2010)	Sets out a framework focusing on improvement of physical health and mental well-being of all Londoners.	Ensure that the objectives of the Strategy are reflected in the IIA framework. **IIA Objectives 3, 8**
Accessibility	Your accessible transport network (May 2015 update)	Sets out the Mayor's commitment to making it easier for older and disabled people to travel in London, setting out a range of short and long term commitments to improving transport infrastructure, customer service and information, staff training and stakeholder communication in order to make journeys easier.	Give due consideration to how the plan can contribute to the objectives and targets of the programme. Ensure that the requirements of the programme are reflected in the IIA framework. **IIA Objective 8**
Connectivity	National Planning Policy Framework (March 2012)	Sets out a range of policies to improve connectivity. Paragraph 25 sets out the importance of sustainable transport modes, giving people a real choice about how they travel which has a range of sustainability benefits including economic prosperity. Paragraphs 42 highlights the importance of advanced, high quality communications infrastructure for sustainable economic growth.	Ensure priorities are reflected in IIA Framework **IIA Objectives 9, 11**
Connectivity	Airport Commission's Final Report July 2015	Sets out the Airport Commission's analysis and recommendations to the Government of different options for expanded airport capacity in the South East of England.	Reflect potential implications of recommendations in the report in the IIA Framework. **IIA Objectives 9, 11**
Connectivity	Freight: 2010-2015 Government Policy (DfT)	An efficient freight transportation system helps support the UK economy. Getting goods from one place to another at a reasonable cost and with the minimum impact on the environment and communities is essential. Government is working with the freight industry to help them cut costs and reduce greenhouse gas emissions. Effective and proportionate regulation will also ensure goods are moved safely and securely across the UK and abroad.	Ensure priorities are reflected in IIA Framework **IIA Objectives 9,11, 23**
Connectivity	Rail Network 2010-2015: Government Policy (DfT)	Rail is vital to the UK's economic prosperity. If rail services are inefficient and do not meet people's needs for routing or frequency, business and jobs suffer. Rail links with airports and ports are business opportunities for travel, tourism and the transportation of goods. Encouraging people to use trains rather than cars, and reducing carbon emissions from trains and stations themselves, can also contribute to the UK's carbon reduction targets.	Ensure priorities are reflected in IIA Framework **IIA Objectives 9, 11**

Topic	Document Title	Key objectives, targets and indicators relevant to the London Plan and IIA	Implications for IIA
Connectivity	London Infrastructure Plan – update 2015	Sets out a long term plan for delivering London's physical infrastructure and the importance of it for London 's global competitiveness.	Ensure that the priorities are reflected in the IIA framework. **IIA Objectives 9, 11**
Connectivity	Local Transport 2010 to 2015 Government Policy (DfT, 2015	Summary of Government policy on local transport including: reducing the need to travel, funding mechanisms; increasing the use of buses; taxis; and encouraging people to cycle.	Ensure that the priorities are reflected in the IIA framework. **IIA Objectives 9, 11**
Connectivity	Connecting the Capital (TfL, 2015)	This document sets out the case for new river crossings to better connect the Capital and cater for future growth including: • Pedestrian and cycle crossings • Ferry services • Public transport crossings • Road crossings	Ensure that the priorities are reflected in the IIA framework **IIA Objectives 9, 11**
Connectivity	More residents more jobs? 2015 update Oct 2015	This paper investigates the relationship between employment density, population density and levels of transport accessibility in London.	Ensure that the findings are reflected in the development of the IIA framework . **IIA Objective 9**
Economic Competitiveness	Fixing the foundations: creating a more prosperous nation (July 2015)	Sets out a number of policies and proposals for raising productivity in the UK with its central ethos being that through greater productivity comes improved prosperity and quality of life for all. Its proposals are built around two ideas of encouraging long-term investment in economic capital, including infrastructure, skills and knowledge; and promoting a dynamic economy that encourages innovation and helps resources flow to their most productive use.	Ensure that the priorities are reflected in the IIA framework **IIA Objective 10**
Economic Competitiveness	National Planning Policy Framework (March 2012)	Paragraph 19 to 21 sets out that in order to achieve economic growth, local planning authorities should plan proactively to meet the development needs of business and support an economy fit for the 21st century; setting out a clear economic vision and strategy for their area which positively and proactively encourages sustainable economic growth.	Ensure that the priorities are reflected in the IIA framework **IIA Objective 10**
Economic Competitiveness	Jobs and Growth Plan for London. GLA (2013)	Tasked with advising the Mayor on jobs and growth, the London Enterprise Panel identified four key priorities: • skills & employment: to ensure Londoners have the skills to compete for and sustain London's jobs; • small & medium sized enterprises: to support and grow London's businesses; • science & technology: for the capital to be recognised globally as world leading hub; for science, technology and innovation - creating new jobs and growth; and • infrastructure: to keep London moving and functioning.	Ensure that the priorities are reflected in the IIA framework **IIA Objectives 10, 12**
Economic Competitiveness	Outer London Commission 7th Report: Accommodating London's Growth March 2016	The report suggests that in developing a new London Plan, the Mayor should take a threefold approach to accommodating growth through: • greater efficiencies in the way existing capacity is used; • sustainable intensification of selected parts of the city; and • partnership working to realise the potential of the wider metropolitan region	Ensure that the priorities are reflected in the IIA framework **IIA Objectives 6, 10**

Topic	Document Title	Key objectives, targets and indicators relevant to the London Plan and IIA	Implications for IIA
Economic Competitiveness	London Infrastructure Plan update 2015	The report considers a demand for a wide range of infrastructure types - transport, green, digital, energy, water and waste.	Ensure that the priorities are reflected in the IIA framework **IIA Objectives 10, 11**
Economic Competitiveness	London in comparison with other global cities August 2016	The report sets out a comparison of London's economy with other global cities – main findings include: • London has grown at a faster rate than other Western cities like New York and Paris in real terms between 2006 and 2014. However, emerging global cities such as Shanghai and Singapore have seen rates of growth that were twice as fast. • London's economy is predominantly services drive • labour productivity - London has some of the lowest estimates of output per job and output per hour. Whilst average rates of productivity growth in London were similar to other Western global cities, they were weaker than emerging global cities like Singapore.	Ensure that findings are reflected in the development of the IIA Framework **IIA Objective 10**
Economic Competitiveness	The changing spatial nature of business and employment in London Feb 2016	This paper looks at how trends in business and employment have changed over time its main findings include overall, London continues to be a net contributor of firms and employment to the rest of the UK economy through outward migration; London continues to specialise in the Information & Communication; Finance & Insurance activities; and Professional, Scientific and Technical activities sectors. However, the extent of the specialisation appears to have diminished a little between 2004 and 2013.	Ensure that findings are reflected in the development of the IIA Framework **IIA Objective 10**
Economic Competitiveness	London's Digital Economy Jan 2012	This report draws together a variety of data sources to highlight London's position in the digital arena. The report looks at uptake and use of digital technologies by businesses and households. Amongst the findings are: • There are over 23,000 ICT and software companies in London – the highest number of any European city. • UK broadband services enable users to "comfortably enjoy" the latest web applications but still lag someway behind the best in the world, such as those in South Korea, Hong Kong and Japan.	Ensure that the priorities are reflected in the IIA framework **IIA Objectives 10, 11**
Economic Competitiveness	Growing Together II: London and the UK economy Sept 2014	This report looks at London's relationship and impact on the UK's economy. Main findings include • London's success is positive for the UK as a whole. • Constraining London's growth (through reduced infrastructure expenditure for example) will reduce UK growth and threatens London's international competitiveness – most likely benefiting other countries (not the rest of the UK). • Attempts to 'share out' London's business activities across the UK, by whatever means, would most likely lead to businesses losing the benefits of locating in London; as a result they'd likely relocate to another international city – not the rest of the UK.	Ensure that findings are reflected in the development of the IIA Framework **IIA Objective 10**
Employment	London's changing economy since 2008 Oct 2015	This report looks at London economy since 2008. London's growth since 2008 has been stronger than the UK's. Jobs growth has been particularly strong however productivity – output per workers has not kept up.	Ensure that findings are reflected in the development of the IIA Framework **IIA Objective 10**

Topic	Document Title	Key objectives, targets and indicators relevant to the London Plan and IIA	Implications for IIA
Employment	Part-time employment in London Jan 2015	The report analyses changes in the profile of part-time jobs since 2008 – with the growth in London's part-time jobs exceeded that of the UK overall, although is still lower than in the UK overall. Differing industries and occupational mixes within the London and the UK economies are only part of the explanation. This gap is driven by differences in employment rates amongst women, particularly those working part-time; and the gap is even starker when comparing women with dependent children.	Ensure that findings are reflected in the development of the IIA Framework **IIA Objectives 1, 10**
Employment	Patterns of low pay July 2012	This report found that wage inequality in the UK has decreased slightly since the late 1990s, while wage inequality in the capital has increased significantly. This reflects above all an increase in wage dispersion among men.	Ensure that findings are reflected in the development of the IIA Framework **IIA Objectives 1, 10, 12**
Education and Skills	GLA Equal life chances for all (revised 2014)	Sets out an approach that aims to bring Londoners together rather than dividing them. The framework promotes outcomes for a diverse range of communities and seeks to bring real changes to the quality of life for all Londoners, and sets out additional guidance and principles on how the objectives of the Mayors Equality framework should be met.	Ensure that the framework and the strategies objectives are reflected throughout the IIA framework. **IIA Objectives 1, 12**
Education and Skills	Mayor's Academic Forum Recommendations 2015	Sets out a series of recommendations which bear on how the London Plan might impact of higher educations: • future student numbers • concentration/dispersal of student housing • affordable student housing • meeting strategic and local need • quality of student housing • partnership working	Ensure that findings are reflected in the development of the IIA Framework **IIA Objective 12**
Culture	World Cities Culture Report 2015 – measures and cultural assets	A detailed report centred on culture, providing global insights and statistics, which elaborate on how important culture is for a city. Including ways to make cities more vibrant, inclusive and liveable and how important it is for culture to be incorporated in urban policy, which tends to be vulnerable when budgets are cut.	Ensure that priorities are reflected in the development of the IIA Framework **IIA Objectives 10, 13**
Culture	Culture White Paper (March 2016)	The paper sets out a strategic vision for culture that promotes increased access for all, empowers communities and promotes increased international standing for culture.	Ensure that priorities are reflected in the development of the IIA Framework **IIA Objective 13**
Culture	Open Studios Network and Artist Studios Report 2014	The report sets out the significance of affordable artists' workspace to London's culture, while identifying risks to future provision and makes recommendations to support a vibrant future for London's artist population.	Ensure that priorities are reflected in the development of the IIA Framework **IIA Objective 13**

Topic	Document Title	Key objectives, targets and indicators relevant to the London Plan and IIA	Implications for IIA
Culture	Arts Council England Strategy	Strategy promotes creating positive change throughout the arts, while helping create an environment where great arts and culture can thrive. It promotes investment in as well as support the development of world class museums and libraries to engage diverse audiences and describes how success will look and be measured against criteria and goals.	Ensure that priorities are reflected in the development of the IIA Framework **IIA Objective 13**
Culture	The Mayor's A-Z of Planning and Culture (October 2015)	A guide that demonstrates how the planning process can help support and sustain culture and makes planning terminology and processes more accessible.	Ensure that priorities are reflected in the development of the IIA Framework **IIA Objective 13**
Culture	Mayor's Culture Strategy, Cultural Metropolis (November 2010)	The Strategy considers how within this period of economic uncertainty and rapid change, it can maximise opportunities for the cultural life in London to flourish in preparation for the London 2012 Olympic and Paralympic Games.	Ensure that priorities are reflected in the development of the IIA Framework **IIA Objective 13**
Culture	Mayor's Cultural Strategy – achievements and next steps	The Strategy places emphasis on the success of London 2012 including the role of culture and creativity exhibited throughout the Olympic Games. The strategy outlines plans for the legacy of the Olympics and details the Mayor's plan to revitalise the capital through culture.	Ensure that priorities are reflected in the development of the IIA Framework **IIA Objective 13**
Culture	Mayor's cultural tourism vision for London 2015 – 2017, Take a Closer Look	This vision identifies the importance of culture to the tourism industry, citing that four out of five visitors state that that 'culture and heritage' is their main reasons for coming to London. Offers ways in which London can maintain its position against international competition, by bringing the tourism and culture world's closer together and spreading tourism benefits more evenly across the capital.	Ensure that priorities are reflected in the development of the IIA Framework **IIA Objective 13**
Culture	GLA Night Time Economy Commission, Strategic Case and Investment Proposal (2016)	A report outlining the findings of a six month investigation into what should be done to protect and manage the night time economy. The night time economy is a key part of the capital's cultural offer, helping attract the millions of visitors that have helped the capital break records as the world's most visited destination, with four out of five saying culture is a key reason for coming.	Ensure that priorities are reflected in the development of the IIA Framework **IIA Objectives 10, 13**
Culture	London's Grassroots Music Venues Rescue Plan (October 2015	Grassroots music venues are essential for success in the UK music industry while contributing to London's desirability in all aspects, incorporates consultation with government, local authorities and the music industry. Explains issues that planning, licencing, policing and fiscal policy have balancing the needs of venues with the needs of residents and other businesses.	Ensure that priorities are reflected in the development of the IIA Framework **IIA Objective 13**
Air quality	EU Ambient Air Quality Directive (2008/50/EC)	A revision of previously existing European air quality legislation which sets out long term air quality objectives and legally binding limits for ambient concentrations of certain pollutants in the air. The directive replaced nearly all the previous EU air quality legislation and was made law in England through the Air Quality Standards Regulations 2010.	IIA to include objectives relevant to the achievement of the Directive standards. **IIA Objectives 3, 14**

Topic	Document Title	Key objectives, targets and indicators relevant to the London Plan and IIA	Implications for IIA
Air quality	EU Thematic Strategy on Air Pollution (2005)	Aims to cut the annual number of premature deaths from air pollution-related diseases by almost 40 per cent by 2020 (using 2000 as the base year), as well as substantially reducing the area of forests and other ecosystems suffering damage from airborne pollutants.	Ensure that the requirements of the strategy are reflected in the IIA framework. **IIA Objectives 3, 14**
Air quality	Air Quality Standards Regulations 2010	Establishes mandatory standards for air quality and set objectives for sulphur and nitrogen dioxide, suspended particulates and lead in air. Some pollutants have Air Quality Objectives (AQOs) expressed as annual mean concentrations due to the chronic way in which they affect human health or the natural environment (i.e. impacts occur after a prolonged period of exposure to elevated concentrations). Others have AQOs expressed as 24-hour or 1-hour mean concentrations due to the acute way in which they affect human health or the natural environment (i.e. after a relatively short period of exposure)	Give due consideration to how the plan can contribute to the objectives and targets of the Regulations. **IIA Objectives 3, 14**
Air quality	Environment Act 1995 (as amended)	Under "the 1995 Act" the Local Air Quality Management (LAQM) boroughs must regularly review and assess air quality within their boroughs and designate Air Quality Management Areas (AQMAs) where UK standards and objectives are currently not being met. Currently all 33 London boroughs have designated AQMAs and the associated Air Quality Action Plans.	To be reflected in the London Plan **IIA Objectives 3, 14**
Air quality	Air Quality Strategy for England, Scotland, Wales and Northern Ireland	Ensure a level of ambient air quality in public places, which poses no significant risk to health or quality of life, for all to enjoy.	Ensure that the requirements of the Strategy are reflected in the IIA framework. **IIA Objectives 3, 14**
Air quality	National Planning Policy Framework (2012)	Paragraph 124 identifies that planning policies should sustain compliance with and contribute towards EU limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and the cumulative impacts on air quality from individual sites in local areas. Planning decisions should ensure that any new development in Air Quality Management Areas is consistent with the local air quality action plan.	IIA to include objectives relevant to the achievement of the NPPF objectives. **IIA Objectives 3, 14**
Air quality	UK's Air Quality Action Plan (Defra, revised January 2016)	Includes zone specific air quality plans which set targeted local, regional and national measures to ensure the UK air will be cleaner than ever before. There is an air quality plan for achieving EU air quality limit values for NO_2 in Greater London (September 2011). The plan identifies a variety of joint measures to improve NO_2 in the Greater London Urban Area agglomeration zone, including measures at different administrative levels (EU, national, regional and local). Some measures include, for example, promoting smarter travel, congestion charging, sustainable freight distribution, smoothing traffic flow, low-carbon vehicles, clean transport technologies and renewable energy sources	Reflect objectives in the IIA Framework. **IIA Objectives 3, 14**

Topic	Document Title	Key objectives, targets and indicators relevant to the London Plan and IIA	Implications for IIA
Air quality	London Air Quality Network Summary Report 2014 (March 2016)	Details the results of air pollution measurements made on the London Air Quality Network during 2014 (and in 2016). The London Air Quality Network (LAQN) is a unique resource, providing robust air pollution measurements that are essential to underpin air quality management and health studies. Results on Carbon Monoxide, Nitrogen Dioxide, Nitrogen Oxides, Ozone, Sulphur Dioxide, PM_{10} & $PM_{2.5}$	To include an IIA objective which measures the extent to which the London Plan contributes to an improvement in air quality **IIA Objectives 3, 14**
Air quality	Transport Emissions Roadmap (TERM), Cleaner transport for a cleaner London (TfL, September 2014)	Explains how new, innovative solutions may be required to meet the needs of London in a future where fewer vehicle kilometres are driven (to help achieve CO_2 targets and pollution limits). This has implications for policies related to car ownership, freight deliveries and road user charging.	Include IIA objectives that will test the whether London Plan policies give consideration to innovative solutions. **IIA Objectives 3, 14**
Air quality	Transport Action Plan, Improving the health of Londoners (TfL, February 2014)	Recognises the importance of transport and street environments in improving people's health. It identifies air quality as one indicator of a healthy street environment and that poor air quality can impact upon cardiovascular disease and respiratory diseases depending on a number of factors such as a person's exposure to air quality and their vulnerability to disease.	To include IIA objectives in alignment with Transport Action Plan strategic direction. **IIA Objectives 3, 14**
Air quality	Cleaning the Air, the Mayor's Air Quality Strategy (GLA, December 2010)	The strategy sets out a framework for improving London's air quality and includes a range of measures such as age limits for taxis, promoting low-emission vehicles, eco-driving and new standards for the Low Emission Zone aimed at reducing emissions from transport.	Include health IIA objectives which assess air quality of human health **IIA Objectives 3, 14**
Air quality	Cleaner Air for London, the Progress Report on the delivery of the Mayor's Air Quality Strategy (GLA, July 2015)	Update report to the above strategy.	Include health IIA objectives which assess air quality of human health **IIA Objectives 3, 14**
Air quality	WHO Air Quality Guidelines	The WHO Air quality guidelines provide an assessment of health effects of air pollution and thresholds for health-harmful pollution levels. The Guidelines apply worldwide and are based on expert evaluation of current scientific evidence for: • particulate matter (PM) • ozone (O3) • nitrogen dioxide (NO_2) and • sulphur dioxide (SO_2),	Ensure that the objectives of the guidelines are reflected in the IIA framework. **IIA Objectives 3, 14**
Air quality	Clean Air Act (1993)	An Act to consolidate the Clean Air Acts 1956 and 1968	Ensure that the objectives of the Act are reflected in the IIA framework. **IIA Objectives 3, 14**

Topic	Document Title	Key objectives, targets and indicators relevant to the London Plan and IIA	Implications for IIA
Air quality	Mayor's Transport Strategy (2010)	Reducing air pollutant emissions from ground-based transport, contributing to EU air quality targets. It promotes incentives to use low emission vehicles, develops the current Low Emission Zone (LEZ) and takes a lead by promoting a cleaner public service fleet, including buses, taxis and Greater London Authority (GLA) Group vehicles.	Ensure that the objectives of the Strategy are reflected in the IIA framework. **IIA Objectives 3, 14**
Climate Change	United Nations Framework Convention on Climate Change	Aimed to mitigate the negative impacts of climate change and stabilise GHG concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system.	Include IIA objectives on Climate Change adaptation and mitigation. **IIA Objectives 15, 16**
Climate Change	Kyoto Climate Change Protocol & UK Climate Change Programme	Requires the enhancement of energy efficiency in relevant sectors of the national economy. Limitation or reduction of methane emissions through recovery and use in waste management, as well as in the production, transport and distribution of energy. Established to limit emissions of greenhouse gases. 6 gases addressed: Carbon dioxide, Methane, Nitrous oxide, Hydroflurocarbons, Perflurocarbons, Sulphur haxflurodide.	Sets targets relating to reductions of greenhouse gases. Kyoto Protocol sets a target to reduce greenhouse gas emissions by 5 per cent of 1990 levels, 2008-12. UK agreement is to reduce greenhouse gas emissions by 12.5 per cent below 1990 levels by 2008-12. UK Climate Change Programme national goal of a 20 per cent reduction in carbon dioxide emissions below 1990 levels by 2010. **IIA Objectives 15, 16**
Climate Change	Climate Change Act 2008	Sets out a legally binding framework for national GHG emissions to be reduced by at least 80 per cent by 2050, compared to 1990 levels. The Act also paves the way for the UK to adapt to climate change.	Include IIA objectives on Climate Change adaptation and mitigation, measurable objectives with targets and indicators to reflect the Act. **IIA Objective 15**
Climate Change	UK Low Carbon Transition Plan (2009)	Sets out how the UK will meet a 34 per cent cut in emissions on 1990 levels (or an 18 per cent cut on 2008 levels) by 2020 to deliver the UK's legally binding target to cut emissions by at least 80 per cent by 2050. It does this through setting five-year "carbon budgets" to keep the UK on track.	Include IIA objectives on Climate Change adaptation and mitigation. Set out measurable objectives. **IIA Objectives 15, 16**

Topic	Document Title	Key objectives, targets and indicators relevant to the London Plan and IIA	Implications for IIA
Climate Change	London Climate Change Mitigation and Energy Strategy (2011)	Details the programmes and activities that are ongoing across London to further limit climate change and achieve the Mayor's target to reduce London's CO_2 emissions by 60 per cent of 1990 levels by 2025.	Include IIA objectives on Climate Change adaptation and mitigation. **IIA Objectives 16, 17**
Climate Change	Mayor's climate change adaptation strategy, Managing risks and increasing resilience (2011)	The strategy aligns with the Mayor's other environment strategies and programmes which are built on three policy pillars: retrofitting London, greening London and cleaner air for London.	Include IIA objectives on Climate Change adaptation and mitigation. **IIA Objective 15**
Climate Change	Transport Emissions Roadmap (TERM), Cleaner transport for a cleaner London (TfL, September 2014)	Explains how new, innovative solutions may be required to meet the needs of London where fewer vehicle kilometres are driven (to help achieve CO_2 targets and pollution limits). This has implications for policies related to car ownership, congestion and freight deliveries.	Include IIA objectives on Climate Change adaptation and mitigation. Set out measurable objectives. **IIA Objectives 14, 15, 16**
Climate Change	EC White Paper: Adapting to Climate Change	Presents the framework for adaption measures and policies to reduce the EU's vulnerability to the impacts of climate change. Outlines the need to create a mechanism by 2011 where information on climate change risks, impacts and best practices would be exchanged between governments, agencies and organisations working on adaptation policies. Since the impacts of climate change will vary by region, many adaptation measures will need to be carried out nationally or regionally. The role of the EU will be to support and complement these efforts through an integrated and co-ordinated approach, particularly in cross-border issues and policies which are highly integrated at EU level. Adapting to climate change will be integrated into all EU policies.	Give due consideration to how the plan can reflect climate change issues. **IIA Objective 15**
Climate Change	Climate Change Risk Assessment	Outlines some of the most important risks and opportunities that climate change may present to the UK. It provides an overview but also focuses on five complementary themes: Agriculture & Forestry, Business, Health & Wellbeing, Buildings & Infrastructure and the Natural Environment. It provides an indication of the potential magnitude of impacts, when they might become significant and the level of confidence. The CCRA sets out the main priorities for adaptation in the UK. Forms one of the key components to the Government's response to the Climate Change Act 2008.	Ensure that the opportunities and risks are taken account of, and that these are addressed at an appropriate level, by the plan policies and IIA framework. **IIA Objectives 15, 16**
Climate Change	National Adaptation Programme (NAP)	Sets out what government, businesses, and society are doing to become more climate ready. Developed in response to the UK Climate Change Risk Assessment. Forms one of the key components to the Government's response to the Climate Change Act 2008.	Ensure that the requirements of the Programme are reflected in the IIA framework. **IIA Objective 15**

Topic	Document Title	Key objectives, targets and indicators relevant to the London Plan and IIA	Implications for IIA
Climate Change	The Carbon Plan	The Climate Change Act established a legally binding target to reduce the UK's greenhouse gas emissions by at least 80 per cent below base year levels by 2050. The plan sets out how the UK will achieve decarbonisation within the energy policy framework: to make the transition to a low carbon economy while maintaining energy security, and minimising costs to consumers, particularly those in poorer households. Sets out proposals and policies for meeting the first four carbon budgets. Includes sectoral plans that set targets to contribute towards overall carbon budget and reiterates the commitment of working towards a zero waste economy. Targets of relevance are contained in the Low carbon industry sectoral plan (By 2027, emissions from industry should be between 20 per cent and 24 per cent lower than 2009 levels. By 2050, the Government expects industry to have delivered its fair share of emissions cuts, achieving reductions of up to 7 0 per cent from 2009 levels).	The plans policies and IIA framework should reflect the move towards a low carbon economy through measures such as diverting waste from landfill by driving it up the hierarchy and using alternate or low emission transport options where viable. **IIA Objectives 15, 16, 23**
Climate Change	Promotion of the Use of Energy from Renewable Sources Directive (2009/28/EC)	Through this Directive the EU committed to providing 20 per cent of energy from renewable sources by 2020 and a mandatory 10 per cent minimum target should be achieved by all Member States for the share of biofuels in transport petrol and diesel consumption. London aims to contribute to the national share of renewables generation, noting the additional challenges urban areas face.	Reflect objectives in IIA framework **IIA Objectives 15, 16, 17**
Climate Change	Arup's Reducing Urban Heat Risk July 2014	Identifies the factors which contribute to urban heat risk, and has developed approaches and responses to address these factors	Reflect principles in IIA framework **IIA Objective 15**
Climate Change	Joseph Rowntree Foundation's Vulnerability to Heatwaves and Drought- Adaptation to Climate Change Feb 2011	Sets out what it means to be vulnerable to climate change and how early examples of climate change adaptation may affect vulnerable groups in society.	Reflect principles in IIA framework **IIA Objective 15**
Climate Change	The London Climate Change Partnership (LCCP) Overheating Thresholds Report June 2012	Summarises the findings of a small qualitative research project identifying some key hot weather related thresholds relevant to London and its urban systems. Focus is on some of the specific issues for the social housing and care home sectors.	Reflect findings in IIA framework **IIA Objective 15**
Energy use and Supply	Scenarios to 2050: London Energy Plan	The London Energy Plan explores how much energy London would need in the future, where it might be needed and the different ways of supplying it. It is a set of interconnected data models for building demand, power, heat, decentralised energy and transport, which have been developed using the best available data and with input from a range of stakeholders.	Reflect targets in the relevant indicators in the IIA framework. **IIA Objectives 11, 17**
Energy use and Supply	UK Renewable Energy Strategy 2015	Establishes the methods and reasons for increasing the use of renewable electricity, heat and transport. Models scenarios to show how targets might be met.	Ensure that the requirements of the Strategy are reflected in the IIA framework. **IIA Objectives 11, 17**

Topic	Document Title	Key objectives, targets and indicators relevant to the London Plan and IIA	Implications for IIA
Energy use and Supply	Energy White Paper: Meeting the Energy Challenge 2007	Sets out the government's international and domestic energy strategy to tackle climate change and secure clean and affordable energy. Recognises the need to save energy, develop cleaner energy supplies and secure reliable energy supplies at prices set in competitive markets. The key elements of the strategy are: • Establishing an international framework to tackle climate change. • Providing legally binding carbon targets for the whole UK economy. • More progress in achieving fully competitive and transparent international markets. • Encouraging more energy saving through better information, incentives and regulation. • Providing more support for low carbon technologies. • Ensuring the right conditions for investment.	Give due consideration to how the plan can contribute to meeting energy challenges. Ensure that the strategy is reflected in the IIA framework. **IIA Objective 17**
Energy use and Supply	Mayor's Climate Change Mitigation and Energy Annual Report: 2013-2014 (June 2015)	The Mayor has set world-leading targets to reduce London's carbon dioxide (CO_2) emissions by 60 percent from 1990 levels by 2025. This report updates on London's progress towards meeting this target and Mayoral activity to reduce London's CO_2 emissions and secure its energy supply in 2013-14.	Reflect aims in the IIA framework. **IIA Objectives 16, 17**
Energy use and Supply	London's Zero Carbon Energy Resource (2013)	Explores London's environment and waste heat sources that could supply energy to heat networks in the future. It suggests that London has sufficient environmental and waste heat to meet its building heat demand.	Reflects aims within the IIA framework **IIA Objectives 17**
Energy use and Supply	London Infrastructure Plan 2050	This sets the context for increasing demand for energy and the services it provides due to population growth and associated development.	Reflects aims within the IIA framework **IIA Objectives 11, 17**
Energy use and Supply	London Energy Plan forthcoming)- Scenarios to 2050: London Energy Plan	Aims to address issues in energy consumption, generation and distribution to support the development of new policies and programmes to achieve the Mayor's target	Reflect targets in the IIA framework. **IIA Objective 17**
Water resources and quality	Water Framework Directive – 2000/60/EC	This Directive aims to establish a framework for the protection of inland surface waters, transitional waters, coastal waters and groundwater which: • Prevents further deterioration and protects and enhances the status of aquatic ecosystems and, with regard to their water needs, terrestrial ecosystems and wetlands directly depending on the aquatic ecosystems; • Promotes sustainable water use based on a long-term protection of available water resources; • Ensures the progressive reduction of pollution of groundwater and prevents its further pollution, and • Contributes to mitigating the effects of floods and droughts	Include objectives and indicators relating to water use and quality. **IIA Objective 18**
Water resources and quality	Water Act 2003	National legislation which transposes the Water Framework Directive into UK law.	Include objectives and indicators relating to water use and quality. **IIA Objective 18**

Topic	Document Title	Key objectives, targets and indicators relevant to the London Plan and IIA	Implications for IIA
Water resources and quality	River Basin Management Plan (RBMP) for the Thames River Basin District (2009)	Implements the Water Act at a regional level, focusing on the protection, improvement and sustainable use of the water environment. Many organisations and individuals help to protect and improve the water environment for the benefit of people and wildlife. River basin management is the approach the Environment Agency is using to ensure combined efforts achieve the improvement needed in the Thames River Basin District.	Include objectives and indicators relating to water use and quality. **IIA Objective 18**
Water resources and quality	Mayor's Water Strategy (2011)	The first water strategy for London and provides a complete picture of London's water needs. The strategy calls for organisations involved in the city's water management to: • invest in a water management and sewerage infrastructure system that's fit for a world class city and will create jobs; • support and encourage Londoners to take practical actions to save water, save energy and save money off their utility bills; and realise the potential of London's sewerage as an energy resource to help reduce greenhouse gas emissions.	Ensure that the requirements of the Strategy are reflected in the IIA framework. **IIA Objective 18**
Water resources and quality	Thames River Basin Management Plan (2009)	Focuses on the protection, improvement and sustainable use of the water environment. Many organisations and individuals help to protect and improve the water environment for the benefit of people and wildlife. River basin management is the approach the Environment Agency is using to ensure combined efforts achieve the improvement needed in the Thames River Basin District.	Ensure that the requirements of the Strategy are reflected in the IIA framework. **IIA Objective 18**
Water resources and quality	London Abstraction Licensing Strategy (2013)	Sets out how water resources are managed in the London area. It provides information on where water is available for further abstraction and an indication of how reliable a new abstraction license may be	Ensure that the objectives of the Strategy are reflected in the IIA framework. **IIA Objective 18**
Flood risk	Water Framework Directive (WFD) 2000/60/EC (2000)	Expands the scope of water protection to all waters, surface waters and groundwater, and aimed to achieve 'good' status or potential for all waters by 2015, or under certain provisions, 2021 or 2025.	Ensure that water protection is reflected in the IIA objectives. **IIA Objective 19**
Flood risk	Flood & Water Management Act 2010	Assigned new responsibilities to local authorities to work in partnership with the Environment Agency, water companies and others to manage various aspects of flood risk. It requires Lead Local Authorities to produce a local strategy setting out significant flood risks affecting their area, and how they intended to address them.	Ensure that water protection is reflected in the IIA objectives. **IIA Objective 19**
Flood risk	UK Water Strategy (2008)	Builds on the principles of the existing Government Strategy for Flood and Coastal Erosion Risk Management - 'Making Space for Water' (2005) to ensure a fully integrated approach to flood risk and water management up to 2030.	Ensure that water protection is reflected in the IIA objectives. **IIA Objective 19**
Flood risk	National Planning Policy Framework (March 2012)	Set out that new development should be planned to avoid increased vulnerability to the range of impacts arising from climate change, including flooding.	Ensure that water protection is reflected in the IIA objectives. **IIA Objective 19**
Flood risk	London's Regional Flood Risk Appraisal (2014)	A strategic level assessment of flood risks across London with a focus on main development locations and strategic infrastructure.	Ensure that water protection is reflected in the IIA objectives. **IIA Objective 19**

Topic	Document Title	Key objectives, targets and indicators relevant to the London Plan and IIA	Implications for IIA
Flood risk	Thames Catchment Flood Management Plan (2009)	Provides an overview of the potential extent of flooding now and in the future, and enables policies to be set for managing flood risk within Thames Catchment. The plan, which contains a range of data and policies, is used to inform planning and decision making by key stakeholders.	Ensure that water protection is reflected in the IIA objectives. **IIA Objective 19**
Flood risk	Securing London's water future, the Mayor's Water Strategy (2011)	Calls for organisations involved in the city's water management to work in partnership with the Mayor, boroughs and communities to seek and develop opportunities to manage flood risk through enhancing London's green spaces.	Ensure that water protection is reflected in the IIA objectives. **IIA Objective 19**
Flood risk	Thames Estuary 2100 Plan (TE2100 Plan) (November 2014)	Sets out the recommendations and actions needed to manage flood risk. It aims to direct future work on flood warning, flood plain management and expenditure needed to maintain and replace 330 km of walls, embankments, flood barrier and gates.	Ensure that water protection is reflected in the IIA objectives. **IIA Objective 19**
Flood risk	London Resilience Partnership Strategic Flood Response Framework (2015)	Considers flooding, of any kind, causing or with the potential to cause London-wide impacts. This includes flooding from rivers, the sea (tidal), surface water, groundwater, reservoirs, sewers, canals and artificial waterways. This may be severe flooding in one or more locations requiring a London-wide response, or a greater number of less severe flooding in multiple locations within London.	Ensure that water protection is reflected in the IIA objectives. **IIA Objective 19**
Natural Environment and Natural Capital	Directive on the Conservation of Wild Birds 79/409/EEC	Provides a framework for the conservation and management of wild birds in Europe, including their habitats.	Ensure that the requirements of the Directive are reflected in the framework. **IIA Objective 20**
Natural Environment and Natural Capita	EC Directive on the Conservation of Habitats and Wild Fauna and Flora 92/43/EEC	• Conserve fauna and flora and natural habitats of EU importance. • Establish a network of protected areas throughout the community designed to maintain both the distribution and abundance of threatened species and habitats.	Ensure that the requirements of the Directive are reflected in the framework. **IIA Objective 20**
Natural Environment and Natural Capita	Conservation of Habitats and Species Regulations 2010	Provide for the designation and protection of a Natura 2000 sites, the protection of European protected species, and the adaptation of planning and other controls for the protection of European Sites in the UK	Include Natural Environment topic in the IIA objectives to test sustainability of the London Plan. **IIA Objective 20**
Natural Environment and Natural Capita	Wildlife & Countryside Act 1981 (as amended)	The principal piece of UK legislation relating to the protection of wildlife. It consolidates and amends existing national legislation to implement the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) and Council Directive 79/409/EEC on the Conservation of Wild Birds (Birds Directive) in Great Britain. The Countryside and Rights of Way Act 2000 was passed to provide additional levels of protection for wildlife whilst also strengthening the protection afforded to SSSI.	Include Natural Environment topic in the IIA objectives to test sustainability of the London Plan. **IIA Objective 20**

Topic	Document Title	Key objectives, targets and indicators relevant to the London Plan and IIA	Implications for IIA
Natural Environment and Natural Capita	Natural Environment and Rural Communities Act 2006	Designed to help achieve a rich and diverse natural environment and thriving rural communities. Section 40 of NERC Act carries a duty to public bodies and statutory undertakers to ensure due regard to the conservation of biodiversity. Section 41 requires the Secretary of State to publish a list of the living organisms and types of habitat which it deems of principal importance for the purpose of conserving biodiversity.	Include Natural Environment topic in the IIA objectives to test sustainability of the London Plan. **IIA Objective 20**
Natural Environment and Natural Capita	England biodiversity strategy: Climate change adaptation principles	Sets out principles (and priorities) to guide adaptation to climate change and manage impacts of climate change on biodiversity, principles include: maintain and increase ecological resilience, accommodate change, take practical action now, develop knowledge and plan strategically, and integrate action across all sectors.	The plans policies and IIA framework should reflect the principles and seek to contribute towards the adaptation priorities. **IIA Objectives 15, 16, 20**
Natural Environment and Natural Capita	The Guidance for Local Authorities on Implementing the Biodiversity Duty (2007)	The guidance references a biodiversity indicator, which was developed as a result of a Defra commissioned research project in 2003/4. The indicator developed to measure local authority performance is: 'Progress towards achieving a local authority's potential for biodiversity', which is based on four sub-indicators relating to: • The management of local authority landholdings (e.g. per cent of landholdings managed to a plan which seeks to maximise the sites' biodiversity potential. • The condition of local authority managed SSSIs (e.g. per cent of SSSI in 'favourable' or 'unfavourable recovering' condition). The effect of development control decisions on designated sites (e.g. change in designated sites as a result of planning permissions).	IIA should include objectives relating to biodiversity. **IIA Objective 20**
Natural Environment and Natural Capita	UK post-2010 Biodiversity Framework	The purpose of this UK Biodiversity Framework is to set a broad enabling structure for action across the UK between now and 2020. It seeks a more joined up strategic approach in relation to planning for biodiversity (i.e. Biodiversity Action Plans). It identifies a set of strategic goals and key actions to achieve these. The framework takes account of international drivers such as the 'Strategic Plan for Biodiversity 2011–2020' (including the 20 Aichi targets), agreed at Nagoya, Japan in October 2010, and the EU Biodiversity Strategy (EUBS) May 2011.	The plans policies and IIA framework should give due consideration to resultant biodiversity strategies, policy and the London BAP (including its priorities and targets). **IIA Objective 20**
Natural Environment and Natural Capita	Biodiversity 2020	Sets out the strategic direction for biodiversity policy for the next decade on land (including rivers and lakes) and at sea. Identifies a vision, mission, outcomes and actions to show what achieving the overarching objective by 2020 will mean in practice. Vision for England - By 2050 our land and seas will be rich in wildlife, our biodiversity will be valued, conserved, restored, managed sustainably and be more resilient and able to adapt to change, providing essential services and delivering benefits for everyone.	The plans policies and IIA framework should support the 2020 mission and seek to enhance biodiversity and ecological networks. **IIA Objective 20**

Topic	Document Title	Key objectives, targets and indicators relevant to the London Plan and IIA	Implications for IIA
Natural Environment and Natural Capita	The Natural Choice – securing the value of nature (2011)	Sets out the Government's policy framework for ensuring that decisions by central government, local government and others properly value the economic and social benefits of a healthy natural environment. Introduces the concepts of green infrastructure, ecosystem services and natural capital.	Ensure relevant IIA objectives are consistent with Government policy framework **IIA Objective 20**
Natural Environment and Natural Capita	National Planning Policy Framework (2012)	Sets out how the planning system should contribute to and enhance the natural environment by: • protecting and enhancing valued landscapes, geology and soils; • recognising the wider benefits of ecosystem services; • minimising impacts on biodiversity and providing net gains in biodiversity where possible	Ensure relevant IIA objectives are consistent with national planning policy **IIA Objective 20**
Natural Environment and Natural Capita	Mayor's Biodiversity Strategy, Connecting with London's Nature (GLA, July 2002)	Contains information about the ecology of London, the habitats present across the city and the wildlife these support. It also sets out the reasons for protecting and enhancing the natural environment including the benefits related to health and well-being, climate change adaptation and broader environmental objectives such as improved air and water quality. Set out the policies and proposals necessary for the conservation and promotion of biodiversity.	Include Natural Environment topic in the IIA objectives to test sustainability of the London Plan. **IIA Objective 20**
Natural Environment and Natural Capita	Mayor's Biodiversity Strategy Update, A review of progress and priorities for action (GLA, 2015)	Sets out a summary of the current status of London's habitats and wildlife, the progress which has been made on implementing the Mayor's Biodiversity Strategy and priorities for action going forward.	Include Natural Environment topic in the IIA objectives to test sustainability of the London Plan. **IIA Objective 20**
Natural Environment and Natural Capita	London Underground Biodiversity Action Plan 2010, Connecting Nature (2010)	Identifies London Underground land holdings essential habitats for the wide range of plants and animals in London. Because of this, the railway lineside environment is increasingly recognised for its contribution to London's greenspace and as a biodiversity asset for London.	Reflect importance in IIA Framework **IIA Objective 20**
Natural Environment and Natural Capita	Green Capital. Green Infrastructure for a future city (2016)	Sets out information and the importance of London's Green infrastructure, including features such as street trees and green roofs. Benefits include • healthy living; • mitigating flooding; • improving air and water quality; • cooling the urban environment; • encouraging walking and cycling; and • enhancing biodiversity and ecological resilience.	Include Natural Environment topic in the IIA objectives to test sustainability of the London Plan. **IIA Objective 20**
Townscape and Landscape	National Planning Policy Framework (March 2012)	Sets out a number of policies on the protecting and enhancing valued landscapes through good design.	Ensure that priorities are reflected in the development of the IIA Framework **IIA Objective 7**

Topic	Document Title	Key objectives, targets and indicators relevant to the London Plan and IIA	Implications for IIA
Townscape and Landscape	European Landscape Convention (2000)	Established a definition of landscape and highlighted the importance of developing policies dedicated to the protection, management and creation of landscapes, and establishing procedures for stakeholders and the public to participate in policy creation and implementation. Promotes the protection, management and planning of European landscapes and organises European co-operation on landscape issues.	Plan policies to support overall objectives and requirements of the Convention. Ensure that the requirements of the Convention are reflected in the IIA framework. **IIA Objectives 7, 20**
Townscape and Landscape	Countryside and Rights of Way Act 2000	Addresses the designation of Areas of Outstanding Natural Beauty (AONBs), Sites of Special Scientific Interest (SSSIs), Open Country and Common Land. It also adds provisions to the consideration and management of the Public Right of Way network.	Ensure that the requirements are reflected in the IIA framework. **IIA Objective 20**
Townscape and Landscape	Streetscape Guidance (TfL, Third Edition, 2016 Revision 1)	Provides a standard for London's streets and spaces to be used by those who will be working on or affecting London's streets. Whether a one-off major project or a smaller local adjustment, it defines aspirations and outlines the criteria for good design, material selection, installation and maintenance.	Ensure that the principles and criterial for good design are imbedded into the IIA framework. **IIA Objectives 7, 21**
Townscape and Landscape	Publicly Accessible Space – London Assembly Report June 2011	A London Assembly report that highlights the trend the increase in privately owned space and therefore the importance on trying to increase the amount of public and privately owned spaces that can be accessed and used by the public.	Ensure that priorities are reflected in the development of the IIA Framework **IIA Objectives 7, 8**
Historic Environment	Planning (Listed Buildings and Conservation Areas) Act 1990	Builds on the framework set out in the European Conventions and includes the protection of Scheduled Monuments, Conservation Areas, Registered Parks and Gardens and Listed Buildings.	Ensure that priorities are reflected in the development of the IIA Framework **IIA Objective 21**
Historic Environment	Ancient Monuments and Archaeological Areas Act 1979	Builds on the framework set out in the European Conventions and includes the protection of Scheduled Monuments, Conservation Areas, Registered Parks and Gardens and Listed Buildings.	Ensure that priorities are reflected in the development of the IIA Framework **IIA Objective 21**
Historic Environment	National Planning Policy Framework (March 2012)	Paragraphs 126 states that the local authorities should set out a positive strategy for the conservation and enjoyment of the historic environment, including heritage assets most at risk through neglect, decay or other threats. It highlights the importance of conserving the significance of heritage assets and their settings.	Ensure that priorities are reflected in the development of the IIA Framework **IIA Objectives 7, 21**
Historic Environment	UNESCO guidelines on World Heritage Sites	Sets out guidelines for the conservation and management of World Heritage Sites.	Ensure that priorities are reflected in the development of the IIA Framework **IIA Objective 7, 21**

Topic	Document Title	Key objectives, targets and indicators relevant to the London Plan and IIA	Implications for IIA
Historic Environment	Palace of Westminster and Westminster Abbey, including St Margaret's Church World Heritage Sites Management Plan 2007	Sets out the Westminster's World Heritage Sites Outstanding Universal Value and significance and key issues for the management of the site and its setting.	Ensure relevant objectives of the management plan are reflected in the IIA framework. **IIA Objectives 7, 21**
Historic Environment	Tower of London World Heritage Site Draft Management Plan 2016	Sets out the Tower of London's World Heritage Sites Outstanding Universal Value and significance and key issues for the management of the site and its setting.	Ensure relevant objectives of the management plan are reflected in the IIA framework. **IIA Objectives 7, 21**
Historic Environment	Maritime Greenwich World Heritage Site Management Plan 2014	Sets out the Greenwich Maritime World Heritage Sites Outstanding Universal Value and significance and key issues for the management of the site and its setting.	Ensure relevant objectives of the management plan are reflected in the IIA framework. **IIA Objectives 7, 21**
Historic Environment	Royal Botanic Gardens, Kew World Heritage Site Management Plan 2011	Sets out the Kew Gardens World Heritage Sites Outstanding Universal Value and significance and key issues for the management of the site and its setting.	Ensure relevant objectives of the management plan are reflected in the IIA framework. **IIA Objectives 7, 21**
Historic Environment	Historic Environment Good Practice Advice in Planning: 1 The Historic Environment in Local Plans March 2015	A good practice guide to implementing the NPPF in respect of the conserving the historic environment.	Ensure principles are reflected in the development of the IIA Framework **IIA Objective 21**
Historic Environment	Historic Environment Good Practice Advice in Planning: 2 Managing Significance in Decision-Taking in the Historic Environment. March 2015	A good practice guide to help decision makers assess the significance of heritage assets, using appropriate expertise, historic environment records, recording and furthering understanding, neglect and unauthorised works, marketing and design and distinctiveness.	Ensure principles are reflected in the development of the IIA Framework **IIA Objective 21**
Historic Environment	Historic Environment Good Practice Advice in Planning: 3 The Significance of Heritage Assets	A best practice guide on the importance of managing change within the settings of heritage assets, includes guidance on the extent of settings, views, and significance.	Ensure principles are reflected in the development of the IIA Framework **IIA Objective 21**
Historic Environment	Conservation Area Designation, Appraisal and Management Historic England Advice Note 1	Provides information for local authorities and other interested parties on designating, appraising and managing conservation areas.	Ensure principles are reflected in the development of the IIA Framework **IIA Objective 21**

Topic	Document Title	Key objectives, targets and indicators relevant to the London Plan and IIA	Implications for IIA
Historic Environment	Managing change to Heritage Assets Historic England Advice Note 2	Provides general advice on repair, restoration, addition, alteration, works for research, based on the types of heritage asset.	Ensure principles are reflected in the development of the IIA Framework **IIA Objective 21**
Historic Environment	Tall Buildings Historic England Advice Note 4	Updates previous guidance by English Heritage and CABE, produced in 2007. Provides information of the importance aspects to consider in respect of proposals for tall buildings and their impact on the historic environment.	Ensure principles are reflected in the development of the IIA Framework **IIA Objectives 7, 21**
Historic Environment	Mayor's Culture Strategy, Cultural Metropolis (November 2010)	Makes a number of commitments which the Mayor, working with the London Cultural Strategy Group and range of partners, intends to deliver.	Ensure that the objectives of the Strategy are reflected in the IIA framework. **IIA Objectives 10, 13, 21**
Historic Environment	Mayor's cultural tourism vision for London 2015 – 2017, Take a Closer Look	Assesses and celebrates achievements since publication of the Strategy, offers an update and analysis, identifies some of the key issues and challenges still facing London's cultural sector	Ensure that the objectives of the Strategy are reflected in the IIA framework. **IIA Objectives 10, 13, 21**
Historic Environment	Mayor's cultural tourism vision for London 2015 – 2017, Take a Closer Look	This vision identifies the importance of culture to the tourism industry, citing that four out of five visitors state that that 'culture and heritage' is their main reasons for coming to London. Offers ways in which London can maintain its position against international competition, by bringing the tourism and culture world's closer together and spreading tourism benefits more evenly across the capital.	Ensure that priorities are reflected in the IIA framework. **IIA Objectives 10, 13, 21**
Historic Environment	World Cities Culture Report 2015 – measures and cultural assets	A detailed report centred on culture, providing global insights and statistics, which elaborate on how important culture is for a city. Including ways to make cities more vibrant, inclusive and liveable and how important it is for culture to be incorporated in urban policy, which tends to be vulnerable when budgets are cut.	Ensure that the objectives of the Strategy are reflected in the IIA framework. **IIA Objectives 10, 13, 21**
Geology and soils	EU Soil Strategy (2006)	Widely regarded as a precursor to the development of a Soil Framework Directive to protect and ensure the sustainable use of soil. Its aim was to prevent further soil degradation and restore degraded soil in line with its current and intended use.	Include protection of soil into the IIA framework **IIA Objective 22**
Geology and soils	Seventh Environment Action Programme (2014)	Recognises that soil degradation is a serious challenge. It aspires that by 2020 land is managed sustainably, soil is adequately protected and the remediation of contaminated sites is well underway. It commits the EU and its Member States to increase efforts to reduce soil erosion and increase soil organic matter, and remediate contaminated sites.	Ensure that the objectives of the programme are reflected in the IIA framework. **IIA Objective 22**

Topic	Document Title	Key objectives, targets and indicators relevant to the London Plan and IIA	Implications for IIA
Geology and soils	EU Environmental Liability Directive (99/31/EC)	Focuses on prevention and remediation of environmental damage, including land contamination, which presents a threat to human health. The Directive is based on the polluter pays principle, where polluters are responsible for remediating damage they cause to the environment.	Ensure that the requirements of the Directive are reflected in the IIA framework **IIA Objective 22**
Geology and soils	Safeguarding our Soils – A Strategy for England (2009)	Sets out a vision to improve the sustainable management of soil and tackle degradation within 20 years. Aims to ensure that England's soils are better protected and managed. Four main themes: • Sustainable use of agricultural soils • Role of soils in mitigating and adopting to climate change • Protecting soil functions during construction and development • Preventing pollution and dealing with historic contamination. Details 16 key objectives for meeting these themes.	Ensure that the objectives of the Strategy are reflected in the IIA framework. **IIA Objective 22**
Materials and waste	EU Waste Framework Directive (2008/98/EC)	The aims of this Directive are: • To provide a comprehensive and consolidated approach to the definition and management of waste. • To shift from thinking of waste as an unwanted burden to a valued resource and make Europe a recycling society. • To ensure waste prevention is the first priority of waste management.	The IIA framework to include objectives to minimise the production of waste and promotion of recycling. **IIA Objective 23**
Materials and waste	Waste (England and Wales) (Amendment) Regulations 2014	Requirements of the EU Waste Framework Directive.	Ensure that IIA objectives reflect EU Waste Framework Directive **IIA Objective 23**
Materials and waste	National Planning Policy for Waste (October 2014)	Sets out detailed waste planning policies and places responsibility on waste planning authorities to ensure that waste management is considered alongside other spatial planning concerns such as housing and transport; recognising the positive contribution waste management can make to developing sustainable communities. This includes preparing Local Plans which identify opportunities to meet the needs of their area for the management of waste streams	Reflect NPP for waste requirements in the IIA objectives **IIA Objective 23**
Materials and waste	UK Waste Strategy for England (2007)	Describes a vision for better managing waste and resources and sets out changes needed to deliver more sustainable development in England.	Ensure that the objectives of the Strategy are reflected in the IIA framework. **IIA Objective 23**
Materials and waste	Mayor's Municipal Waste Strategy, London's Wasted Resource (November 2011)	Sets out policies and proposals for reducing the amount of municipal waste produced in London, increasing the amount of waste reused, recycled or composted, and generating low carbon energy from waste remaining. This strategy also sets out how, through the London Waste and Recycling Board, more waste management infrastructure will be developed in London.	Ensure that the objectives of the Strategy are reflected in the IIA framework. **IIA Objective 23**

Topic	Document Title	Key objectives, targets and indicators relevant to the London Plan and IIA	Implications for IIA
Materials and waste	Mayor's Business Waste Management Strategy (2011)	The first strategy for managing London's business waste. It sets out initiatives and case studies to help all kinds of London's businesses, from shops, restaurants, office buildings, manufacturers to construction companies to save money, inspire new business ideas, and reduce harm to the environment.	Ensure that the objectives of the Strategy are reflected in the IIA framework. **IIA Objective 23**
Noise and vibration	EC Noise Directive (2000/14/EC)	Addressing local noise issues by requiring authorities to draw up Action Plans to reduce noise where necessary and maintain environmental noise where it is good.	Ensure that the requirements of the Directive are reflected in the IIA framework. **IIA Objective 24**
Noise and vibration	Noise Policy Statement For England (NPSE), March 2010	The NPSE sets out the long term vision of Government noise policy, promotes good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development. It sets out the following aims: • Avoid significant adverse impacts on health and quality of life; • Mitigate and minimise adverse impacts on health and quality of life; • Where possible, contribute to the improvement of health and quality of life.	Ensure principles are reflected in the IIA Framework **IIA Objective 24**
Noise and vibration	National Planning Policy Framework (March 2012)	The NPPF contains a large number of national policies that are directly or indirectly related to the management of noise and the improvement of the acoustic environment. The Guidance makes clear that unacceptable adverse effects resulting from noise should be prevented. Paragraphs 109 and 123 contain important principles that directly relate to the management of noise.	Ensure principles are reflected in the IIA Framework **IIA Objective 24**
Noise and vibration	Mayor's Ambient Noise Strategy (2004)	Sets out a long-term plan for dealing with noise from transport (including road traffic, rail traffic, aircraft and water transport) and fixed industrial sources, which are the main long-term, predictable, sources of 'ambient noise' (also called 'environmental noise'). Published in 2004 by the previous administration, Sounder City remains the Mayor's ambient noise strategy for London	Ensure that the objectives of the Strategy are reflected in the IIA framework. **IIA Objective 24**

APPENDIX C NATURA 2000 SITES

Natura 2000 Site	Location	Qualifying features	Conservation objectives
Richmond Park SAC (846.68ha) **Site code: UK0030246**	Within the GLA area The following boroughs are within or adjacent to the site: • Richmond upon Thames • Kingston upon Thames • Wandsworth • Merton	Stag beetle (*Lucanus cervus*)	To maintain or restore: • The extent and distribution of the habitat of stag beetle • The structure and function of the habitats of stag beetle • The supporting processes on which the habitats of stag beetle rely • The population of stag beetle, and • The distribution of stag beetle within the site
Wimbledon Common SAC (348.31ha) **Site code: UK0030301**	Within the GLA area The following boroughs are within or adjacent to the European sites: • Merton • Wandsworth • Richmond upon Thames • Kingston upon Thames	• Stag beetle (Lucanus cervus) • Northern Atlantic wet heaths with Erica tetralix • European dry heaths	To maintain or restore: • The extent and distribution of qualifying habitats and habitats of stag beetle • The structure and function (including typical species) of qualifying habitats • The structure and function of the habitats of stag beetle • The supporting processes on which qualifying habitats and the habitats of stag beetle rely • The populations of stag beetle, and, • The distribution stag beetle within the site

Natura 2000 Site	Location	Qualifying features	Conservation objectives
Epping Forest SAC (1604.95ha) **Site code: UK12720**	Partially within the GLA area The following boroughs are within or adjacent to the European sites: • Waltham Forest • Redbridge • Enfield	• Atlantic acidophilus beech forests with *Ilex* and sometimes *Taxus* in shrub layer • Northern Atlantic wet heaths with *Erica teralix* • European dry heaths • Stag beetle (*Lucanus cervus*)	To maintain or restore: • The extent and distribution of qualifying habitats and habitats of stag beetle • The structure and function (including typical species) of qualifying habitats • The structure and function of the habitats of stag beetle • The supporting processes on which qualifying habitats and the habitats of stag beetle rely • The populations of stag beetle, and, • The distribution stag beetle within the site.

Natura 2000 Site	Location	Qualifying features	Conservation objectives
Lee Valley SPA and Ramsar (447.87ha) **SPA site code: 9012111** **Ramsar site code: UK11034**	Partially within the GLA area The following boroughs are within or adjacent to the European sites: • Enfield • Waltham Forest • Haringey • Hackney	SPA: • Great bittern (Botaurus stellaris) (Non-breeding) • Gadwall (Anas strepera) (Non-breeding) • Northern shovelor (Anas clypeata) (Non-breeding) Ramsar: • Ramsar Criterion 2: The site supports the nationally scarce plant species whorled water-milfoil *Myriophyllum verticillatum* and the rare or vulnerable invertebrate *Micronecta minutissima* (a water-boatman). • Ramsar criterion 6: species/populations occurring at levels of international importance (northern shoveler, gadwall).	To maintain or restore: • The extent and distribution of the habitats of the qualifying features • The structure and function of the habitats of the qualifying features • The supporting processes on which the habitats of the qualifying features rely • The population of each of the qualifying features, and, • The distribution of the qualifying features within the site.
South West London Water-bodies SPA and Ramsar (828.1ha) **SPA site code: UK9012171** **Ramsar site code: UK11065**	Partially within the GLA area The following boroughs are within or adjacent to the European sites: • Hillingdon • Hounslow • Richmond upon Thames	SPA: • Gadwall (Anas strepera) (Non-breeding) • Northern shovelor (Anas clypeata) (Non-breeding) • Ramsar: • Ramsar criterion 6: species/populations occurring at levels of international importance (northern shoveler, gadwall).	To maintain or restore: • The extent and distribution of the habitats of the qualifying features • The structure and function of the habitats of the qualifying features • The supporting processes on which the habitats of the qualifying features rely • The population of each of the qualifying features, and, • The distribution of the qualifying features within the site.

Natura 2000 Site	Location	Qualifying features	Conservation objectives
Wormley – Hoddesdonpark Woods SAC (335.53ha) **SAC site code: UK0013696**	Outside GLA area – approx. 4km north	Sub-Atlantic and medio-European oak or oak hornbeam forests of the *Carpinion betuli*	To maintain or restore: • The extent and distribution of qualifying habitats • The structure and function (including typical species) of qualifying habitats, and • The supporting processes on which qualifying habitats rely
Windsor Forest and Great Park SAC (1687.26) **SAC site code: UK0012586**	Outside GLA area – approx. 6km to west	• Old acidophilous oak woods with Quercus robur on sandy plains: Dry oak-dominated woodland • Atlantic acidophilous beech forests with Ilex and sometimes also Taxus in the shrublayer (Quercion robori-petraeae or Ilici-Fagenion): Beech forests on acid soils • Violet click beetle (Limoniscus violaceus)	To maintain or restore: • The extent and distribution of qualifying habitats and habitats of the violet click beetle • The structure and function (including typical species) of qualifying habitats • The structure and function of the habitats of violet click beetle • The supporting processes on which qualifying habitats and the habitats of violet click beetle rely • The populations of violet click beetle, and, • The distribution of violet click beetle within the site.

Natura 2000 Site	Location	Qualifying features	Conservation objectives
Mole Gap to Reigate Escarpment SAC (887.68ha) **SAC site code: UK0012804**	Outside GLA area – approx. 6km to south	• Taxus baccata woods of the British Isles (Yew-dominated woodland) • Asperulo-Fagetum beech forests (Beech forests on neutral to rich soils) • European dry heaths • Semi-natural dry grasslands and scrubland facies: on calcareous substrates (Festuco-Brometalia) (Dry grasslands and scrublands on chalk or limestone). • Semi-natural dry grasslands and scrubland facies: on calcareous substrates (Festuco-Brometalia) (important orchid sites) (Dry grasslands and scrublands on chalk or limestone, including important orchid sites) • Stable xerothermophilous formations with Buxus sempervirens on rock slopes (Berberidion p.p.) (Natural box scrub) • Bechstein's bat (Myotis bechsteinii) • Great crested newt (Triturus cristatus)	To maintain or restore: • The extent and distribution of qualifying habitats and habitats of qualifying species • The structure and function (including typical species) of qualifying habitats • The structure and function of the habitats of qualifying species • The supporting processes on which qualifying habitats and the habitats of qualifying species rely • The populations of qualifying species, and, • The distribution of qualifying species within the site

Natura 2000 Site	Location	Qualifying features	Conservation objectives
Thames Basin Heaths SPA (8274.72ha) SAC site code: 9012414 Overlaps with Thursley, Ash, Pirbright & Chobham SAC (UK0012793)	Outside GLA area – approx. 8km to south-west	• Dartford Warbler (Sylvia undata) (breeding) • Nightjar (Caprimulgus europaeus) (breeding) • Woodlark (Lullula arborea) (breeding)	To maintain or restore: • The extent and distribution of the habitats of the qualifying features • The structure and function of the habitats of the qualifying features • The supporting processes on which the habitats of the qualifying features rely • The population of each of the qualifying features, and, • The distribution of the qualifying features within the site.
Thursley, Ash, Pirbright & Chobham SAC (5138ha) **SAC site code: UK0012793 Overlaps with Thames Basin Heaths SPA (9012414)**	Outside GLA area – approx. 8km to south-west	• Depressions on peat substrates of the Rhynchosporion • European dry heaths • Northern Atlantic wet heaths with Erica tetralix (Wet heathland with cross-leaved heath)	To maintain or restore: • The extent and distribution of qualifying habitats • The structure and function (including typical species) of qualifying habitats, and • The supporting processes on which qualifying habitats rely
Burnham Beeches SAC (382.76ha) SAC site code: UK0030034	Outside GLA area – approx. 9km to west	Atlantic acidophilous beech forests with *Ilex* and sometimes also *Taxus* in the shrublayer (*Quercion robori-petraeae or Ilici-Fagenion*) (Beech forests on acid soils)	To maintain or restore: • The extent and distribution of qualifying habitats • The structure and function (including typical species) of qualifying habitats, and • The supporting processes on which qualifying habitats rely

Natura 2000 Site	Location	Qualifying features	Conservation objectives
Thames Estuary and Marshes SPA (4838.94ha) and Ramsar (5589ha) **SPA site code: UK9012021** **Ramsar site Code: UK11069**	Outside GLA area – approx. 14km east	SPA: • Hen harrier (Circus cyaneus) (Non-breeding) • Pied avocet (Recurvirostra avosetta) (Non-breeding) • Ringed plover (Charadrius hiaticula) (Non-breeding) • Grey plover (Pluvialis squatarola) (Non-breeding) • Red knot (Calidris canutus) (Non-breeding) • Dunlin (Calidris alpina alpine) (Non-breeding) • Black-tailed godwit (Limosa limosa islándica) (Non-breeding) • Common redshank (Tringa tetanus) (Non-breeding) • Waterbird assemblage	To maintain or restore: • The extent and distribution of the habitats of the qualifying features • The structure and function of the habitats of the qualifying features • The supporting processes on which the habitats of the qualifying features rely • The population of each of the qualifying features, and, • The distribution of the qualifying features within the site.

Natura 2000 Site	Location	Qualifying features	Conservation objectives
Thames Estuary and Marshes SPA (4838.94ha) and Ramsar (5589ha) **SPA site code: UK9012021** **Ramsar site Code: UK11069**		Ramsar criterion • Ramsar criterion 2: The site supports one endangered plant species and at least 14 nationally scarce plants of wetland habitats. The site also supports more than 20 British Red Data Book invertebrates. • Ramsar criterion 5: Assemblages of international importance: Species with peak counts in winter: • 45118 waterfowl (5 year peak mean 1998/99-2002/2003) • Ramsar criterion 6: Species/populations occurring at levels of international importance. • Species with peak counts in spring/ autumn: • Ringed plover , (Charadrius hiaticula) • Black-tailed godwit (Limosa limosa islandica) • Species with peak counts in winter: • Grey plover (Pluvialis squatarola) • Red knot (Calidris canutus) • Dunlin (Calidris alpina alpine) • Common redshank (Tringa totanus tetanus)	

APPENDIX D TESTING COMPATIBILITY OF THE IIA OBJECTIVES

IIA Objective	IIA 1 Equalities	IIA 2 Social Inte-gration	IIA 3 Health	IIA 4 Crime	IIA 5 Housing	IIA 6 Land use
IIA 1 Equalities						
IIA 2 Social Integration	✓					
IIA 3 Health	✓	✓				
IIA 4 Crime	×	✓	✓			
IIA 5 Housing	✓	✓	✓	✓		
IIA 6 Land use	×	✓	✓	✓	✓	
IIA 7 Design	✓	✓	✓	✓	✓	✓
IIA 8 Access	✓	✓	✓	✓	✓	✓
IIA 9 Connectivity	✓	✓		✓	×	×
IIA 10 Economic Comp	×	✓	✓	✓	✓	✓
IIA 11 Infrastructure	✓	✓			×	×
IIA 12 Education	✓	✓	✓	✓		
IIA 13 Culture	✓	✓	✓	✓	✓	
IIA 14 Air quality	✓		✓			
IIA 15 CC adaption	✓		✓			
IIA 16 CC mitigation			✓.			
IIA 17 Energy	✓					
IIA 18 Water	✓	✓			×	×
IIA 19 Flood			✓		✓	✓
IIA 20 Natural capital	✓	✓	✓		×	×
IIA 21 Historic environment	✓	✓	✓		×	×
IIA 22 Soil			✓		×	✓
IIA 23 Waste	✓	✓	✓		×	×
IIA 24 Noise	✓		✓		✓	

Key

✓	Compatible
	Neutral
×	Incompatible

Compatibility testing part 2

IIA Objective	IIA 7 Design	IIA 8 Access	IIA 9 Connec-tivity	IIA 10 Economic Comp	IIA 11 Infrastruc-ture	IIA 12 Education
IIA 1 Equalities						
IIA 2 Social Integration						
IIA 3 Health						
IIA 4 Crime						
IIA 5 Housing						
IIA 6 Land use						
IIA 7 Design						
IIA 8 Access	✓					
IIA 9 Connectivity	✓					
IIA 10 Economic Comp	✓	✓	✓			
IIA 11 Infrastructure				×		
IIA 12 Education				✓		
IIA 13 Culture	✓	✓	✓	✓		
IIA 14 Air quality				✓	✓	
IIA 15 CC adaption	✓	..		✓		✓
IIA 16 CC mitigation	✓					
IIA 17 Energy	✓			✓	✓	
IIA 18 Water	✓			×	✓	
IIA 19 Flood	✓			✓	✓	
IIA 20 Natural capital	✓	✓	✓			
IIA 21 Historic environment	✓			×		
IIA 22 Soil				×	✓	
IIA 23 Waste	✓			×		
IIA 24 Noise	✓			✓	✓	

Key

✓	Compatible
	Neutral
×	Incompatible

Compatibility testing part 3

IIA Objective	IIA 13 Culture	IIA 14 Air quality	IIA 15 CC adaption	IIA 16 CC mitigation	IIA 17 Energy	IIA 18 Water
IIA 1 Equalities						
IIA 2 Social Integration						
IIA 3 Health						
IIA 4 Crime						
IIA 5 Housing						
IIA 6 Land use						
IIA 7 Design						
IIA 8 Access						
IIA 9 Connectivity						
IIA 10 Economic Comp						
IIA 11 Infrastructure						
IIA 12 Education						
IIA 13 Culture						
IIA 14 Air quality						
IIA 15 CC adaption	✓	✓				
IIA 16 CC mitigation		✓	✓			
IIA 17 Energy		✓	✓	✓		
IIA 18 Water		✓		✓	✓	
IIA 19 Flood			✓			✓
IIA 20 Natural capital	✓	✓	✓	✓		✓
IIA 21 Historic environment	✓	✓				✓
IIA 22 Soil		✓	✓	✓	✓	✓
IIA 23 Waste						
IIA 24 Noise						

Key

✓	Compatible
	Neutral
x	Incompatible

Compatibility testing part 4

IIA Objective	IIA 19 Flood	IIA 20 Natural capital	IIA 21 Historic Environment	IIA 22 Soil	IIA 23 Waste	IIA 24 Noise
IIA 1 Equalities						
IIA 2 Social Integration						
IIA 3 Health						
IIA 4 Crime						
IIA 5 Housing						
IIA 6 Land use						
IIA 7 Design						
IIA 8 Access						
IIA 9 Connectivity						
IIA 10 Economic Comp						
IIA 11 Infrastructure						
IIA 12 Education						
IIA 13 Culture						
IIA 14 Air quality						
IIA 15 CC adaption						
IIA 16 CC mitigation						
IIA 17 Energy						
IIA 18 Water						
IIA 19 Flood						
IIA 20 Natural capital						
IIA 21 Historic environment	✓	✓				
IIA 22 Soil	✓					
IIA 23 Waste			✓			
IIA 24 Noise						

Key

✓	Compatible
	Neutral
×	Incompatible

APPENDIX E GLA WORKSHOP, 14TH JUNE 2016

Table discussion group members participated:

Environment Group:

Patrick Feehily – GLA
Annette Figueiredo – GLA
Dr German Dector-Vega – Sustrans
Daniel Bicknell – Environment Agency
Jenny Bates – Friends of the Earth
Kathryn Fletcher – Historic England
Irina Davis – Jacobs
Lucy Hayward-Speight – TfL

Economic Group:

Amanda Decker – GLA
Graham Sounders – Historic England
Sion Eli Williams – Friends of the Earth
Harriet Finney – Creative Industries Federation
Rachael Rooney - GLA
Amit Khandelwal - GLA

Social Group

Fiona Wright – GLA
Ellen Clifford – Inclusion London
Claire Lesko – Equality and Human Rights Commission
Luke Burroughs – London Councils
Bryony Dyer – TfL
Laura Bradshaw – TfL
Robin Brown – Just Space

APPENDIX F INDEPENDENT STUDIES OF SPATIAL DEVELOPMENT OPTIONS

Quod, Shelter. When Brownfield isn't enough. Strategic options for London's growth. Quod, Shelter 2016

London Housing Commission. Capital Failure. Understanding the Roots of London's Housing Crisis. IPPR 2105

M Edwards. Background to planning in SE England. Bartlett.ucl.ac.ul/planning 2015

Bowie D. Planning the metropolitan region. The debate over the 2014 review of the London Plna. RSA, 2014

LSE Cities Urban Age Cities Compared. Where People Live. LSE, 2011

LSE London. Housing in London: addressing the supply crisis. LSE 2015

Buro Happold. London growth Housing for London. Buro Happold 2015

Buron Happold Farrells. Bridging East London. A radical proposal for unlocking housing capacity by Farrells. Farrells 2014

Design for London. Recommendations for Living at Superdensity. DfL 2007

New London Architecture. Superdensity: the Sequel. NLA 2015

House Builders federation. HBF Report. Increasing private housing supply. HBF policy recommendations. HBF 2015

House Builders Federation. Capitalising on Growth: A Blueprint for Building the Homes London needs. HBF 2016

DCLG Locally-led Garden Cities. CLG 2014

HTA Supurbia. A Study of urban intensification in outer London. Work in progress. HTA 2015

HTA, Pollard Thomas, Savills, NLP. Transforming Suburbia. Supurbia Semi-Permissive. HTA 2015

WSP Building Our Way Out of A Crisis. Can we capitalise on London's public Assets to provide homes for the Future. WSL, 2015

London Society. Green sprawl. Our current affection for a preservation myth. London Society 2014

London First. Time to re-evaluate Green belt to help solve London's housing crisis.. London First 2014

Centre for Cities. Delivering Change: building homes where we need them. Centre for Cities 2014

Papworth T. The Green Noose. An analysis of Green Belts and proposals for reform. Adam Smith Institute 2015

AECOM. Big, Bold, Global & Connected. A manifesto for London's Long term Growth.AECOM 2015

RTPI. Strategic Planning: beyond cooperation. RTPI 2015

NLP London'sUnmet Housing Needs. Meeting London's overspill across the wider SE. NLP 2014

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APPENDIX G ABBREVIATIONS

AA	Appropriate Assessment Screening
AEI	Assessment of Economic Impacts
ATOC	Association of Train Operating Companies
BAME	Black, Asian and Minority Ethnic Groups
CO_2	Carbon Dioxide
DfT	Department for Transport
DLR	Docklands Light Railway
EqIA	Equality Impact Assessment
GHG	Greenhouse Gas
GLA	Greater London Authority
HIA	Health Impact Assessment
HRA	Habitats Regulations Assessment
IIA	Integrated Impact Assessment
LGBT	Lesbian, gay, bisexual and transgender people
LIPs	Local Implementation Plans
LTDS	London Travel Demand Survey
MAQS	Mayor's Air Quality Strategy
MTS	Mayor's Transport Strategy
NO_2	Nitrogen Dioxide
PM_{10}	Particulate Matter (measuring 10µm or less)
SA	Sustainability Appraisal
SAC	Special Areas of Conservation
SD	Sustainable Development
SEA	Strategic Environment Assessment
SME	Small and Medium Enterprise
SPA	Special Protection Area
TfL	Transport for London
WHO	World Health Organization

APPENDIX H QUALITY ASSURANCE CHECKLIST

To ensure that the requirements of Strategic Environmental Assessments (as required by European Directive EC/2001/42) are adhered to, the following quality assurance checklist has been completed. It identifies where in the IIA process the requirements of SEA will be undertaken. The checklist appears in the Practical Guide to the Strategic Environmental Assessment Directive (September 2005, ODPM) and has been adapted for the purposes of this IIA. Those relevant to this stage have been highlighted below.

Information requirement of the SEA Directive (defined by Annex II)	Section of the IIA Scoping Report
Objectives and Context	
The plan's or programme's purpose and objectives are made clear.	Section 2
Environmental/Sustainability issues and constraints, including international and EC environmental protection objectives, are considered in developing objectives and targets.	Section 4, 5 and Appendix B
SEA objectives, where used, are clearly set out and linked to indicators and targets where appropriate.	Section 7
Links with other related plans, programmes and policies are identified and explained.	Section 4 and Appendix B
Conflicts that exist between SEA objectives, between SEA and plan objectives and between SEA objectives and other plan objectives are identified and described.	Appendix D
An outline of the contents and main objectives of the plan or programme, and its relationship with other relevant plans and programmes.	Section 2
Scoping	
Consultation Bodies are consulted in appropriate ways and at appropriate times on the content and scope of the Environmental Report.	Section 1 and Appendix E
The assessment focuses on significant issues.	Section 4 and 5
Technical, procedural and other difficulties encountered are discussed; assumptions and uncertainties are made explicit.	Section 3
Reasons are given for eliminating issues from further consideration.	Section 3
Baseline Information	
Relevant aspects of the current state of the environment and their likely evolution without the plan or programme are described.	Section 6

Information requirement of the SEA Directive (defined by Annex II)	Section of the IIA Scoping Report
Environmental characteristics of areas likely to be significantly affected are described, including areas wider than the physical boundary of the plan area where it is likely to be affected by the plan.	Section 5 and Appendix C
Difficulties such as deficiencies in information or methods are explained.	Section 5

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