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Integrated Impact Assessment of the Consultation Draft Mayor's Transport Strategy 3

Transport for London

IIA Report

Part I

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Integrated Impact Assessment of the Consultation Draft Mayor's Transport Strategy 3

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1. Introduction

1.1 Background to the IIA

- 1.1.1 Transport for London (TfL) is preparing for a revision to the Mayor's Transport Strategy (MTS) (2010) on behalf of the Greater London Authority (GLA), which is also preparing a revised London Plan and revisions of other Mayoral strategies.
- 1.1.2 As a part of the process of revising the MTS (hereafter referred to as Consultation Draft MTS 3), TfL has commissioned Jacobs to undertake an Integrated Impact Assessment (IIA). The IIA is a systematic process for assessing the likely sustainability and environmental effects of the MTS in order to ensure they are fully understood and appropriately addressed during plan making, and identified at the earliest appropriate stage of decision making.
- 1.1.3 The transport policies and proposals within the Consultation Draft MTS 3 have been subjected to the following assessments, of which the findings have been collated into the overall IIA Report: Strategic Environmental Assessment (SEA); Habitats Regulation Assessment (HRA); Equalities Impact Assessment (EqIA); Health Impact Assessment (HIA); Assessment of Economic Impacts (AEI); and Community Safety Impact Assessment (CSIA).
- 1.1.4 The IIA meets EU Strategic Environmental Assessment (SEA) and Sustainability Appraisal (SA) requirements and includes assessment of the effects of the strategy on the issues of health, equality, economic impact and community safety. By adopting this approach, the IIA provides for a thorough and integrated assessment of the likely effects of the Consultation Draft MTS 3 on sustainability and the environment.

1.2 Purpose of the IIA Report

- 1.2.1 The purpose of an IIA is to promote sustainable development through better integration of sustainability and environmental considerations into plan preparation and adoption. The 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 on the environment and the extent to which implementation of the plan or strategy will contribute towards sustainable development.
- 1.2.2 There are three dimensions to sustainable development: economic, social and environmental. For the purposes of this assessment of the Consultation Draft MTS 3 these are expressed as the London transport system's role in supporting:
- A strong, sustainable and competitive economy, new homes and jobs by providing sustainable transport infrastructure meeting the needs of all Londoners;
 - The development of strong, vibrant and healthy communities, by delivering a good public transport experience; safe and pleasant places to live and work; and by creating a high quality built environment, with accessible local services that meet and respond to the existing and likely future community's needs and that support the health, social and cultural well-being of all; and
 - The maintenance of the natural and built environment, by contributing to protecting and enhancing London's natural, built and historic resources: and, as part of this, improving biodiversity, encouraging the prudent use of natural resources, minimising waste generation and pollution, and mitigating and adapting to climate change including moving towards a low carbon economy.
- 1.2.3 The IIA has sought to provide for a high level of protection of the environment, protected groups, human health, economy, and community safety and security, and to contribute to the integration of these objectives in the preparation of the Consultation Draft MTS 3 for adoption. Achieving a plan framework for sustainable development has been the overall objective of conducting the IIA.

1.3 Structure of the IIA Report

- 1.3.1 The IIA Report provides consultees with an early opportunity to comment on the IIA process and, in accordance with the Office of the Deputy Prime Minister SEA Guidance, *A Practical Guide to the Strategic Environmental Assessment Directive* (2005), includes:
- An understanding of key stakeholders' views¹ on the scope and proposed approach to the assessment, and their aspirations for the IIA and revised MTS (**Chapter 1**);
 - An understanding of the context of the MTS and its likely scope (**Chapter 2**);
 - A clear idea of the topics that the impact assessment will need to consider and to what level of detail (**Chapter 3**);
 - Identification of other relevant policies, plans, programmes and sustainability objectives.
 - An understanding of the baseline situation and its likely evolution in the absence of the revised MTS, and other evidence available to the assessment, with any important gaps identified, and identification of key sustainability issues in the study area; (**Chapter 4**);
 - The IIA objectives and framework adopted within which to assess the sustainability of the MTS and alternatives; (refer **Chapter 5**);
 - An overview of the proposed approach to undertaking the assessment (refer **Chapter 6**);
 - Summaries of the findings of the IIA assessment, including consideration of cumulative and temporal impacts, where appropriate, and mitigation measures and recommendations (**Chapter 7 and 8**);
 - HRA statement on the Consultation Draft MTS 3 (**Chapter 9**);
 - Conclusions and recommendations (**Chapter 10**); and
 - Overview of the next steps in the IIA process and details of the current period of consultation (**Chapter 11**).
- 1.3.2 Table 1.1 summarises the IIA's compliance with EU SEA Directive. A detailed quality assurance list can be found in **Appendix A**.

Table 1.1: Compliance with EU SEA Directive

Information requirement of the SEA Directive (defined by Annex I)	Section of the IIA Report
An outline of the contents and main objectives of the plan or programme, and its relationship with other relevant plans and programmes	Chapter 2
The relevant aspects of the current state of the environment	Chapter 4
The environmental characteristics of areas likely to be significantly affected	Chapter 4
Any existing environmental problems which are relevant to the plan or programme, in particular, those relating to areas designated at the European level for importance to wildlife (SPAs, SACs)	Chapter 4
The environmental protection objectives, established at international, Community or Member State level, which are relevant to the plan or programme and the way those objectives and any environmental considerations have been taken into account during its preparation.	Chapter 4
The likely significant effects on the environment, including short, medium and long-term effects, permanent and temporary effects, positive and negative effects, and secondary, cumulative and synergistic effects, on issues such as biodiversity, population, human	Chapter 7, 8

¹ Key stakeholders' views were obtained during a workshop on 14 June 2016 and full list of attendees can be found in Appendix J of the IIA Scoping Report, 2017.

health, fauna, flora, soil, water, air, climatic factors, material assets, cultural heritage including architectural and archaeological heritage, landscape and the inter-relationships between these issues.	
The measures envisaged to prevent, reduce and as fully as possible offset any significant adverse effects on the environment of implementing the plan or programme.	Chapter 7, 8
An outline of the reasons for selecting the alternatives dealt with, and a description of how the assessment was undertaken including any difficulties (such as technical deficiencies or lack of know-how) encountered in compiling the required information.	Chapter 7
A description of the measures envisaged concerning monitoring	Chapter 8
A non-technical summary of the information provided	Non-Technical Summary

1.3.3 This IIA Report should be read in conjunction with the IIA Scoping Report 2017 and the IIA Appendices Document 2017 (IIA Report Part II), which contain detailed, assessment matrices, IIA iterations tracker, IIA scoping consultation responses, detailed baseline data, and a description of other relevant plans and programmes and other supporting information.

1.4 IIA topics: signposting where issues are considered

1.4.1 **Table 1.2**, signposts the reader to where the key issues under the respective elements of the IIA can be found in the report, with specific reference to the topics addressed under the SEA Directive in conformity with the DCLG guidance.

Table 1.2: SEA, EqIA, HIA, CSIA and AEI topics, interrelationship of these factors and their coverage in the IIA Report

Sustainable development dimensions	Transport system's role in facilitating sustainable development	SEA Directive Assessment of Effects Issues	IIA Topics	Issues under: HIA, EqIA, AEI, HRA, CSIA	Where can this be found in this IIA Report
Economic	Transport system's role in supporting a strong, sustainable and competitive economy, new homes and jobs by providing transport infrastructure for all Londoners	Population	Economic competitiveness and employment	AEI, EqIA	Part 3, table 4.2, 4.5, 7.1, Part 7.5, 8.1, 10.2
			Connectivity	AEI, EqIA, HIA, CSIA	Part 3, table 4.2, 4.5, 7.1, Part 7.5, 8.1, 10.2
		Material Assets	Materials and waste	SEA, AEI	Part 3, table 4.2, 4.5, 7.1, Part 7.5, 8.1, 10.2
			Housing and Sustainable land use	AEI, EqIA	Part 3, table 4.2, 4.5, 7.1, Part 7.5, 8.1, 10.2
Social	Transport system's role in supporting strong, vibrant and healthy communities, by delivering good public transport experience; safe and pleasant places; and creating a high quality built environment, with accessible local services that reflect the community's needs and support its health, social and	Human Health	Health and health inequalities	AEI, EqIA, HIA	Part 3, table 4.2, 4.5, 7.1, Part 7.5, 8.1, 10.2
			Physical activity	AEI, EqIA, HIA	Part 3, table 4.2, 4.5, 7.1, Part 7.5, 8.1, 10.2
			Equality and Inclusion, Social integration	EqIA, HIA, CSIA	Part 3, table 4.2, 4.5, 7.1, Part 7.5, 8.1, 10.2
			Accessibility	SEA, AEI, EqIA, HIA, CSIA	Part 3, table 4.2, 4.5, 7.1, Part 7.5, 8.1, 10.2
			Crime, safety and security	CSIA, AEI, EqIA, HIA	Part 3, table 4.2, 4.5, 7.1, Part 7.5, 8.1, 10.2
			Noise and vibration	SEA, EqIA, HIA	Part 3, table 4.2, 4.5, 7.1, Part 7.5, 8.1, 10.2

	cultural well-being for all Londoners				
Environmental	Transport system's role in supporting natural environment by contributing to protecting and enhancing our natural, built and historic environment; and, as part of this, helping to improve biodiversity, use natural resources prudently, minimise waste and pollution, and mitigate and adapt to climate change including moving to a low carbon economy.	Fauna & Flora Biodiversity	Natural capital and natural environment	SEA, AEI, EqIA, HRA	Part 3, table 4.2, 4.5, 7.1, Part 7.5, 8.1, 10.2
		Soil	Geology and soils	SEA	Part 3, table 4.2, 4.5, 7.1, Part 7.5, 8.1, 10.2
		Water	Water resources and quality	SEA, HRA, HIA	Part 3, table 4.2, 4.5, 7.1, Part 7.5, 8.1, 10.2
		Climatic Factors	Air quality	SEA, AEI, EqIA, HIA	Part 3, table 4.2, 4.5, 7.1, Part 7.5, 8.1, 10.2
			Climate change adaptation and mitigation	SEA, EqIA, HIA	Part 3, table 4.2, 4.5, 7.1, Part 7.5, 8.1, 10.2
			Energy use and supply	SEA, AEI, EqIA, HIA	Part 3, table 4.2, 4.5, 7.1, Part 7.5, 8.1, 10.2
			Flood risk	SEA, AEI, HIA	Part 3, table 4.2, 4.5, 7.1, Part 7.5, 8.1, 10.2
		Cultural Heritage including Architecture & Archaeological Heritage	Historic Environment	SEA, EqIA, HIA	Part 3, table 4.2, 4.5, 7.1, Part 7.5, 8.1, 10.2
			Culture	EqIA	Part 3, table 4.2, 4.5, 7.1, Part 7.5, 8.1, 10.2
			Design	EqIA, HIA	Part 3, table 4.2, 4.5, 7.1, Part 7.5, 8.1, 10.2
		Landscape	Historic Environment	SEA, EqIA, HIA, CSIA	Part 3, table 4.2, 4.5, 7.1, Part 7.5, 8.1, 10.2

1.5 Engagement and consultation

- 1.5.1 TfL has been working closely with the GLA to develop a consistent IIA framework for all Mayoral strategies that together form the integrated 'Strategy for London'.
- 1.5.2 TfL and the GLA held a workshop with key stakeholders on 14 June 2016 to consider key issues and identify a consistent set of IIA objectives that would be applied to the revisions of all relevant Mayoral strategies. The IIA objectives identified in this report reflect the outcome of that exercise.
- 1.5.3 Regulation 4 of the Environmental Assessment of Plans and Programmes Regulations 2004 (commonly referred to as the 'Strategic Environmental Assessment Regulations'), defines certain organisations with environmental responsibilities as consultation bodies. In England the statutory consultation bodies are Historic England, Natural England and the Environment Agency. A full list of workshop participants can be found in **Appendix J** of the IIA Scoping Report, 2017 accompanying this IIA Report.

1.6 IIA Scoping Report

- 1.6.1 The IIA Scoping Report is the first stage of the IIA process (Stage A), incorporating the requirements of the SEA Regulations, and sets out the sustainability issues, opportunities and the IIA assessment framework to test how the Consultation Draft MTS 3 contributes to the achievement of sustainable development. It was subject to a five week statutory consultation in September-October 2016. Responses from consultees were taken into consideration in the IIA process and the IIA Scoping report was amended accordingly. Further details of the responses received can be found in **Appendix B** of this IIA Report.

2. The Mayor's Transport Strategy 3

2.1 The Development of the Consultation Draft MTS 3

- 2.1.1 The MTS is a statutory document made under section 142 of the Greater London Authority Act 1999 that sets out the Mayor's transport policies and proposals for London. It is a key part of the strategic policy framework which supports and shapes London's social and economic development, and is the principal policy tool through which the Mayor and TfL exercise their responsibilities for the planning, management and development of transport in London.
- 2.1.2 There is a need to review the current MTS due to the considerable policy development which has taken place since 2010, as well as the significant changes to London's population and employment forecasts which bring new transport challenges for the capital. In addition, in May 2016, a new Mayor of London was elected who has since adopted revised planning and transport priorities for London. TfL's funding arrangements will also change during the current mayoral term. These changes have significant implications for the transport network in London and it is appropriate that these are addressed in a revised and updated MTS.
- 2.1.3 In October 2016 the Mayor published for consultation 'A City for All Londoners' that set out the policy context for the revision of Mayoral strategies, including the MTS. 'A City for All Londoners' sets out the Mayor's priorities including accommodating growth, providing more housing, supporting the economy, improving the environment, transport and public spaces, and ensuring social integration. All mayoral strategies are in the course of being revised to reflect the priorities and direction set out by the Mayor.

2.2 Links with other relevant Mayoral Strategies

- 2.2.1 Section 41 of the GLA Act provides that in revising his strategies, the Mayor shall have regard to the need for each of the mayoral strategies to be consistent with each other. The revised MTS must be consistent with the Mayor's other strategies, and work has started on revisions of all of these strategies, including the London Plan and the London Environment Strategy (LES).
- 2.2.2 Fortnightly liaison meetings are held between TfL's Strategic Spatial Planning Team, who are involved in the development of the Consultation Draft MTS3, and the GLA London Plan team to develop policies and proposals taking into account the evidence base for the revised London Plan. TfL representatives regularly attend the LES Steering group and LES Board meetings. There have been a number of LES policy development workshops with TfL and GLA attendees, as well as numerous ad-hoc topic-specific meetings, for example, on sustainable drainage, natural environment, heat, noise, energy and carbon.

2.3 Consultation Draft MTS 3 Objectives

- 2.3.1 London is growing with a forecast population of 10.5 million people over the next 25 years. . This growth is expected to generate more than 5 million additional trips each day by 2041.
- 2.3.2 The purpose of the MTS 3 is to ensure that London's transport system is able to accommodate this growth. To achieve this, the draft revised strategy sets out three themes:
- **Healthy Streets and healthy people:** *Improving air quality by reducing emissions from traffic and encouraging more walking, cycling and public transport use and reducing car use. Adopting a Vision Zero approach to reducing road danger and ensuring roads are reliable, enabling a high quality bus service and essential freight and servicing. Ensuring that the transport system contributes to improving the environment by enabling London to become a zero carbon city and to be more resilient to the impacts of climate change.*
 - **A good public transport experience:** *enabling easy and safe travel around the Capital. Providing good customer service and ensuring public transport is affordable, accessible, safe and secure, reliable and not crowded.*

- **New homes and jobs:** Embedding more sustainable travel patterns, planning infrastructure and services in an integrated way to unlock housing and support regeneration to respond to forecast population growth.

2.4 Development of the Draft Revised MTS 3: Strategic Alternatives (Options) considered

2.4.1 Three strategic alternatives (hereafter referred to as the “Options”) were considered for the Draft Revised MTS 3 and each underwent IIA assessment. The development of the Options was informed by the strategic transport modelling carried out by TfL of different packages of transport interventions, as set out in Table 2.1. These packages together with the Draft Revised MTS 3 policies provided the basis for the development of the Options.

Table 2.1: TfL’s modelling packages

Packages	Title	Description
A	2041 Modelling Reference Case	Package A contains all those schemes outlined and funded within the TfL Business Plan 2016
B	Optimising the Network	Package B contains schemes that aim to optimise the network through lower cost investment across public transport networks and further road space reallocation, and includes DLR/Overground/Elizabeth line frequency uplifts and a bus priority network plan
C	Incremental Expansion	Package C includes slightly higher investment schemes, including improving rail capacity on the existing network, deep Tube upgrades, full suburban rail metroisation and the Silvertown Tunnel
D	New Connections	Package D includes the construction of large scale investment projects including Crossrail 2 and the Bakerloo Line Extension and a population growth linked bus frequency uplift
E	Demand Management	Package E aims to use Demand Management measures to reduce car mode share, including increased parking charges and much more intense road space reallocation schemes
F	Road Pricing	In addition to the public transport, highway and demand management schemes included in Packages A to E, Package F includes road pricing measures in order to reach the 80% sustainable mode share target

2.4.2 As stipulated by the SEA Regulations and guidance, the sustainability performance of these Options is reported and has informed the identification of a Preferred Option which formed the basis for the Consultation Draft MTS3. The assessment of Options was principally guided by analysis of which Option provided the optimum basis for progressing sustainable transport provision in London in the period to 2041. The three Options assessed were as follows:

1. Option 1: ‘Do Minimum’

Option 1 is based on the current London Plan (March 2016) land use/development policies and projections of employment and population growth, the current MTS (2010) policies and proposals, and the TfL investment plan as set out in the current Business Plan to 2021/22. It includes Package A – the core reference case, representing TfL’s currently funded commitments to 2041 – and the construction of High Speed 2.

2. Option 2: Option 1 with additional package of enhanced public transport investment

Option 2 is based on land use / development policies, employment and population growth as set out in the recent GLA projection results in the current London Plan (March 2016), and the TfL investment plan as set out in the current Business Plan to 2021/22. This Option also includes the Draft Revised MTS 3 (2017) policies and proposals that were included in the TfL modelling Packages A, B, C and D, representing significantly more future investment in transport infrastructure than Option 1. To clarify, Option 2 includes all the Draft Revised MTS 3 (2017) policies, excluding any demand management and road pricing policies.

3. Option 3: Option 2 with additional levers to maximise mode shift to sustainable modes and achieve the 80% sustainable mode share target

Option 3 includes all proposals included in Option 2 plus any policies relevant to demand management and road pricing that were assigned to Packages E and F. To clarify, Option 3 includes the aggregate total of all policies and proposals assessed in Packages A-F.

2.4.3 TfL undertook analysis and reviewed other available evidence to measure and compare the relative performance of Options 1, 2 and 3. This exercise enabled a broad understanding of the potential outcomes of pursuing the different Options and how these would address the identified transport needs.

2.4.4 As part of the IIA, an assessment was undertaken of Options 1, 2 and 3 and the outputs of this assessment were used to influence the ongoing development of the ‘Preferred Option’, the Consultation Draft MTS 3.

2.5 Development of the Preferred Option, the Consultation Draft MTS 3

2.5.1 The Preferred Option, which underpins the Consultation Draft MTS 3, was developed in parallel with the IIA process and has taken into account the findings of the IIA assessment of the strategic Options. Ongoing engagement between the IIA team and the MTS drafting team has meant a process of iterative evaluation and the continuous refinement of policies and proposals throughout the development of the Consultation Draft MTS.

2.6 The Scope of the Consultation Draft MTS 3

2.6.1 The Consultation Draft MTS 3 is arranged in six chapters:

- Chapter One outlines the challenges that London’s transport system faces, the issues of public transport and quality of life, future growth and proposes a new approach to London becoming a sustainable city.
- Chapter Two Sets out the Vision, objectives and a spatial approach of the Consultation Draft MTS 3.

2.6.2 The Consultation Draft MTS 3 responds to changes in the use and operation of the city's transport network since 2010, for example, the growth of personal deliveries from online retailers, to develop a sustainable transport strategy that recognises economic growth imperatives but enables efficient operation of the city's transport infrastructure. The revised transport strategy takes this forward by adoption of the following three priorities:

- Chapter Three - **Healthy Streets and Healthy People**: Improving air quality by reducing emissions from traffic and encouraging more walking, cycling and public transport use and reducing car use. Adopting a Vision Zero approach to reducing road danger and ensuring roads are reliable, enabling a high quality bus service and essential freight and servicing. Ensuring that the transport system contributes to improving the environment by enabling London to become a zero carbon city and to be more resilient to the impacts of climate change.
- Chapter Four - **A good public transport experience**: enabling easy and safe travel around the Capital. Providing good customer service and ensuring public transport is affordable, accessible, safe and secure, reliable and not crowded.
- Chapter Five - **Supporting new homes and jobs**: Embedding more sustainable travel patterns, planning infrastructure and services in an integrated way to unlock housing and support regeneration to respond to forecast population growth.
- Chapter Six outlines the **delivery of the Mayor's vision through changing technology, funding, and delivery processes**, and proposes monitoring and reporting mechanisms.

3. Integrated Impact Assessment process and approach

This chapter describes the role of the IIA in the decision-making process and outlines the IIA of the revised MTS. The IIA is an integral part of good plan-making that identifies and reports on the likely significant effects of the Consultation Draft MTS 3 and the extent to which the implementation of the strategy will achieve sustainable development. The chapter describes how this assists TfL to fulfil the objective of meeting the legal requirements for a Strategic Environmental Assessment and other mandatory requirements to have regard to economic, environmental and social impacts; and also demonstrates how by integrating different methods of appraisal and evaluation into a comprehensive impact assessment methodology IIA provides for a coherent and single assessment of the strategic actions proposed by the revised strategy.

3.1 What is IIA?

- 3.1.1 The IIA is an assessment tool that uses an integrated appraisal approach across a number of relevant topics to measure the potential impacts of the Consultation Draft MTS 3. The IIA meets SEA and SA requirements as well as looking in more depth into the issues of health, equality, economic impacts and community safety. By adopting this approach, the IIA provides for a thorough assessment of the respective aspects of sustainability embraced by the revised strategy.
- 3.1.2 The IIA is a strategic-level qualitative assessment and is based on broad assumptions and judgements. It gives consideration to the significant sustainability effects of MTS 3, and of reasonable alternatives that takes into account the objectives and the geographical scope of the strategy. The IIA is a tool for developing and iteratively improving the sustainable strategic action proposed by the revision of the MTS, the contents of which may be changed as a result. It assesses and evaluates different objectives, different means of achieving these objectives, and different forms of implementation (adapted from Therivel, 2010). It also promotes the participation of stakeholders in the decision-making process and addresses key sustainability constraints.

3.2 Approach to IIA

- 3.2.1 The IIA approach incorporates the statutory requirements of SEA and Sustainability Appraisal (SA). An SA integrates the requirements for an SEA with broader sustainability objectives. The Office of the Deputy Prime Minister (ODPM), A Practical Guide to the Strategic Environmental Assessment Directive (2005) recommends a single integrated approach to meet the SA and SEA requirements. This IIA adopts the recommended single integrated approach. To ensure that the requirements of the SEA Directive are adhered to, a quality assurance checklist has been completed and can be found in **Appendix A**.
- 3.2.2 The transport policies and proposals within the Consultation Draft MTS 3 have been subject to the following assessments, of which the findings have been collated into this IIA Report:
- Strategic Environmental Assessment (SEA);
 - Habitats Regulation Assessment (HRA);
 - Equalities Impact Assessment (EqIA);
 - Health Impact Assessment (HIA);
 - Assessment of Economic Impacts (AEI);
 - Community Safety Impact Assessment (CSIA).
- 3.2.3 The requirement for each assessment is discussed in more detail in the following sections.

3.3 Strategic Environmental Assessment

3.3.1 Undertaking an SEA for new or revised plans became a statutory requirement following the adoption of European Directive 2001/42/EC (the SEA Directive) which was transposed into UK legislation by the Environmental Assessment of Plans and Programmes Regulations 2004 (“the SEA Regulations” SI2004/1633). The objective of SEA as set out in the Directive is:

“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”

3.3.2 The SEA Regulations require a 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.

3.3.3 In accordance with the SEA Regulations, an assessment of the likely significant effects on the environment from revisions to the MTS was undertaken including impacts on: 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.

3.3.4 The process of undertaking the IIA contemporaneously with the development of revisions to the MTS has enabled TfL to fulfil the requirements of the European Directive 2001/42/EC (the ‘SEA Directive’) on the assessment of the effects of plans and programmes on the environment.

3.4 Habitats Regulation Assessment

3.4.1 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 is 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.

3.4.2 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.

3.4.3 A plan or project, such as the MTS, cannot be given effect or consent unless it can be determined that it would not have an adverse effect on the integrity of any European site 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.

3.4.4 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.

3.4.5 A Stage 1 assessment is undertaken to identify whether the draft revised 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 appropriate assessment is required.

3.4.6 Baseline information on the location of European Sites is included in **Appendix B** of the IIA Scoping Report, 2017.

3.5 Equality Impact Assessment

- 3.5.1 The *Equality Act 2010* (Equality Act) requires public authorities to work to eliminate discrimination and promote equality in all their activities. Under Section 149 of the Equality Act the Mayor of London is subject to the Public Sector Equality Duty (PSED).
- 3.5.2 The duty requires the Mayor (and TfL) to have due regard to the need to eliminate unlawful discrimination, harassment and victimisation as well as to advance equality of opportunity and foster good relations between people who share a protected characteristic and those who do not under section 149 of the Equality Act 2010. This may involve, in particular, removing or minimising any disadvantage suffered by those who share a relevant protected characteristic, taking steps to meet the needs of such people; and encouraging them to participate in public life or in any other activity where their participation is disproportionately low, including tackling prejudice and promoting understanding. (The protected characteristics and groups are: age, disability, gender reassignment, pregnancy and maternity, race, gender, religion or belief, sexual orientation and marriage/ civil partnership status – see **Table 3.1** below.) Compliance with the duty may involve treating people with a protected characteristic more favourably than those without the characteristic. *The Equal Life Chances for All framework* (2014) highlights the Mayor’s commitment to tackling inequality, improving life chances and removing barriers that prevent people from reaching their full potential.
- 3.5.3 An EqIA forms an integral part of an IIA. Likely disproportionate or differential effects on equality groups listed in **Table 3.1** have been identified through the assessment of draft revised MTS policies and proposals on accessibility; air quality; climate change; crime and security; connectivity; employment; education and skills; energy use and generation; housing; inclusion; landscape, townscape and public realm; noise and vibration.

Table 3.1 : 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 of a particular age or persons of the same age group	Children (0-4); Younger people (aged 18-24); older people (aged 60 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 in the process of transitioning from one gender to another	Transgender
Marriage and civil partnership	A person in a civil partnership or marriage between same sex or opposite sex	Scope of policies in MTS is not considered to have disproportionate effects on this characteristic. Scoped out.
Pregnancy and maternity	A person who is pregnant or expecting a baby and a person who has recently given birth	Mothers or expectant mothers
Race	A person defined by their race, colour and nationality (including citizenship) ethnic or national origins	Black, Asian and minority ethnic (BAME)
Religion and belief	A person with religious and philosophical beliefs including lack of belief	Scope of policies in MTS is not considered to have disproportionate effects on this characteristic. Scoped out
Sex	A man or a woman	Women
Sexual orientation	A person’s sexual orientation towards persons of the same sex, persons of the opposite sex or persons of either sex	Lesbian, Gay, Bisexual, Transgender (LGBT) and heterosexual

3.6 Health Impact Assessment

- 3.6.1 HIA is a means of assessing the likely health effects of plans, programmes and projects. Section 41(4) of the GLA Act states that in preparing or revising his strategies the Mayor shall have regard to the effect that the proposed strategy or revision would have on the health of persons in Greater London.
- 3.6.2 The purpose of an HIA is to assist decision-makers in understanding the health impacts of a plan or proposal. 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.
- 3.6.3 There are two types of HIA – a rapid HIA and a comprehensive HIA. A rapid HIA has been undertaken as part of the IIA. A rapid HIA is an interactive workshop exercise that brings together stakeholders to identify and assess health impacts, informed by evidence.
- 3.6.4 The NHS Healthy Urban Design Unit (HUDU) checklist is commonly used for scoping a HIA and the HUDU tool has been used to help identify issues to be assessed relevant to proposed revisions to the MTS.
- 3.6.5 The IIA has also had regard to TfL’s Transport Action Plan, *Improving the health of Londoners* (February 2014) which sets out transport’s role in promoting health in London. The plan takes a ‘whole-street’ approach to improving health and identifies five key indicators of health including (in order of priority): physical activity, air quality, road traffic collisions, noise, and access and severance.
- 3.6.6 The HIA for the IIA has combined the HUDU checklist and TfL’s whole-street approach to create an evaluation approach which draws more widely on best practice, published guidance and proven techniques. It identifies the likely significant effects on human health through assessment of significant effects relative to air quality; biodiversity, flora and fauna; climate change; crime and security; connectivity; employment; flood risk; physical activity; housing; inclusion; landscape, townscape and public realm; noise and vibration; water resources and water quality.

3.7 Assessment of Economic Impacts

- 3.7.1 One of the purposes of the GLA (GLA Act 1999: Section 30 (2) (a)) is to promote economic development and wealth creation in Greater London. A revision to the MTS should therefore take account of its likely effects on London’s economy through an Assessment of Economic Impacts (AEI).
- 3.7.2 Whilst there is no statutory guidance on undertaking an AEI, economic development is a key element of sustainability. The AEI identifies the likely significant effects on society and the economy through assessing the effects of draft revised MTS policies and proposals on climate change; crime and security; connectivity; economic competitiveness; employment; energy use and generation.
- 3.7.3 The AEI has focused on the identification and description of the key economic objectives of the proposed revisions to the strategies; quantification of the impacts on key economic indicators (productivity, employment, GDP) using the economic categories identified in the Department for Transport (DfT) appraisal guidance and having regard to the objectives set out in the Mayor’s Economic Development Strategy. The AEI has assessed how the revised MTS, and key policies in particular, affected accessibility, capacity and generalised cost for London as a whole and on particular geographical areas (e.g. Central Activity Zone (CAZ), outer London) and groups in society (e.g. employed, unemployed). In doing so, it has made a broad assessment of how identified changes affect commercial and residential development, access to employment and training and to local amenities and international gateways. It has undertaken this exercise on the basis of existing high level TfL modelling outputs, evidence from the implementation of previous policies and investments and professional judgement.

3.8 Community Safety Impact Assessment

- 3.8.1 Whilst there is no specific requirement for a CSIA to be carried out by the Mayor in the preparation or revision of a plan or programme, the Crime and Disorder Act 1998 (as amended) and the Police and Justice Act 2006 (as amended) make provision for preventing and combatting crime and disorder. The GLA and TfL have a statutory duty under section 17 of the Crime and Disorder Act and proposed revisions to the MTS should, therefore, be assessed with regard to the impacts of the revision on crime and disorder.
- 3.8.2 A CSIA has identified the likely significant effects of revisions to the MTS on crime and safety through assessment of likely impacts on accessibility; crime and security; connectivity; economic competitiveness; inclusion; landscape, townscape and public realm; and noise and vibration.

3.9 IIA Process

- 3.9.1 This IIA Report accords with relevant legislative requirements, 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);
 - Habitats Directive 92/43/EEC;
 - Conservation of Habitats and Species Regulations 2010/490, as amended.
 - National Planning Policy Guidance (online).

3.9.2 The approach to the IIA ensures that commonalities, inter-related issues and synergies between the above legislative and policy guidance as applied to proposed revisions to the MTS are identified in a systematic manner and used to inform the development of a better informed revised MTS which is enhanced by embracing a range of sustainability issues and identifying opportunities to maximise its contribution to sustainable development. **Figure 3.2** presents stages of the IIA process.

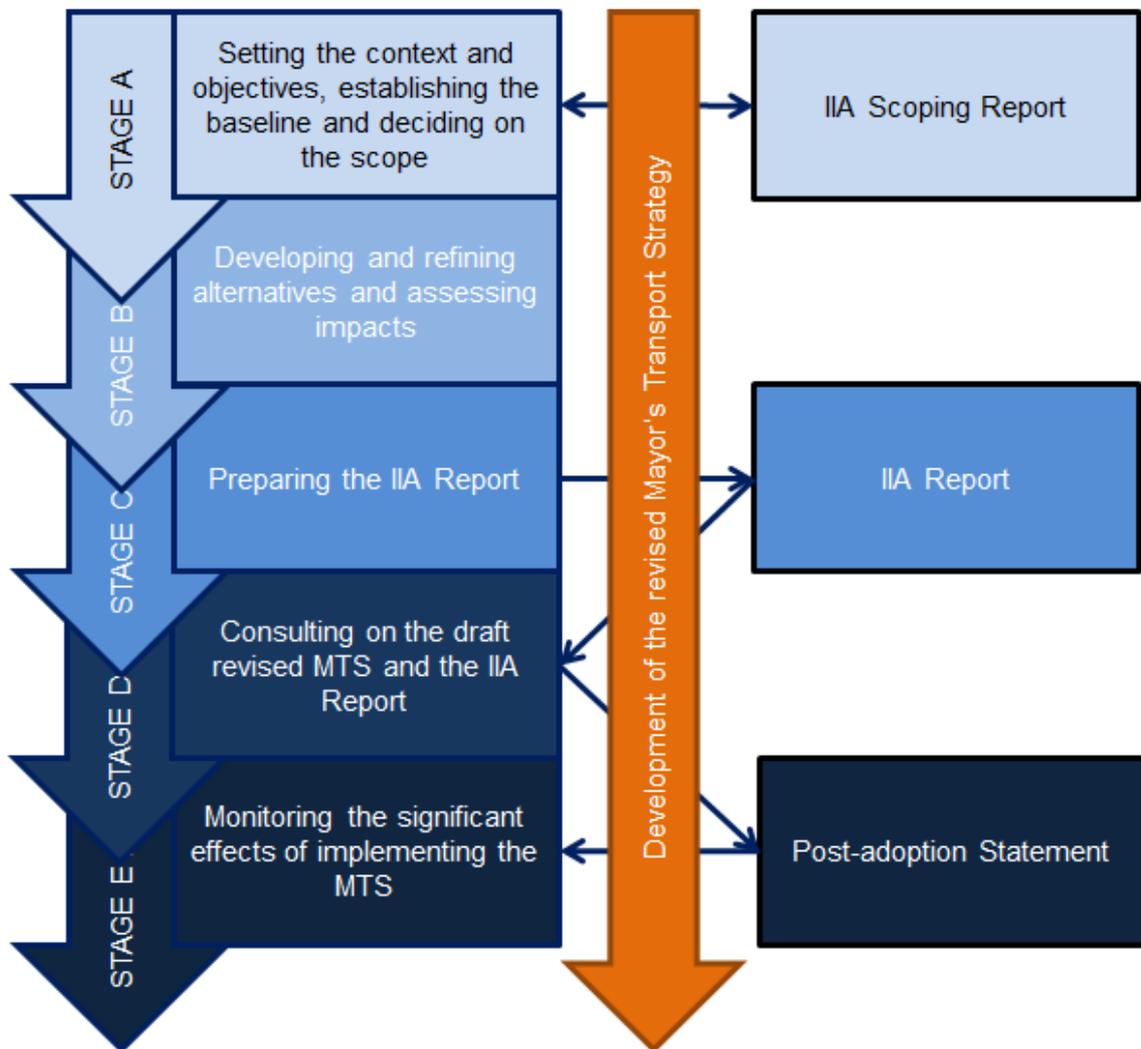


Figure 3.2: Stages of the IIA process

3.9.3 The IIA Scoping Report for the proposed revision of the MTS 2010 was the first stage of the IIA process (Stage A), incorporating the requirements of the SEA Regulations and was available for statutory five week consultation in September-October 2016. It set out the IIA context and objectives, established the baseline and determined the scope of the assessment. Detailed tasks to be completed during the IIA process are presented in **Figure 3.3**.

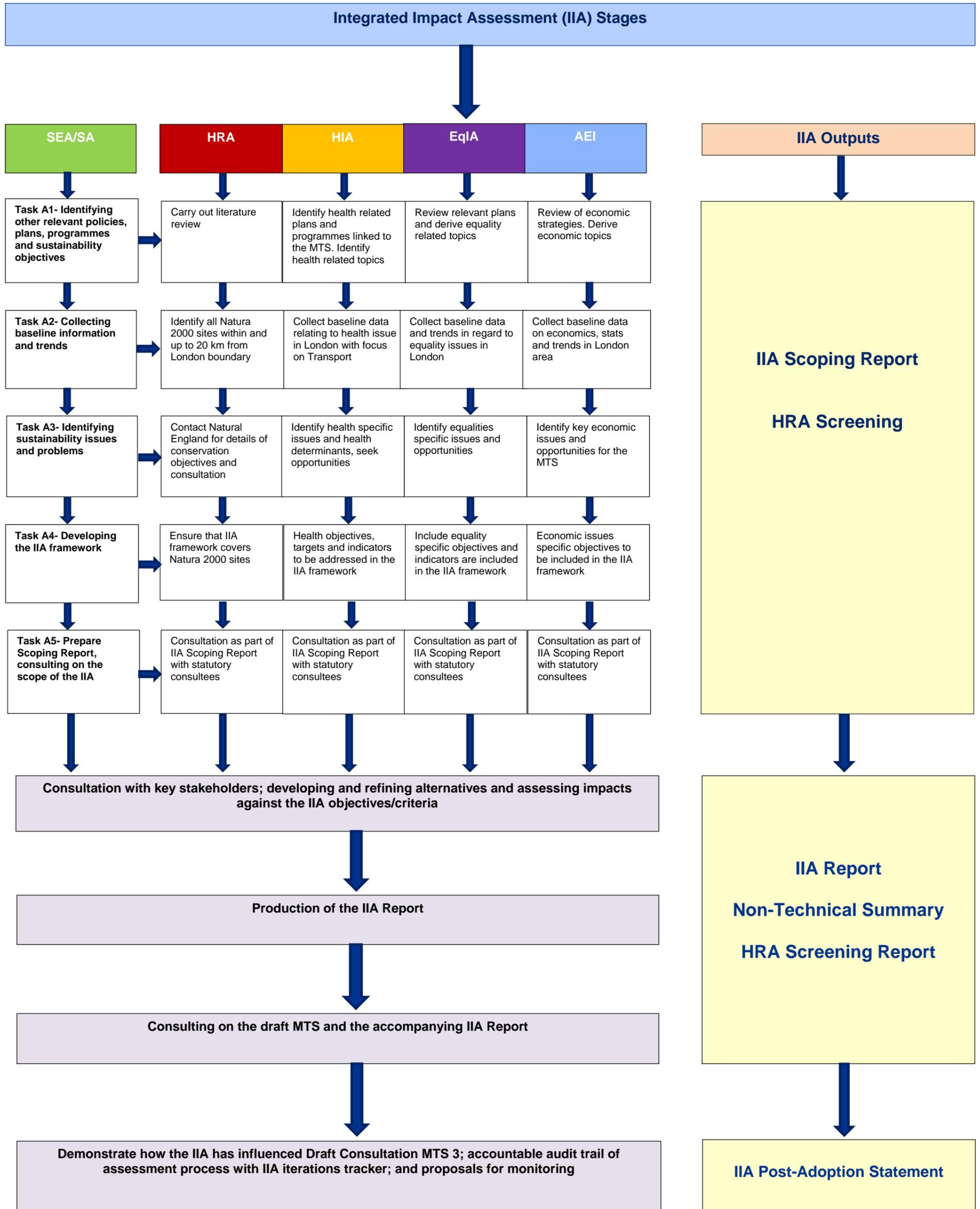


Figure 3.3: Detailed tasks overview of the IIA Process

- 3.9.4 Stages B and C in Figure 3.2 (presented in this IIA Report) of developing and refining alternatives and assessing impacts, will be subject to public consultation and will take into account the responses of those consulted.
- 3.9.5 Stage D, consultation on the draft revised MTS and the IIA report involves the publication for wider public and stakeholder consultation purposes of the Consultation Draft MTS 3 and associated IIA report. The IIA report assesses the likely significant impacts of the proposed revisions and so forms part of the supporting consultation material at stage C.
- 3.9.6 The responses to the consultation will be analysed by TfL and a report prepared for the Mayor, with recommendations for potential changes (if any) to the proposed revisions. The Mayor will then submit the final proposed version of the revised MTS 3 to the London Assembly, which has the power to reject it (but not amend it) by a two-thirds majority of those voting. If not rejected, the Mayor will proceed to formally publish the revised MTS 3 and publish an IIA Post-Adoption Statement (Stage E) which will set out:
- How environmental considerations have been integrated into the revision of the MTS;
 - How the environmental report has been taken into account;
 - How opinions expressed by consultees have been taken into account;
 - The reasons for preferring the final MTS 3 as adopted over 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 MTS.

3.10 How has the IIA process influenced the development of the Consultation Draft MTS 3 to date?

- 3.10.1 From the outset, the IIA process has sought to actively influence the development of the Consultation Draft MTS 3, with the objective of enhancing the sustainability of its policies and proposals. To facilitate this, there has been close and ongoing interaction between the TfL strategy drafting and IIA teams, with the aim being to provide continuing review and advice on the sustainability of the Consultation Draft MTS 3 policies and proposals. This required ongoing communication between the MTS and IIA teams regarding the content of the strategy and the potential impacts arising from its implementation with respect to the promotion of sustainability and the related IIA objectives identified at the scoping stage.
- 3.10.2 By identifying and highlighting potential impacts during its preparation, the Consultation Draft MTS 3 has evolved through the maximisation of its sustainable transport benefits and the minimisation of its residual negative environmental and other relevant impacts.
- 3.10.3 The central components of the interrelationship between the IIA and the preparation of the Consultation Draft MTS 3 were:
- Early engagement between the IIA and MTS drafting teams to determine the issues and challenges for progressing sustainable transport planning and development in Greater London;
 - Workshops undertaken jointly with the strategy drafting team to provide feedback and review on policy direction and the development of proposals;
 - Written feedback on iterations of the revised Draft MTS and a preliminary high level assessment of a Preferred Option for the strategy;

- Ongoing review of iterations of proposed sections of the Consultation Draft MTS 3 and meetings between relevant MTS authors and the IIA team; and
- IIA personnel working alongside the MTS team to input into the drafting of the strategy through ongoing liaison.

3.10.4 The first stage of the IIA process was completed with the preparation of the IIA Scoping Report which was subject to statutory consultation for a five week period during September and October 2016. The IIA Scoping Report identified key transport related sustainability issues facing London and developed an IIA framework for assessing the likely impacts of revisions to the MTS consisting of 23 IIA objectives and accompanying guide questions. The IIA objectives were developed through close collaboration with the GLA, to ensure they were capable of application to all Mayoral Strategies. A stakeholder workshop was held to facilitate this process.

3.10.5 From the early stages of MTS development, the IIA process has been carried out iteratively to ensure its meaningful contribution to the revision of the MTS as illustrated in **Figure 3.4**. These include:

- In September 2016, the IIA team provided a number of recommendations on the draft MTS objectives that have since been taken into account by TfL in subsequent stages of the development of the Consultation Draft MTS 3.
- In November 2016, an assessment was undertaken of the modelling outputs of TfL's core reference case (see Section 7.3) and six 'illustrative interventions' to identify their likely sustainability outcomes². The findings informed the development of the Preferred Option for the strategy. Economic, Equality, Social, Environmental and Health Effects were identified to inform the TfL policy makers on the likely effects of each specific intervention or revision, and were considered in isolation from other policies and proposals in order to evaluate their sustainability benefits and environmental effects on their own merits. TfL took the findings of this assessment into account when formulating the draft revised MTS, thus ensuring that the development of the revised strategy was carried out in an informed way and took account of the different perspectives and sustainability effects.
- In January 2017, a high level assessment was carried out on the first working draft of the revised MTS after applying the IIA framework set out in the IIA Scoping Report. The purpose of the assessment was to enable sustainability appraisal of the proposed priorities, policies and proposals at the earliest appropriate stage ensuring the MTS decision-making process took account of a broad range of transport and transport related perspectives, objectives and constraints. The results of the assessment were presented as key findings and specific recommendations and presented to TfL's IIA Steering Group on 12 January 2017.
- In March 2017, an IIA assessment of three Strategic Options was undertaken to inform the selection of a Preferred Option as the basis for developing the Consultation Draft MTS 3. Further recommendations for sustainability enhancements to the revised strategy were provided by the IIA team. An IIA Summary Paper was prepared for the TfL Board and subsequent changes to the draft revised MTS were logged into the IIA Tracker.

² 'Illustrative interventions' refers to six early packages of indicative transport policy measures that were modelled by TfL to compare likely outcomes of very different strategic approaches.

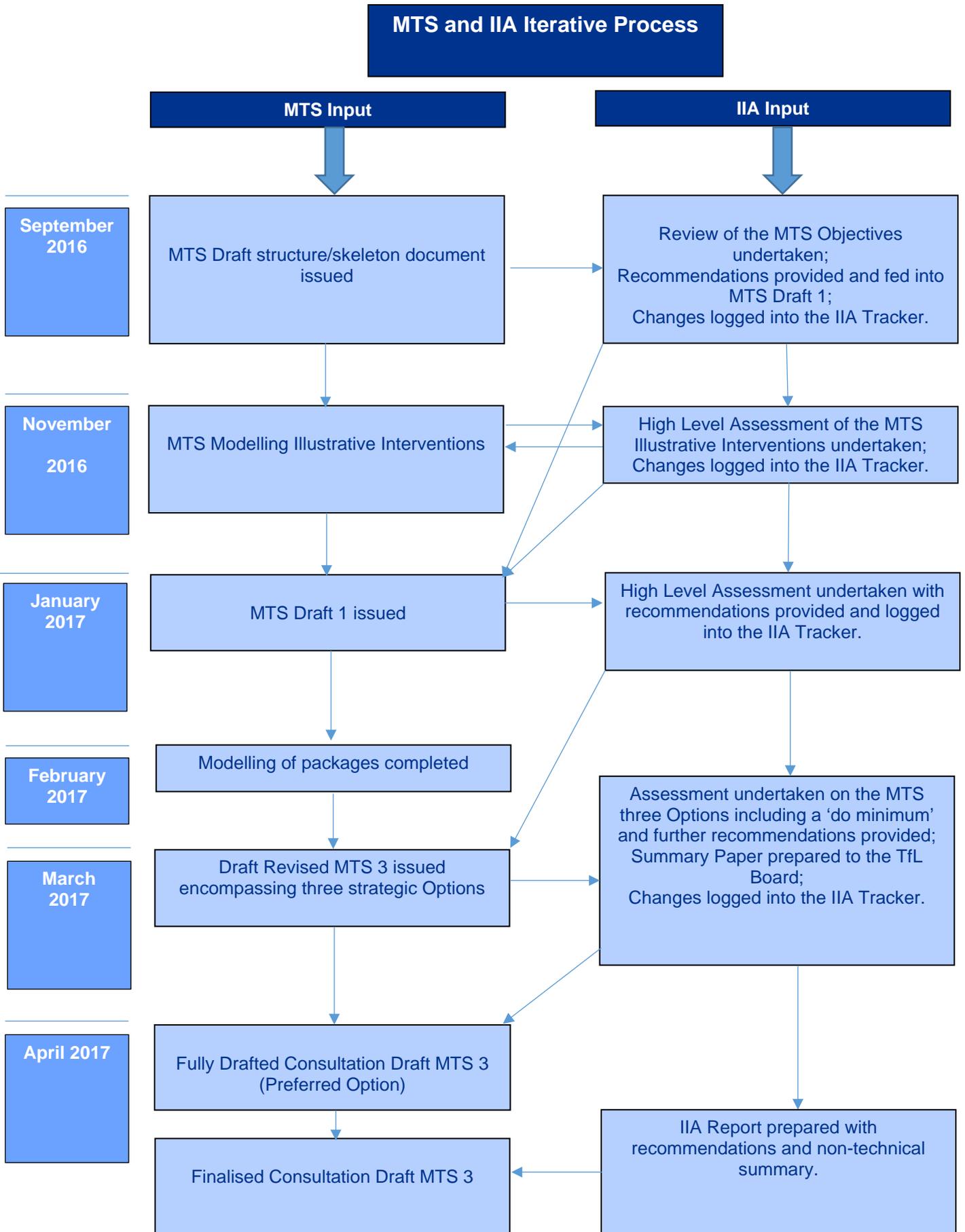


Figure 3.4: MTS and IIA iterative process

3.11 Spatial and Temporal Scope of the IIA

3.11.1 The spatial scope refers to the geographic area that is covered by the IIA. The principal spatial scope for the IIA is the GLA area, **Figure 3.5**. The IIA also takes account of potential impacts on adjoining areas as appropriate.



(Source TfL, 2016)

Figure 3.5: Greater London Authority area.

3.11.2 The Consultation Draft MTS 3 covers the period to 2041 and this is also the timeframe for the IIA. Where possible, significant effects identified are categorised as short-term (0-5 years), medium term (6-15 years) and long-term (16-25 years)

3.12 Uncertainties and Assumptions

3.12.1 The IIA is a strategic level assessment by nature and is based on broad assumptions and judgements. Therefore some uncertainty attaching to the assessment must exist. Qualitative rather than quantitative assessments need to be made and there is a degree of subjectivity exercised that is inherent in the IIA process. The assessment is undertaken by independent consultants with specialist knowledge across a range of sustainability topics. The monitoring plan assists in providing more clarity for the duration of the strategy and will enable TfL to address the uncertainties identified in the IIA Scoping report.

3.12.2 Where the Consultation Draft MTS 3 makes reference to a collective set of actions rather than specific details of individual schemes an assumption about the predicted effects is made based on the nature of the collective actions. The assessment assumes that all actions listed in the Consultation Draft MTS 3 under each transport policy and objective will be implemented.

4. Relevant plans, baseline and context

This chapter describes the process and the need to identify other plans and programmes relevant to the MTS review, their objectives and targets, and provides a summary on the implications of the documents review for the MTS. The most relevant plans are summarised in sections and presented in Appendix A in the IIA Scoping Report, 2017. They have been scoped and presented as of June 2016. This chapter also presents information on sustainability issues and sets out initial baseline data for the IIA. It summarises baseline data across all IIA topics and provides analysis of trends to determine the likely significance of each sustainability issue for the purposes of the MTS review, with full details being provided in Appendix F of the IIA Scoping Report, 2017.

4.1 Review of relevant Policies, Plans, Programmes and Sustainability Objectives

4.1.1 Task A1 requires that all relevant policies, plans, programmes and environmental objectives are analysed. The relationship between various policies, plans, programmes and environmental protection objectives may influence the revision of the MTS. These relationships are analysed to:

- Identify any external social, environmental or economic objectives that should be taken account of in the IIA process;
- Identify external factors that may have influenced the preparation of the draft revised MTS ; and
- Determine whether the policies in other plans and programmes might lead to secondary, cumulative or synergistic effects when combined with policies in the draft revised MTS.

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 Report presents an analysis of the objectives of the key policies, plans and programmes (including legislation) that are relevant to the revision of the MTS and the IIA assessment process.

4.1.3 The most relevant plans are summarised and presented in **Appendix A of the IIA Scoping Report, 2017**. They have been scoped as of June 2016. These are presented by reference to their geographic scope, from international to local.

4.2 Implications of the Policy Review

4.2.1 The preparation of the Consultation Draft MTS 3 has been influenced by the review of policies, plans, programmes and sustainability objectives through the following means:

- Influencing the content of the Consultation Draft MTS 3 policies and proposals by reference to relevant related strategies and their respective goals;
- Providing a context or checklist of the varied ways (and issues arising) in which transport policies and proposals impact upon sustainable economic, environmental and social development; and
- Identifying issues and outcomes which the Consultation Draft MTS 3 should explicitly seek to address and deliver.

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

- **Accessibility** – the review of the policies, plans and programmes identified the need for transport systems to be accessible and well connected. There is an inter-relationship with the London Plan, which is being revised at the same time as the MTS. Revisions of transport policies and proposals should make it easier for older and disabled people to use London’s transport system. The transport system should facilitate access to jobs, housing developments, education, healthcare and amenities for all Londoners.
- **Air quality** – the urgent need to meet mandatory limit levels for air quality in London and to cut the annual number of premature deaths from air pollution-related diseases by almost 40 per cent by 2020.
- **Natural environment** – Opportunities for transport infrastructure planning, design and operation to integrate with and enhance where possible biodiversity and the network of green spaces and green infrastructure to provide a range of sustainability benefits; for example, healthy living, improving air and water quality, cooling the urban environment, service resilience, enhancing biodiversity and ecological resilience. This could include both enhancing existing habitats and providing new areas for biodiversity as opportunities arise.
- **Climate change** – need to encourage the use of renewable energy sources and low carbon technology in transport infrastructure projects in the MTS. New transport development should be designed to adapt to climate change and, to accommodate the increased likelihood of extreme weather events and temperature rises. In addition, current transport infrastructure should be adapted where practicable to be resilient to climate change. The Mayor has a commitment to reduce London’s CO₂ emissions by 60 per cent by 2025.
- **Crime, safety and security** – identified as an important issue for staff and users of the transport system. Safer Streets for London Plan (2013) sets out challenging targets to reduce the number of people killed or seriously injured (KSI) by 40 per cent by 2020.
- **Connectivity** – delivery of forecast growth in London’s Opportunity Areas is dependent on the provision of high quality public transport connectivity.
- **Economic competitiveness and employment** – the importance of London’s position as a leading global economic and financial centre and the need to support the strong, diverse and resilient economic structure of the city providing opportunities for all.
- **Energy use and generation** – energy consumption by the transport sector contributes to the energy supply / demand gap. Greater use of renewable energy sources for transport will be important.
- **Flood risk** – there is a need to ensure that transport policies and proposals are designed not to increase flood risk and to encourage the use of Sustainable Urban Drainage Systems (SUDS).
- **Geology and soils** – a need to focus in transport planning on the prevention and remediation of environmental damage, including land contamination; and the need to increase efforts to reduce soil degradation and remediate contaminated sites.
- **Heritage** – a need to protect and enhance the historic built environment of or associated with transport facilities in London.
- **Housing** – accessible transport has an important role to play in increasing housing provision and unlocking development. Considering future land use planning for housing and employment growth in combination with necessary transport improvements is essential for the promotion of sustainable development. The revised MTS, therefore, will have an important role to play in enabling housing development through increasing connectivity and securing increased density on potential development sites.
- **Inclusion, fairness and social integration** – reducing inequalities for those groups who experience barriers to using public transport and encouraging active travel for all.
- **Landscape, townscape and public realm** – importance of creating and maintaining a safe and attractive public realm which encourages people to walk and cycle, promoting a sense of place and reducing the need to travel.
- **Materials and waste** – the need to apply the principles of the circular economy by encouraging waste reduction, reuse, re-manufacturing and recycling in all construction and operational practices.
- **Noise and vibration** – the need to minimise noise and vibration levels and the numbers of people exposed to high levels of noise from roads and railways.

- **Physical activity** – the need to improve the overall health of London's population and make London a socially integrated city of strong and resilient communities by encouraging modal shift from use of the car and a reduction in physical inactivity.
- **Water resources and quality** – the identified need to promote the protection, improvement of and sustainable use of the water environment.
- **Health and health inequalities** – how planned transport infrastructure can help to reduce inequalities in health outcomes and improve the overall physical and mental health and wellbeing of Londoners.

4.3 Biodiversity (HRA Screening)

- 4.3.1 A biodiversity screening exercise has been undertaken in conjunction with, and has influenced the IIA as a whole. In its initial stages it identified the relevant Natura 2000 sites within and surrounding the Greater London area, including the location and nature of the specific sites and the conservation objectives which underpin their designations. The Natura 2000 sites identified can be found in **Appendix B of the IIA Scoping Report, 2017**.

4.4 Baseline information and key sustainability issues and trends in London

- 4.4.1 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 Consultation Draft MTS 3 policies and proposals will aid development of appropriate mitigation measures including the identification of future monitoring data.
- 4.4.2 Appendix C presents a summary of baseline information concerning London's environment, population and economy as they are related to and affected by the Capital's transport system (they are set out in full in **Appendix F of the IIA Scoping Report, 2017**). The traffic and transport baseline refers to the conditions prevailing in the absence of proposed revisions to MTS (i.e. business as usual) and it has been developed reflecting the current circumstances affecting the transport network and has regard to predicted trends as detailed in current reported information and data.
- 4.4.3 Information about the environmental/sustainability baseline assists in identifying existing traffic and transport problems that the proposed MTS policies should try to resolve. The baseline sets a context for the iterative impact prediction and evaluation stage of strategy revisions, and it provides a basis against which the proposed revised draft MTS policies and proposals' impacts can be monitored.
- 4.4.4 This IIA Report is founded upon the large amount of data collected from engagement with local and national government bodies to ensure that the revisions to the MTS policies and proposals are based on up-to-date information about the state of natural environment and other physical characteristics of the study area.
- 4.4.5 The summary baseline information in Appendix C is set out in relation to topics relevant to each of the individual assessments which comprise the IIA. It can be seen from **Table 4.1** that the majority of these topics are applicable to more than one of the assessments. The table shows the different inter-relationships between sustainability topics and the individual assessments which together make up the IIA.

Table 4.1: Key issues (and assessment topic areas) for establishing the IIA baseline

Topic	Integrated Impact Assessment					
	Strategic Environmental Assessment (SEA)	Assessment of Economic Impacts (AEI)	Equality Impact Assessment (EqIA)	Health Impact Assessment (HIA)	Community Safety Assessment (CSA)	Habitats Regulation Assessment (HRA)
Accessibility	•	•	•	•	•	
Air quality	•	•	•	•		•
Natural environment	•	•	•	•		•
Climate change	•		•	•		
Crime, safety and security		•	•	•	•	
Connectivity		•	•	•	•	
Economic competitiveness and employment		•	•	•		
Energy use and generation	•	•	•	•		
Flood risk	•	•		•		
Geology and soils	•					
Heritage	•		•			
Housing		•	•	•		
Inclusion, fairness and social integration			•	•	•	
Landscape, townscape and public realm	•		•	•	•	
Materials and waste	•	•				
Noise and vibration	•		•	•		•
Physical activity		•	•	•		
Water resources and quality	•			•		•
Health and health inequalities		•	•	•		
Culture			•			
Design			•	•		

- 4.4.6 For each assessment topic key issues have been identified. These have been used to inform the development of IIA objectives against which the draft revised MTS is to be assessed.
- 4.4.7 The baseline information referred to in this report is described having regard to different areas of London. **Figure 4.1** depicts what is meant when the report refers to central, north, east, south or west London and **Figure 4.2** depicts what is meant when the report refers to the Central Activities Zone (CAZ), inner or outer London.



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 (Source: GLA, 2015a)

Figure 4.1: Sub-regions of London



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(Source: GLA, 2015a)

Figure 4.2: Outer London, inner London and Central Activities Zone (CAZ)

4.4.8 The summary table of the baseline data across all IIA topics and analysis of trends relevant to the determination of the likely significance of each sustainability issue for the revised MTS can be found in **Appendix C** of this IIA Report. The information presented in the **Appendix C** table shows how baseline data and relevant sustainability issues have changed over time. The information gives an indication as to where key sustainability issues will need to be addressed in the assessment of the draft revised MTS for evaluating the performance of the transport system against specific economic, social and environmental objectives.

4.5 Key environmental, social and economic issues and opportunities identified

4.5.1 Key issues for the Consultation Draft MTS 3 are summarised in **Table 4.2**.

Table 4.2: Key issues

Topic	Key issues	Evolution in the absence of a revision of the MTS
Accessibility	<ul style="list-style-type: none"> Not all public transport stations and stops are accessible for those who are mobility impaired or travelling with heavy luggage or a buggy Many people with sensory or cognitive impairments experience non-physical barriers to use of the transport network. 	Accessibility to public transport stations may not improve.
Air quality	<ul style="list-style-type: none"> High levels of NO_x, PM₁₀ and PM_{2.5} emissions from road transport London is not compliant with legal limit values for NO₂ and PM₁₀ 	Without additional measures to tackle the issue of air pollution, London will continue to be non-compliant with legal limits with

Topic	Key issues	Evolution in the absence of a revision of the MTS
	<ul style="list-style-type: none"> • Large numbers of the population are exposed to levels of NO₂ above the EU limit value. Those affected tend to be those who are also more vulnerable to the negative health effects of air pollution. • Exposure to poor air quality is unequal across London and Londoners particularly in the most deprived areas are more exposed to poor air quality than in other parts of the city. 	<p>higher levels of exposure to pollutants and continued significant negative impacts on public health.</p> <p>Increasing economic growth and development will lead to increased car use and congestion leading to localised negative air quality impacts.</p>
Natural capital and natural environment	<ul style="list-style-type: none"> • Protecting green spaces and preventing erosion of valued natural places as a result of increased pressure for transport infrastructure • Protecting and enhancing priority habitats in accordance with The London Biodiversity Action Plan habitat targets • Potential loss of biodiversity as a result of increased pressure for transport infrastructure development to accommodate higher levels of traffic • Areas of deficiency regarding access to nature 	<p>Increased traffic growth and congestion will continue to contribute to air pollution causing indirect negative effects on air and water quality leading to deterioration of the natural and built environment.</p> <p>Increased transport development will put pressure to use areas of green space for development purpose, severing corridors and reducing quality and quantity of natural environment and connectivity between areas green space.</p> <p>Additionally, greater development will increase areas of deficiency in access to nature, with the linked negative impacts to health and wellbeing, and increase existing inequalities.</p>
Climate change	<ul style="list-style-type: none"> • Road transport will continue to contribute significantly to CO₂ emissions • HGVs and buses are expected to contribute a higher proportion of CO₂ emissions in the future • London is not currently meeting the Mayor's CO₂ emission target i.e. a reduction in London's CO₂ emissions by 60% of 1990 levels by 2025 • Increases in extreme weather events due to climate change will damage the resilience for the transport network and increase the cost and complexity of maintaining operational performance standards • The impacts of climate change will not be equal or fairly distributed, and are likely to increase existing inequalities 	<p>The Mayor's CO₂ emissions targets are likely not to be met if additional reduction measures are not put in place by the MTS.</p> <p>Climate change effects will continue including increased temperatures, severe storms and flooding.</p> <p>The effects of climate change will not be experienced equally among London's population and are likely to increase existing inequalities.</p> <p>Additionally, the ability of the transport system to recover operations from climate change events and the increasing costs associated with these more frequent events.</p>
Crime, safety and security	<ul style="list-style-type: none"> • Increasing levels of reported of violent assaults and sexual offences on the transport network 	<p>Active travel targets are unlikely to be met unless this barrier to travel is addressed.</p>

Topic	Key issues	Evolution in the absence of a revision of the MTS
	<ul style="list-style-type: none"> • Anti-social behaviour on the transport network as a deterrent to its use for many Londoners • Safety concerns are a barrier to active travel and contribute to inactivity which, in turn, has impacts on health and wellbeing 	<p>Some groups in society are likely to remain reluctant to use public transport, particularly at certain times of day.</p>
Connectivity	<ul style="list-style-type: none"> • Poor orbital connectivity by public transport in outer London • Poor north-south by bus connectivity in east London • Reduced public transport connectivity across London as a result of congestion and crowding on services particularly at peak times • Congestion on roads as a result of poor connectivity by public transport leading to excessive reliance on private cars • Reduced connectivity in Central London by walking as a result of congestion and crowding on pavements and footpaths 	<p>The incidences of poor public transport connectivity and congestion and crowding are likely to deteriorate further as a result of increasing pressure on the transport system.</p>
Economic competitiveness	<ul style="list-style-type: none"> • Managing growth in a sustainable way • Providing enhanced capacity on the transport system to accommodate forecast population growth • Poor transport connectivity to some areas with the greatest capacity for development • High freight vehicle kilometres on the road network adding to congestion • Potential non-achievement of agglomeration benefits resulting from pressures on transport network • Congestion on roads reduces economic output • Crowding on and across London's transport network, particularly the Underground and Network Rail networks • Customer dissatisfaction when using the transport network e.g. experiences of annoyance, pain and dissatisfaction as a deterrent to attracting skilled labour • Interchange between international and domestic public transport networks • Accessibility will be compromised by rising crowding, the biggest barrier to public transport for disabled customers 	<p>Without additional measures capacity on rail routes and multi-modal connectivity towards central London, there is a threat to the maintenance of London's position as a world leading economic and financial centre.</p>
Employment	<ul style="list-style-type: none"> • Demand in employment growth in central London will be dependent on the capacity on rail routes and multi-modal connectivity towards central London 	<p>Economic growth and employment are likely to continue as forecast.</p> <p>Without additional measures capacity on rail routes and multi-modal connectivity towards central London, this could be a threat to London's competitiveness in terms</p>

Topic	Key issues	Evolution in the absence of a revision of the MTS
		of its ability to attract a flexible labour force.
Energy use and supply	<ul style="list-style-type: none"> • High levels of combustion of oil, diesel and petrol by traffic and transport contributing towards climate change • Transport contribution towards energy gap as transport shifts towards electric energy 	Without additional measures the gap between supply and demand for energy by the transport sector is likely to increase.
Flood risk	<ul style="list-style-type: none"> • Increasing probability of flooding that could significantly affect transport in London • TfL's highway drainage systems are not designed to cater for the high volumes of rainfall. • London network of underground tunnels is vulnerable to flooding 	Without additional measures taken to adapt to potential impacts of climate change the resilience of the transport system may not be sufficient to accommodate the risks of flooding.
Geology and soils	<ul style="list-style-type: none"> • Threat to London's geodiversity values as a result of increased demand for transport infrastructure • Soils in parts of London have high levels of contamination from substances such as heavy metals, lead, solvents and other hazardous hydrocarbons 	Impacts on geology and soils from new transport infrastructure need greater consideration through the transport planning process.
Historic environment	<ul style="list-style-type: none"> • Reducing the amount of designated heritage assets that are at risk • Preventing loss or damage of designated assets • Some designated assets are still at risk from neglect, decay or inappropriate development • Major infrastructure improvements, i.e. HS2, may have heritage implications, including demolition of old buildings of historic value • Improving capacity of underground may result in the enhancement of Underground stations contributing to London's heritage value 	<p>Some designated assets may still be at risk from neglect, decay or inappropriate development.</p> <p>Heritage assets are likely to continue to be preserved through legislation.</p>
Housing supply, quality, choice and affordability	<ul style="list-style-type: none"> • Poor transport connectivity to areas of London with the greatest capacity for development • The requirement for significant upfront investment in infrastructure, including transport, to unlock large sites for development • The requirements for housing to be close to public transport networks – the density of development is constrained through planning guidance • Growth in passenger numbers and the expansion of the railway makes development even more challenging • Need to deliver major station improvements and new infrastructure to unlock land • Not sufficient supply of affordable housing to maintain London's competitiveness 	The challenges to meet housing demand are likely to increase.
Equality and	<ul style="list-style-type: none"> • Some Londoners continue to face real or 	In the absence of a MTS revision

Topic	Key issues	Evolution in the absence of a revision of the MTS
inclusion, social integration	<ul style="list-style-type: none"> perceived barriers to using public transport Perception of poor road safety is a deterrent to more people taking up cycling and for pedestrians. 	real or perceived barriers to using public transport are likely to persist.
Design	<ul style="list-style-type: none"> 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 	In the absence of a MTS revision poor quality public realm may not be consistently addressed.
Materials and waste	<ul style="list-style-type: none"> Reduce amount of waste produced, increase reuse, re-manufacturing and recycling in all construction and operational practices. 	In the absence of a MTS revision this issue may not be properly addressed.
Noise and vibration	<ul style="list-style-type: none"> Parts of the population are exposed to roadside and railway noise that exceeds the threshold. 	In the absence of a MTS revision this issue may not be properly addressed
Physical activity	<ul style="list-style-type: none"> Many Londoners are not doing enough physical activity each day, adversely impacting their overall health. Low levels of physical activity. 	In the absence of a MTS revision this trend is likely to continue.
Water resources and quality	<ul style="list-style-type: none"> Physical modifications to water bodies Pollution from waste water on water bodies 	<p>In the absence of a MTS revision this issue may not be properly addressed.</p> <p>Increased economic growth is likely to cause an increase in run-off and potential contamination and disruption of flows for surface water and groundwater, there is also likely to be an increase in demand for water.</p>
Health and Health Inequalities	<ul style="list-style-type: none"> Inequalities in health outcomes and the overall physical and mental health and wellbeing of Londoners Low levels of physical activity Differential in life expectancy and health life expectancy across London Differentials in health determinants of different people Increasing health inequalities across the population 	Obesity is a growing problem and is likely to continue. Active lifestyles and healthy eating campaigns will help reduce this trend.
Culture	<ul style="list-style-type: none"> Poor accessibility for all to some historic and cultural environments 	In the absence of a MTS revision this trend is likely to continue.

5. Integrated Impact Assessment Framework

This chapter introduces the IIA assessment framework, against which the sustainability of the Consultation Draft MTS 3 proposals has been tested. It is structured around sustainability themes and complemented with the assessment guide questions which have been colour coded to represent the different elements of the IIA assessment. This chapter outlines the process of the determination of IIA objectives and their linked indicators measuring progress or otherwise towards them. A ranking of objectives has been carried out, highlighting those which are judged to be particularly important for the MTS review.

5.1 IIA Objectives, Guide Questions and Indicators

- 5.1.1 An important element of the IIA process is the determination of the IIA objectives. An objective is a statement of what is intended, specifying a desired direction of change. The achievement of an objective is normally measured using indicators and so these must be specific and measurable. IIA objectives are used to show whether the objectives of the MTS itself are beneficial for the achievement of sustainable development, to compare the sustainability effects of alternatives, and or to indicate whether improvements to policies and proposals are required.
- 5.1.2 An objectives-led approach is considered to be most appropriate to assessing the sustainability of the Consultation Draft MTS 3 as it enables assessment of the extent to which each aspect of the strategy contributes towards the delivery of each objective as opposed to just meeting prescribed targets. Thus a qualitative approach is adopted that allows for a better identification and description of effects rather than attempting to assign a quantitative value to effects, which is more limited and restrictive at this strategic level.
- 5.1.3 Draft IIA objectives have been developed in accordance with:
- The findings from the review of relevant plans and programmes, and data gathered during scoping;
 - Consultation with the GLA; and
 - Feedback from key stakeholders.
- 5.1.4 Alongside each IIA objective is a set of guide questions that has been used to assess whether the Consultation Draft MTS 3 will help to achieve or conflict with the objective. These may be revised as the revised strategy evolves. This IIA has been based on the questions presented below.
- 5.1.5 The IIA objectives and assessment guide questions are provided in **Table 5.2**. Guide questions are coloured to indicate which of the assessments (e.g. health, equality, environment etc.) that make up the IIA each question addresses:
- **Green = SEA**
 - **Purple = EQIA**
 - **Orange = HIA**
 - **Red = HRA**
 - **Blue = AEI**
 - **Pink = CSIA**

5.1.6 The revisions of all Mayoral strategies will be assessed against the same IIA objectives, with guide questions tailored 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 not applicable to the scope and intent of that strategy.

5.1.7 A total of 23 IIA objectives have been derived for the assessment of the sustainability of the revised strategy. **Table 5.1** below shows the link between SEA Regulations’ issues and IIA objectives (a detailed list of the IIA objectives is presented in **Table 5.2**).

5.1.8 Table 5.1: Link between SEA Regulations Issues and IIA objectives

SEA Regulations Issue	IIA Objectives
Material Assets	4,9,14,15,16,17
Climatic Factors	2,3,5
Biodiversity	10
Fauna	10
Flora	10
Water	12
Soil	6
Air	1
Cultural heritage, architectural and archaeological heritage	7
Landscape	25
Population	19,21,23
Human health	20

5.1.9 IIA objectives align with wider international, national and local environmental, health, social and economic policy objectives and form the basis against which the sustainability of the objectives of the Consultation Draft MTS 3 and those of other Mayoral strategies are to be appraised against.

5.1.10 **Chapter 4** summarised the baseline data available across all IIA topics and provides analysis of trends to determine the likely significance of each sustainability issue for the MTS. Based on this, Priority IIA Objectives have been identified in order to help focus the later stages of the IIA on measuring the sustainability of the Consultation Draft MTS 3. The four Priority IIA Objectives are:

- *To reduce emissions and concentrations of harmful atmospheric pollutants, particularly in areas of poorest air quality and reduce exposure*
- *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 reduce the threat of climate change through reducing greenhouse gas emissions and moving towards a zero carbon London by 2050*
- *To improve the mental and physical health and wellbeing of Londoners, and to reduce health inequalities across the City and between communities*

5.1.11 The Priority IIA Objectives are highlighted in red in the IIA framework **Table 5.2**.

Table 5.2: Integrated Impact Assessment framework

Topic	IIA objective	Assessment guide questions <i>Will the strategy...? SEA, EQIA, HIA, HRA, AEI, CSIA</i>
<p><u>Environmental:</u> <i>The transport system's role in supporting the natural environment by contributing to protecting and enhancing our natural, built and historic environment; and, as part of this, helping to improve biodiversity, use natural resources prudently, minimise waste and pollution, and mitigate and adapt to climate change including moving to a low carbon economy</i></p>		
<p>Air quality</p>	<p>1. To reduce emissions and concentrations of harmful atmospheric pollutants, particularly in areas of poorest air quality and reduce exposure</p>	<ul style="list-style-type: none"> • Reduce NO_x, PM₁₀ and PM_{2.5} emissions from road transport? • Reduce the number of people exposed to levels of NO₂ concentrations that exceed 40µg/m³? • Reduce inequalities in access to clean air across London, particularly for those: <ul style="list-style-type: none"> - who live in deprived areas? - who live, learn or work near busy roads? - who are more vulnerable because of their age or existing medical condition? • Help to achieve national and international standards for air quality? • Reduce costs to the economy resulting from premature deaths due to poor air quality and reduce costs to economy through fewer hospital admissions?
<p>Climate change adaptation and mitigation</p>	<p>2. 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</p> <p>3. To help tackle climate change through reducing greenhouse</p>	<ul style="list-style-type: none"> • Help London's transport system function during extreme heat without impacts on human health? • Help London's transport system function during a flood event or heavy rainfall? • Reduce impacts on groups more vulnerable to the effects of climate change (e.g. older people are more vulnerable to excess heat)? • Contribute to species & habitat resilience? • Reduce transport's contribution to CO₂ emissions?

Topic	IIA objective	Assessment guide questions <i>Will the strategy...? SEA, EQIA, HIA, HRA, AEI, CSIA</i>
	gas emissions and moving towards a zero carbon London by 2050	<ul style="list-style-type: none"> • Help London meet its emission targets? • Invest in green technologies, equipment and infrastructure that reduce GHG emissions? • Contribute to effective traffic management to reduce GHG emissions? • Help develop more efficient and sustainable freight transportation?
Energy use and supply	4. 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	<ul style="list-style-type: none"> • Reduce transport's demand and demand for energy? • Promote and improve energy efficiency in transport? • Encourage uptake of green/cleaner fuels and renewable energy provision across all transport providers and private cars? • Provide infrastructure to make a better use of renewable energy sources? • Contribute to the provision of smart and affordable energy system for all?
Flood risk	5. To manage the risk of flooding from all sources and improve the resilience of people, property and infrastructure to flooding	<ul style="list-style-type: none"> • Manage existing flood risks appropriately and avoid new flood risks? • Avoid new development in areas prone to flood risk or mitigate the potential for such risk? • Make provision for the review of strategic flood risks to assets and operations and undertake appropriate risk management? • Reduce risk to critical infrastructure?
Geology and soils	6. To conserve London's geodiversity and protect soils from development and over intensive use	<ul style="list-style-type: none"> • Promote the use of brownfield land?

Topic	IIA objective	Assessment guide questions <i>Will the strategy...? SEA, EQIA, HIA, HRA, AEI, CSIA</i>
Historic Environment	7. 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.	<ul style="list-style-type: none"> • Protect and enhance the built environment around key transport facilities, including removing barriers to use? • Protect and enhance valued/important built environment and streetscape settings through inclusive design and management? • Promote improved accessibility for all within existing historic/cultural/archaeological environments and their landscapes through inclusive design and management? • Have an adverse impact on local historic assets, historic buildings and archaeological deposits?
Materials and waste	8. 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	<ul style="list-style-type: none"> • Promote materials efficiency in all construction and operational practices? • Promote sustainable waste management in all construction and operational activity? • Promote the principles of circular economy when aiming for waste reduction, reuse, re-manufacturing and recycling? • Increase the use of recycled materials in all construction and operational activity? • Maximise use of innovative waste management techniques including smart technology? • Encourage the movement of waste movements to more sustainable methods such as rail and river transport? • Increase opportunities to move materials up the waste hierarchy?
Natural Capital and	9. To protect, connect and enhance London's natural capital	<ul style="list-style-type: none"> • Protect and enhance the character of local greenspaces? • Enhance the ecological function and carrying capacity of the

Topic	IIA objective	Assessment guide questions <i>Will the strategy...? SEA, EQIA, HIA, HRA, AEI, CSIA</i>
Natural Environment	(including important habitats, species and landscapes) and the services and benefits it provides, delivering a net positive outcome for biodiversity	<p>greenspace network?</p> <ul style="list-style-type: none"> • Will it bring nature closer to people, particularly in most urbanised parts of the city? • 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? • Enable the utilisation and management of green space and corridors associated with transport operations conserve, enhance and create natural and semi-natural habits? • Avoid damage to sites, protected species and habitats, especially where there is a designation of international, national, regional or local importance?
Noise and vibration	10.To minimise noise and vibration levels and disruption to people and communities across London and reduce inequalities in exposure	<ul style="list-style-type: none"> • Reduce the number of people exposed to high levels of noise from roads and railways? • Contribute to effective traffic management to reduce noise levels? • To minimise and reduce road, rail and aviation noise and vibration levels and disruption to all people and communities across London
Water resources and quality	11.To protect and enhance London's water bodies by ensuring that London has a sustainable water supply, drainage and sewerage system	<ul style="list-style-type: none"> • Contribute to the sustainable use of waterways for passenger and freight transport? • Protect and enhance the character and use of London's riverscapes and waterways? • Protect and enhance the regions waterbodies to achieve a good ecological status?

Topic	IIA objective	Assessment guide questions <i>Will the strategy...? SEA, EQIA, HIA, HRA, AEI, CSIA</i>
<p><u>Economic:</u> <i>Transport system's role in supporting a strong, sustainable and competitive economy, new homes and jobs by providing transport infrastructure for all Londoners</i></p>		
<p>Connectivity</p>	<p>12.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</p>	<ul style="list-style-type: none"> • Improve connectivity by public transport, particularly in outer London? • Improve connectivity across the River Thames by all modes of transport, particularly in east London? • Reduce congestion on train and bus services? • Reduce congestion on roads across all parts of London? • Reduce congestion on public pavements and footpaths, especially in central London? • Reduce overcrowding at stations and stops and on platforms? • 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)? • Increase accessibility to employment, training and up-skilling opportunities for all people living in London by public transport, walking and cycling? • Will there be additional noise impacts on designated habitats? • Promote green infrastructure, value of ecosystem services and multifunctional land use and connectivity.
<p>Infrastructure</p>	<p>13.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</p>	<ul style="list-style-type: none"> • Unlock land that has capacity for housing development? • Provide infrastructure to connect new housing developments to key services? • Enhance access for individuals with key skills to the right employment opportunities?

Topic	IIA objective	Assessment guide questions <i>Will the strategy...? SEA, EQIA, HIA, HRA, AEI, CSIA</i>
Economic competitiveness and employment	14.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	<ul style="list-style-type: none"> • Improve interchange between international and domestic networks? • Reduce overcrowding on the public transport network? • Increase capacity to accommodate increased demand arising from employment growth in the CAZ and other key growth areas across London e.g. Opportunity Areas and Intensification Areas • Increase accessibility to employment, training and up-skilling opportunities for all? • Contribute to the alleviation of poverty by providing affordable/discounted travel for disadvantaged sections of the community? • Improve network resilience and service reliability? • 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?
Sustainable Land Use	15. Make the best and most efficient use of land so as to support sustainable patterns and forms of development?	<ul style="list-style-type: none"> • Make the best use of land through appropriate development on brownfield sites and use of existing transport network? • Support delivery of a net positive outcome for biodiversity?
Housing Supply, Quality, Choice and Affordability	16.To provide a quantum, type, quality and tenure of housing (including specialist and affordable provision) to better meet demographic change and household demand	<ul style="list-style-type: none"> • Improve transport connectivity to areas with the greatest capacity for development? • Unlock land that has capacity for housing development? • Contributes to the provision of affordable housing?

Topic	IIA objective	Assessment guide questions <i>Will the strategy...? SEA, EQIA, HIA, HRA, AEI, CSIA</i>
Culture	17.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	<ul style="list-style-type: none"> • Improve the accessibility for all of historic and cultural environments?
<p><u>Social:</u> <i>The transport system’s role in supporting strong, vibrant and healthy communities by delivering a good public transport experience; safe and pleasant places; and by creating a high quality built environment, with accessible local services that meet the community’s needs and support the health, social and cultural well-being of all Londoners</i></p>		
Accessibility	18.To maximise accessibility for all in and around London	<ul style="list-style-type: none"> • Improve the accessibility of all public transport modes? • Reduce travel times for mobility impaired people? • Improve legibility and ease of use of the transport network for people with sensory or cognitive impairments? • Help enable mobility impaired people to access the services they require? • Increase the accessibility of key services and facilities for all? • Improve access to areas of biodiversity interest? • Encourage a modal shift to more sustainable forms of travel? • Address areas with deficiencies in access to open space? • Reduce levels of crime on the transport network, in particular violent assaults and sexual offences?
Crime, safety and security	19.To contribute to safety and security and generate the perceptions of safety	<ul style="list-style-type: none"> • Reduce levels of crime on the transport network, in particular violent assaults and sexual offences? • Reduce anti-social behaviour on the transport network? • Create a travel environment that feels safe to all users during the day time and night time? • Reduce inequalities for those groups who have a greater fear of crime (e.g. groups such as girls, women, older people and people living in

Topic	IIA objective	Assessment guide questions <i>Will the strategy...? SEA, EQIA, HIA, HRA, AEI, CSIA</i>
		<p>low income areas)?</p> <ul style="list-style-type: none"> • Reduce the proportion of people feeling unsafe and as a result not using the public transport network? • Increase security and resilience to major incidents on the network?
Health and health Inequalities	20.To improve the mental and physical health and wellbeing of Londoners and to reduce health inequalities across the City and between communities	<ul style="list-style-type: none"> • Help to reduce health inequalities and key contributory factors to this? • Support the physical and mental health and wellbeing of communities, particularly those disproportionately affected by inequality? • Reduce annoyance caused by transport noise? • Reduce exposure to air pollution by most vulnerable groups? • Encourage modal shift, especially for those groups who own a car, or for older people who are less likely to walk or cycle? • Reduce levels of physical inactivity? • Improve connectivity to key services by promoting active modes of transport?
Equality and Inclusion	21.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	<ul style="list-style-type: none"> • Encourage all groups to travel actively? • Reduce inequalities for those groups who experience more barriers to using public transport than others (e.g. those from lower socio-economic groups and deprived areas, some ethnic minorities, disabled people and older people)? • Make the transport system legible, safe and easy to use by all?
Social integration	22.To ensure London has socially integrated communities which are strong, resilient and free of prejudice	<ul style="list-style-type: none"> • Plan to provide for a changing population into the future (in particular a more diverse and increasingly aging population)?
Design	23.To create attractive, mixed use neighbourhoods, ensuring new buildings and spaces are appropriately designed that promote and enhance existing sense of place and	<ul style="list-style-type: none"> • Protect and enhance the character, integrity and liveability of key streetscapes, including removing barriers to use? • Improve the use of the urban public realm by improving its

Topic	IIA objective	Assessment guide questions <i>Will the strategy...? SEA, EQIA, HIA, HRA, AEI, CSIA</i>
	distinctiveness, reducing the need to travel by motorized transport	<p>attractiveness and access for all?</p> <ul style="list-style-type: none"> • Create and maintain a safe and attractive public realm which encourages people to walk and cycle? • Reduce injury and collisions, particularly for vulnerable road users such as cyclists and pedestrians? • Improve 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

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6. Assessment methodology of likely significant effects

This chapter describes the approach to the IIA assessment of the Consultation Draft MTS 3 and summarises the results of the compatibility testing against IIA objectives. The chapter outlines how the significance of the effects identified has been measured and sets out the framework for predicting the effects of the MTS against the IIA Objectives.

6.1 Assessment approach adopted in the IIA

- 6.1.1 The IIA has assessed the sustainability of the Consultation Draft MTS 3 as a whole. The IIA has not assessed individual policies and proposals, except insofar as specific policies and proposals illustrate the issues raised in the assessment narrative. This approach is commensurate with guidance³ and also meets the requirements of the SEA Regulations⁴ that such information should be provided, as may reasonably be required, taking account of the “contents and level of detail in the plan or programme”.
- 6.1.2 Detailed assessment of the sustainability of specific proposals and schemes will be undertaken at an appropriate level, including assessment of the sub-regional plans and Local Implementation Plans (LIPS) and through assessment of schemes at the planning consent stage (where applicable).
- 6.1.3 The assessment of the sustainability of the revised transport strategy against each of the IIA objectives is primarily qualitative. Quantitative analysis has also been undertaken using TfL’s London Transportation Studies (LTS) model and emissions reductions forecast (see **Appendix G** of the IIA Report).

6.2 Compatibility testing of the IIA Objectives

- 6.2.1 A compatibility test of the IIA objectives has been carried out using a framework presented in **Appendix H of the IIA Scoping Report, 2017**. As tensions can arise between objectives that cannot be resolved, the compatibility assessment has clarified these so that subsequent policy decisions will be well based, and the need for mitigation or choices as to alternatives can be addressed.
- 6.2.2 Testing of the compatibility of the IIA objectives highlighted some potential tensions between IIA objectives that require physical development (such as improving transport connectivity and provision of housing) and environmental objectives. Finding the right balance between these separate objectives is important for achieving sustainable development. For example, the protection of heritage assets could constrain 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 the application of circular economy principles could assist in resolving this tension between policy objectives.

³ A Practical Guide to the Strategic Environmental Assessment Directive, ODPM, 2005

⁴ Regulation 12 (3) (b) of the ‘Environmental Assessment of Plans and Programmes Regulations’ 2004

6.3 Identifying the likely significance of effects

- 6.3.1 The IIA has identified, described and evaluated the likely significant effects of implementing the Consultation Draft MTS 3 policies and proposals against the IIA objectives using the assessment guide questions (see **Table 5.2**). It has done this for the area within the GLA administrative boundary plus certain ecological sites (HRA) (see **HRA Report**) beyond the GLA administrative boundary which could be affected by the MTS. These include transport corridors, water bodies and some European designated sites.
- 6.3.2 While the SEA Regulations do not define the term significant, a definition which is frequently used in environmental impact assessments is that a significant impact is one which should be taken into account in the decision-making process (see **Table 6.1**). All impacts which are greater than neutral or uncertain are taken to be potentially significant.
- 6.3.3 In determining the significance of the impacts of the Consultation Draft MTS 3 in the IIA, account has been taken of the criteria set out in of Schedule 1 of the SEA Regulations including the scale or magnitude of the proposed change, the value and vulnerability of receptors affected and the probability, duration, frequency and reversibility of impacts. As the revised MTS covers a period up to 2041, the temporal scope of the IIA is as follows:
- Short-term effects – those effects that occur within the first five years of implementation of the revised MTS;
 - Medium to long-term effects – those effects that occur beyond five years of the adoption of the revised strategy;
 - Long-term effects – those effects that will occur beyond fifteen years.

6.4 Predicting the likely significant effects of the revised MTS by reference to the IIA Objectives

A symbol based scoring system has been employed to record the findings of the assessment of the sustainability of the revised MTS against the IIA objectives and is explained in **Table 6.1**. Under 'Definition' the table includes by a brief commentary explaining and expanding on the scoring.

Table 6.1: Significance ratings and definition

Scale of effect		Definition
++	Moderate to Major positive effect	MTS contributes greatly towards achieving the IIA objective
+	Minor to Moderate positive effect	MTS contributes to achieving the IIA objective
0	Neutral or no effect	MTS does not impact upon the achievement of the IIA objective
-	Minor to Moderate negative effect	MTS conflicts with the IIA objective
--	Moderate to Major negative effect	MTS greatly hinders or prevents the achievement of the IIA objective
?	Uncertain	MTS can have positive or negative effects but the level of information available at a time of assessment does not enable a clear judgement to be reached.

- 6.4.1 The assessment identifies cumulative and secondary environmental effects of the revised strategy where possible. Where relevant these are identified in the assessment matrices.
- 6.4.2 Secondary impacts are impacts that do not directly result from the policies and proposals of the revised MTS but occur away from the original impact or as a result of a complex pathway; for example, development that affects the water table and has a consequential impact on the ecology of a nearby wetland.
- 6.4.3 The assessment has addressed inter-strategy cumulative effects, whereby the likely significant effects of the revised MTS act in combination with the effects of other mayoral strategies, including the current London Plan (2016) and the Draft Revised London Environment Strategy.

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7 Assessment of Draft Revised MTS 3 Options

This chapter describes the IIA approach to the assessment of the revised MTS strategic Options, outlines the modelling outputs as the basis for strategic Options and provides a comparison of the likely significant environmental, social and economic effects of the alternative Options. The chapter also outlines how sustainability issues were instrumental in the choice of the Preferred Option and explains why the other Options were considered and why they were rejected.

7.1 Strategic Options

- 7.1.1 The assessment of revised MTS strategic Options against the 23 IIA Objectives has been undertaken using the IIA Framework set out in **Table 5.2** of this IIA Report. Three strategic Options were put forward for the IIA assessment.
- 7.1.2 The proposed strategic Options were derived from the modelling options developed by TfL. Continuing evaluation of their respective merits throughout the IIA process has informed the identification of the Preferred Option (Consultation Draft MTS 3) to be issued for public consultation. The choice made between the three MTS Options was principally based on an analysis of which option provided the optimum basis for progressing sustainable transport provision in London in the period to 2041.
- 7.1.3 The three strategic Options assessed are summarised in **Table 7.1**. They are explained in greater detail in **Section 7.3**.

Table 7.1: The composition of the three strategic Options assessed

Option 1 Do Minimum	Option 2	Option 3
A continuation of the existing transport strategy updated to include funded commitments as set out in the 5 year TfL Business Plan (2016)	Option 1 with additional package of enhanced public transport investment to accommodate forecast population and employment growth	Option 2 with additional demand management and road pricing levers to maximise mode shift to sustainable modes
Package A (2041 Funded reference case)	Packages A+B+C+D transport proposals	Packages A+B+C+D+E+ F transport proposals
Current MTS (2010) policies and proposals	Draft Revised MTS 3 (2017) policies, excluding any demand management and road pricing policies	Draft MTS (2017) policies, including demand management and road pricing policies
Development and employment growth assumptions as set out in the consolidated London Plan (March 2016)	Development and employment growth assumptions and outputs from the GLA population and employment forecasts (July 2016)	Development and employment growth assumptions and outputs from the GLA population and employment forecasts (July 2016)

7.2 Approach to strategic Options assessment

- 7.2.1 For Option 1, the IIA has looked at how the current MTS (2010) in combination with the selection of proposals assigned to package A and some elements of package B, performed against the current baseline and forecast population and economic trends (derived from the sustainability issues identified in the IIA Scoping Report of 2017). Option 1 has been assessed on its own merits in relation to the baseline (i.e. it is not a comparator with other options).
- 7.2.2 For Option 2, the IIA has looked at how this Option performed against the IIA framework taking into account the current baseline and having regard to key issues identified in the IIA scoping report 2017. This assessment has been carried out against the baseline and on a comparative basis with Option 1. The scoring has been determined based on how this Option performs compared with Option 1. The assessment narrative has also included a comparison with Option 3 to highlight the differences in sustainability benefits between the two Options.
- 7.2.3 For Option 3, the IIA has looked at how this Option performed against the IIA framework taking into account the baseline and having regard to key issues identified in the IIA scoping report 2017. This assessment has been carried out against the baseline and on a comparative basis with Option 1. The scoring has been determined based on how this Option performed in relation to Option 1. The assessment narrative has also included a comparison with Option 2 to highlight the differences in sustainability benefits between the two Options.
- 7.2.4 The assessment of all three Options is presented in tabular form to allow the reader to view the relative performances of the Options against the six assessment elements of the IIA (SEA, HRA, EqIA, AEI, HIA and CSIA), and can be found in **Table 7.3**. The assessment highlights the nature and magnitude of the impacts. The detailed IIA assessment of all three Options against each of the IIA Objectives is in **Appendix E**.

7.3 Revised MTS transport proposals Package Modelling

- 7.3.1 The revised MTS transport proposals package modelling approach has involved a series of cumulative package tests that build on the core 2015 reference case. The core reference case comprises those transport schemes which are fully committed and/or are included in the TfL Business Plan, published in December 2016, which covers the period to 2021/22. These packages were derived from the early revised MTS transport proposals and collated into packages based on the type of intervention, their content and cost.
- 7.3.2 Package A is the core reference case including funded programmes in the TfL Business Plan. Packages B to D each comprise a modelling assessment of an increasing level of public transport and healthy streets investment. They include proposals addressing road space efficiency, bus and rail schemes. Packages E and F represent the potential impact of demand management and road pricing schemes.
- 7.3.3 The modelling packages have been tested for 2041 built on the core reference case and are presented in **Figure 7.1** and accompanying key below:

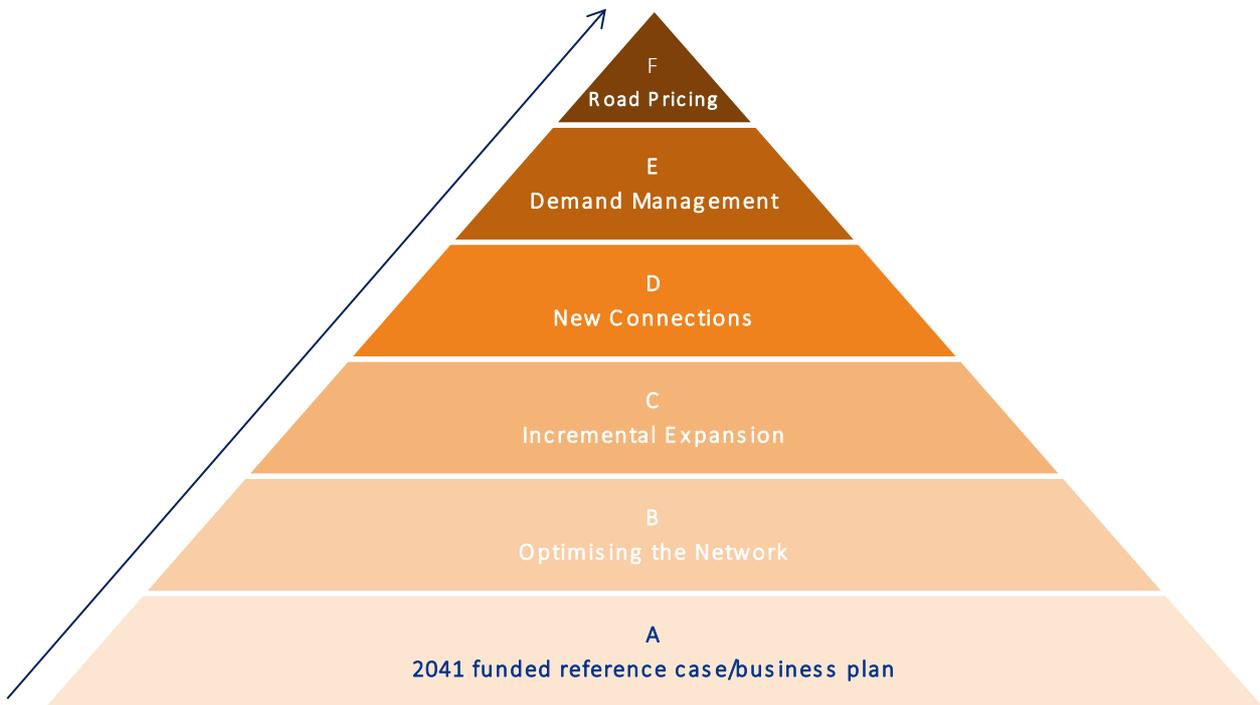


Figure 7.1: MTS modelling packages

Key to the MTS modelling packages:

Package Title and Description	
A	2041 funded reference case/business plan Package A contains all those schemes outlined and funded within the TfL Business Plan 2016
B	Optimising the Network Package B contains schemes that aim to optimise the network through lower cost investment across public transport networks and further road space reallocation, and includes DLR/Overground/Elizabeth line frequency uplifts and a bus priority network plan
C	Incremental Expansion Package C includes slightly higher investment schemes, including improving rail capacity on the existing network, deep Tube upgrades, full suburban rail metroisation and the Silvertown Tunnel
D	New Connections Package D includes the construction of large scale investment projects including Crossrail 2 and the Bakerloo Line Extension and a population growth linked bus frequency uplift
E	Demand Management Package E aims to use Demand Management measures to reduce car mode share, including increased parking charges and much more intense road space reallocation schemes
F	Road Pricing In addition to the public transport, highway and demand management schemes included in Packages A to E, Package F includes road pricing measures in order to reach the 80% sustainable mode share target

7.4 Modelling outputs forming the basis of the strategic Options

7.4.1 **Table 7.2** below presents the summary of the modelling outputs forming the basis of the three revised MTS strategic Options. The modelling outputs indicate that Option 1 'Do minimum' performs least well across the modelling outputs, whilst Option 3 achieves an 80% sustainable mode share by 2041 and the greatest reductions in transport CO₂ and particulate emissions in comparison to Options 1 and 2, thus providing the greatest amount of sustainability benefits. A detailed description of the modelling outputs as the basis for strategic Options is in **Appendix F**.

Table 7.2: Summary of the modelling outputs

Modelling outputs	Option 1 'Do Minimum'	Option 2	Option 3
Demand for travel	Demand for travel in London will increase by more than 5m trips on an average day, from 26.7m in 2015 to 32m in 2041	Overall demand for travel similar to Option 1	Overall demand for travel similar to Option 1
Mode share for car travel	Mode share for car travel falling from 36% in 2015 to 30% in 2041.	Falling car mode share from 30% in Option 1 to 28% in Option 2.	80% sustainable mode share Car mode share drops further from 30% in Option 1 to 20% in Option 3
Change in 12 hour PT passenger km from 2015	49% increase in public transport passenger km. 57% increase in rail and underground passenger km from 2015 to 2041. 18% increase in bus passenger kms to 2041	67% increase in public transport passenger km	84% increase in public transport passenger km
Change in London vehicle km	8% increase in morning peak traffic (GLA vehicle km)	6-7% increase in morning peak traffic (GLA vehicle km)	10% decrease in morning peak traffic in London (GLA vehicle km)
Transport CO₂ Emissions, million/tonnes / year	5.4	5.4	2.9
Road transport emissions, tonnes / year PM2.5	584	582	460
Road transport emissions, tonnes / year PM10	1106	1101	861

7.4.2 The detailed MTS emissions reductions forecast results associated with these Options are shown in **Appendix G**.

7.5 Significant effects of the strategic Options

7.5.1 A summary of the findings of the assessment of the three revised MTS strategic Options is set out in **Table 7.3**. The assessment results indicate that Option 1 performs least well across the six IIA elements and does not address the likely transport needs of London over the period of the Draft Revised MTS 3, whilst Option 3 provides greater sustainability benefits compared to Option 2.

7.5.2 The IIA assessment of the three strategic Options is detailed in **Appendix E**.

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Table 7.3: Draft Revised MTS 3 Options IIA Summary

IIA Topic	<p><u>Option 1</u> Do Minimum</p>	<p><u>Option 2</u> Option1 with additional package of enhanced public transport investment</p>	<p><u>Option 3</u> Option 2 with additional levers to maximise mode shift to sustainable modes and achieve the 80% sustainable mode share target</p>
	<p><i>Package A – 2041 Funded reference case</i> <i>Option 1 is based on current London Plan (March 2016) land use/development policies and employment growth, current MTS (2010) policies and proposals, and proposals set out in the TfL Business Plan (2016)</i></p>	<p><i>TfL Packages A - D (Optimising the network, incremental expansion, new connections including CR2 and Bakerloo Line Extension as well as policies in the draft revised MTS 3 excluding demand management and road pricing policies)</i></p>	<p><i>Option 2 + TfL Packages E & F demand management and road pricing as well as all policies in the Draft Revised MTS 3)</i></p>
<p>Strategic Environmental Assessment SEA</p>	-	0	+
	<p>Air Quality Poor air quality is a major problem for London with high levels of NOx, PM10 and PM2.5 emissions from road transport. Option 1 includes proposals for improvements in walking and cycling which can lead to growth in cycling to 6% mode share in 2041. Option 1 also delivers a 30% car mode share in 2041; a 6 percentage point decrease from 2015. There will also be overall growth in traffic due to growth in outer London and growth in km travelled by vans (LGVs) across Greater London. This is likely to result in even greater amounts of harmful emissions affecting environment and human health. Severe crowding on PT as well as weaker performance of bus network results in more people switching to cars which causing even more traffic, congestion and consequently pollution affecting people, the environment and historic buildings. Option 1 does not seek to accelerate the natural turnover of the fleet or provide for further incentives for new technologies and therefore emissions will reduce but at a pace too slow given the severity of the issue.</p>	<p>Air Quality Option 2 contains a number of proposals aiming to reduce harmful emissions through transitioning the vehicle fleets to cleaner vehicles:</p> <ul style="list-style-type: none"> • Expansion of the Ultra Low Emission Zone across London for heavy vehicles and within inner London for light vehicles; • Introduction of Zero Emission Capable taxis • Providing incentives to support the transition to ULEVs; • Ensure the infrastructure is in place to support the transition to ULEVs; • Procurement of cleaner buses; and • Bus priority for Low Emissions Bus Zones. <p>Option 2 overall would deliver 28% car mode share in 2041, which represents just 2 percentage point improvement from the Option 1 car mode share. Packages achieve mode shift, public transport growth and relieve crowding, however they do not have significant impact on traffic volumes to relieve congestion and to provide a less traffic dominated city. Provision of new green infrastructure as part of the transport schemes can accommodate routes for walking and cycling and would encourage a shift to more sustainable low-polluting forms of travel of transport thus reducing emissions of greenhouse gasses and of priority pollutants (e.g. PM, NOx, NO₂). i.e. walking and cycling. Measures to improve green infrastructure are also likely to contribute to the achievement of national and international standards for air quality which will have positive effects on the environment and sites sensitive to effects of nitrogen deposition and acidification. Enhanced vegetation can also help to reduce particulate pollution by absorbing and filtering particulate matter.</p>	<p>Air Quality In addition to proposals contained in Option 2, Option 3 contains measures with demand management and road pricing policies. Road pricing policies are forecast to reduce road traffic – car mode share falls to 20 % and morning peak hour traffic is reduced by 10%. The reduction in traffic reduces harmful air pollution which negatively affects human health and the environment.</p>
<p>CO₂ and Climate Change Option 1 contains proposals and several policies aimed at reducing GHG emissions through a mixture of mode shift and technological advancements. However, road transport will continue to contribute significantly to CO₂ emissions with HGVs and buses expected to contribute a higher proportion of CO₂ emissions in the future. Option 1 does not seek to provide infrastructure to make a better use of renewable energy sources. Option 1 contains a limited number of proposals that refer to the threats posed by climate change. It does not contain any proposals or policies that specifically address flood risk.</p>	<p>CO₂ and Climate Change Option 2 offers policies to address the issues of climate change mitigation and contains proposals and several policies aimed at reducing GHG emissions through a mixture of mode shift and technological advancements. Proposals to increase the level of low carbon and renewable energy generation, such as solar, to supply transport will deliver significant carbon savings. Option 2 offers policies to address the issues of climate change adaptation, which were found in the Scoping report to be significant for London in the context of the transport strategy, i.e. the transport sector seeks to contribute to London's resilience to climate change, enhancing the natural environment and reducing impacts on the wider environment. Proposed provision of new green infrastructure can play a positive role in absorbing carbon dioxide, reducing 'urban heat island' effects, and providing opportunities for increasing habitats and connections to help enable wildlife to adapt to a changing climate. Policy 8 and Proposals 44 and 45 seek to ensure that London's transport is more resilient to the impacts of severe weather and climate change, which can provide benefits in the long-term. However, there are no specific proposals in the short-term to deal with the flood risk</p>	<p>CO₂ and Climate Change The additional policies and proposals in Option 3 are likely to lead to reduction in car use and thus further reduction in CO₂ emissions and reduce reliance on fossil fuels, with consequential benefits for air quality.</p>	

IIA Topic	<p><u>Option 1</u> Do Minimum</p>	<p><u>Option 2</u> Option1 with additional package of enhanced public transport investment</p>	<p><u>Option 3</u> Option 2 with additional levers to maximise mode shift to sustainable modes and achieve the 80% sustainable mode share target</p>
	<p><i>Package A – 2041 Funded reference case</i> <i>Option 1 is based on current London Plan (March 2016) land use/development policies and employment growth, current MTS (2010) policies and proposals, and proposals set out in the TfL Business Plan (2016)</i></p>	<p><i>TfL Packages A - D (Optimising the network, incremental expansion, new connections including CR2 and Bakerloo Line Extension as well as policies in the draft revised MTS 3 excluding demand management and road pricing policies)</i></p>	<p><i>Option 2 + TfL Packages E & F demand management and road pricing as well as all policies in the Draft Revised MTS 3)</i></p>
		<p>on London Underground; for example, currently there are 85 sites (57 stations, 16 shafts and 10 tunnel portals and 2 others) which are at high and rising risk of flooding. Promotion of green infrastructure can be one of the most effective tools available for managing environmental risks such as flooding and heatwaves.</p>	
	<p>Historic Environment The planned inclusion of more transport infrastructure schemes which will potentially require land take and may have the potential to affect the historic environment, would be subject to environmental appraisal and Environmental Impact Assessment, as appropriate, to ensure protection of cultural heritage and, in some cases, may offer opportunities for enhancement. On the assumption that these schemes are developed and implemented with these controls, the overall effect of Option 1 at a strategic level on the historic, archaeological and cultural environment of London, as a whole, is not expected to be significant.</p>	<p>Historic Environment Option 2 contains a number of measures to reduce harmful acidified air pollutants that cause 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; therefore reduction in air pollutants will have positive effects on this IIA objective. At the same time major infrastructure improvements, i.e. Crossrail 2, may have heritage implications, including demolition of old buildings of historic value, whilst proposed measures for the improvement of capacity on London Underground may result in enhancements being made to historic Underground stations contributing to London's heritage value. Option 2 does not explicitly address conservation and enhancement of Heritage assets; the future of these assets will likely continue to be preserved through legislation.</p>	<p>Historic Environment Option 3 offers the same outcomes as Option 2; it does not contain additional proposals to further assist in achieving the objective.</p>
	<p>Materials and Waste Option 1 does not promote the movement of waste to more sustainable methods such as rail and river transport and does not promote materials efficiency in all transport related construction and operational practices.</p>	<p>Materials and Waste Option 2 contains new large infrastructure schemes and, therefore, more waste will be generated as a result of these proposed large transport projects. Potential construction impacts may include additional noise, vibration and the transport by road of construction spoil - especially for large schemes away from the river (e.g. Bakerloo line extension) that are likely to add more traffic on the roads and contribute additional emissions. There could be potential impacts with a large amount of excavated waste from the schemes that this scenario would involve and this would need to be addressed at the design stage to minimise the risks to public safety, as well as congestion and pollution impacts. Options will need to include the productive reuse of the excavated material where practicable in the next phase of design work. Option 2 does not directly address promotion of materials efficiency, recycling and remanufacturing in all construction and operations practices. The current rate of recycling of waste in London is low. Option 2, however, includes proposals addressing reduction of impacts on the wider natural environment associated with supply chains and waste. Transport providers shall adopt and apply the latest GLA responsible procurement guidance (transitioning to the circular economy).</p>	<p>Materials and Waste Option 3 offers the same outcomes as Option 2; it does not contain additional proposals to further assist in achieving the objective.</p>
	<p>Natural Environment At present, London is facing natural environmental impacts including threats to the protection of green spaces and the erosion of valued natural places as a result of increased pressure for transport infrastructure. There is potential loss of biodiversity as a result of increased pressure for transport infrastructure development to accommodate higher levels of traffic and existing areas of deficiency in access to nature. Option 1 has a limited amount of proposals to enhance transport's contribution to the natural environment.</p>	<p>Natural Environment Option 2 has a number of policies and proposals to improve the natural environment in London:</p> <ul style="list-style-type: none"> • Transport maintenance schemes of existing green space, and improvements should protect existing and provide new green infrastructure achieving a net positive impact on biodiversity. • In order to reduce their impacts on the wider natural environment associated with supply chains and waste, transport providers shall adopt and apply the latest GLA responsible procurement guidance (transitioning to the circular economy). • TfL will establish a baseline of ecological data and monitor / report regularly to 	<p>Natural Environment Option 3 offers the same outcomes as Option 2; it does not contain additional proposals to further assist in achieving the objective.</p>

IIA Topic	Option 1 Do Minimum	Option 2 Option1 with additional package of enhanced public transport investment	Option 3 Option 2 with additional levers to maximise mode shift to sustainable modes and achieve the 80% sustainable mode share target
	Package A – 2041 Funded reference case Option 1 is based on current London Plan (March 2016) land use/development policies and employment growth, current MTS (2010) policies and proposals, and proposals set out in the TfL Business Plan (2016)	TfL Packages A - D (Optimising the network, incremental expansion, new connections including CR2 and Bakerloo Line Extension as well as policies in the draft revised MTS 3 excluding demand management and road pricing policies)	Option 2 + TfL Packages E & F demand management and road pricing as well as all policies in the Draft Revised MTS 3)
		<p>demonstrate positive changes in biodiversity.</p> <p>Provision of new green infrastructure creates opportunities for longer-distance movement for some species. This allows species to move around, within, and between urban areas improving biodiversity. Well planned, designed and managed green infrastructure can provide for natural features and ecosystem services.</p> <p>Promotion of sustainable urban drainage systems which in turn can improve water quality and thereby improve the diversity of species such as dragonflies and molluscs downstream of the water quality enhancement site.</p> <p>Option 2 includes a number of new transport development schemes which can put pressure to use areas of green space for development purpose, severing corridors and reducing quality and quantity of the natural environment and connectivity between areas of green space.</p> <p>The planned inclusion of more transport infrastructure schemes which will potentially require land take and may have the potential to affect the natural environment would be subject to environmental appraisal and Environmental Impact Assessment, as appropriate, to ensure protection and enhancement of the natural environment.</p> <p>On the assumption that these schemes are developed and implemented with these controls, the overall effects of Option 2 at a strategic level on the natural environment of London as a whole is not expected to be significant.</p> <p>Appropriate indicators for ecological data monitoring would need to be included in the TfL monitoring framework to monitor / report regularly to demonstrate positive changes in biodiversity.</p>	
	<p>Noise</p> <p>Currently, in London, parts of the population are exposed to roadside and railway noise that exceeds the legal limits⁵ (as well as aviation noise, which it outside the scope of the MTS). This is likely to have negative effects on the environment and human health.</p> <p>Option 1 proposals for addressing noise pollution are limited and this issue is likely to persist.</p>	<p>Noise</p> <p>There could be additional noise and vibration impacts associated with the transport elements of construction activity, especially for large schemes away from the river (Bakerloo line extension) that are likely to add more traffic on the roads leading to higher levels of emissions.</p> <p>TfL does not have a baseline of transport noise so it is not possible for TfL to set a level of ambition to reduce the number of people exposed to noise above a certain threshold. The issue may exacerbate with plans for new transport infrastructure development which will likely contribute to the increasing proportion of people exposed to noise above the threshold as well as plans for the Heathrow airport expansion.</p> <p>There are potential impacts on the natural environment due to some of the schemes in this scenario affecting Natura 2000 sites.</p> <p>As a result of major infrastructure development, there could be potential effects on sites such as the Lee Valley, which includes a number of sites of national and international nature conservation importance. This includes the Walthamstow reservoirs, a series of 10 reservoirs that include designated Sites of Special Scientific Interest, and which together form the Lee Valley Special Protection Area (SPA) and Ramsar site due mostly to their importance for wintering waterfowl.</p> <p>Option 2 contains proposals for greener and more resilient streets, with less noise and vibration and an improved public realm. In addition noise and vibration from rail services in London will be mitigated where reasonably practicable. Although Option 2 is seeking to mitigate noise where reasonably practicable, these policies and proposals may not be able to provide necessary safeguards that there will not be any increases in noise and its geographical extent. There are likely, accordingly, to be negative or uncertain effects</p>	<p>Noise</p> <p>In comparison with Option 2, Option 3 may have greater positive effects on noise levels, particularly for receptors in close proximity to main roads. TfL supplied modelling predicts that the proposals included in Option 3 will result in reduced traffic levels, congestion and a significant decrease in car share across London. This reduced level of traffic, congestion and car share is likely to reduce the level of noise people are exposed to from road traffic.</p>

⁵ 55 dBA, <http://www.who.int/ceh/capacity/noise.pdf>

IIA Topic	Option 1 Do Minimum	Option 2 Option1 with additional package of enhanced public transport investment	Option 3 Option 2 with additional levers to maximise mode shift to sustainable modes and achieve the 80% sustainable mode share target
	Package A – 2041 Funded reference case Option 1 is based on current London Plan (March 2016) land use/development policies and employment growth, current MTS (2010) policies and proposals, and proposals set out in the TfL Business Plan (2016)	TfL Packages A - D (Optimising the network, incremental expansion, new connections including CR2 and Bakerloo Line Extension as well as policies in the draft revised MTS 3 excluding demand management and road pricing policies)	Option 2 + TfL Packages E & F demand management and road pricing as well as all policies in the Draft Revised MTS 3)
		<p>against this IIA objective.</p> <p>Targets to reduce the number of people exposed to noise levels exceeding the threshold could make the policy stronger and move it from its aspirational content to achieving more tangible noise reduction/limitation results.</p> <p>In the long-term, a switch to electric vehicles will potentially have significant beneficial effects with regard to noise reduction from road transport.</p>	
<p>Habitats Regulation Assessment</p>	-	0	+
<p>HRA</p>	<p>The current MTS (2010) includes specific text in relation to European sites associated with Policies 14 & 15. This strengthens the strategy in respect of protection of European sites.</p> <p>Policies and proposals relating to air quality, the natural environment, water resources and quality, connectivity, infrastructure, housing supply and accessibility could impact on European sites (in most cases indirectly); albeit policies and proposals are not specific to locations relating to sensitive European sites making any major effects (positive or negative) unlikely.</p> <p>Current trends suggest that policies and proposals in the current MTS (2010) are unlikely to deliver positive effects (and may result in negative effects) with regard to European sites in relation to air quality, natural capital and the natural environment and water resources and quality.</p> <p>Without additional measures to tackle the issue of poor air quality, London will continue to be non-compliant with legal limit levels with Londoners experiencing higher levels of exposure to pollutants. Increasing economic growth and development will lead to increased car use and congestion leading, in turn, to localised air quality issues. Increased transport development could give rise to pressure to use areas of green space for development purposes, severing corridors and reducing the quality and quantity of natural environment and the connectivity between areas of green space. Increased land-use development is likely to cause an increase in run-off and potential contamination and disruption of flows for surface water and groundwater. It is also likely to give rise to an increase in demand for water. Poor air quality, pressure on green space and poor water quality could all adversely affect European sites.</p> <p>Projects referred to in relation to Option 1 would be subject to project specific Habitat Regulations Assessment to ensure no adverse effects to the integrity of European sites.</p>	<p>Option 2 currently includes no specific text in relation to European sites which is a weakness in the strategy in not affording express protection of such sites.</p> <p>Policies and proposals affecting air quality, the natural environment, water resources and quality, connectivity, infrastructure, housing supply and accessibility could impact on European sites (in most cases indirectly); albeit policies and proposals are not specific to locations relating to sensitive European sites making any major effects (positive or negative) unlikely.</p> <p>Policies and proposals plus additional transport packages in Option 2 for further optimising the network, incremental expansion and new connections would be likely to reduce emissions from road transport and improve air quality compared to Option 1; and could mitigate effects on European sites sensitive to the effects of nitrogen deposition and acidification (which include Epping Forest SAC and Wimbledon Common SAC).</p> <p>Protecting and enhancing London's green infrastructure (for example, Policy 7 and associated proposals), may enhance individual European sites or a network of sites and/or mobile qualifying features of these sites (including by improvements to water quality).</p> <p>In comparison to Option 1 additional packages for further optimising the network, incremental expansion and new connections, could increase visitor pressure on European sites (a negative effect) via improving connectivity and accessibility to such sites. Further infrastructure improvements could also unlock land that has capacity for housing. The development of new housing and infrastructure could pose a threat to European sites dependent on its location, extent and design.</p> <p>Projects referred to in connection with Option 2 would be subject to project specific Habitat Regulations Assessment to ensure no adverse effects to the integrity of European sites.</p>	<p>Option 2 currently includes no specific text in relation to European sites which is a weakness in the strategy in respect of protection of European sites.</p> <p>Policies and proposals relating to air quality, natural capital and the natural environment, water resources and quality, connectivity, infrastructure, housing supply and accessibility could impact on European sites (in most cases indirectly); albeit policies and proposals are not specific to locations relating to sensitive European sites making any major effects (positive or negative) unlikely.</p> <p>Additional transport packages in Option 3 are likely to improve air quality through a significant reduction in traffic which may have further positive effects for European sites sensitive to effects of nitrogen deposition and acidification (which include Epping Forest SAC and Wimbledon Common SAC) over Option 2.</p> <p>Protecting and enhancing London's green infrastructure (for example Policy 7 and associated proposals), may enhance individual European sites or a network of sites and/or mobile qualifying features of these sites (including through improvements to water quality) albeit major positive effects are unlikely specifically for such sites.</p> <p>Projects referred to in connection with Option 3 would be subject to project specific Habitat Regulations Assessment to ensure no adverse effects to the integrity of European sites.</p>
	0	+	+

IIA Topic	<p><u>Option 1</u> Do Minimum</p>	<p><u>Option 2</u> Option1 with additional package of enhanced public transport investment</p>	<p><u>Option 3</u> Option 2 with additional levers to maximise mode shift to sustainable modes and achieve the 80% sustainable mode share target</p>
	<p><i>Package A – 2041 Funded reference case</i> <i>Option 1 is based on current London Plan (March 2016) land use/development policies and employment growth, current MTS (2010) policies and proposals, and proposals set out in the TfL Business Plan (2016)</i></p>	<p><i>TfL Packages A - D (Optimising the network, incremental expansion, new connections including CR2 and Bakerloo Line Extension as well as policies in the draft revised MTS 3 excluding demand management and road pricing policies)</i></p>	<p><i>Option 2 + TfL Packages E & F demand management and road pricing as well as all policies in the Draft Revised MTS 3)</i></p>
<p>Equality Impact Assessment</p> <p>EqIA</p>	<p>Accessibility</p> <p>The current MTS (2010) and the TfL Business Plan contain proposals for improved accessibility.</p> <p>The Elizabeth line will open in 2019 with step-free access at all stations. By the end of 2021/22, more than 40 % of London Underground stations will have step free access to all platforms. This will give a greater choice of travel options and will directly benefit older and disabled people, as well as parents and carers with children and pushchairs.</p> <p>Over the next five years, some of the busiest stations will become step-free. These include Bond Street, Finsbury Park, Tottenham Court Road and Victoria.</p> <p>However, their impact is likely to be compromised by increased crowding, which is the biggest barrier to access to public transport for disabled customers and those with reduced mobility. This accessibility barrier is likely to be further exacerbated by the ageing population and significant increase in people over 65 years of age.</p>	<p>Accessibility</p> <p>Option 2 sets out very clearly in its Vision that the public transport system must be inclusive and accessible for all.</p> <p>In addition to the step-free access improvements delivered by Option 1, Option 2 will also focus on improving accessibility at stations elsewhere across London.</p> <p>Many people with sensory or cognitive impairments experience non-physical barriers to use of the transport network. Option 2 does not contain specific proposals to address non-physical barriers for people with sensory or cognitive impairments.</p> <p>Option 2, however, will prioritise issues that disproportionately affect some customers more than others. This includes new approaches to dealing with unwanted sexual behaviour and hate crime, improving the confidence of customers to report issues.</p> <p>In addition to this, the barrier of high fares has been addressed in Option 2 by ensuring that the fares are frozen and all concessions for older and disabled people are protected for the Mayor's term. Extension of bus hopper fares to include unlimited transfer will also benefit those groups who tend to be more dependent upon this mode of travel that are not entitled to free travel (e.g., women and BAME, job seekers).</p> <p>Option 2 also offers customer information in even more languages and Easy Read formats; and seeks to investigate ways to help people better plan their journeys.</p>	<p>Accessibility</p> <p>Implementation of the policies and proposals in Option 3 would result in more accessible and better integrated public transport and an increase in active transport facilities for all groups.</p> <p>TfL supplied modelling shows that this Option is able to achieve an 80% sustainable mode share. It will increase the mode share of walking to 27% (2 percentage points higher than Option 1 and 2) and the level accessibility for people across London, including those who are disproportionately impacted by lack of access. The proposals to encourage walking and cycling are forecast to lead to the same 4 percentage point growth in cycling by 2041 as Option 1 and 2, but a further 10 percentage point decline in car mode share and a 9 percentage point increase in PT.</p> <p>However, there are no proposals that directly address the issue of congestion and overcrowding on footways across Central London, which is likely to worsen as a result of the forecast increase in population.</p>
	<p>Air Quality</p> <p>Option 1 doesn't seek to accelerate the natural turnover of the fleet or provide for further incentives for new technologies and therefore emissions will reduce but at a pace too slow given the severity of the issue.</p> <p>It therefore does not address short-term effects of the exposure to harmful emissions to the population as a whole and especially around sensitive receptors, i.e. schools, hospitals. Option 1 will also lead to continuing growth in travel by cars and vans in Outer London which will not address current inequalities in exposure to poor air quality.</p>	<p>Air Quality</p> <p>Policies and proposals plus additional packages in Option 2 for accelerating the uptake of lower emissions petrol and diesel vehicles in the short-term combined with a focus on zero emissions technology in the medium and long term would reduce emissions from road transport and improve air quality as compared to Option 1. This is combined with policies and proposals to optimise the network, incremental expansion and establish new connections. This would have positive impacts to those vulnerable groups living near areas of heavy congestion and roads. Measures such as the London-wide ULEZ will help tackle areas of NO₂ exceedance in Outer London while additional standards for cars and vans in Inner London will target areas of London with higher concentrations.</p> <p>The London Environment Strategy will show the distributional impact of the policies and proposals within the MTS combined with other non-transport policies. This will give more clarity as to whether the overall level of pollution across London will continue to be higher in the poorest communities, indicating that the disparity ratio/pattern across the city in exposure to harmful pollution will continue to persist. This is where the London Plan can play a role in the siting of new affordable housing.</p> <p>Measures to specifically address short-term effects of the exposure to harmful emissions around sensitive receptors such as schools and hospitals across the whole of London are expected within the London Environment Strategy.</p>	<p>Air Quality</p> <p>The additional packages E and F in Option 3 will likely have positive effects in reducing inequalities in terms of the impact of poor air quality.</p>

IIA Topic	<p><u>Option 1</u> Do Minimum</p>	<p><u>Option 2</u> Option1 with additional package of enhanced public transport investment</p>	<p><u>Option 3</u> Option 2 with additional levers to maximise mode shift to sustainable modes and achieve the 80% sustainable mode share target</p>
	<p><i>Package A – 2041 Funded reference case</i> <i>Option 1 is based on current London Plan (March 2016) land use/development policies and employment growth, current MTS (2010) policies and proposals, and proposals set out in the TfL Business Plan (2016)</i></p>	<p><i>TfL Packages A - D (Optimising the network, incremental expansion, new connections including CR2 and Bakerloo Line Extension as well as policies in the draft revised MTS 3 excluding demand management and road pricing policies)</i></p>	<p><i>Option 2 + TfL Packages E & F demand management and road pricing as well as all policies in the Draft Revised MTS 3)</i></p>
	<p>Noise</p> <p>Currently, in London, parts of the population are exposed to roadside and railway noise that exceeds the threshold⁶ with road traffic being the main source of ambient noise in London. The proposals within Option 1 are limited in this regard and it is forecast that overall road traffic will continue to grow which will lead to increased congestion and noise. Those who live and/or work near major roads tend to be on lower incomes⁷ and are likely to be disproportionately affected by road traffic noise.</p>	<p>Noise</p> <p>A fifth of Londoners are annoyed or disturbed in their homes by noise with buses and lorries creating the most disturbing noise. This tends to disproportionately affect the poorest communities living on the busiest roads. Proposals to convert London's buses to cleaner hybrid fuel technology will help reduce noise from these vehicles.</p> <p>Option 2 includes a number of new large transport infrastructure schemes that are likely to increase the proportion of people exposed to noise exceeding the threshold. The people affected are usually living near airports, busy roads and railways and are on lower incomes and cannot afford to relocate. These people are likely to be disproportionately affected by new traffic noise sources and increased levels. Those that are most vulnerable to the impact of noise are children, the elderly, the chronically ill and people with a hearing impairment.</p> <p>As with Option 1, although the policy seeks to reduce and mitigate noise levels where practicable, it does not aim to eliminate noise and, in the context of already existing noise levels affecting a number of people, it is likely that the overall effect of new transport schemes will be negative and will further exacerbate inequalities in exposure to noise levels exceeding the thresholds.</p>	<p>Noise</p> <p>The additional demand management and pricing policies will significantly reduce the number of vehicles. This will have a positive impact on noise and vibrations from road traffic especially for those in deprived areas thus reducing inequalities in socially disadvantaged groups.</p> <p>Whilst this will reduce the noise and vibrations from road transport, it is important to note that this will not reduce those coming from rail and aviation.</p> <p>Option 3 will still have some negative impacts due to the disruptions resulting from new large transport infrastructure schemes that are likely to increase the proportion of people exposed to noise exceeding the threshold. The people affected are usually living near airports, busy roads and railway that are on lower incomes and cannot afford to relocate. Although the construction will only be temporary, these people are likely to be disproportionately affected by new noise levels during this time.</p> <p>It is therefore important that these new infrastructure schemes adhere to environmental standards and practices required by the relevant planning consent process which will, in the majority of cases, ensure that significant environmental effects are reduced and mitigated.</p>
	<p>Health</p> <p>Option 1 included building a cycle network of new Quietways, the Central London Cycle Grid, more Cycle Superhighways and the Mini-Hollands in Enfield, Kingston and Waltham Forest; and improved Santander Cycles infrastructure.</p> <p>However, Option 1 is unlikely to achieve significant modal shift for those groups who own a car. Inactivity is an issue for Londoners with most not being active enough to stay healthy. Inequalities in physical activities are often due to age, levels of deprivation, ethnicity, sex and disability. The key contributory factors to this are accessibility, air pollution, severance, shade and shelter and perception of safety.</p>	<p>Health</p> <p>Option 2 will achieve air quality benefits. In addition, better integration between public transport and active transport facilities, and improved cycle and walking routes will reduce levels of physical inactivity and improve the physical and mental wellbeing of people.</p> <p>At the same time increase in cycling mode share and use of PT will lead to active travel increase improving health of people overall.</p>	<p>Health</p> <p>Option 3 is the most likely to improve the mental and physical health and wellbeing of Londoners and to reduce health inequalities across the city and between communities. The proposals included within this Option will reduce the level of air pollutants significantly below those experienced with Options 1 and 2. Additionally, TfL's modelling indicates that the proposals contained within Option 3 would have the greatest shift to active modes of transport. This would result in significant improvements to health due to the increase in physical activity for people, the decreased level of air pollutants and noise caused by road transport, and the decreased level of injuries and deaths caused by road traffic collisions.</p>

⁶ 55 dBA, <http://www.who.int/ceh/capacity/noise.pdf>

⁷ Rivas, I., Kumar, P., Hagen-Zanker, A., 2017. Exposure to air pollutants during commuting in London: are there inequalities among different socio-economic groups? Environment International, <http://dx.doi.org/10.1016/j.envint.2017.01.019>

IIA Topic	<p><u>Option 1</u> Do Minimum</p>	<p><u>Option 2</u> Option1 with additional package of enhanced public transport investment</p>	<p><u>Option 3</u> Option 2 with additional levers to maximise mode shift to sustainable modes and achieve the 80% sustainable mode share target</p>
	<p><i>Package A – 2041 Funded reference case</i> <i>Option 1 is based on current London Plan (March 2016) land use/development policies and employment growth, current MTS (2010) policies and proposals, and proposals set out in the TfL Business Plan (2016)</i></p>	<p><i>TfL Packages A - D (Optimising the network, incremental expansion, new connections including CR2 and Bakerloo Line Extension as well as policies in the draft revised MTS 3 excluding demand management and road pricing policies)</i></p>	<p><i>Option 2 + TfL Packages E & F demand management and road pricing as well as all policies in the Draft Revised MTS 3)</i></p>
	<p><u>Crime and Safety</u> Option 1 includes limited proposals to reduce inequalities for those groups whose fear of crime is a barrier to active travel (e.g. groups such as girls, women, older people and people living in low income areas).</p>	<p><u>Crime and Safety</u> Option 2 also has a strong focus on safety, with proposals under the 'Healthy Streets Approach' specifically tackling anti-social behaviour and 'high-harm' crime, such as sexual attacks and hate crime. This will beneficially impact those who feel most vulnerable (like ethnic minorities and women) when travelling on public transport.</p>	<p><u>Crime and Safety</u> Option 3 presents the same benefits as those listed in Option 2. The additional packages do not have an impact on reducing inequalities for those groups who have a greater fear of crime.</p>
	<p><u>Climate Change</u> The effects of climate change will not be experienced equally among London's population and are likely to increase existing inequalities due to population aging. The proposals in Option 1 may not be sufficient to address the growing need to adapt to climate change in an equitable way.</p>	<p><u>Climate Change</u> Like Option 1, Option 2 does not address in detail the growing need to adapt to climate change in an equitable way.</p>	<p><u>Climate Change</u> Option 3 also does not address in detail the growing need to adapt to climate change in a way which addresses the potential inequalities arising.</p>
	<p><u>Connectivity</u> The Elizabeth line will open in 2019 with step-free access at all stations. By the end of 2021/22, more than 40% of London Underground stations will have step free access to all platforms. This will give a greater choice of travel options and will directly benefit older and disabled people, as well as parents and carers with children and pushchairs.</p>	<p><u>Connectivity</u> The additional connectivity provided by new cycle and walking routes in Option 2 and the enhanced urban realm and greater emphasis on safety and inclusivity should reduce the inequalities faced by vulnerable groups due to severance and also provided greater access to employment. For example, the additional river crossings and bridges in East London in particular will reduce severance for the low income families in that area and give them access to more jobs across the river.</p>	<p><u>Connectivity</u> Unless, suitable mitigation measures are put in place, the introduction of demand management and pricing measures could have disproportionate impacts on disabled people who are reliant on private vehicles to access employment and leisure opportunities, particularly those who live in areas of Outer London with low levels of accessible public transport. The additional packages related to demand management and road pricing may have a slight negative impact on accessibility to jobs that are only accessible by car. However, this would be mitigated by plans to ensure greater connectivity across London with more bus routes and alternative modes of public transport to serve the areas which are less accessible. However, demand management and road pricing may disproportionately impact those that are low income that need to travel into Central London by car. This may be mitigated by the accessible and well connected public transport networks suggested as part of the strategy.</p>
	<p><u>Affordable Housing</u> The lack of affordable housing is a critical issue disproportionately affecting low income Londoners, young people (under the age of 25) and disabled people in London.</p>	<p><u>Affordable Housing</u> Option 2 contains proposals for additional housing by identifying development opportunities along the transport network. Proposal 91 states that TfL will consider, when surplus transport land becomes available, its accessibility to the transport network and its potential for the development of sustainable affordable housing. However, the majority of proposals related to housing development do not specifically state that houses built will be affordable.</p>	<p><u>Affordable Housing</u> Like Option 2, Option 3 also does not provide commitments in terms of housing availability and affordability in relation to those housing sites on TfL land that may be brought forward by the Mayor.</p>

IIA Topic	Option 1 Do Minimum	Option 2 Option1 with additional package of enhanced public transport investment	Option 3 Option 2 with additional levers to maximise mode shift to sustainable modes and achieve the 80% sustainable mode share target
	<i>Package A – 2041 Funded reference case Option 1 is based on current London Plan (March 2016) land use/development policies and employment growth, current MTS (2010) policies and proposals, and proposals set out in the TfL Business Plan (2016)</i>	<i>TfL Packages A - D (Optimising the network, incremental expansion, new connections including CR2 and Bakerloo Line Extension as well as policies in the draft revised MTS 3 excluding demand management and road pricing policies)</i>	<i>Option 2 + TfL Packages E & F demand management and road pricing as well as all policies in the Draft Revised MTS 3)</i>
Assessment of Economic Impacts AEI	<p style="text-align: center;">0</p> <p>London is a rapidly growing city in terms of employment and housing. Existing transport infrastructure is heavily utilised and congested restricting future growth. Major schemes such as Elizabeth Line, Silvertown Tunnel and Northern Line extension will provide additional capacity and unlock substantial housing and commercial development. However, this additional capacity is insufficient to accommodate the forecast growth in travel demand. Under a continuation of current policies vehicle kilometres within the GLA are projected to rise by 12% between 2015 and 2041 leading to further reductions in traffic speeds, increased congestion which would act as a constraint limiting economic growth, and the ability to deliver an increase in the supply of new housing. These barriers to economic growth may hinder London's ability to compete in a post-Brexit economic climate and could lead to stagnation of the city and its eventual decline from its position as a world leading city.</p>	<p style="text-align: center;">+</p> <p>The proposals and policies included in Option 2 provide a significant enhancement to capacity of the public transport network which, in turn, facilitates a very significant increase in residential and commercial development. Crossrail 2 alone is expected to facilitate the delivery of around 200,000 homes. In addition, extension of the Overground (to Barking Riverside) and Bakerloo Line (to Lewisham) will support the delivery of 11,000 and 25,000 new homes respectively. Extending bus services to open up sites not on the rail network is also proposed. However, there is very little impact on the road network with only a marginal improvement in congestion, etc. from Option 1.</p> <p>This will continue to act as brake on economic activity given the road network's importance in moving London's freight.</p> <p>While there are clear economic benefits from improving air quality and safety in the city there are also costs to business and consumers. The implementation of low emission zones, more control over timing of deliveries and servicing activities and the planned new Direct Vision Standard will have a significant cost to some business sectors (and particularly SMEs in those sectors) due to the need to replace or retrofit vehicles.</p>	<p style="text-align: center;">+</p> <p>In addition to those impacts under Option 2, Option 3, by radially reducing congestion on the road network, has the potential to provide significant economic gains. The costs incurred by business in paying for demand management and road pricing measures or re-timing deliveries to avoid peak times, will be outweighed by faster and more reliable journey times.</p> <p>It is also important that the projected increases in public transport usage will be accommodated on the network otherwise the attractiveness of London's vitality important CAZ will be diminished as a highly attractive global employment hub, resulting in lower levels of employment.</p>
Health Impact Assessment HIA	<p style="text-align: center;">-</p> <p>Health</p> <p>Option 1 is the least likely option to improve the mental and physical health and wellbeing of Londoners and to reduce health inequalities across the city and between communities. Whilst some improvements are likely as a result of improved access (especially to the natural environment when compared with Options 2 and 3) and an increase of active travel mode share, the benefits are unlikely to be outweighed by the adverse impacts resulting from increased congestion, climate change, poor air quality, a larger population and an older population.</p> <p>All Options include proposals for encouraging walking and cycling, which may lead to a 4 percentage point growth in cycling by 2041. An increase in active travel will generally lead to improved health, particularly where it is additional to rather than a replacement for existing activity. However, as with all Options, Option 1 does not include any proposals to address the increased congestion on footways across the city. Congestion and crowding is a major barrier to transport for the disabled.</p>	<p style="text-align: center;">-</p> <p>Health</p> <p>Option 2 is likely to result in better health outcomes than Option 1, but will still result in significant adverse health impacts as a result of poor air quality, increased congestion and crowding across the transport network, and poor management of the risks that climate change poses to the population. Whilst some improvements are possible through proposals such as the 'Healthy Streets Approach' and increased transport infrastructure, the benefits are unlikely to be outweighed by the impacts resulting from increased congestion, climate change, poor air quality, a larger population and an older population.</p> <p>The proposed Direct Vision Standard will have direct positive effects on human health and safety by improving the safety of cyclists on the roads, and thereby reduce one of the obstacles to mode shift. The standard is also likely to have indirect positive effects on air quality due to replacement of old non-compliant vehicles with new vehicles, which will have lower emissions, thus improving the air quality in the capital. There are also likely to be positive transboundary effects from introducing the Direct Vision Standards as the compliant vehicles will not be limited to operating only in the London area.</p>	<p style="text-align: center;">+</p> <p>Health</p> <p>Option 3 is the most likely option to improve the mental and physical health and wellbeing of Londoners and to reduce health inequalities across the city and between communities. Additionally, TfL's modelling indicates that the proposals contained within Option 3 would achieve the greatest shift to active modes of transport from the car and are able to achieve an 80% share for sustainable modes.</p> <p>This would result in significant improvements to health due to the increase in physical activity among Londoners, the decreased level of air pollutants and noise caused by road transport, and the decreased level of injuries and deaths caused by road collisions. It is important to note that the increase in active travel may also result in increased road traffic injuries as there will be more people out on the street – it is essential this risk is mitigated by measures to reduce road danger.</p> <p>Option 3 would also reduce community severance (the 'barrier effect' of busy roads) that deters active travel and reduces access to goods such as employment, education, shops, services, and social networks, accessibility to which is important for good mental and physical health.</p>

IIA Topic	<p><u>Option 1</u> Do Minimum</p>	<p><u>Option 2</u> Option1 with additional package of enhanced public transport investment</p>	<p><u>Option 3</u> Option 2 with additional levers to maximise mode shift to sustainable modes and achieve the 80% sustainable mode share target</p>
	<p><i>Package A – 2041 Funded reference case</i> <i>Option 1 is based on current London Plan (March 2016) land use/development policies and employment growth, current MTS (2010) policies and proposals, and proposals set out in the TfL Business Plan (2016)</i></p>	<p><i>TfL Packages A - D (Optimising the network, incremental expansion, new connections including CR2 and Bakerloo Line Extension as well as policies in the draft revised MTS 3 excluding demand management and road pricing policies)</i></p>	<p><i>Option 2 + TfL Packages E & F demand management and road pricing as well as all policies in the Draft Revised MTS 3)</i></p>
	<p><u>Air Quality</u> TfL's modelling indicates that the proposals under Option 1 will not reduce air pollution to within the legal limits. Whilst some reduction is possible, significant health impacts will occur across London with the number of poor air quality related diseases and deaths likely to rise with an aging population, as this is the group that includes most of the people more vulnerable to the acute effects of air pollutant exposure.</p>	<p><u>Air Quality</u> TfL's emissions modelling indicates that the proposals under Option 2 could mean that more than 70% of London's roads will meet NO₂ limit values in the early 2020s and could reach 99% compliance with further action implemented by the national government. Whilst London meets air quality limits for particulate matter, London will continue to breach the WHO standards in the short-term before achieving a 47% reduction in PM2.5 emissions by 2041 compared in 2013. Therefore, significant health impacts will occur across London with the number of air quality related diseases and deaths likely to rise with an aging population. However, the London Environment Strategy is expected to set specific targets for PM2.5 which are aligned with the WHO standards.</p>	<p><u>Air Quality</u> Option 3 offers the most potential for health improvements through reduction of air quality emissions from reduced car use.</p>
	<p><u>Climate Change</u> Significant health impacts are likely to increase under Option 1 as it does not contain any proposals that directly address the impacts of climate change on human health or flood risk.</p>	<p><u>Climate Change</u> Option 2 acknowledges the impact climate change will have on human health but does not contain proposals to reduce the risk posed by extreme heat and flooding. Furthermore, it does not consider the change in travel pattern/modes that are likely to occur or should be encouraged in extreme weather events. In periods of extreme heat or flooding, active transport is likely to result in illness or injury and should be avoided. If it is avoided throughout these events, there is increased congestion and crowding on alternative modes of transport such as public transport and cars. Proposals to increase the tree canopy will have small effects on absorbing carbon emissions and other pollutants but will have a greater effect on providing shade for pedestrians and other road users.</p>	<p><u>Climate Change</u> Option 3 offers the same outcomes as Option 2 in regards to health impacts as a result of climate change, flood risk; it does not contain additional proposals to further assist in achieving the objective.</p>
	<p><u>Noise</u> The increased congestion that is likely to occur under Option 1 will likely lead to increased noise and vibration impacts, causing a worsening of adverse health impacts. Not addressing these factors may have negative effects on active travel and health. These can be barriers to active travel and therefore may limit physical activity.</p>	<p><u>Noise</u> Option 2 includes a number of proposals to reduce noise and vibration from roads and rail services in London where reasonably practicable. Despite the proposals, there is unlikely to be a reduction in the number of people exposed to high levels of noise from roads and railways. TfL's modelling shows that congestion will remain high with the implementation of Option 2, resulting in high levels of noise generated from traffic. Additionally, even with the proposed construction mitigation measures, noise levels are likely to increase as a result of new transport infrastructure developments and the Heathrow airport expansion.</p>	<p><u>Noise</u> The reduced congestion and overall car mode share that will likely occur with the implementation of Option 3 would reduce the level of noise people are exposed to from road traffic. Whilst noise and vibration will persist as a health issue across London, Option 3 presents significantly more potential to reduce noise and vibration impacts than Option 1 or 2.</p>
	<p><u>Natural Environment</u> Whilst Option 1 does not specially address connecting people to the natural environment, it does perform better than Option 2 or 3. It contains a proposal to improve the quality of and diversity of London's natural environment through 'greening' open spaces across the transport system and on the significant amount of land owned by TfL. This would result in better health outcomes for Londoners than Option 2 and 3 as, instead of developing the land owned by TfL and further urbanising the city, it would result in easier access to the natural environment within the city, improving mental health and encouraging physical activity.</p>	<p><u>Natural Environment</u> Option 2 commits to protecting officially designated spaces, 'providing new green infrastructure wherever practicable to deliver a net positive impact on biodiversity' (see Policy 7) and includes proposals to increase the tree canopy through maintaining existing trees and creating greener streets. However, unlike Option 1 that proposes to create 'green' open spaces on the land that is owned by TfL, Option 2 proposes to develop housing and business spaces on TfL-owned land. As a result of the increased development and the further decline in the amount of open spaces within the city, people are unlikely to feel more connected to London's natural capital. This, however, depends on the design of the development. Plans focusing on mixed land use, higher density developments that are so designed at least partly to facilitate active travel fit with the Health Streets approach. Existing evidence shows that 'green streets' promote active travel and green spaces are associated with greater physical activity, so the health impacts of this option depend on the detail of the developments and their design.</p>	<p><u>Natural Environment</u> Option 3 generally offers the same outcomes as Option 2; it does not contain additional proposals to further assist in achieving the objective. However, if the demand management and pricing proposals are successful in reducing car dominance, then there is more scope for greening the streets as part of road space reallocation.</p>

IIA Topic	Option 1 Do Minimum	Option 2 Option1 with additional package of enhanced public transport investment	Option 3 Option 2 with additional levers to maximise mode shift to sustainable modes and achieve the 80% sustainable mode share target
	<i>Package A – 2041 Funded reference case Option 1 is based on current London Plan (March 2016) land use/development policies and employment growth, current MTS (2010) policies and proposals, and proposals set out in the TfL Business Plan (2016)</i>	<i>TfL Packages A - D (Optimising the network, incremental expansion, new connections including CR2 and Bakerloo Line Extension as well as policies in the draft revised MTS 3 excluding demand management and road pricing policies)</i>	<i>Option 2 + TfL Packages E & F demand management and road pricing as well as all policies in the Draft Revised MTS 3)</i>
<p>Community and Safety Impact Assessment</p> <p>CSIA</p>	<p style="text-align: center;">-</p> <p>At present, there are increasing levels of reported violent assaults and sexual offences on the transport network. Anti-social behaviour on the transport network is perceived as a deterrent to its use by many Londoners. The current MTS (2010) and the TfL business plan contain limited proposals to address crime, safety and security.</p> <p>Option 1 does not specifically address violent assaults and sexual offences committed on the transport network. It also does not address the lack of regulation around private hire vehicles to increase the standards of safety. BAME groups and women maybe more vulnerable and susceptible to safety hazards when using this mode of transportation.</p> <p>Option 1 will result in severe crowding by 2041. Overcrowding on the public transport can lead to even greater reduction of public perception of safety and security amongst women and BAME groups who rely on buses and tube services and are more susceptible to issues of poor safety on public transport.</p> <p>Option 1 does not obviously reflect the Mayor's community safety priority 'Keeping children and young people safe.'</p>	<p style="text-align: center;">+</p> <p>Option 2 contains proposals directly addressing the issues of crime on the transport network and aims to reduce both crime and the perception of crime. It prioritises action on issues that disproportionately affect some customers more than others. This includes approaches to dealing with unwanted sexual behaviour and hate crime, improving the confidence of customers to report issues and know that action will be taken.</p> <p>Option 2 also contains proposals to fund and work alongside the Metropolitan Police Service (MPS) Roads and Transport Policing Command to prevent crime, antisocial behaviour and fare evasion. Safer Transport Teams, operating across London, will carry on providing local and accessible policing for bus passengers, employees and communities.</p> <p>It also adopts the new 'Vision Zero' approach to reducing death and serious injury on the road network. Option 2 also contains proposals to improve the safety of London's taxi and private industry.</p> <p>Option 2 contains proposals to increase public transport connectivity across London which can result in a reduction in congestion and crowding on services particularly at peak times which will reduce safety risks.</p> <p>There is a lack of reference to the London Transport Community Safety Partnership and its emerging (and hopefully integrated) Community Safety Strategy.</p>	<p style="text-align: center;">+</p> <p>In addition to the benefits listed in Option 2, Option 3 contains proposals to increase public transport use through demand management and pricing with no additional direct public transport improvement from Option 2. Whilst there may be more passengers on the networks as a result of this, it is mitigated by the proposals to increase public transport connectivity across London which can result in reduction in congestion and crowding on services particularly at peak times thus reducing safety risks. Perceived safety from traffic is associated with reduced traffic speed and volume. Additional demand management and pricing introduced in Option 3 will reduce the number of vehicles including HGVs. A reduction in these vehicles will enhance the public's perception of some of these public spaces which will encourage them to walk and cycle. Although there might be a slight rise in traffic speeds due to a lower volume of traffic, this is mitigated through the implementation of Vision Zero which incorporates safe speeds.</p> <p>A review on the physical environment and physical activity among children ages 3–18 found that children's participation in physical activity was associated with their parents' perception of safety from either crime or traffic. One study found that environmental hazards related to traffic and falls risks can be significant barriers to walking for seniors. Therefore, the overall reduction in traffic volumes, coupled with safe speeds, will increase the perception of safety and security and encourage people to walk and cycle in these spaces. Connectivity is an important factor especially in terms of young people's transport experience and choices.</p>

7.6 The Preferred Option

- 7.6.1 The IIA, in accordance with the SEA Regulations and Sustainability Appraisal Guidance, has assessed the main alternatives put forward by TfL in developing the Consultation Draft MTS 3.
- 7.6.2 The Mayor recognises that continuing population growth and projected increases in employment need and provision present a challenge to London's transport system.
- 7.6.3 The revision of the MTS provides the opportunity to evaluate how such growth can best be accommodated or facilitated by the transport network, and what provision needs to be made to ensure this is achieved in a sustainable manner. In developing the Consultation Draft MTS 3, scenarios using the best available data on how the distribution of the predicted population and employment growth within and across London could be accommodated, took into account the role which transport can play in both influencing and responding to the identified needs. TfL identified separate packages of transport services and schemes for each Option and modelled the outcomes in terms of crowding, car mode share, congestion, CO₂ and trip length.
- 7.6.4 Option 3 was selected as the Preferred Option and formed the basis of the subsequent development of the Consultation Draft MTS 3. The rationale for the choice of Option 3 is the need for a clear strategic alignment between the approach adopted for transport development in the Consultation Draft MTS 3 and the other Mayoral strategies being prepared in parallel, in particular, the revised London Plan.
- 7.6.5 Option 3 included strong demand management policies in order to reduce traffic and achieve the 80% sustainable mode share target by 2041. As the best performing option, this was selected for further development of the Preferred Option. The Preferred Option is based on the package of measures included in Option 3 but also reflects input from various MTS stakeholder workshops, including with the London Boroughs, feedback from the Mayor's office, and recommendations from the high level IIA assessment undertaken in January 2017.
- 7.6.6 Importantly, several draft policies and proposals were strengthened during this stage of development, for example, Proposal 19 concerning road user charging, which is considered a necessary step to take in order to progress towards achieving a vision of a healthy and sustainable city.
- *Proposal 19: The Mayor will develop the next generation of road user charging systems. These could replace schemes such as the Congestion Charge, Low Emission Zone and Ultra Low Emission Zone. More sophisticated road user charging and/or workplace parking levy schemes could be used to contribute to the achievement of the policies and proposals in this strategy, including mode share, road danger reduction and environmental objectives, and to help reduce congestion on the road network and support efficient traffic movement. In doing so, the Mayor will consider the appropriate technology for any future schemes, and the potential for a future scheme that reflects distance, time, emissions, road danger and other factors in an integrated way.*

7.7 How sustainability issues were considered in choosing the Preferred Option

- 7.7.1 The formulation of the Preferred Option was informed by the results of the initial IIA assessment on the three Options considered by TfL, as seen in **Table 7.1**. The results of the assessment indicated that Option 3, in comparison with other two Options, offers the greater amount of sustainability benefits across the six elements of the IIA assessment (EqIA, AEI, SEA, CSIA, HRA and HIA). The initial IIA assessment also provided a number of recommendations to TfL in terms of how the overall sustainability of Option 3 could be further improved. Mitigation measures and recommendations provided in this IIA document in respect of environmental, social and economic issues raised for the proposed Option 3 have been taken into account by TfL in the subsequent formulation of the Preferred Option and its evolution into the Consultation Draft MTS 3. A detailed description of how TfL has taken the IIA recommendations on board throughout the IIA process is in **Appendix D**.
- 7.7.2 Overall, the Preferred Option conforms with the IIA Objectives as can be seen in **Table 8.1**, and has appropriate mitigation measures in place to address potential impacts on natural environment and the community, in particular noise, air quality, climate resilience and accessibility.

7.8 Other Options considered and why they were rejected

- 7.8.1 The results of TfL's transport modelling of the three Options demonstrated significant differences in the outcomes of the Options at a strategic or London-wide level.
- 7.8.2 Option 1, the 'Do-minimum option', was rejected by the Mayor as it would not address the transport needs of predicted population and employment growth within and across London and would not enable the realisation of the vision which the Mayor has for the future of transport in London in the period to 2040.
- 7.8.3 It was recognised that the policies and proposals contained within Option 2 would not be sufficient to achieve the Mayor's sustainable mode share target of 80% and that additional demand management was needed to encourage mode shift to more sustainable travel options.

8 Assessment of the Consultation Draft MTS 3 policies and proposals

This chapter describes the likely significant environmental, social and economic effects of the Consultation Draft MTS 3. It also outlines the significant cumulative effects of the proposed revised strategy. As part of the revision of relevant strategies, plans and programmes and the derivation of IIA Objectives, key receptors have been identified. The assessment of cumulative effects has assisted in the identification of the sum of the likely direct and indirect effect on receptors. This Chapter also describes mitigation measures, where sustainability issues have shown these to be requisite that have been identified and measures for monitoring of the potential significant effects of the Consultation Draft MTS 3.

8.1 Likely significant effects of the Consultation Draft MTS 3

- 8.1.1 The preparation of the Preferred Option (now known as the Consultation Draft MTS 3) was subject to a process of ongoing evaluation and refinement of the set of policy interventions and accompanying proposals, with the IIA influencing its development. In particular the results of the strategic Options IIA assessment of an early version of the Draft Revised MTS 3 influenced its refinement for public consultation, identifying opportunities for further enhancement and integration.
- 8.1.2 The completed assessment for the Consultation Draft MTS 3 is set out in **Table 8.1** below. For ease of reading, the significant effects identified outline both the nature (positive, negative, uncertain etc.) and magnitude (minor to moderate and moderate to major). The Consultation Draft MTS 3 has been assessed against all 23 IIA Objectives with comments to substantiate the IIA assessment results presented alongside each scoring. The final column of **Table 8.1** summarises the changes to the assessment outputs of the Consultation Draft MTS 3 in light of the initial recommendations by the IIA team and further refinements of the Preferred Option. Where a change to the scoring took place as a result of specific IIA recommendations leading to amendments to the strategy, the details of these recommendations are included in the column. **Table 8.1** therefore demonstrates how the Consultation Draft MTS 3 has evolved as a result of the adoption of IIA recommendations and how, in turn, this has affected the findings of the IIA assessment.
- 8.1.3 All assessments are, to an extent, subjective and include the exercise of professional judgement, even where informed by numerical data. The principal consideration being the broad shape of the analysis rather than small changes to specific numbers.
- 8.1.4 The Consultation Draft MTS 3 covers the period up to 2041. At the policy level, it is clear that early implementation of the Consultation Draft MTS 3, and policies promoting environmental and social sustainability in particular, will deliver a net benefit. It is also important to bear in mind that the Consultation Draft MTS 3 is being implemented against a backdrop of ongoing strategic planning activity and in the context of certain initiatives already in place. The Consultation Draft MTS 3 is not, therefore, 'starting from scratch'. The potential exists for certain predicted impacts to emerge early in the timetable of Consultation Draft MTS 3 implementation, a prime example of this being the existing drive for a modal shift away from car use through increasing the uptake of cycling and walking amongst Londoners.
- 8.1.5 The Consultation Draft MTS 3 contains a detailed overview of the timetable for implementation of proposals and schemes, as outlined in its 'Chapter 6: Implementation Plan'. Delivery has been phased into short, medium and longer term implementation stages with specific measures included under the respective headings. This provides the reader with a useful guide to assess when the introduction of specific proposals is envisaged. As noted, short-term proposal implementation has the potential to deliver projected benefits rapidly, these being built upon through the subsequent phased delivery of schemes and proposals.
- 8.1.6 The Consultation Draft MTS 3 provides a clear strategic direction and framework for facilitating delivery of a more sustainable transport network in Greater London. There is a clear recognition in the

Consultation Draft MTS 3 of the need to encourage and deliver a modal shift towards more sustainable and active travel, and measures are proposed to increase the use of public transport, cycling and walking. Detailed policies and proposals have been identified to deliver upon this priority.

- 8.1.7 There is an explicit recognition within the Consultation Draft MTS 3 of the need for flexibility to address future challenges such as adaptation to climate change and its impacts on the transport network, and the Consultation Draft MTS 3 has embedded mitigation in respect of this. Future proofing around issues such as population growth is essential. Further enhancement opportunities are identified in the Recommendations section in **Chapter 10**.
- 8.1.8 To ensure that the respective goals of the Consultation Draft MTS 3 are adequately integrated, the IIA and its component assessment exercises have influenced the drafting of the revised MTS. Throughout the drafting of the revised MTS, opportunities to explicitly address the interrelated nature of themes and the greater cumulative benefit which can be gained through integrated delivery of policies, have been identified. Measures to further facilitate this are identified under the Recommendations section in **Chapter 10**.
- 8.1.9 The Consultation Draft MTS 3 sets out how implementation of its revised MTS policies and proposals will be undertaken at a sub-regional and local level. The IIA has identified a range of predicted benefits with regard to the achievement of IIA objectives that would flow from that process as set out in **Table 8.1**.

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Table 8.1: Summary of the Consultation Draft MTS 3 effects as regards the achievement of IIA Objectives

IIA Topics	IIA Objective	Scale of effects	Comments	Improvements to the scoring results following the Options assessment and recommendations
<p><i>Environmental: Transport system's role in supporting natural environment by contributing to protecting and enhancing our natural, built and historic environment; and, as part of this, helping to improve biodiversity, use natural resources prudently, minimise waste and pollution, and mitigate and adapt to climate change including moving to a low carbon economy</i></p>				
<p>Air quality</p>	<p>1. To reduce emissions and concentrations of harmful atmospheric pollutants, particularly in areas of poorest air quality and reduce exposure</p>	<p>++ Moderate to Major positive effect</p>	<p>TfL Modelling indicates that the Preferred Option could achieve an 80% sustainable mode share. Reduced traffic congestion as a result of the implementation of road pricing policies, could lead to fewer cars on the roads reducing harmful air pollution which negatively affects human health and environment.</p> <p>Because the most vulnerable tend to be the most exposed, reduced air pollution would also reduce health inequalities, in general.</p> <p>These traffic management measures would lead to a reduction in vehicle kilometres with consequential reductions in the economic costs of poor air quality.</p> <p>TfL modelling suggests that the additional demand management and road pricing proposals included in the Consultation Draft MTS3 are able to significantly reduce PM2.5 or PM10 emissions from traffic. TfL modelling also indicates that large reductions in NOx emissions are possible, with NOx emissions reductions achieving compliance across 70% of the road network by the early 2020s could achieve 99% compliance with further action implemented by the government and will be determined by the implementation of other measures (as set out in LES but not fully within the control of the Mayor).</p> <p>Measures such as the London-wide ULEZ will help tackle areas of NO₂ exceedance in Outer London while additional standards for cars and vans in Inner London will target areas of London with higher concentrations.</p> <p>The London Environment Strategy will show the distributional impact of the policies and proposals within the MTS combined with other non-transport policies. This will give more clarity as to whether the overall level of pollution across London will continue to be higher in the poorest communities, indicating that the disparity ratio/pattern across the city in exposure to harmful pollution will continue to persist. This is where the London Plan can play a role in the siting of new affordable housing.</p> <p>Measures to specifically address short-term effects of the exposure to harmful emissions around sensitive receptors such as schools and hospitals across the whole of London are expected within the London Environment Strategy.</p>	<p>No change</p>

IIA Topics	IIA Objective	Scale of effects	Comments	Improvements to the scoring results following the Options assessment and recommendations
Climate change adaptation and mitigation	2. 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	0/+ Neutral/ Minor to Moderate positive effect	<p>The Consultation Draft MTS3 acknowledges key revised MTS issues relevant to health impacts and the effects of climate change, notably the issue of heat on the underground and the unequal effects that climate change will have on vulnerable populations. However, it does not contain proposals to address directly these impacts and effects but commits to undertaking research into the issues and implementing ameliorative measures based on the research. Such measures are likely to take time to implement. Whilst there are proposals to undertake research to understand and prioritise the risk of severe weather and climate change on London's transport network, until these are fully understood there are no concrete proposals to address the issue. However, it is reasonably assumed that new transport infrastructure brought forward in accordance with the revised strategy will have resilience to climate change effects built in.</p> <p>While demand management measures included in the Consultation Draft MTS3 will reduce some of the causes of climate change by increasing mode shift – greater dependence on public transport increases the risk of London becoming less resilient to climate change; that is, if a network fails a higher number of Londoners may be adversely affected unless action is taken to improve the resilience of existing public transport infrastructure in London.</p> <p>Proposed provision of new green infrastructure can play a positive role in absorbing carbon dioxide, reducing 'urban heat island' effects, and providing opportunities for increasing habitats and connections to help enable wildlife to adapt to a changing climate.</p> <p>Policy 8 and Proposals 44 and 45 seek to ensure that London's transport is more resilient to the impacts of severe weather and climate change, producing benefits in the long-term. However, there are not specific concrete proposals in the short-term to deal with the flood risk on London Underground; for example, currently there are 85 sites (57 no. Stations, 16 no. Shafts and 10 no. Tunnel Portals and 2 no. others) on London Underground which are at high and rising risk of flooding. Promotion of green infrastructure can be one of the most effective tools available to us in managing environmental risks such as flooding and heatwaves.</p>	<p>Change in score from 0 Neutral to 0/+ Neutral/Minor Positive</p> <p>The two IIA recommendations on the Options IIA assessment have been taken on board by TfL and included in the Proposal 44 and Policy 8:</p> <ul style="list-style-type: none"> Proposal 44 now also includes references to minimise impacts of climate change on the most vulnerable user groups. <p>Policy 8 has been amended to include addition wording "...will seek to ensure that London's transport is resilient to the impacts of severe weather and climate change, so that services can respond effectively to extreme weather events..."</p>
	3. To help tackle climate change through reducing greenhouse gas emissions and moving towards a zero carbon London by 2050	+ Minor to Moderate positive effect	<p>TfL modelling indicates that the Consultation Draft MTS 3 policies could reduce CO₂ emissions from transport to two million tonnes per annum by 2041, by reducing reliance on petrol and diesel products / fossil fuels.</p> <p>Modal shift policies are usually weak in terms of achieving change in CO₂ production. However, modal shift measures can be effective when targeted, particularly when integrated with demand management measures. They cannot, however, form the corner-stone of effective CO₂ abatement policy and the prominence given to modal shift policies is at odds with indications that most modal shift policies achieve much lower abatement levels than measures focussing on fuel efficiency.</p> <p>The largest CO₂ abatement opportunities in the transport sector lie in initiatives to improve energy efficiency: improving the rated fuel efficiency of new vehicles as measured by vehicle certification testing; improving the efficiency of components and accessories not covered in current test procedures; and improving on-road vehicle performance. The most cost effective options include promoting fuel-efficient driving through training and feedback instrumentation, incentives for car buyers to choose lower emissions vehicles where stringent but voluntary emissions targets have been agreed with car manufacturers, and regulations for some currently unregulated vehicle components.</p>	No change
Energy use and supply	4. 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	+ Minor to Moderate positive effect	<p>Mode shift from the car towards more sustainable modes of transport will lead to large energy savings. Reduced congestion on the road network will improve energy efficiency for those that continue to use it. However, considerable investment in new infrastructure is energy intensive.</p> <p>TfL modelling indicates that the Consultation Draft MTS 3 policies and proposals could reduce CO₂ emissions from transport to two million tonnes per annum by 2041 reducing existing reliance on fossil fuels and encouraging uptake of the use of green/cleaner fuels and renewable energy.</p> <p>The Greenwich Power Station project would install additional generation alongside the existing equipment and deliver significant electricity and carbon savings. There is also a proposal to reuse waste heat from the Tube to support new heat networks such as the planned Bunhill project, which will use excess energy from Northern line</p>	No change

IIA Topics	IIA Objective	Scale of effects	Comments	Improvements to the scoring results following the Options assessment and recommendations
			<p>tunnels to warm 454 homes. TfL plans to build on this by introducing further schemes that exploit Tube waste heat, using its land and assets for new low-carbon energy generation, and working alongside TfL's other business areas to make use of energy storage technology to save costs and encourage the growth of electrified transport in London.</p> <p>Proposed provision of new green infrastructure such as green roofs can reduce the amount of energy needed to keep the temperature of a building comfortable year-round by insulating against extensive heat loss in the winter and heat absorption in the summer. Proposed new planting of trees and vegetative cover can lower ambient air temperatures in urban areas through shading, windbreak, and evapotranspiration. The result is lower demand for the energy needed to provide air conditioning in summer months.</p>	
<p>Flood risk</p>	<p>5. To manage the risk of flooding from all sources and improve the resilience of people, property and infrastructure to flooding</p>	<p>+ Minor to Moderate positive effect</p>	<p>The Consultation Draft MTS3 acknowledges the key issues relevant to health impacts and the effects of climate change, and the unequal effects that climate change will have on vulnerable populations. However, it does not contain proposals to address these issues but commits to undertaking research into the issues and implementing measures based on the research. Such measures are likely to take time to design and implement. The adverse impacts of climate change such as flooding and episodes of extreme heat are already experienced and as such, significant health impacts are likely to manifest themselves prior to the implementation of these measures.</p> <p>There are proposals to undertake research to understand and prioritise the risk of severe weather and climate changes on London's transport network. Until these potential changes are understood there are no concrete proposals to address the issue at present. However, it is reasonably assumed that new infrastructure brought forward as part of the revised strategy will have necessary resilience built in.</p> <p>While demand management measures included in the Consultation Draft MTS3 will reduce some of the causes of climate change by increasing mode shift, greater dependence on public transport increases the risk of London becoming less resilient to climate change; that is, if a network fails, a higher number of Londoners will be adversely impacted unless further action is taken to improve the resilience of existing public transport infrastructure to climate change effects.</p> <p>Proposed provision of new green infrastructure can play a positive role in absorbing carbon dioxide, reducing 'urban heat island' effects, and providing opportunities for increasing habitats and connections to help enable wildlife to adapt to a changing climate.</p> <p>Policy 8 and Proposals 44 and 45 seek to ensure that London's transport is more resilient to the impacts of severe weather and climate change, which can provide benefits in the long-term. However, there are no specific concrete proposals in the short-term to deal with the flood risk on the London Underground; for example, currently there are 85 sites (57 no. Stations, 16 no. Shafts and 10 no. Tunnel Portals and 2 no. others) on London Underground which are at high and rising risk of flooding. Promotion of green Infrastructure can be one of the most effective tools available to TfL in managing environmental risks to transport infrastructure such as flooding and heatwaves.</p>	<p>Change in score from 0 Neutral to + Minor Positive</p> <p>The two recommendations have been taken on board by TfL and included in the Proposal 44 and Policy 8.</p> <ul style="list-style-type: none"> • Proposal 44 now also includes references to minimise impacts of climate change on the most vulnerable user groups. • Policy 8 has been amended to include addition wording "...seek to ensure that London's transport system is resilient to the impacts of severe weather and climate change, so that services can respond effectively to extreme weather events..."
<p>Geology and soils</p>	<p>6. To conserve London's geodiversity and protect soils from development and over intensive use</p>	<p>0 Neutral</p>	<p>The Consultation Draft MTS3 does not contain specific proposals to further the attainment of this objective. However, proposed measures to increase tree canopies can reduce soil erosion by diminishing the impact of raindrops on barren surfaces and by improving soil strength and stability through encouraging the build-up of soil organic matter and the action of tree roots.</p> <p>Also, trees have the potential to remove and immobilise contaminants through the processes of phyto-remediation and phyto-stabilisation; and these processes are an inexpensive in situ practical option for remediation of damaged soils. The establishment of vegetation on previously contaminated developed land can break the pollutant linkage pathways, for example, through prevention of soil erosion which minimises dust production and reduces the risk to humans.</p>	<p>No change</p>

IIA Topics	IIA Objective	Scale of effects	Comments	Improvements to the scoring results following the Options assessment and recommendations
Historic Environment	7. 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.	+/? Minor to Moderate positive effect /Uncertain	<p>The Consultation Draft MTS3 introduces the ‘Healthy Streets Approach’ which involves a package of measures that will ultimately enhance key transport facilities, making them more accessible to all. There are proposals such as implementing step-free access that will increase access to the historic environment and will remove barriers of use of the transport network to those with disabilities, prams and people carrying luggage. Additionally, it will provide an opportunity to design transport hubs with an increased focus on the surrounding historic environment.</p> <p>The Consultation Draft MTS3 contains a number of measures to reduce harmful acidified air pollutants that cause 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. Therefore the reduction in air pollutants will have positive effects on this IIA objective.</p> <p>At the same time major infrastructure improvements, for example Crossrail 2, may have heritage implications, including demolition of old buildings of historic value, whilst proposed upgrades to improve capacity of Underground stations may contribute to London’s heritage value.</p> <p>Transport infrastructure schemes that would require land take and may have the potential to affect the historic environment, would be subject to full environmental appraisal and an Environmental Impact Assessment, as appropriate, to ensure protection of cultural heritage and in some cases may offer opportunities for enhancement.</p> <p>On the assumption that these schemes are developed and implemented with these controls, the overall effects at a strategic level on the historic, archaeological and cultural environment of London as a whole is not expected to be significant.</p>	<p>Change in score from 0/? Neutral/Uncertain to +/? Minor positive/Uncertain</p> <p>Following the recommendation provided by the Options IIA assessment, additional wording was added to Policy 7: “The Mayor, through TfL and working with the boroughs, will...maximise opportunities to protect, promote and enhance London’s built heritage and sites of cultural importance.”</p>
Materials and waste	8. 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	+ Minor to Moderate positive effect	<p>The Consultation Draft MTS3 would bring forward significant new transport infrastructure, and therefore waste will be generated as a result of the implementation of these large schemes. Potential waste impacts due to the large amount of excavated waste from these schemes would be addressed at the design stage to minimise the risks to public safety, as well as traffic congestion and pollution impacts. The Consultation Draft MTS3 will embrace measures encouraging productive reuse of excavated material in design and construction phases on such projects.</p> <p>The Consultation Draft MTS3 includes proposals to achieve the reduction of adverse waste impacts on the wider natural environment associated with supply chains and waste disposal. Transport providers will adopt the latest GLA responsible procurement guidance, to maximise re-use and recycling of waste materials.</p>	<p>Change in score from 0 Neutral to + Minor positive.</p> <p>Following the recommendation provided by the Options IIA assessment, additional wording was added: “By designing new infrastructure to use resources more efficiently and promote the circular economy there are significant opportunities to decrease consumption of natural resources and minimise and re-use waste in order to reduce impacts on the natural environment. This should include the sustainable management of construction and demolition waste from new transport schemes. TfL will also support municipal waste and circular economy measures set out in the London Environment Strategy.”</p> <p>Proposal 43: The Mayor, through TfL, will support London’s transition to a circular economy by encouraging transport providers to follow GLA Group responsible procurement policy guidance.</p>
Natural Capital and Natural Environment	9. 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	+ Minor to Moderate positive effect	<p>The Consultation Draft MTS3 includes a number of new transport schemes, which can put pressure to use areas of green space for construction purposes, possibly severing corridors and reducing the quality and quantity of the natural environment and connectivity between areas of green space.</p> <p>The Consultation Draft MTS 3 has a number of policies and proposals to improve the natural environment in London:</p> <ul style="list-style-type: none"> • Transport maintenance schemes (of existing green space) and improvements should protect existing and 	<p>Change in score from +/? Minor positive/Uncertain to + Minor positive</p> <p>Following the recommendation provided by the Options IIA assessment, additional wording was added:</p>

IIA Topics	IIA Objective	Scale of effects	Comments	Improvements to the scoring results following the Options assessment and recommendations
	outcome for biodiversity		<p>provide new green infrastructure in order to result in a net positive impact on biodiversity.</p> <ul style="list-style-type: none"> In order to reduce their impacts on the wider natural environment associated with supply chains and waste, transport providers should adopt the latest GLA responsible procurement guidance (transitioning to the circular economy). TfL will establish a baseline of ecological data and monitor / report regularly to demonstrate positive changes in biodiversity. <p>Provision of new green infrastructure creates opportunities for longer-distance movement for some species. This allows species to move around within and between urban areas, improving biodiversity. Well planned, designed and managed green infrastructure can provide for natural features and ecosystem services, (i.e. green roofs are used by birds and a wide range of invertebrates, including beetles, ants, bugs, flies, bees, spiders and leafhoppers, as well as large numbers of collembolans, which is an important group of invertebrates for soil carbon cycling). Promotion of sustainable urban drainage systems which in turn can improve water quality and thereby improve the diversity of species such as dragonflies and molluscs downstream of the water quality enhancement site. The proposed transport infrastructure schemes, which will potentially require land take and may have the potential to affect the natural environment, would each be subject to full environmental appraisal and an Environmental Impact Assessment, as appropriate, to ensure protection and enhancement of natural environment.</p> <p>On the reasonable assumption that these schemes are developed and implemented with these controls, the overall effects at a strategic level on the natural environment of London as a whole is not expected to be significant.</p> <p>Appropriate indicators for ecological data monitoring would need to be included in the TfL monitoring framework to monitor / report regularly to demonstrate positive changes in biodiversity.</p> <p>The Consultation Draft MTS3 proposes to develop housing and business spaces on TfL-owned land. As a result of this increased development and the potential for a further decline in the amount of open spaces available within the city, people may feel less connected to London's natural capital. This, however, would depend largely on the design of the development and development plans should promote mixed land use, higher density developments that are designed to facilitate active travel within the 'Health Streets approach'. Existing evidence shows that 'green streets' promote active travel and green spaces are associated with greater physical activity, so the delivery of the beneficial health impacts of this policy will depend largely on the detail of the developments and their design.</p> <p>Policies and proposals relating to air quality, natural environment, water resources and quality, connectivity, infrastructure, housing supply and accessibility could impact on European sites (in most cases indirectly); albeit policies and proposals are not specific to any sensitive European sites, so any major effects (positive or negative) are unlikely. These sites include Epping Forest SAC and Wimbledon Common SAC.</p> <p>Policies and proposals for further optimising the network, incremental expansion and new connections should reduce emissions from road transport and improve air quality and so will mitigate effects on European sites sensitive to effects of nitrogen deposition and acidification.</p> <p>Protecting and enhancing London's green infrastructure (e.g. Policy 7 and associated proposals) may enhance individual European sites or a network of sites and/or mobile qualifying features of these sites (including by improvements to water quality). Albeit major positive effects are unlikely specifically for European sites.</p> <p>Additional packages for further optimising the network, incremental expansion and new connections, could increase visitor pressure on European sites (a negative effect) by improving connectivity and accessibility. Further infrastructure improvements could also unlock land that has capacity for housing. The development of new housing and infrastructure may pose a threat to European sites dependent on its location, extent and design.</p> <p>Any transport projects would be subject to a project specific Habitat Regulations Assessment to ensure no adverse effects on the integrity of European sites.</p>	<p>Policy 7: The Mayor, through TfL and working with the boroughs, will: ensure that transport schemes in London protect existing and provide new green infrastructure wherever practicable to deliver a net positive impact on biodiversity. This will be achieved through the requirement for specific commitments to be made under the relevant planning or development consent regime, including Habitat Regulation Assessment and other environment protection undertakings. Designated spaces such as Sites of Importance for Nature Conservation shall be protected where practicable.</p>

IIA Topics	IIA Objective	Scale of effects	Comments	Improvements to the scoring results following the Options assessment and recommendations
<p>Noise and vibration</p>	<p>10.To minimise noise and vibration levels and disruption to people and communities across London and reduce inequalities in exposure</p>	<p style="text-align: center;">+/? Minor to Moderate positive effect /Uncertain</p>	<p>The Consultation Draft MTS3 includes policies and proposals to reduce noise and vibration from roads and rail services in London where reasonably practicable.</p> <p>TfL modelling predicts that the proposals included in the Consultation Draft MTS3 will result in reduced congestion and a significant decrease in car share across London. This reduced level of congestion is likely to reduce the level of noise people are exposed to from road traffic.</p> <p>There could be impacts associated with additional noise, vibration and construction spoils especially for large schemes away from the river (Bakerloo line extension) that are likely to add construction traffic on the roads that may increase noise and vibration effects.</p> <p>TfL does not currently measure the impacts of noise levels as a result of transport infrastructure so it is impossible for TfL to set a target to reduce the number of people exposed to noise above a threshold. Proposals for new transport infrastructure which will be likely to contribute to the increasing proportion of people exposed to noise above a certain threshold, as well as Heathrow’s plans for the expansion of the airport will need to address this issue.</p> <p>There are potential impacts on the environment due to some of the Consultation Draft MTS3 proposals affecting Natura 2000 sites.</p> <p>As a result of major infrastructure development, such as Crossrail 2, there could potentially be noise and vibration effects on sites such as the Lee Valley, which includes a number of sites of national and international nature conservation importance. This includes the Walthamstow reservoirs, a series of 10 reservoirs that include designated Sites of Special Scientific Interest, and which together form the Lee Valley Special Protection Area (SPA) and Ramsar site due mostly to their importance for wintering ducks.</p> <p>The Consultation Draft MTS3 contains proposals for greener and more resilient streets, with less noise and vibration and improved public realm and mitigation for noise and vibration from rail services in London where reasonably practicable.</p> <p>Additional demand management and road pricing policies will significantly reduce the number of vehicles, particularly in Central London. This will have a positive impact on reducing noise and vibrations from road traffic. However, it is important to note that this will not reduce these impacts coming from rail and aviation.</p> <p>The Consultation Draft MTS3 will still have some negative impacts due to the disruption that will result from the construction of new transport infrastructure as these projects are likely to increase the proportion of people exposed to noise exceeding the threshold. Noise and vibration from airports, busy roads and the railway generally affects those on lower incomes that cannot afford to relocate. Although the construction period will only be temporary, these groups of people are likely to be disproportionately affected by new noise levels during this time.</p> <p>It is therefore important that these new infrastructure schemes adhere to environmental standards and practices required by the relevant consenting process which will ensure that significant adverse environmental effects are eliminated or appropriately mitigated.</p> <p>In the long term, the switch to electric vehicles is likely to have significant beneficial effects on the reduction of noise caused by road transport due to electric vehicles being quieter.</p>	<p>Change in score from -/? Minor Negative/Uncertain to +/? Minor Positive/Uncertain</p> <p>Following the recommendation provided by the Options IIA assessment, additional wording was added to Proposal 46:</p> <ul style="list-style-type: none"> • “The Mayor, through TfL and working with the boroughs, will seek to reduce the number of Londoners exposed to excessive noise and vibration levels from road transport in London by...” • “...monitoring noise levels close to major road corridors to measure the adverse impacts of road transport on affected communities.”
<p>Water resources and quality</p>	<p>11.To protect and enhance London’s water bodies by ensuring that London has a sustainable water supply, drainage and sewerage system</p>	<p style="text-align: center;">0 Neutral</p>	<p>Main effects in London in respect of water resources quality are caused physical modifications to water bodies and pollution from waste water and water pollution from road run off on water bodies. Increased economic growth is likely to cause an increase in run-off and potential contamination and disruption of flows for surface water and groundwater, there is also likely to be an increase in demand for water.</p> <p>It is reasonably assumed that TfL when undertaking project planning and delivery will adhere to applicable legislation and environmental standards including environmental appraisal and Environmental Impact Assessment, as appropriate, to ensure protection of the water resources and quality.</p> <p>The revised MTS (March 2017) includes Proposal 42 “...Other non-road transport projects should be designed to achieve greenfield run-off rates and ensure that surface water run-off is managed as close to its source as possible (in accordance with the drainage hierarchy set out in the London Plan). In all cases drainage should be designed and implemented in ways that deliver other Mayoral priorities, including water quality, biodiversity and</p>	<p style="text-align: center;">No change</p>

IIA Topics	IIA Objective	Scale of effects	Comments	Improvements to the scoring results following the Options assessment and recommendations
			<p>amenity".</p> <p>Projects would be subject to project specific Habitat Regulations Assessment to ensure no adverse effects to the integrity of European sites.</p>	
Economic: Transport system's role in supporting a strong, sustainable and competitive economy, new homes and jobs by providing transport infrastructure for all Londoners				
Connectivity	12.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	+ Minor to Moderate positive effect	<p>The Consultation Draft MTS3 contains a number of additional proposals to improve connectivity, as well as improvements to bus services. It improves access to employment opportunities in areas less well served by rail, thereby enabling the delivery of much needed housing, supporting economic growth in these areas and across London as a whole. It also improves access to employment opportunities for lower income groups who are more dependent on bus links.</p> <p>Demand management and road pricing provides a significant mode shift leading to substantial reductions in road congestion and vehicle speeds, particularly buses which should provide a significant economic boost to London's economy.</p> <p>However these measures are likely to lead to increased congestion at bus stops and stations due to mode shift, which will lengthen times by rail and bus which result in a cost to the economy unless station capacity at bottle necks is increased where practicable.</p> <p>The Consultation Draft MTS3 contains a number of proposals to increase accessibility to transport, services and employment; this would benefit those within Outer London communities who are disproportionately impacted by lack of access and whose health and wellbeing consequently is negatively impacted. The regenerative potential for enhanced transport provision within Outer London areas will broadly enhance health and wellbeing and again serve to reduce inequalities.</p> <p>Whilst there may be more passengers on the public transport networks as a result of a modal shift from car driving to public transport, this change and its potential crowding effects would be mitigated by the proposals to increase public transport capacity and connectivity across London which would reduce congestion and overcrowding on services particularly at peak times with consequential reduced safety risks.</p> <p>The strategy addresses the issue of how social needs transport (e.g. dial-a-ride) could be better integrated with other public transport services. This will ensure that the needs of the most vulnerable who face barriers to the use of public transport are addressed.</p> <p>The additional packages in the Consultation Draft MTS3 relating to demand management and road pricing will reduce the volume of road traffic on the transport network. This will beneficially impact communities including the vulnerable who previously were disproportionately affected by severance due to busy roads.</p> <p>However, the introduction of demand management and road pricing measures may have disproportionate impacts on disabled people who are reliant on private vehicles to access employment and leisure opportunities, particularly those who live in areas of Outer London with low levels of accessible public transport, unless, suitable mitigation measures are put in place.</p>	<p>Change in score from +/? Minor Positive/Uncertain to + Minor Positive</p> <p>Following the recommendation provided by the Options IIA assessment, additional wording was added:</p> <p>P30 v17b Improving walking and cycling environments:</p> <p>"Safe, less-congested, clutter-free, better maintained, well-lit and easily navigable pavements with places to stop and rest make it easier for disabled or older people or those with restricted mobility to walk across the city..."</p>
Infrastructure	13.To ensure that provision of environmental, social and physical infrastructure is managed and delivered to meet forecast population and demographic change in line with sustainable development and to support economic competitiveness	++ Moderate to Major positive effect	<p>Proposals in the Consultation Draft MTS will support substantial new housing development. Crossrail 2 alone aims to facilitate the delivery of around 200,000 homes while the Bakerloo Line extension aims to deliver a further 25,000 homes.</p> <p>Extending bus services to open up housing sites not on the rail network is also proposed.</p> <p>Improved public transport connectivity will increase access to employment and opportunities across London.</p> <p>Reduced car demand potentially frees up more space for housing as less space is needed for car parking. Further reductions in traffic congestion will also improve accessibility.</p>	No change

IIA Topics	IIA Objective	Scale of effects	Comments	Improvements to the scoring results following the Options assessment and recommendations
<p>Economic competitiveness and employment</p>	<p>14. 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</p>	<p style="text-align: center;">+ Minor to Moderate positive effect</p>	<p>The Consultation Draft MTS3 contains policies and proposals which will provide significant economic benefits to businesses through substantial increases in transport capacity.</p> <p>Crossrail 2 could directly support thousands of jobs (60,000 across the UK while it is being built and a further 200,000 when services start).</p> <p>Supporting infrastructure to HS2 will radically improve access between London and the UK's key economic centres.</p> <p>Although the strategy provides for significant additional public transport capacity forecast increases in passenger demand and crowding means there will be limited spare capacity available to provide any material improvement in network resilience.</p> <p>Demand management will radically reduce congestion on the road network and should lead to significant improvements in bus service reliability and journey times.</p> <p>The Consultation Draft MTS3 includes proposals that will increase accessibility to employment, training and up-skilling opportunities for all. This is achieved through providing accessibility for all and increasing connectivity (particularly in East London via additional river crossings).</p> <p>It also includes a proposed fares freeze as well as protection of concessions for older and disabled people, children, those in receipt of Jobseekers Allowance, and other socially disadvantaged groups.</p> <p>There are important health consequences of employment reducing the adverse effects on mental and physical health of unemployment caused by among other things, lack of income and lack of self-esteem;</p> <p>The transport packages in the revised MTS related to demand management and pricing may have a slight negative impact on accessibility to jobs that are only accessible by car. However this would be mitigated by plans to ensure greater connectivity across London with more bus routes and alternative modes of public transport to serve the areas which are less accessible. Overall impacts are likely to depend on the type of pricing mechanisms introduced, their duration and geographical extent.</p> <p>It is likely that the costs to business of demand management will be offset by faster journey times. However, there are likely to be negative distributional economic impacts arising from the additional costs to business. For sectors where road transport represents a high proportion of their operating costs they are likely to experience significant short-term adverse effects where they are unable to pass these costs onto their customers.</p>	<p style="text-align: center;">No change</p>
<p>Sustainable Land Use</p>	<p>15. Make the best and most efficient use of land so as to support sustainable patterns and forms of development?</p>	<p style="text-align: center;">++ Moderate to Major positive effect</p>	<p>The Consultation Draft MTS3 is predicated on an integrated approach to land use planning and the provision of transport services based on the principle that new residential and commercial development should be as close as possible to high quality public transport. This will be pursued through:</p> <ul style="list-style-type: none"> - The alignment of transport investment with the growth strategy set out in the London Plan, including the prioritisation of investment in Opportunity Areas and transport growth corridors. - Making the most efficient use of land by promoting higher density development around stations and interchanges. - Targeting bus service investment in areas with low accessibility to facilitate development opportunities - Investing in new bus rapid transit where it can unlock housing development. - Investment in tube upgrades and extensions to facilitate the growth of identified Opportunity Areas in the London Plan. <p>In the short to medium term the revised strategy also commits TfL to delivering homes and commercial developments on its own land within or around transport hubs to increase densities in the most accessible locations. This will be supported by the healthy streets approach, including that adopted in new developments.</p> <p>There are a number of policies and proposals to improve the natural environment in London:</p> <ul style="list-style-type: none"> • Transport maintenance schemes (of existing green space) and improvements should protect existing and provide new green infrastructure in order to result in a net positive impact on biodiversity. • In order to reduce their impacts on the wider natural environment associated with supply chains and waste, transport providers will adopt the latest GLA responsible procurement guidance (transitioning to the 	<p style="text-align: center;">No change</p>

IIA Topics	IIA Objective	Scale of effects	Comments	Improvements to the scoring results following the Options assessment and recommendations
			circular economy).	
Housing Supply, Quality, Choice and Affordability	16.To provide a quantum, type, quality and tenure of housing (including specialist and affordable provision) to better meet demographic change and household demand	++ Moderate to Major positive effect	<p>The Consultation Draft MTS3 contains proposals to build 10,000 new homes being built on 300 acres of TfL-owned land, with 50% of them to be affordable.</p> <p>The proposals set out will indirectly support substantial housing development, Crossrail 2 alone aims to facilitate the delivery of around 200,000 homes In addition, extension of Overground (to Bakerloo Riverside) and Bakerloo Line (to Lewisham) will support the delivery of 11,000 and 25,000 new homes respectively.</p> <p>Extending bus services to open up sites not on the rail network is also proposed.</p> <p>Reduced car use potentially frees up more space for housing if less space is needed for workplace / town centre parking. Further reductions in congestion will also improve accessibility.</p> <p>High quality housing has beneficial consequences for health; and the provision of affordable housing reduces housing inequalities.</p> <p>The Consultation Draft MTS3 would have an indirect positive impact of the provision of affordable housing by facilitating the ability of 'essential workers' – emergency services, teachers, nurses, etc.- to live and work in London.</p>	<p>Change in score from + Minor Positive to ++ Major Positive</p> <p>Following the recommendation provided by the Options IIA assessment, additional wording was added:</p> <p>TfL is one of the largest owners of public land in London, and in order to facilitate delivery of much needed housing the Mayor intends to ensure that TfL surplus land is used to maximise affordable housing and so reduce the inequalities in housing provision for those who are from low income households, younger people and disabled people.</p>
Culture	17.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	+/? Minor to Moderate positive effect /Uncertain	<p>The Consultation Draft MTS3 includes a package of measures that are likely to improve accessibility for all to historic and cultural environments including embedding accessibility and inclusivity in planning and design.</p> <p>However, the Consultation Draft MTS3 does not contain concrete proposals to address non-physical barriers for people with sensory or cognitive impairments.</p>	No change
Social: Transport system's role in supporting strong, vibrant and healthy communities, by delivering good public transport experience; safe and pleasant places; and creating a high quality built environment, with accessible local services that reflect the community's needs and support its health, social and cultural well-being for all Londoners				
Accessibility	18.To maximise accessibility for all in and around London	+ Minor to Moderate positive effect	<p>The Consultation Draft MTS3 proposals contain a number of measures to increase accessibility to all public transport modes, including:</p> <ul style="list-style-type: none"> • Increase in step-free access (100+ by 2022); • Upgrade National Rail stations to step-free, 15 stations delivered every 5 years; • Cutting congestion will involve working with business to help meet freight needs in the safest, cleanest and most efficient way possible, providing better road information and improved coordination of planned roadworks; • 95% of bus stops will be accessible by 2017. • Taxi rank accessibility. <p>Many people with sensory or cognitive impairments experience non-physical barriers to use of the transport network. The Consultation Draft MTS3 does not contain proposals to address non-physical barriers for people with sensory or cognitive impairments. However it will prioritise issues that disproportionately affect some customers more than others. This includes new approaches to dealing with unwanted sexual behaviour and hate</p>	<p>Change in score from +/? Minor Positive/Uncertain to + Minor Positive</p> <p>Following the recommendation provided by the Options IIA assessment, additional wording was added:</p> <p>Improving walking and cycling environments: Safe, less-congested, clutter-free, better maintained, well-lit and easily navigable pavements with places to stop and rest make it easier for disabled or older people or those with restricted mobility to walk across the city....</p>

IIA Topics	IIA Objective	Scale of effects	Comments	Improvements to the scoring results following the Options assessment and recommendations
			<p>crime, improving the confidence of customers to report issues.</p> <p>In addition to this, the barrier of high fares has been addressed by ensuring that fares are frozen and all concessions for older and disabled people are protected for the Mayor's 4 year term. Extension of bus hopper fares to include unlimited transfer will also benefit those groups who are more reliant upon this mode of travel but not entitled to free bus travel (e.g., women and BAME, job seekers).</p> <p>Implementation of the Consultation Draft MTS3 policies and proposals would result in more accessible and better integrated public transport and an increase in active transport facilities. This would encourage a modal shift away from private vehicles, with people having more active lifestyles.</p>	
Crime, safety and security	19.To contribute to safety and security and the perceptions of safety	+ Minor to Moderate positive effect	<p>Safety concerns are a barrier to active travel and contribute to inactivity which, in turn, has impacts on health and wellbeing.</p> <p>The Consultation Draft MTS3 includes a goal to create an environment where people are safe and feel safe, however they choose to travel. To achieve this outcome, TfL plans to continue to work with the Capital's police authorities, including the British Transport Police (BTP), to make sure customers feel confident about using its services at all times. This goal implies addressing safety issues during day and night times.</p> <p>Policies and proposals in the Consultation Draft MTS directly address the issues of crime on the transport network and aim to reduce both crime and the perception of crime. The TfL business plan prioritises action on issues that disproportionately affect some customers more than others. This includes approaches to dealing with unwanted sexual behaviour and hate crime, improving the confidence of customers to report issues and know that action will be taken.</p> <p>Additionally, the Consultation Draft MTS3 proposes increased levels of security provided on PT, which would contribute to reducing anxiety and stress through an increased perception of safety. This would result in a positive health impact, particularly for those who view safety concerns as a barrier to public transport. The Consultation Draft MTS contains policies and proposals to increase the safety of cyclists. An increase level of safety for cyclists will encourage further uptake of active travel, resulting in health benefits. The Consultation Draft MTS also includes policies and proposals that are designed to reduce car use and consequently increase safety and the perception of safety for cyclists and pedestrians.</p> <p>The Preferred Option contains proposals to fund and work alongside the Metropolitan Police Service (MPS) Roads and Transport Policing Command to prevent crime, antisocial behaviour and fare evasion. Safer Transport Teams, operating across London, will carry on providing local and accessible policing for bus passengers, employees and communities.</p> <p>It also adopts the new 'Vision Zero' approach to reducing death and serious injury on our roads, as well as improving the safety of London's Taxi and private industry. The connection between the emerging priorities of the London Transport Community Safety Partnership and the MTS has not been identified.</p> <p>The planned new Direct Vision Standard will be likely to have indirect positive effects on air quality due to replacement of old vehicles with cleaner ones thus improving the air quality in the capital, as well as having direct positive effects on human health and safety due to mode shift to cycling increasing physical activity as well as improving the safety of cyclists on the roads. There are likely to be positive transboundary effects from introducing the Direct Vision Standards as the new standards are likely to be not limited to vehicles operating only in the Greater London area but stretching further outside the geographical scope of the capital.</p>	No change
Health and health Inequalities	20.To improve the mental and physical health and wellbeing of Londoners and to reduce health inequalities across the City and between communities	+ Minor to Moderate positive effect	<p>The healthy streets approach promoted by the Consultation Draft MTS will reduce the dominance of cars on the streets and promote active travel, enhancing accessibility.</p> <p>The Consultation Draft MTS is the likely to improve the mental and physical health and wellbeing of Londoners and to reduce health inequalities across the City and between communities. The proposals included within this Option will reduce the level of air pollutants significantly. Additionally, TfL modelling indicates that the proposals contained within the Preferred Option would have the greatest shift to active modes of transport. This would result in significant improvements to health due to the increase in physical activity for people, the decreased level of air pollutants and noise caused by road transport, and the decreased level of injuries and deaths caused by</p>	No change

IIA Topics	IIA Objective	Scale of effects	Comments	Improvements to the scoring results following the Options assessment and recommendations
			<p>road collisions.</p> <p>Whilst London meets air quality limits for particulate matter, London will continue to breach the WHO standards in the short-term before achieving a 47% reduction in PM2.5 emissions by 2041 compared in 2013. Therefore, significant health impacts will occur across London with the number of air quality related diseases and deaths likely to rise with an aging population. However, the London Environment Strategy is expected to set specific targets for PM2.5 which are aligned with the WHO standards.</p>	
Equality and Inclusion	21.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	+ Minor to Moderate positive effect	<p>Implementation of the policies and proposals of the Consultation Draft MTS would result in more accessible and better integrated public transport and an increase in active transport facilities for all groups.</p> <p>TfL supplied modelling shows that this Consultation Draft MTS is able to achieve 80% sustainable mode share. It will increase the mode share of walking to 27% (2% higher than Option 1 and 2) and the level accessibility for people across London, including those who are disproportionately impacted by lack of access. The proposals to encourage walking and cycling are likely to lead to the 4% growth in cycling by 2041 as Option 1 and 2, and a further 11.6% decline in car mode share and a 9% increase in PT use.</p> <p>TfL is offering customer information in even more languages and Easy Read formats and looking at whether additional ways to help commuters better plan their journeys. As part of the Consultation Draft MTS3, there are plans to ensure that the provision of information and payment platforms are fit for the future. The strong focus on accessibility and inclusivity is also an indication that the plans laid out are future proofed for a more diverse and aging population.</p>	No change
Social integration	22.To ensure London has socially integrated communities which are strong, resilient and free of prejudice	+ Minor to Moderate positive effect	<p>The Consultation draft MTS contains additional policies and proposals to improve accessibility of the transport network for all Londoners with specific plans to cater to people with accessibility need and the aging population which will positively impact social integration.</p> <p>The draft strategy commits to ongoing support for other services available to help alleviate obstacles to physical accessibility including Dial-a-Ride which is a free door-to-door service for disabled and older passengers. Furthermore, all black cabs and some private hire vehicles are wheelchair accessible.</p> <p>The barrier of high fares has been addressed by ensuring that the fares are frozen and all concessions for older and disabled people are protected for the Mayor's 4 year term.</p> <p>Increased number of river crossings will also remove physical barriers to movement for groups of people living in some of the most deprived areas in East London to be better connected to jobs and services thus improving integration.</p>	No change
Design	23.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	+ Minor to Moderate positive effect	<p>The proposals, such as the 'Healthy Streets Approach' and a number of the infrastructure projects, will make the city a more attractive and accessible place in which to live, work and travel.</p> <p>Additional measures that should reduce or remove the obstacles that prevent London from achieving this objective; namely, those of congestion, noise, poor air quality, perceptions of poor safety, and high car mode share. It is able to effectively address these issues and lead to better health outcomes.</p> <p>The Consultation Draft MTS includes policies to improve the design and layout of street space and the areas near transport gateways such that they are attractive and accessible for all.</p> <p>It also includes enhancing and extending bus priorities. The new and existing bus corridors along with the role of demand responsive bus services, will provide those in less connected deprived areas with greater accessibility.</p> <p>The policy to make better use of street space for people rather than vehicles should have a disproportionate benefit for vulnerable road users (such as children, disabled and elderly) and will improve accessibility of these places for all. Demand management and pricing will further reduce number of vehicles in London which will have a disproportionate benefit to vulnerable road users.</p> <p>However, no specific proposals to address deficiencies of access to open space anywhere in the strategy. It does not give enough focus in improving access to natural environment which is likely to improve the wider built</p>	No change

IIA Topics	IIA Objective	Scale of effects	Comments	Improvements to the scoring results following the Options assessment and recommendations
			environment and sense of space, appreciate the natural environment and connect people with nature.	

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8.2 Summary of the likely significant effects of the Consultation Draft MTS 3

Environmental IIA Objectives

- 8.2.1 The IIA included 11 assessment objectives that relate to environmental aspects of sustainability. The demand measures are predicted to help reduce volumes of traffic, and traffic congestion and support the achievement of an 80% share of transport by sustainable modes by 2041. This would contribute to the beneficial effects predicted against the objectives for air quality, climate change, energy use, historic environment, natural capital and noise (IIA objectives 1, 2, 3, 4, 7, 9, and 10). For example, air quality is likely to improve in general (with consequent beneficial effects on the historic and natural environment) and there are likely to be large energy savings and some reductions in greenhouse gas emissions.
- 8.2.2 The inclusion of measures to improve green infrastructure (the network of multi-functional greenspace) is predicted to beneficially affect IIA objectives 2, 4 and 9, for example due to the cooling effect greening can have in an urban environment, and by improving habitat connectivity for wildlife.
- 8.2.3 Reduced car use could potentially free up more space for development (with beneficial effects on IIA objective 16, for housing), however it is uncertain how proposals for new transport infrastructure may affect nature conservation sites, including European designated sites, if deemed required for reasons of overriding public interest.
- 8.2.4 The Consultation Draft MTS 3 policies and proposals promote modal shift to reduce CO₂ emissions. However, greater reductions are likely to be achieved through a focus on energy and fuel efficiency and/or fuel type used for vehicular transport.

Economic IIA Objectives

- 8.2.5 The Consultation Draft MTS 3 seeks to reduce traffic congestion and peak period crowding on public transport, improving journey reliability and network resilience, features particularly sought by the business community. The inclusion of Crossrail 2, the Bakerloo extension and other capacity improvements in public transport in the draft strategy is seen as beneficial to meeting IIA objectives for infrastructure, economic competitiveness and housing through providing jobs and supporting housing growth (IIA objectives 13, 14 and 16).
- 8.2.6 The demand management and road pricing measures proposed in the Consultation Draft MTS 3 are likely to lead to a reduction in vehicle kilometres and to further reductions in the economic costs of poor air quality. It is likely that the costs to business of demand management will be offset by more reliable journey times. However, sectors where road transport represents a high proportion of their operating costs are likely to experience short term adverse effects where they are unable to pass these costs onto their customers.

Social and health IIA Objectives

- 8.2.7 The Consultation Draft MTS 3 includes measures to increase accessibility to all public transport modes such as increases in step-free access. This has been assessed as positive for the accessibility objective (IIA objective 18). The strategy commits to ongoing support for other services to help alleviate obstacles to physical accessibility (e.g. Dial-a-Ride which is a free door-to-door service for disabled and older passengers). The barrier of high fares has been addressed through freezing prices and all concessions for older and disabled people are protected for the Mayor's term. These measures are seen as beneficial for the objective for social integration (IIA objective 22).
- 8.2.8 The Consultation Draft MTS 3 does not include measures to address non-physical barriers for people with cognitive or sensory impairment. However it does prioritise issues that disproportionately affect some groups, for example dealing with unwanted sexual behaviour and hate crime. This is assessed as positive against objectives for accessibility and crime, safety and security (IIA objectives 18 and 19).

- 8.2.9 It is now well understood that transport is a major determinant of health, providing access to services, health care, education, social and employment opportunities, all of which are themselves determinants of health. Increasing levels of physical activity has direct benefits, in terms of reducing obesity and the incidence of related diseases. The Consultation Draft MTS 3 has specific measures designed to increase physical activity, notable through the encouragement of walking and cycling as modes of transport.
- 8.2.10 Transport can also have impact on health through the severance of communities, the effect of levels of noise and airborne pollutants and by causing injury and health in collisions. The draft strategy has specific measures and proposals that will reduce these adverse impacts of transport. For these reasons the Consultation Draft MTS 3 has been assessed as beneficial for the IIA objective to improve health and reduce health inequalities (IIA objective 22).

8.3 Significant cumulative effects

- 8.3.1 The SEA Regulations 2004 require that the assessment of effects on sustainability include secondary and cumulative effects where practicable.
- 8.3.2 Cumulative effects assessment is a systematic procedure for identifying and evaluating the significance of effects from multiple activities. The analysis of the causes, pathways and consequences of these effects is an essential part of the process.
- 8.3.3 The assessment of cumulative effects assists in the identification of the total direct and indirect effect on receptors. Often, effects may result from the accumulation of multiple small and often indirect effects rather than few large obvious ones.
- 8.3.4 **Table 8.2** below sets out the predicted significant cumulative impacts from the wider strategic delivery across the Consultation Draft MTS 3, the current London Plan (March 2016) and the Consultation Draft London Environment Strategy (2017). It outlines those receptors that could potentially experience significant cumulative effects based on current knowledge and methods of assessment. The IIA assessment of cumulative effects has not taken into account other Mayoral strategies which are due to be revised in the near future.
- 8.3.5 There are also expected to be positive cumulative effects from the wider strategic delivery of proposals to improve air quality across the different strategies, with the LES specifically including short-term proposals to tackle hot-spots of pollution near to schools, hospitals and other sensitive receptors, which together with measures proposed in the Consultation Draft MTS 3 are likely to offer greater sustainability benefits for human health and health inequalities.
- 8.3.6 There is expected to be significant cumulative effects from the promotion and incentivisation elements of the Consultation Draft MTS 3, where people will be encouraged to choose more sustainable patterns of activity and travel modes – to live and travel smarter. When combined with improved transport services and clearer sources of information on which to make these choices in real time, significant cumulative effects are anticipated.
- 8.3.7 There are likely to be positive cumulative effects on the reduction of the CO₂ emissions, enhancing the natural environment through achieving a net biodiversity gain, promotion of the renewable energy sources, and the delivery of the affordable housing in London.

Table 8.2: Summary of the Consultation Draft MTS 3 IIA Cumulative Effects

IIA Objectives	Consultation Draft MTS 3	London Plan 2016	Draft London Environment Strategy (LES)	Significance of cumulative effects
<p>Environmental IIA Objectives</p>	<p>There anticipated to be a number of positive effects against the environmental IIA objectives arising from the Consultation Draft MTS 3 reduced congestion as a result of road pricing policies, is forecast to lead to fewer cars on the roads thus reducing harmful air pollution which negatively affects human health and environment.</p> <p>Also, there could be positive effects on noise levels, particularly for receptors in close proximity to main roads.</p> <p>Policies and proposals are likely to lead to reduction in car use and thus reduction in CO₂ emissions and reduce reliance on petrol and diesel products-fossil fuels, with consequential benefits for air quality.</p>	<p>Policy on noise from aircraft is set out by the London Plan. The transport, spatial and design policies of the London Plan 2016 will be implemented in order to reduce and manage noise to improve health and quality of life.</p> <p>London Plan 2016 supports the creation of new open space in London to ensure satisfactory levels of local provision to address areas of deficiency.</p>	<p>The Draft LES sets out policies and proposals to address the full range of air quality issues including reducing emissions from transport, reducing emissions from homes, business and industry and increasing awareness of air quality issues.</p> <p>The LES will have a significant positive effect on the environmental IIA objectives through proposals to establish a National Park City Commission; develop investment programmes for green infrastructure; develop and publish a natural capital accounting framework; develop a business case methodology for investing in green infrastructure; restore ecological connectivity; providing programmes and support for the acceleration of installation of green infrastructure; and, maintaining and expanding London's urban forest.</p>	<p>There is anticipated to be a positive cumulative effect as the strategies are likely to support and complement each other, contributing towards the environmental IIA Objectives.</p>
<p>Economic IIA Objectives</p>	<p>The Consultation Draft MTS 3 will enable economic growth by enabling employment and housing growth by improving both the capacity and connectivity of London's public transport network. Proposals and policies included in the strategy provide a significant enhancement to capacity of the public transport network which in turns facilities a very significant increase in residential land commercial development. Crossrail 2 alone aims to facilitate the delivery of around 200,000 homes In addition, extension of the Overground (to Barking Riverside) and Bakerloo line (to Lewisham) will support the delivery of 11,000 and 25,000 new homes respectively.</p> <p>While there are clear economic benefits from improving air quality and safety in the city there are also costs to businesses and consumers. The implementation of low emission zones, more control over timing of deliveries and servicing activities and the planned new Direct Vision Standard will have a significant cost to some business sectors (and particularly SMEs in those sectors) due to the need to replace or retrofit vehicles.</p>	<p>Chapter 4 – London's Response to Climate Change is specifically focussed on contributing towards improvements in the economy. In combination with measures in Chapter 5 to adapt to, and mitigate climate change, as well as secure energy supplies there is likely to be a positive contribution towards the economic IIA Objectives. The drive to improve outer London's competitiveness with surrounding area and regenerate its deprived areas is also likely to contribute positively. The pressures arising from economic development (such as the pressure on land) are anticipated to be mitigated by policies that contribute positively to the environmental IIA Objectives.</p>	<p>While there are clear economic benefits from improving air quality there are also costs. Compliance with environmental legislation and standards can present additional costs to businesses.</p>	<p>There is anticipated to be a positive cumulative effect as the strategies are likely to support and complement each other, contributing towards the economic IIA Objectives.</p>

IIA Objectives	Consultation Draft MTS 3	London Plan 2016	Draft London Environment Strategy (LES)	Significance of cumulative effects
<p>Social IIA Objectives</p>	<p>There anticipated to be a number of positive effects against the social IIA objectives arising from the Consultation Draft MTS 3 to improve the mental and physical health and wellbeing of Londoners and to reduce health inequalities across the City and between communities. A shift to 80% sustainable mode share would result in significant improvements to health due to the increase in physical activity for people, the decreased level of air pollutants and noise caused by road transport, and the decreased level of injuries and deaths caused by road collisions. It would also reduce community severance (the 'barrier effect' of busy roads) that deters active travel and reduces access to goods such as employment, education, shops, services, and social networks, all of which are important for good mental and physical health.</p> <p>Providing attractive places for physical activity will lead to the following health benefits: reduced obesity (with associated health problems), preventing associated chronic diseases, such as heart disease, high blood pressure, stroke, Type II diabetes, arthritis, and certain kinds of cancer.</p>	<p>There anticipated to be a number of positive effects against the social IIA objectives arising from the London Plan 2016, in particular from policies in Chapters 2, 3 and 6. The focus on increased housing provision and the focus on regenerating deprived areas will be beneficial. Furthermore, the greater emphasis on outer London in specific policies is likely to contribute positively. The pressures arising from social growth (such as increased pressure on land and demand for resources) are anticipated to be mitigated by other policies within the London Plan 2016.</p>	<p>There anticipated to be a number of positive effects against the social IIA objectives arising from the LES, through ensuring that green infrastructure assets respond to the needs of local communities and provided in close proximity to people's homes are then well maintained to have a positive role in public health and wellbeing.</p>	<p>There is anticipated to be a positive cumulative effect as the strategies are likely to support and complement each other, contributing towards the social IIA Objectives.</p>

8.4 How sustainability issues were considered and proposed IIA recommendations

8.4.1 Following the IIA assessment of the MTS strategic Options, a number of recommendations were put forward by the IIA team to TfL for consideration. These recommendations were subsequently addressed by TfL and, where appropriate, later incorporated into the Consultation Draft MTS 3. A detailed record of this process can be found in **Appendix D** of this IIA Report.

8.4.2 Below is the list of the IIA recommendations that were put forward to TfL following the IIA assessment of the MTS strategic Options:

- **Recommendation 1:** Although some policies aim to provide necessary safeguards to ensure that transport schemes are seeking to achieve a net positive biodiversity gain, and ensure implementation of such controls, a separate policy would help to ensure these objectives are addressed at the project level and could be included in the London Plan.
- **Recommendation 2:** The Draft Revised MTS 3 contains proposals for greener and more resilient streets, with less noise and vibration and improved public realm. It also seeks to ensure that noise and vibration from rail services in London will be mitigated where reasonably practicable. However, the strategy could be strengthened by including the explicit aim of reducing the number of people exposed to excessive noise levels (above WHO guidelines) from surface transport. To consider establishing a noise monitoring framework to measure the impacts of surface transport on the quality of life close to the major corridors.
- **Recommendation 3:** Additional text should be provided in the MTS to strengthen the strategy in respect of European sites: Text should be added in respect of Policy 7 to specifically outline the need to avoid adverse effects on the integrity of European sites and to outline the need for lower level HRA assessments as appropriate (i.e. at a lower tier plan or project level); and text should be added referring to the known impacts of air quality on European sites and confirming the intention of the strategy to reduce these effects.
- **Recommendation 4:** Stronger, more urgent and wider reaching action is required to improve air quality (particularly for those who are socially disadvantaged and experience the highest level of pollution). MTS should be more specific about how it will contribute to the delivery of the Mayor's affordable housing targets as set out in the emerging London Plan Consider the impact of climate change on an aging population and include proposals to take into account those most vulnerable to extreme heat and flooding.
- **Recommendation 5:** Include proposals and targets to address issue of congested pavements. Include stronger, more urgent action in relation to the impacts of climate change on human health through promoting measures that support resilience in the context of extreme weather events, such as flooding or heat waves. Consider inclusion in the Healthy Streets approach policies to explicitly promote the reduction of the need to travel by motorised vehicles with the consequent benefits for congestion and pollution.
- **Recommendation 6:** The MTS should encourage opportunities for enhancement the historic environment where opportunities exist.
- **Recommendation 7:** The MTS could include a policy to encourage waste minimisation and re-use in the transport sector (construction and operation) for the purposes of minimising the associated environmental impacts.

8.4.3 **Table 8.1** demonstrates how the Consultation Draft MTS 3 has evolved as a result of the IIA recommendations and how this has affected the assessment. The final column of **Table 8.1** summarises the changes to the assessment results of the Consultation Draft MTS 3 in light of recommendations by the IIA team and the subsequent further refinements to the strategy by TfL during the strategy development process. Where the assessment score changed as a result of the specific IIA recommendations, the details of these recommendations have been included in this column.

8.4.4 In summary, the majority of the initial IIA recommendations following the MTS strategic Options IIA assessment have been taken forward by TfL when refining the Preferred Option. Additional wording to the strategy policies and inclusion of new proposals strengthened the sustainability performance of the strategy and improved the IIA scoring results of the Consultation Draft MTS 3 across the following IIA topics:

- Climate change adaptation;
- Flood risk;
- Historic environment;
- Materials and Waste;
- Natural Capital and Natural Environment;
- Noise and vibration;
- Connectivity;
- Housing Supply, Quality, Choice and Affordability; and
- Accessibility.

8.4.5 Although proposed amendments to the Preferred Option following the initial IIA recommendations provided improvements to the IIA scoping results and were notable across the IIA topics mentioned above, they changed marginally the scale of the effects of the strategy and in many cases provided more certainty when predicting the effects against a specific IIA Objective.

8.4.6 In this regard, a number of further enhancement measures and recommendations to the Consultation Draft MTS 3 were made by the IIA team following the assessment of the Preferred Option (see **Table 8.1**) which will be addressed by TfL following the public consultation on the Consultation Draft MTS 3.

Integrated Delivery

- The Consultation Draft MTS 3 set out a transport strategy delivery process to ensure a joint up approach across the Mayoral strategies. The combined role of the forthcoming Mayoral strategies, and in particular the Draft LES, will provide a strong overarching strategic approach, where appropriate mitigation and adaptation is provided for.

Recommendation 1: The Mayor should continue using all opportunities for integrated delivery including ongoing review of where synergies between strategies and their policies can be exploited.

CO₂ reductions

- Hydrogen fuelled transport technologies attract significant research and development funds but they are not a CO₂ abatement policy option for the short or medium term. Hydrogen has to be produced using non fossil fuels (nuclear electricity, biomass or other renewable power) if it is to achieve CO₂ abatement. As with biofuels, abatement is maximised when these energy sources are employed directly and displace fossil fuelled electricity generation. Availability of hydrogen refuelling infrastructure can be a potential obstacle to the take-up of hydrogen fuel cell electric vehicles.

Recommendation 2: The Mayor of London should continue providing support to give interested parties the confidence to continue to invest in this new emerging technology, to help to achieve the ambition for almost all new cars and vans to be zero emission by 2050.

Accessibility

- The Consultation Draft MTS 3 includes a package of measures that are likely to improve accessibility for all to historic and cultural environments including embedding accessibility and inclusivity in planning and design, as well as trialling innovative methods to improve wayfinding, such as 'Wayfinder' systems for people with sensory disabilities. However, it does not explicitly address non-physical barriers for people with sensory or cognitive impairments in its proposals

Recommendation 3: The Consultation Draft MTS 3 should include proposals to address non-physical barriers for people with sensory or cognitive impairments in the Consultation Draft MTS 3.

Natural Environment

- To deliver Policy 7, the Mayor will work with stakeholders to establish and regularly monitor a baseline of ecological data in order to demonstrate changes in biodiversity.

Recommendation 4:

Appropriate indicators for ecological data monitoring would need to be included in the TfL monitoring framework to monitor / report regularly to demonstrate positive changes in biodiversity.

8.5 MTS monitoring framework and recommendations

- 8.5.1 Monitoring is a key mechanism to ensure that the implementation of the policies and proposals is consistent with the sustainable aspirations of the Consultation Draft MTS 3. The SEA Regulations state that monitoring must be undertaken on the likely significant environmental effects of the implementation of plans and programmes in order to identify at an early stage unforeseen effects and be able to undertake appropriate remedial measures. In line with the integrated approach to impact assessment, monitoring these indicators through the IIA is a way of demonstrating success in delivering the MTS' targets and reducing its environmental, social and economic impacts.
- 8.5.2 The role of the IIA monitoring is to measure the IIA indicators and establish a causal link between the implementation of the transport strategy and the likely significant effect being monitored. This enables TfL to carry out an evaluation of the effectiveness of the MTS as a whole in facilitating sustainable development.
- 8.5.3 The Consultation Draft MTS 3 does not include a comprehensive set of monitoring indicators to measure and evaluate progress towards the goals or improvements against the challenges identified in the MTS. However, TfL already routinely undertakes substantial monitoring and analysis of the transport system's performance, the results of which are reported within the annual Travel in London report. Travel in London reports do not reflect the whole monitoring and analysis programme of TfL but are intended to give an overview of the trends and developments of most direct relevance to MTS. A list of the core data collected by TfL and mandated by the Travel in London reports can be found in **Appendix H** of this IIA Report.
- 8.5.4 The Consultation Draft MTS 3 commits to a number of targets as well as a wide range of ambitious outcomes against which progress will be measured. The strategy proposes that there be a clear line-of-sight from the aims of the MTS through to local and project level objectives, and that all schemes and proposals should accord with the policies and proposals of the MTS and be appraised through a new multi-criteria framework tool, to be developed. In Policy 24 the Mayor commits to reviewing the delivery plan of the strategy should monitoring show that the expected transport outcomes of the strategy are unlikely to be achieved.

8.6 Identification of proposed sustainability indicators for MTS 3

- 8.6.1 It is noted that the Consultation Draft MTS 3 has not yet proposed a set of strategic indicators in relation to the MTS goals which will be used in monitoring their outcomes. The aim here is to identify those strategic indicators which will enable TfL and stakeholders to assess whether the overall sustainability aims and objectives of the Consultation Draft MTS 3 are being delivered. The IIA Framework is used as the primary means to present these proposed indicators, which been informed by established international, national and Mayoral indicators for sustainability.
- 8.6.2 For the purpose of derivation of the sustainable indicators for the MTS monitoring sustainability indicators have been analysed from the following sources:
1. UK Office for National Statistics (ONS), <http://www.ons.gov.uk>;
 2. Victoria Transport Institute, <http://www.vtpi.org/wellmeas.pdf>;
 3. UN Sustainable Development Goals, <http://www.un.org/sustainabledevelopment/sustainable-development-goals/>;
 4. Key Performance Indicators for Smart Sustainable Cities (UNECE 2016), <http://www.itu.int/en/ITU-T/ssc/Pages/KPIs-on-SSC.aspx>;
 5. Transport for London 'Travel in London' (annual), <https://tfl.gov.uk/corporate/publications-and-reports/travel-in-london-reports>;
 6. Mayor of London, London Plan 'Annual Monitoring Report' (annual), <https://www.london.gov.uk/what-we-do/planning/implementing-london-plan/monitoring-london-plan>.
- 8.6.3 Using these sources the IIA has identified potential monitoring indicators for possible inclusion in the Draft MTS 3 to assess progress towards sustainability objectives. Current TfL and GLA monitoring indicators have been reviewed to identify those which would be suitable for monitoring the IIA objectives. Where there is a gap in the current suite of indicators, potential additional indicators are suggested in Table 8.3 below.
- 8.6.4 A full list of suggested indicators is presented in **Table 8.3** below.

Table 8.3: IIA objectives and proposed indicators

Topic	IIA Objective	Proposed IIA Indicators (2017)	Indicators currently collected by TfL and GLA	Proposed Additional Indicators
Air quality	To reduce emissions and concentrations of harmful atmospheric pollutants, particularly in areas of poorest air quality and reduce exposure	Per capita emissions of "conventional" air pollutants (CO, VOC, NOx, particulates, etc.)*	PM10 emissions NOx emissions	Opportunity to measure black carbon?
		Human exposure to harmful pollutants in most deprived areas	Not included	Additional Indicator Required
Climate change mitigation	To reduce the threat of climate change through reducing greenhouse gas emissions and moving towards a zero carbon London by 2050	Per capita fossil fuel consumption, and emissions of CO2 from transport and other*	CO2 emissions	Additional indicator is not required
Climate change adaptation	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	Flood risk damage to transport infrastructure (£)	Not included	Additional Indicator Required

Topic	IIA Objective	Proposed IIA Indicators (2017)	Indicators currently collected by TfL and GLA	Proposed Additional Indicators
Energy use and supply	To manage and reduce demand for energy, achieve greater energy efficiency, utilize new and existing energy sources effectively, and ensure a resilient smart and affordable energy system	Proportion of energy from renewable sources used by TfL in its operations. Proportion of vehicles by fuel type (diesel/petrol; hybrid; electric; other).	Not included	Additional indicator requested
Flood risk	To manage the risk of flooding from all sources and improve the resilience of people and property to flooding	Flood risk damage to transport infrastructure	Not included	Could number of assets at risk of flooding be a strategic indicator, i.e. number of tube stations, tunnels at risk of flooding?
Geology and soils	To conserve London's geodiversity and protect soils from development and over intensive use	Change in soil contamination as a result of transport infrastructure	Not included	No significant effects – no additional indicator required
Historic Environment	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	Damage/destruction of archaeological sites	Not included	Could number of listed building demolished as a result of new transport infrastructure be a strategic indicator?
Materials and waste	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	% of transport construction waste re-used / recycled	Not included	Additional indicator required
Natural Capital and Natural Environment	To protect and enhance London's biodiversity, including existing statutory and where practicable, non-statutory designated sites, notable and protected habitats and species	Habitat creation, biodiversity net gain	No net loss of Sites of importance for Nature Conservation	Additional indicator required to monitor net gain.
Noise and vibration	To minimise noise and vibration levels and disruption to people and communities across London and reduce inequalities in exposure	Proportion of population exposed to high levels of traffic noise (road, railway and aviation noise)	Not included	Additional indicator required
Water resources and quality	To protect and enhance London's water bodies by ensuring that London has a sustainable water supply, drainage and sewerage system	Change in water quality in rivers and estuaries	Not included	No significant effects – no additional indicator required
Connectivity	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	Average number of basic services (schools, shops and government offices) within walking distance of homes*	Access to services	Additional indicator is not required

Topic	IIA Objective	Proposed IIA Indicators (2017)	Indicators currently collected by TfL and GLA	Proposed Additional Indicators
Infrastructure	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	Proportion of freight carried by rail and waterways	Passengers and freight traffic transported on the Blue Ribbon Network	No additional indicator required
		Freight vehicle kilometres on the road network	Not included	Could the proportion of freight vehicle kilometres on the road network be a strategic indicator?
Economic competitiveness and employment	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	Average ATOS score for access to employment and education from worst 10% of deprived areas	Not included	Partly addressed under Physical accessibility to the transport system. Does not take into account non-physical barriers
Housing Supply, Quality, Choice and Affordability	To provide a quantum, type, quality and tenure of housing (including specialist and affordable provision) to better meet demographic change and household demand	Housing affordability in accessible locations	Not included	Managed and monitored through TfL's Business Plan
		Number of affordable houses built to meet the targets on TfL land	Not included	Managed and monitored through TfL's Business Plan
Accessibility	To maximise accessibility for all in and around London	Proportion of destinations accessible by people with disabilities and low incomes	Physical accessibility to the transport system	No additional indicator is required
Crime, safety and security	To contribute to safety and security and the perceptions of safety	Number of violent assaults and sexual offences on the public transport network, particularly on young women	Not included	Additional indicator is required
		Number of recorded crimes per million passenger journeys*	Crime rates on public transport	No additional indicator is required
Health and health Inequalities	To improve the mental and physical health and wellbeing of Londoners and to reduce health inequalities across the City and between communities	Deaths from circulatory disease*	NO _x and PM ₁₀ emissions Difference in life expectancy between those living in most and least deprived areas	No additional indicator is required

Topic	IIA Objective	Proposed IIA Indicators (2017)	Indicators currently collected by TfL and GLA	Proposed Additional Indicators
Equality and Inclusion	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	Overall transport system satisfaction rating (based on objective user surveys)*	Public transport and customer satisfaction	No additional indicator is required
Social integration	To ensure London has socially integrated communities which are strong, resilient and free of prejudice	Quality of road and street environments*	Road user customer satisfaction	No additional indicator is required
Design	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	Perception and satisfaction with public realm*	Perception of the public realm	No additional indicator is required

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9 Habitat Regulation Assessment Statement

9.1 Background

- 9.1.1 The Habitats and Birds Directives provide the European legal framework for the protection of wild fauna and flora and birds. Under EC Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (the 'Habitats Directive') and Council Directive 79/409/EEC on the conservation of wild birds (the 'Birds Directive'), a network of protected areas for certain habitats and species of conservation importance (those listed on Annexes I and II of the Directives) has been established by EU member states; these areas are known as European sites.
- 9.1.2 A Habitats Regulations Assessment (HRA) of the environmental effects of the Consultation Draft MTS 3 on European sites is required under the Conservation of Habitats and Species Regulations 2010 (as amended) (the Habitats Regulations), that transpose the Habitats Directive into UK law. The Habitats Regulations require all plans (as well as projects) to be assessed by the relevant Competent Authority before permission can be granted. This is to determine if there is likely to be a significant effect on a European site from effects acting either alone, or in combination with other plans or projects. This HRA must be undertaken prior to the plan being adopted.
- 9.1.3 London is a major international city and heavily developed, hence it is perhaps not surprising that the Greater London (GLA) area contains few European sites of nature conservation importance. Only two sites, Richmond Park Special Area of Conservation (SAC) and Wimbledon Common SAC, lie wholly within the GLA area. Three others, Lea Valley Special Protection Area (SPA and Ramsar site), Epping Forest SAC and the South West London Waterbodies SPA/Ramsar site are partially within the boundary. Several other designated European sites of nature conservation lie within the surrounding area. The qualifying interests of the sites (habitats or species for which the site is designated) are sensitive to heavy recreational pressure and such pressure is already an issue of concern at several of them. Other sensitivities include the effects of water quality as a result of pollution and quantity from over-extraction for public supply (e.g. Lea Valley), air pollutants such as nitrogen deposition and acid rain (e.g. Epping Forest), and vegetation succession (e.g. South West London Waterbodies).
- 9.1.4 The policies in the Consultation Draft MTS 3 promote the development of the transport system in the GLA area and sustainable transport. In doing so, the policies also encourage a reduction in the need to travel and the use of more sustainable modes of transport, which will have environmental benefits.
- 9.1.5 A large number of the policies and proposals have no effect on European sites of nature conservation as they include improvements to reliability, safety, passenger comfort, upgrading the tube, or will result in effects (often small and localised) in areas that are well away from any European sites of nature conservation.
- 9.1.6 There are links between policies and proposals in the Consultation Draft MTS 3 and the known sensitivities of designated European sites of nature conservation, largely as a result of specific transport infrastructure projects which are referred to in the Consultation Draft MTS 3 (see below). There appears no reason why any of the projects identified would require land take from any European site of nature conservation, and hence the likely impacts are focused on secondary effects. These include pollution effects on habitats and species arising from air emissions from vehicles, disturbance to habitats and species which could result from increased accessibility to specific areas as the transport system develops especially in areas where the existing Public Transport Accessibility Level (PTAL) is low (e.g. Lea Valley), and water pollution from site drainage. There is also a risk of increased visitor pressure in combination, as a result of additional housing both within the GLA boundary and in surrounding areas, especially if transport links are improved. Other sensitivities such as water abstraction and the effects of vegetative succession are not issues of concern for the Consultation Draft MTS 3.

- 9.1.7 The transport schemes referred to in the Consultation Draft MTS 3 include some which have already been approved. Other proposals include a number of projects within Greater London or which affect the GLA area. Whilst the Consultation Draft MTS 3 recognises the ability of such projects to contribute to future transport development aims in the GLA area, these schemes would likely be progressed through different planning and regulatory regimes by other bodies other than TfL, and so are not being brought forward by the policies and proposals in the Consultation Draft MTS 3 itself.
- 9.1.8 All such proposals would be subject to HRA in their own right, and in their development there will be opportunities for the project design to be developed in a way that maintains the integrity of any European sites of nature conservation which may be affected. European sites of nature conservation are described in the separate HRA report.

9.2 Summary of HRA

- 9.2.1 The Screening assessment has undertaken a review of the baseline data on European sites in the Greater London area, including the sensitivities and vulnerabilities of the qualifying interest features designated within the sites. The policies and proposals within the Consultation Draft MTS 3 were considered against this understanding of the baseline and a determination made on whether any of the European sites could be affected by them.
- 9.2.2 No direct adverse impacts are expected from the Consultation Draft MTS 3. However, adopting a precautionary approach and where development detail is not yet available, the assessment has identified 17 policies or proposals which cannot be concluded at this stage to not have a significant effect on a European site. It is these policies or proposals that the screening assessment has identified as potentially requiring more detailed consideration of the potential effects, once more detail on the specifics of the proposals are available.
- 9.2.3 The policies and proposals likely to require a lower tier assessment of effects are those which may contribute to increased visitor / recreational pressure, resulting in disturbance to bird populations and supporting habitat, fragmentation of habitat, and potential air and water pollution, resulting in adverse effects on European sites.
- 9.2.4 Where it could not be concluded whether policies and proposals would have a significant effect on European sites, recommendations for the likely scope of lower tier assessment, including considerations for the combination of elements in the assessment are provided. Further details are available within the separate HRA report.

10 Conclusions and recommendations

10.1 How the Consultation Draft MTS 3 delivers on the IIA Objectives

- 10.1.1 The integrated impact assessment of significant effects of the draft revised strategy, set out in Chapters 7 and 8, has identified how the Consultation Draft MTS 3 is predicted to perform with respect to the sustainability objectives set out in the IIA Framework. This clearly identifies the central strengths of the Consultation Draft MTS 3, compared to the previous MTS (2010), as progressively addressing sustainability goals such as enhancing health and wellbeing, facilitating more sustainable forms of transport and enhancing opportunities for all. The assessment has also highlighted a significant challenge for the Mayor in terms of improving air quality and the role which transport assumes within this.
- 10.1.2 The IIA assessment is based on the three dimensions of sustainable development: economic, social and environmental. For the purposes of this assessment these have been expressed as the capacity of London transport system to support:
- A strong, sustainable and competitive economy, with new homes and jobs by providing transport infrastructure for all Londoners;
 - Strong, vibrant and healthy communities, by delivering a good public transport experience; safe and pleasant places; and creating a high quality built environment, with accessible local services that reflect the community's needs and support its health, social and cultural well-being for all; and
 - The natural environment, by contributing to protecting and enhancing our natural, built and historic environment; and, as part of this, helping to improve biodiversity, use natural resources prudently, minimise waste and pollution, and mitigate and adapt to climate change, including moving to a low carbon economy.
- 10.1.3 Although the Consultation Draft MTS 3 has not been developed explicitly around these three pillars of sustainable development at the outset, they have been taken forward within the three main themes outlined in the draft transport strategy and have been treated as 'objectives' for the purpose of the IIA. They address different areas of sustainability as well as ensuring that London's transport system is able to accommodate the forecast population and employment growth:
- Healthy Streets and healthy people;
 - A good public transport experience; and
 - New homes and jobs:
- 10.1.4 The IIA assessment of the three main themes has identified potential tensions between the issues raised in chapter 3 and chapter 5 of the draft transport strategy. Some natural potential incompatibility is inevitable between the issues raised in chapter 5 that requires development (such as improving transport infrastructure and the provision of housing) and chapter 3 that tests how the transport system contributes to improving the environment. Therefore, finding the right balance between the issues raised in these chapters was important for achieving sustainable development. For example, the protection of heritage assets could constrain 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. These tensions were addressed through the IIA process by providing a number of recommendations to improve the sustainability of draft transport strategy policies addressing historic assets and the natural environment.
- 10.1.5 At the early stages of the IIA process four priority IIA objectives were identified on the basis of current baseline conditions and trends in order to help focus the later stages of the IIA. The four objectives are:
- (1) *To reduce emissions and concentrations of harmful atmospheric pollutants, particularly in areas of poorest air quality and reduce exposure*

- *(2) 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*
- *(3) To reduce the threat of climate change through reducing greenhouse gas emissions and moving towards a zero carbon London by 2050*
- *(20) To improve the mental and physical health and wellbeing of Londoners and to reduce health inequalities across the City and between communities*

- 10.1.6 The IIA assessment results demonstrate that the Consultation Draft MTS 3 scores positively across the four priority IIA objectives providing significant sustainability benefits in terms of air quality improvement, climate change mitigation and adaptation and improvements in the mental and physical health and wellbeing of Londoners.
- 10.1.7 The Consultation Draft MTS 3 also scores positively on the majority of the IIA environmental objectives. The demand measures are predicted to help reduce volumes of traffic, and traffic congestion and support the achievement of the aim for 80% of trips to be made by sustainable modes of transport by 2041. This would contribute to the beneficial effects predicted against the objectives for air quality, climate change, energy use, historic environment, natural capital and noise.
- 10.1.8 The inclusion of measures to improve green infrastructure (the network of multi-functional greenspace) is likely to meet IIA objectives that relate to environmental aspects of sustainability due to the cooling effect greening can have in an urban environment, and by improving habitat connectivity for wildlife.
- 10.1.9 The Consultation Draft MTS 3 also seeks to reduce traffic congestion and peak period crowding on public transport, improving journey reliability and network resilience, features particularly sought by the business community. The inclusion of Crossrail 2, the Bakerloo extension and other capacity improvements in public transport in the draft strategy is seen as beneficial to meeting IIA objectives for infrastructure, economic competitiveness and housing through providing jobs and supporting housing growth.
- 10.1.10 The Consultation Draft MTS 3 includes measures to promote social integration (IIA objective 22), and inclusion through enhanced accessibility (IIA objective 18) to public transport. For example, the strategy commits to significantly increasing the amount of step free access, and provides ongoing support for targeted services to help alleviate obstacles to accessibility (e.g. Dial-a-Ride which is a free door-to-door service for disabled and older passengers). The barrier of high fares has been addressed through freezing prices and all concessions for older and disabled people will be protected for the Mayor's 4 year term.
- 10.1.11 The Consultation Draft MTS 3 gives particular prominence to policies and measures which promote active travel and should help reduce health inequalities (IIA objective 22), notably through the proposals set out in 'Healthy Streets for people'. Increased levels of physical activity will be supported through the wide range of proposals to facilitate and support walking and cycling as modes of transport. Transport can also have impact on health through the severance of communities, the effect of levels of noise and airborne pollutants and by causing injury and health in collisions. The draft strategy has specific policies and proposals that will help reduce or mitigate these adverse impacts transport on London's communities.
- 10.1.12 Overall, the Consultation Draft MTS 3 conforms with the IIA Objectives as can be seen in **Table 8.1**, and would put appropriate mitigation measures in place to address potential adverse impacts on the natural environment and the community, in particular with regard to noise and vibration, air quality, climate resilience and accessibility.

10.2 Overall sustainability performance of the Consultation Draft MTS 3

- 10.2.1 The results of the assessment have indicated the Consultation draft MTS 3 policies and proposals would generate substantial sustainability benefits across all six elements of the IIA assessment, (EqIA, AEI, SEA, CSIA, HRA and HIA).

- 10.2.2 The Consultation Draft MTS 3 provides a clear strategic approach to delivering improved air quality in London and meeting European limit levels - being targeted at reducing emissions of pollutants arising from transport activities. The policy consistency between the Consultation Draft MTS 3 and the emerging Draft LES is therefore particularly important in order to address and ameliorate poor air quality that can be attributable to transport sources within London. The Consultation Draft MTS 3 includes proposals that will significantly reduce harmful emissions and in conjunction with the emerging draft LES, which targets local action to radically improve air quality, promotes and facilitates the accelerated uptake of vehicles into the fleet that have reduced emissions per vehicle as well as the facilitation of the introduction of electric vehicles.
- 10.2.3 There are also expected to be positive cumulative effects from the wider strategic delivery of proposals to improve air quality across the different strategies, with the LES specifically including short-term proposals to tackle hot-spots of pollution near to schools, hospitals and other sensitive receptors, which together with measures proposed in the Consultation Draft MTS 3 are likely to offer greater sustainability benefits for human health and health inequalities.
- 10.2.4 There is expected to be significant cumulative effects from the promotion and incentivisation elements of the Consultation Draft MTS 3, where Londoners will be encouraged to choose more sustainable patterns of activity and travel modes – to live and travel smarter. When combined with improved transport services and clearer sources of information on which to make these choices in real time, significant cumulative beneficial effects can be expected.
- 10.2.5 There are also likely to be positive cumulative effects on the reduction of the CO₂ emissions, enhancing the natural environment through achieving a net biodiversity gain, promotion of the renewable energy sources, and the delivery of affordable housing in London.
- 10.2.6 The combined role of the forthcoming Mayoral strategies, in particular the Draft LES, will provide a strong overarching strategic approach, where appropriate mitigation and adaptation is provided for.
- 10.2.7 The Consultation Draft MTS 3 provides a clear strategic direction and framework for facilitating delivery of a more sustainable transport network. There is a clear recognition in the Consultation Draft MTS 3 of the need to encourage and deliver a modal shift towards more sustainable and active travel, and measures are proposed to increase the use of public transport, cycling and walking. Detailed policies and proposals have been identified to deliver this.
- 10.2.8 There is also an explicit recognition within the Consultation Draft MTS 3 of the need for flexibility to address future challenges such as adaptation to climate change and its impacts on the transport network, and the Consultation Draft MTS 3 has embedded mitigation in respect of this. Future proofing around issues such as population growth is essential.
- 10.2.9 Despite the overall conformity of the draft transport strategy with the IIA objectives, there is still a room for improvement in some sustainability areas where further enhancements could be employed. A summary of how the Consultation Draft MTS 3 performs across the three dimensions of sustainability, environmental, social and economic is presented below.

Transport and Environment

Air Quality

- Air quality is an important health issue for London and road transport in particular is a major contributor to emissions of the key pollutants. The Consultation Draft MTS 3 along with the Draft LES, present an opportunity to significantly improve air quality over the next twenty-five years, along with its associated health and environmental benefits.
- The Consultation Draft MTS 3 promotes and facilitates the accelerated uptake of vehicles into the fleet that have reduced emissions per vehicle. In particular, the strategy will facilitate the introduction of electric vehicles. The Consultation Draft MTS 3 includes proposals that will significantly reduce harmful emissions from the bus and taxi fleets, and in conjunction with the draft LES, targeted local action to radically improve air quality.

- The Consultation Draft MTS 3 contains policies and proposals regarding traffic reduction. Reduced congestion as a result of traffic reduction proposals is forecast to lead to fewer cars on the roads thus reducing harmful air pollution which negatively affects human health and the environment.
- Policies and proposals in the Consultation Draft MTS 3 are likely to lead to a reduction in car use. A reduction in CO₂ emissions and reduce reliance on petrol and diesel products-fossil fuels will have consequential benefits for air quality.

Measures to specifically address short-term effects of the exposure to harmful emissions around sensitive receptors such as schools and hospitals across the whole of London are expected within the London Environment Strategy.

Noise

- In recent years the health effects of noise have become better understood, although there remain great uncertainties remain in terms of many aspects of the relationship between noise and health. Environmental noise affects the wellbeing of a considerable numbers of people in London. Major roads pass through communities throughout London, and there are inequalities in populations exposed to excessive noise: whilst some people choose to live in locations with high noise levels, others have no choice but to do so.
- There are elements of the Consultation Draft MTS 3, as well as the emerging Draft LES, which address noise-related health inequalities, primarily through reducing the impacts of excessive noise and vibration levels from road transport, encouraging mode shift from travelling by car to public transport, and indirectly by encouraging the use of zero emission (and so quieter) vehicles. These could have significant positive effects on noise levels, particularly for people living in close proximity to main roads.
- There will be some negative noise and vibration impacts due to the disruption resulting from the construction of new transport infrastructure schemes that are likely to increase the proportion of people exposed to noise exceeding the threshold. Although the construction impacts will only be temporary, it will disproportionately affect certain groups.

Climate Change

- Climate change is the single greatest long term problem faced by the population of London and the Consultation Draft MTS 3 has an important role in helping to achieve the Mayoral aims for all the taxis and private hire vehicles to be zero emission capable by 2033, for all buses to be zero emission by 2037, for all new road vehicles driven in London to be zero emission by 2040, and for London's entire transport system to be zero emission by 2050. The proposals within the Consultation Draft MTS 3 seek to improve operational efficiency, the use of low carbon vehicles and carbon efficient travel behaviour.
- The Consultation Draft MTS 3 acknowledges the key issues relevant to health and the effects of climate change such as flooding and the unequal effects that climate change will have on vulnerable populations. However, it does not contain proposals to address these issues but rather commits to undertaking research into the issues and implementing measures based on the outputs of that research. Such measures are likely to take a significant amount of time to implement.
- Proposals seek to ensure that London's transport is more resilient to the impacts of severe weather and climate change, however the Revised Consultation Draft MTS contains no short-term concrete proposals to address the issue, though it is assumed that new infrastructure set out in the strategy will have resilience built in. Whilst demand management measures will reduce some of the causes of climate change by increasing mode shift, greater dependence on public transport increases the risk of London becoming less resilient to climate change unless further action is taken to improve the resilience of existing infrastructure.
- In the long term, the provision of new green infrastructure can play a positive role in absorbing CO₂, reduce 'urban heat island' effects and provide opportunities for increasing habitats and the connections that help enable wildlife to adapt to a changing climate. Taking opportunities to integrate green

infrastructure into the urban transport network is one of the most effective tools in managing environmental risks such as flooding and heatwaves.

- The Consultation Draft MTS 3 is likely to lead to a reduction in car use and thus further reduction in CO₂ emissions. Traffic reduction measures and increased access to public transport will also yield significant CO₂ emissions reductions.

Biodiversity

- The Consultation Draft MTS 3 will also seek to ensure that the development of new transport schemes and the management of existing transport infrastructure protect existing and provides new green infrastructure to deliver a net positive impact on biodiversity.

Transport and Economy

- An efficient transport system is a necessary but not sufficient condition for achieving a strong economy. Generally transport represents only a small proportion of business costs but its perceived importance is often rated highly by business leaders and organisations.
- The Consultation Draft MTS 3 seeks to reduce traffic congestion and peak period crowding on public transport, improving journey reliability and network resilience, features particularly sought after by the business community.
- The traffic reduction measures proposed in the Consultation Draft MTS 3 are likely to lead to considerable reduction in vehicle kilometres and to further reductions in the economic costs of poor air quality. It is also likely that the costs to businesses will be offset by faster journey times. However, there are likely to be distributional economic impacts arising from the additional costs to business. For sectors where road transport represents a high proportion of their operating costs these businesses are likely to experience short term adverse effects when they are unable to pass these extra costs onto their customers.

Social and cultural well-being for all Londoners

Health

- In terms of health it is now well understood that transport is a major determinant of health, providing access to services, health care, education and employment opportunities, all of which are themselves determinants of health. In addition, social capital is also recognised as an important determinant of health and a good transport system provides a means of enhancing social capital, by enabling people to meet with friends and relatives.
- A particular aspect of health that is recognised as being especially significant is physical activity. Increasing levels of physical activity has direct benefits, in terms of reducing a number of diseases including cancers, circulatory diseases, obesity and other physical and mental health conditions. The Consultation Draft MTS 3 has specific measures designed to increase physical activity, notable through the encouragement of walking and cycling as modes of transport.
- TfL supplied modelling indicates that the proposals contained within Consultation Draft MTS 3 will achieve an 80% sustainable mode share by 2041. This would result in significant improvements to health due to the increase in active travel, the decreased level of air pollutants and noise caused by road transport, and the decreased level of injuries and deaths caused by road collisions. It would also reduce community severance (the 'barrier effect' of busy roads) that deters active travel and reduces access to services such as employment, education, shops, and social networks, all of which are important for good mental and physical health.
- The Consultation Draft MTS 3 is expected to make a positive contribution to the natural and built environment by enhancing the setting of historic structures and areas and will contribute to an improved

public realm. This in turn is expected to contribute to bringing communities together, encouraging physical activity, and attracting business and employment to those areas.

- Whilst London meets air quality limits for particulate matter, London will continue to breach the WHO standards in the short-term before achieving a 47% reduction in PM2.5 emissions by 2041 compared in 2013. Therefore, significant health impacts will occur across London with the number of air quality related diseases and deaths likely to rise with an aging population. However, the London Environment Strategy is expected to set specific targets for PM2.5 which are aligned with the WHO standards.

Inequalities

- It is a legal requirement that the Consultation Draft MTS3 should include proposals for providing transport that is accessible to mobility impaired people. However, there are a wide variety of other non-physical barriers to transport use that can prevent social inclusion, for example, affordability, access to and understanding information and apprehension about encountering anti-social behaviour.
- The barrier of high fares has been addressed by ensuring that the fares are frozen and all concessions for older and disabled people are protected for the Mayor's term (4 years). Extension of bus hopper fares to include unlimited transfer will also benefit those groups who tend to be more dependent upon this mode of travel that are not entitled to free travel (e.g., women, BAME and job seekers).
- Many people with sensory or cognitive impairments experience non-physical barriers to use of the transport network. The Consultation Draft MTS 3 does not contain proposals to address non-physical barriers for people with sensory or cognitive impairments. However it will prioritise issues that disproportionately affect some customers more than others. This includes new approaches to dealing with unwanted sexual behaviour and hate crime, improving the confidence of customers to report issues. Implementation of the policies and proposals in the draft strategy will result in more accessible and better integrated public transport and an increase in active transport facilities for all groups, including those who are currently disproportionately affected by lack of access.
- TfL is offering customer information in even more languages and Easy Read formats and looking at whether additional ways to help commuters better plan their journeys. There are plans to ensure that the provision of information and payment platforms are fit for the future. This strong focus on accessibility and inclusivity is also an indication that the plans laid out are future proofed for a more diverse and aging population.
- The draft strategy will likely have positive effects in reducing inequalities in access to clean air. The London Environment Strategy will show the distributional impact of the policies and proposals within the MTS combined with other non-transport policies. This will give more clarity as to whether the overall level of pollution across London will continue to be higher in the poorest communities, indicating that the disparity ratio/pattern across the city in exposure to harmful pollution will continue to persist. This is where the London Plan can play a role in the siting of new affordable housing.
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- The additional connectivity provided by new cycle and walking routes, enhanced urban realm and greater emphasis on safety and inclusivity should reduce the inequalities faced by vulnerable groups due to severance and also provided greater access to employment. For example, the additional river crossings and bridges in East London in particular will reduce severance for the low income families in that area and give them access to more jobs across the river.
- The introduction of traffic reduction measures could have disproportionate impacts on disabled people who are reliant on private vehicles to access employment and leisure opportunities, particularly those who live in areas of Outer London with low levels of accessible public transport, unless, suitable mitigation measures are put in place.

- Traffic reduction measures may have a slight impact on accessibility to jobs that are only accessible by car. However this can be mitigated by plans to ensure greater connectivity across London with more bus routes and alternative modes of public transport to serve the areas which are less accessible.

10.3 Mitigation and enhancement measures recommended

10.3.1 The IIA assessment provided two sets of recommendations to improve the overall sustainability of the Consultation Draft MTS 3. The list of recommendations that the IIA identified as part of the assessment of the Consultation Draft MTS 3 and which remain to be addressed by TfL are presented below:

Integrated Delivery

- The Consultation Draft MTS 3 set out a transport strategy delivery process to ensure a joint up approach across the Mayoral strategies. The combined role of the forthcoming Mayoral strategies, and in particular the Draft LES, will provide a strong overarching strategic approach, where appropriate mitigation and adaptation is provided for.

Recommendation 1: The Mayor should continue using all opportunities for integrated delivery including ongoing review of where synergies between strategies and their policies can be exploited.

CO₂ reductions

- Hydrogen fuelled transport technologies attract significant research and development funds but they are not a CO₂ abatement policy option for the short or medium term. Hydrogen has to be produced using non fossil fuels (nuclear electricity, biomass or other renewable power) if it is to achieve CO₂ abatement. As with biofuels, abatement is maximised when these energy sources are employed directly and displace fossil fuelled electricity generation. Availability of hydrogen refuelling infrastructure can be a potential obstacle to the take-up of hydrogen fuel cell electric vehicles.

Recommendation 2: The Mayor of London should continue providing support to give interested parties the confidence to continue to invest in this new emerging technology, to help to achieve the ambition for almost all new cars and vans to be zero emission by 2050.

Accessibility

- The Consultation Draft MTS 3 includes a package of measures that are likely to improve accessibility for all to historic and cultural environments including embedding accessibility and inclusivity in planning and design, as well as trialling innovative methods to improve wayfinding, such as 'Wayfinder' systems for people with sensory disabilities. However, it does not explicitly address non-physical barriers for people with sensory or cognitive impairments in its proposals

Recommendation 3: The Consultation Draft MTS 3 should include proposals to address non-physical barriers for people with sensory or cognitive impairments in the Consultation Draft MTS 3.

Natural Environment

- To deliver Policy 7, the Mayor will work with stakeholders to establish and regularly monitor a baseline of ecological data in order to demonstrate changes in biodiversity.

Recommendation 4:

Appropriate indicators for ecological data monitoring would need to be included in the TfL monitoring framework to monitor / report regularly to demonstrate positive changes in biodiversity.

11 Next Steps

11.1 The IIA Post Adoption Statement

- 11.1.1 It is a requirement under the SEA Regulations that a Post Adoption Statement is produced. The purpose of this statement is to demonstrate how the SEA, or in this case the IIA, has served to influence the drafting of the final adopted MTS 3.
- 11.1.2 The IIA Statement will be produced after the findings of the consultation period have been taken into account and the MTS completed. This IIA Statement will meet all the requirements of an SEA Post Adoption Statement but will additionally seek to reflect the wider scope of the assessment in respect of its coverage of sustainability.
- 11.1.3 This IIA Report is open for a consultation period alongside the Consultation Draft MTS 3. Upon completion of this period, the consultation responses will be collated and analysed. The findings will be used in the preparation of, and where appropriate revision of, the Consultation Draft MTS 3 prior to its finalisation. The way in which consultation responses have been addressed in finalising the MTS will be set out in the IIA Statement.

11.2 Timeline

- 11.2.1 The twelve week statutory consultation period on the Consultation Draft MTS 3 and this IIA Report is due to commence in June 2017. The review of consultation feedback is therefore due to be undertaken in autumn 2017.

11.3 Comments and Feedback

Any comments relating to the findings of the IIA presented in this report, or the Consultation Draft MTS 3, would be welcomed. Please send all correspondence either to the postal address below or by e-mail to consultations@tfl.gov.uk

The postal address is:
FREEPOST TFL CONSULTATIONS