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Integrated Impact Assessment of the consultation draft Mayor's Transport Strategy 3

Transport for London

IIA Report Appendices

Part II

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Integrated Impact Assessment of the consultation draft Mayor's Transport Strategy 3

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Project Manager:	Mason Baker
Author:	Irina Davis
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Jacobs U.K. Limited

New City Court
20 St Thomas Street
London SE1 9RS
United Kingdom
T +44 (0)20 7939 6100
F +44 (0)20 7939 6103
www.jacobs.com

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Contents

Appendix A. Quality Assurance Checklist

To ensure that the requirements of a Strategic Environmental Assessment (as required by European Directive EC/2001/42) are adhered to, the following quality assurance checklist has been completed. It identifies where in the IIA process the requirements of SEA will be undertaken. The checklist appears in the Practical Guide to the Strategic Environmental Assessment Directive (September 2005, ODPM) and has been adapted for the purposes of this IIA. Those relevant to this stage are highlighted below.

Information requirement of the SEA Directive (defined by Annex I)	Section of the IIA Report
Objectives and Context	
The plan's or programme's purpose and objectives are made clear.	Part 2.1, 2.3
Environmental/Sustainability issues and constraints, including international and EC environmental protection objectives, are considered in developing objectives and targets.	Part 4.3, 4.5
IIA objectives, where used, are clearly set out and linked to indicators and targets where appropriate.	Part 5.1
Links with other related plans, programmes and policies are identified and explained.	Part 4.1
Conflicts that exist between IIA objectives, between IIA and plan objectives and between IIA objectives and other plan objectives are identified and described.	Part 4.1,6.2, 10.1, 10.2
An outline of the contents and main objectives of the plan or programme, and its relationship with other relevant plans and programmes.	Part 2.1, 2.3
Scoping	
Consultation Bodies are consulted in appropriate ways and at appropriate times on the content and scope of the IIA Report/IIA Scoping Report	Part 1.5
The assessment focuses on significant issues.	Part 4.4
Technical, procedural and other difficulties encountered are discussed; assumptions and uncertainties are made explicit.	Part 3.12
Reasons are given for eliminating issues from further consideration.	Part 7.8
Alternatives	
Realistic alternatives are considered for key issues, and the reasons for choosing them are documented.	Part 7.1, 7.2, 7.3, 7.6
Alternatives include 'do minimum' and/or 'business as usual' scenarios wherever relevant.	Part 7.1
The environmental/sustainability effects (both adverse and beneficial) of each alternative are identified and compared.	Part 7.4, 7.5
Inconsistencies between the alternatives and other relevant plans, programmes or policies are identified and explained.	Part 7.5
Reasons are given for selection or elimination of alternatives.	Part 7.6, 7.7, 7.8
Baseline Information	
Relevant aspects of the current state of the environment and their likely evolution without the plan or programme are described.	Part 4.4, 4.5
Environmental characteristics of areas likely to be significantly affected are described, including areas wider than the physical boundary of the plan area where it is likely to be affected by the plan.	Part 3.11
Difficulties such as deficiencies in information or methods are explained.	Part 3.12
Prediction and evaluation of likely significant environmental/sustainability effects	
Effects identified include the types listed in the Directive (biodiversity, population, human health, fauna, flora, soil, water, air, climate factors, material assets, cultural heritage and landscape), as relevant; other likely environmental effects are also covered, as appropriate.	Part 7.5, 10.1, 10.2
Both positive and negative effects are considered, and the duration of effects (short, medium or long-term) is addressed.	Part 7.5, 10.1, 10.2
Likely secondary, cumulative and synergistic effects are identified where practicable.	Part 8.3

Inter-relationships between effects are considered where practicable.	Part 7.5, 8
The prediction and evaluation of effects makes use of relevant accepted standards, regulations, and thresholds.	Part 7.5, 8
Methods used to evaluate the effects are described.	Part 6.1, 6.3
Mitigation measures	
Measures envisaged preventing, reducing and offsetting any significant adverse effects of implementing the plan or programme are indicated.	Part 8.4, 8.5, Part 10
Issues to be taken into account in project consents are identified.	Part 8.4. 8.5, Part 10
The IIA Report	
Explains the methodology used.	Part 6
Explains who was consulted and what methods of consultation were used.	Part 1.5
Identifies sources of information, including expert judgement and matters of opinion.	Part 6
Contains a non-technical summary covering the overall approach to the IIA, the objectives of the plan, the main options considered, and any changes to the plan resulting from the IIA.	A separate NTS has been prepared to accompany the Draft IIA Report
Consultation	
The IIA is consulted on as an integral part of the plan-making process.	Part 11.3
Consultation Bodies and the public likely to be affected by, or having an interest in, the plan or programme are consulted in ways and at times which give them an early and effective opportunity within appropriate time frames to express their opinions on the draft plan and IIA Report.	Part 1.5, 11.3
Decision-making and information on the decision	
The IIA Report and the opinions of those consulted are taken into account in finalising and adopting the plan or programme.	Part 3.10
An explanation is given of how these have been taken into account.	Part 3.10
Reasons are given for choosing the plan or programme as adopted, in the light of other reasonable alternatives considered.	Part 7
Monitoring measures	
Measures proposed for monitoring are clear, practicable and linked to the indicators and objectives used in the IIA.	Part 8.5, 8.6
Monitoring is used, where appropriate, during implementation of the plan or programme to make good deficiencies in baseline information in the IIA.	Part 8.6
Monitoring enables unforeseen adverse effects to be identified at an early stage.	Part 8.6
Proposals are made for action in response to significant adverse effects.	Part 8.6

Appendix B. TfL Responses to representations on MTS IIA Scoping Report (November 2016)

Organisation	Part of the Document	Issues raised	TfL Response
Environment Agency, Forestry Commission and Natural England	**Four priority IIA objectives**, p. V.	Is there any scope to include something here about achieving a natural capital net gain by....? This would help tie together some of the other objectives.	The IIA cannot seek to achieve this itself as it is not a strategy – this comment has been referred to the MTS strategy team. No change.
	Table 1: Proposed IIA Objectives, Climate Change adaptation and mitigation objective p. vi.	Is there scope to target land owners whose estates directly impact on London strategic transport networks to prioritise GI interventions designed to minimise, contain or slow surface water run-off?	This question was redirected to the MTS strategy team, rather than the IIA. No change.
	Flood risk objective, p. vi.	and transport infrastructure…	Agreed, although should not be limited to just transport as this objective will be used across all GLA strategies. We will amend objective to: To manage the risk of flooding from all sources and improve the resilience of people, property **and infrastructure** to flooding. Amended.
	Natural Capital and Natural Environment objective, p. vii.	Excellent and delighted to see, can this be extended to push towards a wider net positive for natural capital as a whole? Is it also worth mentioning about connecting between and across London and the surrounding countryside i.e. to encourage links beyond the political boundary of the GLA?	This will be reflected in the IIA questions posed of each strategy, not in the overall IIA objective. No change.
	Infrastructure objective, p. vii.	and maintained…. Provide multi-functional outcomes as well as meet populations etc....	This is implicit in 'managed' but can also be considered in the questions. This complicates the IIA objective too much and could be confusing. No change.
	Economic competitiveness and employment, vii.	Can we add a reference in here to this being underpinned by the capital's natural capital?	This would become too much like a policy and we already have an objective on natural capital. No change.

Organisation	Part of the Document	Issues raised	TfL Response
	Sustainable Land Use, p. vii.	Cross-reference back to development delivering net positive outcomes.	This is implicit in 'best' use of land, etc. We could also consider having an IIA question referring to net positive outcomes.

Amended. New guide question has been added. |
| | Housing, Supply, Quality, Choice and Affordability, p. vii. | Include a reference to the residents of these dwellings having access to high quality greenspace? | This can be covered in the IIA questions where relevant - and also it would not actually be appropriate for some of the GLA strategies so the objective should not change.

No change. |
| | Health and health Inequalities, p. vii. | Highlight the inter-dependencies between attaining this outcome and the quality of the environment. | This is noted and can be addressed via the IIA questions.

No change. |
| | Design, p. vii. | Can we include a reference to the importance of attractive and well-designed infrastructure in here too? e.g. HS2 and Highways England have design panels, can we also ensure high quality infrastructure design for London. | There is already a separate IIA objective for infrastructure.

No change. |
| | **Chapter 2: The Mayor's Transport Strategy,** About the Strategy, p. 5 | In line with the SEA Directive, it would be helpful for Section 2 of the Scoping Report to clarify what 'reasonable alternatives' / options (if any) the IIA process will appraise. It's left unclear currently whether the revised Transport Strategy is fixed or whether TfL considered a range of strategy options to meet IIA objectives? If Jacobs are assessing just the one strategy option, how was that selected? The clarification need not be lengthy, just more transparent. | At the time of drafting the IIA Scoping Report the MTS alternatives were not yet developed so it was not possible to say with any clarity what these could be in the Scoping Report. The transport strategy was not yet developed, let alone fixed.

The SEA Directive does not specify that the Scoping Report needs to include detail of the strategy alternatives.

No change. |
| | **Table 3.1: Groups with protected characteristics:** Sexual Orientation, p. 11. | and heterosexual! | Noted and amended. |
| | **Chapter 3 Integrated Impact Assessment purpose,** | Spatial / temporal scope of the IIA, it rightly says the report will take account of potential impacts on adjoining areas outside the GLA boundary. However, I did not see much 'back up' in the following | The Greater London Authority area is the area considered to be significantly affected by the MTS, rather than adjoining areas, which |

Organisation	Part of the Document	Issues raised	TfL Response
	process and approach. Section 3.11: Spatial and temporal Scope of the IIA.	report of such effects, in line with the SEA Directive requirement to include 'the environmental characteristics of areas likely to be significantly affected'.	are not likely to be significantly affected. The report will take account of any impact on adjoining areas but it is unlikely they will be significant. No change.
	Chapter 4: Identifying other plans, programmes and sustainability objectives (Task A1). Section 4.2: Implications of the Policy Review, Natural Environment, p. 17.	it would be helpful to have a reference to '… and green infrastructure' as it's not just about 'green spaces', and impacts on GI in terms of connectivity and functionality, and the potential contribution of the MTS seems a little under-represented in the Scoping Report.	Agreed. Suggested text has been added.
	Climate Change, p. 17.	Suggest this includes the 'need to adapt to and mitigate for the increased likelihood of extreme weather events, and temperature rises'. That would cover matters like flooding, and urban heat island effects etc. which the report subsequently talks about.	Agreed. Suggested text has been added.
	Chapter 5: Baseline Information and key sustainability issues in London (Tasks A2 & A3). Section 5.1: Overview, p.19.	The SEA Directive (Annex I) requires the assessment of secondary, cumulative, and synergistic effects. The IIA Scoping Report contains limited reference to the assessment of cumulative effects, between GLA area and outside London. Maybe remedy this with a new sub-section in Section 5, Table 5.2 on 'Cumulative and trans-boundary effects'.	Jacobs to consider adding a section on 'cumulative and trans-boundary effects' when drafting Environmental Report. It would not be beneficial to add to the scoping report table 5.2 as this is not necessarily forming the structure of the Environmental Report. The IIA Full Report will set out the predicted cumulative impacts across the Draft Revised MTS, Draft London Plan, and Draft LES. Noted and will be reflected in the future IIA Report.
	Table 5.1: Key issues (and subsequent topic areas) for baseline Air Quality – Habitats Regulation	Applicable.	Agreed and amended.

Organisation	Part of the Document	Issues raised	TfL Response
	Assessment (HRA), p. 20.		
	Noise and Vibration – Habitats Regulation Assessment (HRA), p. 20.	Applicable.	Agreed and amended.
	Chapter 5: Baseline Information and key sustainability issues in London (Tasks A2 & A3). Section 5.2: Identifying significance of issues for the MTS, p. 23.	Maybe include a new sub-section in Table 5.2 on 'Cumulative and trans-boundary effects'? Should reference any baseline data / plans available which are not GLA / London-generated.	Repeat of comment above. Jacobs to consider adding a section on 'cumulative and trans-boundary effects' when drafting Environmental Report. It would not be beneficial to add to the scoping report table 5.2 as this is not necessarily forming the structure of the Environmental Report. Noted and will be reflected in the future IIA Report.
	Table 5.2, Air Quality – Indicator, p.26.	Doesn't mention ozone, maybe it should as it's an increasing problem. Transport produces precursor chemicals for ozone formation. However a lot are also trans-boundary pollutants and if they achieve their aims for PM10, NO_2 it will reduce emissions of the precursors as well. If it does include, same would thus apply to Table 7.2.	Due to its transboundary nature and, as stated, the fact that actions we take which reduce the other pollutants will also reduce ozone, it is not necessary to include it. No change.
	Natural Capital and Natural Environment – Targets p, 27.	Section does not reference the TfL 'Net biodiversity gain' that both TfL and CR2 are looking to adopt. Can we check that the estate owned or maintained as transport infrastructure is also being included?	Noted.
	Natural Capital and Natural Environment – Current quantified data, p. 27.	An exercise on collation of existing natural environment data in relation to transport assets is required in order to inform strategic transport infrastructure planning. TfL recognises that it holds significant (but by no means complete) data sets of this type – but it's piecemeal in regard to storage and use. It would allow for a baseline to be established and therefore inform on Net Positive gain and offer a strategic way forward for protection and enhancement of the natural environment (as adopted by other transport infrastructure providers).	Noted. Will be considered in the MTS development.
	Natural Capital and Natural Environment – Key issues, p. 27.	Suggest Delete - Protecting green spaces Replace with - Protecting and improving the functionality and connectivity of green spaces, and avoid the erosion of.	Agreed and amended.

Organisation	Part of the Document	Issues raised	TfL Response
	Climate Change adaption, mitigation and energy – IIA Topics, p. 28.	Highlight the connections between and opportunities for win-wins between this and the environment section before i.e. GI delivering multiple benefits.	Agreed, brief mention of connections would be beneficial. Agreed and amended.
	Climate Change adaption, mitigation and energy – Targets, p. 28.	Is there anything about targets around transport infrastructure adaptation to enhance resilience to climate change i.e. use of SUDs, vegetated cooling etc.	There were no targets provided. No change.
	Climate Change adaption, mitigation and energy – Key issues, p. 28.	Suggest insert - including storms, flash surface water floods and increase fluvial flows and Sea level rise and drought.	Agreed and amended.
	Climate Change adaption, mitigation and energy – Likely significant impacts on...Equality groups, p. 28.	Suggest this section includes a comment on ensuring CC measures are win-wins (e.g. unintended AQ impacts from switch to biomass boilers).	Noted. No change agreed.
	Historic Environment – Key issues, p. 30.	Cultural heritage – Recognition needed on the role that GI plays in supporting the protection and enhancement of heritage assets.	Noted.
	Employment – Trends, p. 31.	odd stat. Is that date correct?	Noted and amended in the Scoping report.
	Flood Risk – IIA Topics, p. 33.	tie back to climate change adaptation Suggest adding groundwater flooding as an additional topic in this section.	
	Flood Risk – Indicator, p. 33.	Suggest adding a further indicator - Cost to London of transport disruption or closure.	This is very difficult and resource consuming to calculate. Also several transport modes are not within TfL's jurisdiction so we would not be able to give a complete picture. No change necessary.
	Flood Risk – Targets, p. 33.	Could we assist with the establishment of a target for the resilience of the transport network to flooding?	Referred to strategy team. Will be addressed through monitoring indicators.
	Flood Risk – Current quantified data, p. 33.	This seems to only be related to the LUCRFR, while this is a useful picture there is more data available from the TE2100 project and the Surface Water Management Plans that could be collated. The 'annualised' flood risk is not easy to	The data has been provided by TfL.

Organisation	Part of the Document	Issues raised	TfL Response
		understand-what exactly has been calculated?	
	Flood Risk – Evolution without the MTS review, p. 33.	Suggest delete - fluvial and coastal Replace with - tidal flooding & fluvial flooding. Not sure of the provenance of this data and it may need to be fully referenced.	Agreed and amended. Agreed and amended.
	Flood Risk – Likely significant impacts on Economy, p. 33.	Should include cost to London if transport closed/disrupted for a period of time. I believe TfL holds this data so should be able to have as an indicator.	As per response to similar comment above, we do not have the complete picture as we do not control all of London's transport. No change.
	Housing Supply, Quality, Choice and Affordability – Likely significant effects on Equality, p. 35.	Suggest inclusion of an additional point - impact on natural environment and air quality (domestic emissions).	Agreed and amended.
	Design – Key issues, p. 36.	It is good that this is recognised.	Noted.
	Design – Likely significant impacts on Environment, p. 36.	Add: biodiversity and air quality.	Agreed and amended.
	Materials and Waste – Indicator, p. 37.	Suggest additional indicator amount of materials and waste transported sustainably' i.e. river or rail.	Agreed and amended.
	Water resources and quality – Key issues, p. 39.	Suggest insert - and surface water run-off.	Agreed and amended.
	Chapter 6: Key Issues **Table 6.1: Key Issues.** Air Quality – Evolution in the absence of the MTS review, p. 41.	..and continued significant impact on public health.	Agreed and amended.
	Natural Capital and Natural Environment – Key issues, p. 41.	insert - *and connectivity between areas green space.*	Agreed and amended.
	Chapter 7: Integrated Impact Assessment Framework (Task A4). Table 7.2: Integrated Impact	and reduce costs to economy through fewer hospital admissions.	Agreed and amended.

Organisation	Part of the Document	Issues raised	TfL Response
	Assessment Framework, Environmental – Air Quality, p. 48.		
	Table 7.2: Integrated Impact Assessment Framework, Environmental – Climate change adaption and mitigation, p. 48.	contribute to species & habitat resilience.	Agreed and amended.
	Table 7.2: Integrated Impact Assessment Framework, Environmental – Climate change adaption and mitigation, p. 49.	Suggest additional question - ·ensuring CC measures are win-wins (e.g. unintended AQ impacts from switch to biomass boilers).	Noted.
	Table 7.2: Integrated Impact Assessment Framework, Environmental – Flood risk, p. 49.	Questions not very robust. Could look at reducing risk to critical infrastructure, avoiding development in FR areas not minimising (depending on type of risk), or managing appropriately all development at risk of flooding.	Agreed and amended.
	Table 7.2: Integrated Impact Assessment Framework, Environmental – Materials and waste, p. 50.	Suggest three additional questions - · 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?	Agreed and amended.
	Table 7.2: Integrated Impact Assessment Framework, Environmental – Natural Capital and Natural Environment, p. 50.	Valuing natural capital can support the delivery of wider benefits. Suggest additional question - 'Enable the utilisation and management of green space and corridors associated with transport operations conserve, enhance and create natural and semi-natural habits?	Agreed and amended.
	Table 7.2: Integrated Impact Assessment Framework, Economic – Connectivity, p. 51.	role for GI to support this objective Suggest additional question - Will there be additional noise impacts on designated habitats?	Agreed and amended.
	Table 7.2:	Suggest additional question -	Noted. It was covered under

Organisation	Part of the Document	Issues raised	TfL Response
	Integrated Impact Assessment Framework, Economic – Economic competitiveness and employment, p. 52.	Does the strategy encourage the adoption of a more 'circular economy' approach to transport delivery, minimising waste and maximising the re-use and recycling of the waste that is generated?	waste topic. No change.
	Table 7.2: Integrated Impact Assessment Framework, Social – Accessibility, p. 52.	Valuing natural capital can support the delivery of wider benefits.	Noted.
	Table 7.2: Integrated Impact Assessment Framework, Social – Design objective, p. 54.	Suggest insert - reduce energy consumption, reduce the use of materials in construction and facilitate the reuse and recycling of materials upon demolition/refurbishment	Noted. This is covered already in the materials & waste, and energy reduction objectives.

No change. |
| | **Appendix F: Supporting Data for Baseline** Physical Activity, p. 130. | Green infrastructure could help deliver more inviting streets by contributing to AQ improvements, shading, places to rest e.g. through living walls and roofs, street trees, pocket parks etc. | Noted. |
| | **Appendix F: Supporting Data for Baseline** Natural Capital and Natural Environment- Summary of key issues, opportunities, implications from the Policy review and IIA objectives, p. 147. | Support this objective for net positive gain

Connectivity through green transport corridors and also consider green bridges to connect habitats severed by transport routes and provide walking/cycling routes. | Agreed and amended. |
| | **Appendix F: Supporting Data for Baseline** Climate Change adaption and mitigation - Summary of key issues, opportunities, implications from the Policy review and IIA objectives, p. 151. | Also note GI in terms of green walls... living roofs, green transport corridors, street trees etc. | Noted. Covered under natural capital and natural environment. |
| | **Appendix F: Supporting Data** | Recognise benefit of tree and shrub planting to help reduce perception of | Agreed and amended. |

Organisation	Part of the Document	Issues raised	TfL Response
	for Baseline Noise and Vibration – Summary of key issues, opportunities, implications from the Policy review and IIA objectives, p. 167.	noise.	
	Appendix G: IIA objectives and proposed indicators. Environment – Natural Capital and Natural Environment – Proposed IIA indicators, p. 175	Is there an opportunity to monitor habitat creation here?	It will be discussed with TfL at a later stage. No change
	Appendix G: IIA objectives and proposed indicators. Social – Design – Proposed IIA indicators, p. 178.	Monitor biodiversity gain / habitat creation.	It will be discussed with TfL at a later stage. No change
Just Space	Engagement and Consultation	TfL should be mindful of the increasing range of subjects and topics dealt with by an IIA. It is increasingly important to have societal analysts and representatives of community organisations beyond the prescribed bodies to broaden scrutiny and inputs. TfL should follow the Supreme Court's endorsement on fair consultation exercises. However currently Scoping Report is not to be found on the TfL website. And public consultation of the IIA Report alongside the draft revised MTS is not to take place until 'Stage D' this it too late in the process. 'Stage B' is not planned to be opened to wider public; however the interested persons should be consulted and informed.	Noted. The MTS, and the IIA which is to be done in respect of it, are subject to statutory consultation processes. When the GLA or TfL consider that it is appropriate to consult more widely than is prescribed by statute then it does so. In respect of the IIA Scoping Report, it was provided to the Consultation Bodies as is required, but also to stakeholders through a targeted consultation. Given the technical nature of the document and also the fact that the IIA itself will be separately consulted on, a wider consultation was not considered necessary at that stage. The public will have

Organisation	Part of the Document	Issues raised	TfL Response
			the opportunity to comment on the draft MTS and IIA at a stage which can still be described as formative and will be able to influence the final documents. Parliament saw fit to design a consultation process for the MTS and the IIA and the GLA and TfL intend to fully comply with the requirements imposed.
	Proposed Approach to a Revised Strategy	The approach to the MTS set out in the Scoping Report appears to be driven entirely by the predicted population and trip growth aiming to accommodate this growth, and does not fully recognise the social dimension of sustainable development. Nor does it recognise the 'Fairer and More Equal City' advanced by the Mayor. The social dimensions of inclusion, fairness and social integration must be taken into consideration whilst developing the MTS.	The Scoping Report does not set out in any detail the MTS - lack of consideration of these social dimensions should not be assumed. Inclusion, fairness and social integrations were very much taken into consideration whilst developing the MTS.

No change. |
| | Baseline Data/Key Sustainability. Issues | Whilst the tabulated information (table 5.2) clearly sets out many IIA topics, it does not set out all IIA topics as promised (para 5.2.1 & 7.1.9) – that table 5.2 summarises baseline data across all IIA topics.

The social dimension is significantly underrepresented in the table. This in turn seems to have steered the overwhelmingly environmental content of the identified 4 priority objectives (para 7.1.9). Without meaning to downgrade or 'de-prioritise' these 4 objectives, social and economic sustainability is neglected or side lined. This is perplexing given that elsewhere the 3 dimensions are clearly addressed (table 7.2).

Note that there are incorrect references to 25 IIA objectives (para 7.1.7) and no.24 objective (table 7.1). There are only 23 objectives (table 1 & Appendix G). | Some of the topics were grouped in Table 5.2 in order to summarise.

Table 5.2 represents a summary table to set out which issues are slightly more pertinent than others in the context of transport strategy. The table was not designed to repeat what has already been said in the document elsewhere. The 4 objectives represent a balance between social, economic and environmental priority issues.

The incorrect references to the number of IIA objectives is noted and amended. |
| | Supporting data for baseline (appendix F) | Economic Competitiveness: about half of London's jobs and businesses lie outside the Central Activities Zone. Agglomeration may favour the financial and business | Noted. |

Organisation	Part of the Document	Issues raised	TfL Response
		service sectors but not much of London's real and local economic activity. Diseconomies of agglomeration are not restricted to congestion but include, for example, health dis-benefits through increased pollution and stress, out competition and extinguishment of valued activities supporting wider economic activity or emerging businesses and sectors. The GLA draft Economic Evidence Base February 2016, which has informed the Scoping Report, has received a critical appraisal here https://justspace.org.uk/2016/05/28/what-london-economy/ .	
	Objectives and Indicators	Air Quality 1: should be updated to reflect recent High Court judgement confirming "shortest possible time" by adding this phrase to this objective.	This comment is more relevant to a policy rather than an IIA objective, and was therefore referred to the strategy team for their consideration.

No change. |
| | | Energy 4: address fuel poverty (remember these objectives will apply to other strategies). | Fuel poverty is covered in the relevant policy and questions. We do not think it would be appropriate to amend the IIA objective.

No change. |
| | | Sustainable Land Use 15: add to indicator's reference to Green Belt, MOL which has policy equivalence in the current London Plan. | This is implicit in 'best' use of land, etc. Consider having a question referring to net positive outcomes.

No change. |
| | | Accessibility 18: [proposed] indicator's reference to 500m should be substantially reduced in distance to, say 200m. [Ref Appendix G] | Agreed and amended. |
| | | Design 23: add lifetime to neighbourhoods to reflect current London Plan policy on lifetime neighbourhoods. | Not applicable as this is policy (in the current London Plan, not necessarily in the new one), and not suitable for an objective.

No change. |
| Public Health | Four Priority | To reduce emissions and concentrations | Noted. |

Organisation	Part of the Document	Issues raised	TfL Response
England	Objectives	of harmful atmospheric pollutants Adapts to the impacts of climate change and extreme weather events To reduce the threat of climate To improve the mental and physical health and wellbeing of Londoners and to reduce health inequalities communities	
	Public Health Outcomes Framework (PHOF)	The IIA scoping report does not appear to make reference to the PHOF. The PHOF provides a range of indicators that assist with understanding how well public health is being improved and protected.	Noted. Will be reviewed to inform monitoring indicators.
	Table 1: Specific Comments, Section 1.1.5	The IIA should not simply aim for high level of environmental protection but also identify areas for improvement.	That is the role of the MTS not the IIA. The IIA is done to highlight the potential impacts of the proposed plan (and alternatives) in order to influence decision making, improve the positive impacts and propose mitigation for negative ones. No change.
	Section 5.1.8	The choice of London sub regions is not clear and does not appear to map against other normally used boundaries.	These were determined in the London Plan, published by the GLA, and are well established. No change.
	Table 7.2 IIA topics – Air Quality	Check data within targets as it currently refers to annual mean objectives for PM10 twice, whilst NOx is not included. The statements within the evolution without the MTS review would benefit from references for justification of the assumptions	There is some duplication in the questions. Amended.
	Table 7.2 IIA topics - Natural capital and natural environment	There is significant and growing evidence on the health benefits of access to good quality green spaces over and above physical activity – see reference below	This is already reflected in the IIA questions specific to the MTS. No change.
	Table 7.2 IIA topics - Housing supply, quality, choice and affordability	The likely significant impacts on health are listed as levels of physical activity. New and existing developments should be encouraged to maximise opportunities for active travel through provision of appropriate infrastructure (e.g. cycle lanes, cycle parking). TfL has an opportunity to support some of the more vulnerable communities through improving access to public transport and active travel opportunities especially as most vulnerable Londoners are beginning	This is already reflected in the IIA questions specific to the MTS. No change.

Organisation	Part of the Document	Issues raised	TfL Response
		to occupy many of the outer London boroughs and will experience longer commutes by bus.	
	Table 7.2 IIA topics – Health and health inequalities	The targets currently only refer to physical activity metrics, consideration is needed of links between air pollution and health inequalities	This is already reflected in the IIA questions specific to the MTS.

No change. |
| | Table 7.2 IIA topics - Design | Active travel for all ages can be enabled through design of built environment and so it would be helpful to see considerations included such as non-slip/ trip road surfaces/ lighting/ benches/ safe public conveniences | This is already reflected in the IIA questions specific to the MTS.

No change. |
| | Appendix F: Air Quality – ref Page 140 | Figure 5.25 annual mean PM2.5 concentrations 2013 mislabelled should read Figure 5.26 | Agreed and amended. |
| Historic England | Purpose of the IIA Scoping Report. Table 1.1, para 3.1.2 | The transport system's role should be to support all environmental issues, not starting from natural environment. | The text for the IIA Scoping report has been developed in conformity with the wording in the NPPF.

No change. |
| | Identifying other plans, programmes, and sustainability. Para 4.2.1 | Thorough research of current national policy and guidance, legislation and Historic England must be undertaken to improve the reports accuracy. In addition, landscape, townscape and public realm should be taken into account when discussing heritage. | The detail of what was reviewed by Jacobs can be found in Appendix A (updated version sent to all stakeholders consulted on 27th October 2016). This was considered sufficient.

No change. |
| | Baseline information and key sustainable issues in London. Table 5.1 | Heritage should have an economic dimension, as it has been noted that heritage isn't taken into consideration in the Assessment of Economic Impacts. | Heritage is an issue, but is not a key issue directly addressed and to be solved by the transport strategy.

No change. |
| | Identifying significance if issues for the MTS. Table 5.2 | The definition of the historic environment needs to be broadened out in line with national policy. The data gathered has focused only on designated heritage assets and not considered other forms of heritage assets by local planning authorities, such as a locally listed buildings and areas of special character. The key issues could be expanded to recognise that all forms of infrastructure improvements, including major, can have | The data includes other forms of heritage assets such as listed buildings. More local data would be relevant to a local plan, rather than a strategic level London transport strategy.

Changes have been made. |

Organisation	Part of the Document	Issues raised	TfL Response
		an impact both positive and potentially negative on the significance of all types of heritage assets. 'Likely significance impacts on….' Could be expanded to include impacts upon the significance of all heritage assets and the heritage interests found in the wider historic environment. Suggested that further details need to be provided across all of the headings including indicator, targets, current quantified data etc.	Jacobs included all data that was available at the time for this sustainability topic.
	Key issues. Table 6.1	Under the topic of Historic environment, all types of heritage assets as well as those that may be impacted on must be considered.	This table is a summary of only the key issues picked up by the IIA baseline review relevant to the transport strategy, and cannot be exhaustive. No change.
	Integrated Impact Assessment Framework. Table 7.2	Under Historic Environment, Historic England would suggest the assessment guide questions could be amended to reflect national policy and its approach to management of the historic environment.	The questions have been reviewed. This suggestion is more relevant for the objectives for local development plans and neighbourhood development. No change.
	Appendix A-Summary of the most relevant plans and programmes	It is suggested that the list provided in Historic England's advice on Strategic Environmental Assessment, Sustainability Appraisal and The Historic Environment should be reviewed.	Reviewed and amended.
	Appendix F-Supporting Data for Baseline	Information generally acceptable. However it is clear that the information provided appears not to have been carried forward into the main body of the scoping report. The information issued on Townscape is very limited, even though it was identified as a component of the topic area.	Main body of the report focuses on the most significant issues in the context of the transport strategy, with all relevant baseline data for each sustainability issue presented at the end of the document to avoid unnecessary repetition and to make the Report more accessible and easy to read. No change.
Appendix A			
Environment Agency, Forestry	Air Quality	Could perhaps cross ref Borough AQ Action Plans (as a group) and the London Local Air Quality Management regime and	The Appendix A summaries relevant plans, programmes and strategies. Research,

Organisation	Part of the Document	Issues raised	TfL Response
Commission and Natural England		guidance https://www.london.gov.uk/WHAT-WE-DO/environment/pollution-and-air-quality/working-london-boroughs	monitoring reports, guidance documents and commissioned advice is deliberately not included in Appendix A; thought these types of documents have been used to inform the scoping of key issues. Noted - no change.
	Climate Change Risk Assessment, Defra, 2012	CCRA and NAP (p74) are due for review - due by 2017, Some themes and objectives may change at this point, so this review needs to be considered	The baseline data information cut-off date is September 2016. Future reviews of the plans, programmes and policies are not included in the Scoping Report after this date. Noted – no change.
	River Basin Management Plan (RBMP) for the Thames River Basin District (20016)	This should refer to 2015 Plan.	Noted – changes have been made.

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Appendix C. Baseline data across all IIA topics and analysis of trends

Extracted from IIA Scoping Report (November 2016)

IIA Topics	Indicator	Targets	Current quantified data	Trends	Evolution without the MTS review	Key issues	Likely significant impacts on…	Present condition/ Level of significance for MTS
Population	Total population population change	N/A	London is bigger than ever before with approximately 8.7 million residents. Population is not distributed evenly across the region with more densely populated areas in inner London. The most densely populated boroughs are Islington, Kensington & Chelsea and Hackney[1]. London has a younger age structure than the rest of the UK. 11% of London's population was over the age of 65 in 2015. Since 2001, London's population has increased by more than 1.3 million people.	London population is projected to increase over 10 million inhabitants by 2036. By 2041 the number of Londoners over 70 will have increased by 85%[2]. By 2041, London's population is expected to reach 10.5 million.	A 30% increase in demand on public transport by 2041. Accessibility will be compromised by rising crowding, the biggest barrier to public transport for disabled customers.	Managing growth in a sustainable way. Providing enhanced capacity on the transport system to accommodate for rapidly growing population. Increased pressure on capacity of public transport and highway networks to meet forecast demand.	**Environment** – resources and natural capital **Equality groups** – the most deprived **Economy** – supporting London's competitiveness	Significant issue for MTS

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[1] GLA estimates (Oct 2016)
[2] MTS Challenges and Opportunities Evidence Base v.5

IIA Topics	Indicator	Targets	Current quantified data	Trends	Evolution without the MTS review	Key issues	Likely significant impacts on…	Present condition/ Level of significance for MTS
Accessibility Refers to: Ability of all people to access the transport system and its infrastructure, including those with physical, sensory or cognitive impairments	Access to jobs and services Travel by people with a disability composite physical accessibility score (%) Customer satisfaction/perception of journey experience		Composite physical accessibility score (%): 2012 – 44 2013 – 46 2014 – 50 2015 – 54 2016 – 59 Average trip rate for disabled Londoners is 1.6 trips per person per day, compared to 2.4 for those without a disability.[3] However, disabled people make fewer work and education trips than the average London resident. Average trip rate for disabled Londoners is 34 per cent lower than for non-disabled people.	Improvements made but significant barriers remain for many groups. ⬆	Accessibility to public transport stations may not improve. Accessibility will be compromised by rising crowding, the biggest barrier to public transport for disabled customers.	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.	**Equality groups** – people on low incomes, older people and disabled people **Health** – community cohesion **Health** – levels of active travel / physical activity **Economy** – access to employment opportunities **Safety** – levels of actual and perceived crime	Significant issue for MTS MTS has a direct impact on this issue which affects a variety of IIA topics and is pertinent from the equality, health and economic perspectives.

[3] MTS Challenges and Opportunities Evidence Base v.5

IIA Topics	Indicator	Targets	Current quantified data	Trends	Evolution without the MTS review	Key issues	Likely significant impacts on...	Present condition/ Level of significance for MTS
			Older Londoners make fewer trips, especially Londoners over 70 years of age, and tend to walk or catch the bus more than average. But 45 per cent of older people also drive a car at least once a week. Overall customer satisfaction with the TLRN is measured on a quarterly basis and expressed in terms of a score out of 100. Recent scores have typically been around 70. <u>Customer satisfaction 2015/2016 (%)</u>[4] Buses 86 Underground 89 Overground 84 Tram 90.					

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[4] MTS Challenges and Opportunities Evidence Base v.5

IIA Topics	Indicator	Targets	Current quantified data	Trends	Evolution without the MTS review	Key issues	Likely significant impacts on…	Present condition/ Level of significance for MTS
Connectivity Refers to: One's ability to reach employment, education, shops, recreation, friends, family and health and social services measured by whether the infrastructure is in place and whether it is able to accommodate demand	People's access to jobs Public transport reliability Public transport capacity		Central London has greater accessibility to public transport than those living in outer London. East London has fewer connections across the River Thames. The cross-river bus network in east London is poor. Average number of jobs available within 45 minutes travel time by public transport increased from 937,900 in 2006 to 1,009,100 in 2015, representing a steady increase of 7.6%. London's workday population grows by half a million. An average of 26.7 million trips per day were made in London in 2015 – an 18 per cent increase from 2000 and 0.2 per cent higher than 2014. Public transport accounted for 28 per cent of trips in 2000, and 37 per cent in 2015. Underground carried a total	Improvements to the transport networks continue to be reflected in incremental improvements to key indicators of transport connectivity and physical accessibility. ⬆ However, inequality of transport connectivity is apparent between different parts of London By 2041, it is expected that trips per days will have grown to 32.2 million trips per day. Private transport accounted for 47 per cent of all trips in 2000, but just 36 per cent in 2015.	Large portions of southeast London will have fewer jobs accessible by car in 2031 (increasing delays at the Blackwall Tunnel).	Improving transport accessibility levels for those living in outer London. Increased pressure on capacity of public transport and highway networks to meet forecast demand. Poor cross-London connectivity, particularly in east London. Poor access to employment in London for those who live outside its boundaries.	**Equality groups** – people on low incomes, older people and disabled people, people living in outer London **Health** – community cohesion **Health** – levels of active travel / physical activity **Economy** – access to employment opportunities **Economy** – attractiveness for businesses to operate in east London	Unfavourable Significant issue for MTS MTS has a direct impact on this issue which affects a variety of IIA topics and is pertinent from the equality, health and economic perspectives.

IIA Topics	Indicator	Targets	Current quantified data	Trends	Evolution without the MTS review	Key issues	Likely significant impacts on…	Present condition/ Level of significance for MTS
			of 1.35 billion journeys – 39 per cent higher than 2000/01 and a 3.3 per cent growth over the most recent year. Bus demand in 2015/16 stood at 71 per cent higher than in 2000/01, at 2.3 billion journeys over the year.	Demand for travel in London will increase by around 7 million trips on an average day, from 25.3 million in 2011 to 32.2 million in 2041.				

IIA Topics	Indicator	Targets	Current quantified data	Trends	Evolution without the MTS review	Key issues	Likely significant impacts on…	Present condition/ Level of significance for MTS
Air quality Refers to: Condition of the air with respect to the presence of pollutants (including NOx and PM)	NO_2, PM2.5 PM10	EU target value of 25µgm-3 for PM$_{2.5}$ (WHO guide-line value of 10µgm-3) Annual mean objective less than 40µgm-3 for PM$_{10}$[5] Annual mean objective less than 40µgm-3 for NO_2	In 2014, 39 out of 67 sites measured did not achieve the annual mean objective for NO_2.[6] 8 sites recorded an annual mean of twice the legal limit or above. 14 sites exceeded the hourly mean objective for NO_2.[7] All 47 sites measured met the annual mean air quality objective of 40µgm-3 for PM$_{10}$. 1 site did not meet the daily mean objective for PM$_{10}$.[8] 3.8 million people work in parts of London which are above legal limits for NO_2 pollution.[9] Pollutants cause around 9,400 equivalent deaths every year in London due to poor air quality.		Targets for PM2.5 will not be met by 2020. London will be in breach of legal limits on nitrogen dioxide and likely to remain so until at leat 2030. London may attract fines under the EU laws and continue damaging the health of Londoners. By 2025, existing policies and natural churn of the fleet will deliver 40% reduction. This means that there is a delivery gap of further 20% reduction in emissions.[10]	Complying with EU legal annual limit values for NO_2. Complying with EU legal annual limit values for PM10. Achieving the WHO guideline value for PM2.5. Pollutants cause around 9,400 equivalent deaths and 3,150 hospital admissions every year in London & impose an economic cost of between £1.4bn and £3.7bn. 86 of the 100 secondary schools exposed to the highest NO_2 levels in 2013 were above the annual mean limit of 40µgm-3 for PM10.[11]	**Environment** – air quality **Environment** – biodiversity, cultural heritage assets **Equality groups** – the most deprived, younger people, older people **Health** – cardiovascular disease, respiratory disease and some cancers **Economy** – cost on the public health system	Unfavourable Critical issue for MTS MTS has a direct impact on this issue which affects a variety of IIA topics and is pertinent from the environmental, health, economic and equality perspectives.

[5] Air Quality Standards Regulations 2010
[6] 5.12.10   The Local Air Quality Network Summary Report 2014 (Environmental Research Group and King's College London, 2016) details results of air pollution measurements made on the local air quality network (LAQN)
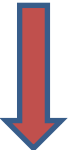[7] Ibid
[8] Ibid
[9] Howard R. (2015) Up in the Air How to Solve London's Air Quality Crisis: Part 1. https://www.trustforlondon.org.uk/wp-content/uploads/2015/11/Up-in-the-Air-London-Air-Quality.pdf
[10] Transport for London (2016) MTS Presentation to stakeholders 18 February 2016.

IIA Topics	Indicator	Targets	Current quantified data	Trends	Evolution without the MTS review	Key issues	Likely significant impacts on…	Present condition/ Level of significance for MTS
Natural Capital and Natural Environment Includes: All living things and the places where they live Habitats – the natural home of an animal, plant or other organism	Proportion of green space over time and new housing developments being built on Greenfield sites Planting for trees when cut down or fall down to natural causes Area of SINCs	London has targets to meet in terms of enhancing and increasing each habitat by 2020[12]	In 2015 SINCs covered 19.24% or 30,806ha of Greater London. Roughly 47% of London is green (2015) 33% of London is vegetated greenspace (2015). 2.5% of Greater London's area is blue space (2015). 24% of London is private, domestic garden land (2015). Over 22,5000ha of woodland and orchard habitat were recorded in 2015.	Large loss of SINCs during 2013/14	Habitat targets might not be met by 2020. Trend expected to continue as result of increased demand for development and intensification. Areas of deficiency in access to nature.	Protecting and improving the functionality and connectivity of green spaces, and avoid the 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.	**Environment** – biodiversity values **Environment** – habitats and species **Health** – levels of physical activity **Health** - London heat island effect	Unfavourable This issue potentially can be very significant for MTS as continuing trend for loss of SINCs alongside increasing demand for transport infrastructure development will put a major pressure on the environment.

[11] Aether(2013) Analysing Air Pollution Exposure in London. Report to Greater London Authority.
[12] London Biodiversity Action Plan

IIA Topics	Indicator	Targets	Current quantified data	Trends	Evolution without the MTS review	Key issues	Likely significant impacts on…	Present condition/ Level of significance for MTS
Climate change adaptation, mitigation and energy Includes: CO_2 emissions from transport Transport infrastructure adaptation Energy supply demand by the transport sector Use of renewable energy sources in the transport sector	Proportion of CO_2 emissions from transport **Total road transport** emissions, million tonnes	Reducing CO_2 emissions from ground-based transport, contributing to a London-wide 60 per cent reduction by 2025 (compared to 1990 levels), to support this a reduction of 48% was identified for London's transport CO_2 emissions	Between 2005 and 2013, total CO_2 emissions in London fell by 13.4 per cent; with 12.1 per cent falling coming from transport. Road transport made up approximately 16% of total CO_2 emissions in Greater London (2013) compared to 15% in 2010.[13] The transport sector accounts for 40% of the UK's energy consumption.[14]	Between 2005 and 2013, total energy consumption in London fell by 11.2 per cent, with transport sector decrease in consumption by 6.5%. Little progress has been achieved towards 60 per cent reduction by 2025 target.	On current projections the Mayor's 2025 target to reduce CO_2 emissions will not be met. The expected gap is likely to be equivalent to the emissions from 45% of London's traffic.[15] London has a high concentration of vulnerable groups, which are likely to be disproportionately affected by the impacts of climate change. The impacts of climate change will not be equal or fair, and are likely to increase existing inequalities.	Meeting the Mayor's target to reduce London's CO_2 emissions by 60% of 1990 levels by 2025. Increases in extreme weather events due to climate change, including storms, flash surface water floods and increase fluvial flows and sea level rise and drought, will damage the resilience for the transport network and increase the cost and complexity of maintaining operational performance standards. Reducing reliance on fossil fuels.	**Environment** – threat of global climate change **Health** – heat and cold related deaths **Health** – use of fossil fuels by transport sector and associated harmful air emissions on health **Economy** – growing contribution to energy supply demand gap **Equality groups** – older people, younger people, BAME Londoners, LGBT, women and disabled people	Unfavourable Critical issue for MTS MTS has a direct impact on this issue affecting a variety of IIA topics and is pertinent from the environmental, health, economic and equality perspectives.

[13] LEGGI 2013: https://data.london.gov.uk/dataset/interim-leggi--2013/resource/4aaba9fa-b382-40bd-a3e3-593c53bed245
[14] Department for Business, Energy & Industrial Strategy (2015) data: BEIS statistics 2015.

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IIA Topics	Indicator	Targets	Current quantified data	Trends	Evolution without the MTS review	Key issues	Likely significant impacts on…	Present condition/ Level of significance for MTS
Crime, Safety and Security Includes: Perceived crime (fear of crime) Actual crime Anti-social behaviour (ASB) Road safety	Crime levels and surveys on communities feeling towards safety Road Safety and number of accidents on the road Volume of road traffic casualties Crime rates on public transport	A 40 per cent reduction in the number of people killed or seriously injured by 2020[16].	In 2015, 2,092 people were killed or seriously injured (KSIs) on London's streets, 42% below the 2015/09 base line.[17] In 2012/13 violence against the person offences on London's trains were 2,173 and in 2014/15 were 2,556. 1 in 5 Londoners state that concern over crime/ASB affects their frequency of use of public transport 'a lot'.[18] The rate of crime was 7.4 crimes per million passenger journeys on TfL's transport system in 2015/6.[19] In 2012/13 sexual offences on buses were 483 and in 2014/15 they were 684. In 2012/13 violence against the person offences on buses were 4,994 and in 2014/15 were 5,801.	Rate of crime declined between 2005/6 and 2014/5, when it reached a record low of 7.0 crimes per mission passenger journeys. . Rate of sexual offences has increased.	A negative trend of violent assaults and anti-social behaviour on the transport network are likely to rise. However, overall crime figure will likely to continue to fall if current aspirations with respect of community can be met.	Reducing the number of violent assaults and sexual offences on the transport network. Reducing ASB on the transport network. Maintaining year-on-year falls in crime on the public transport network. Safety concerns are a barrier to active travel and contribute to inactivity which, in turn, has impacts on health and wellbeing.	**Equality groups** – older people, younger people, BAME Londoners, LGBT, women and disabled people **Health** – active travel / levels of physical activity **Economy** – London's global reputation **Safety** – levels of actual and perceived crime	Favourable However, a significant issue for MTS in respect of sexual offences on buses and the person offences on public transport.

[15] Transport for London (2016) MTS Presentation to stakeholders 18 February 2016.
[16] Mayor's Safer Streets for London Plan (2013)
[17] Transport for London (2016) Travel in London Report 9, 2016.
[18] Transport for London (2015) Travel in London Report 8, 2015.
[19] Transport for London (2016) Travel in London Report 9, 2016.

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IIA Topics	Indicator	Targets	Current quantified data	Trends	Evolution without the MTS review	Key issues	Likely significant impacts on…	Present condition/ Level of significance for MTS
Historic Environment Includes: Designated assets (i.e. archaeological remains, historic buildings, historic landscapes)	Change in number of visitors in Heritage sites along with the number of heritage sites open for the public.		Designated assets currently include 4 World Heritage Sites, over 1,000 conservation areas, almost 19,000 listed buildings, over 150 registered parks and gardens, more than 150 scheduled monuments and 1 battlefield (Barnet). Those designated assets at risk include 72 conservation areas, 493 listed buildings, 37 scheduled monuments and 14 registered parks and gardens.	The % of Conservation Areas at risk has remained stable for the past few years. % of listed buildings at risk has slightly increased over past few years. % of Scheduled Ancient Monuments at risk has slightly decreased over past few years. % of Registered Parks and Gardens at risk has remained fairly stable in recent years.	Heritage assets are likely to continue to be preserved through legislation. However, some designated assets may still be at risk from neglect, decay or inappropriate development.	Reducing the amount of designated 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. Crossrail 2, may have heritage implications, including demolition of old buildings of historic value. Improving capacity of London Underground may result in refurbishments to underground stations contributing to London's heritage value.	**Environment** – designated assets **Economy** – London's reputation as a city rich in heritage **Economy** – levels of tourism (from cultural perspective) All forms of infrastructure improvements, including major, can have an impact both positive and potentially negative on the significance of all types of heritage assets.	Favourable

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IIA Topics	Indicator	Targets	Current quantified data	Trends	Evolution without the MTS review	Key issues	Likely significant impacts on…	Present condition/ Level of significance for MTS
Employment Refers to: The operation of London's labour market	Total employment Geographical distribution of employment		Workplace population of 5.52m (2014) projected to grow to 5.8m by 2021, and 6.4m by 2036. Sectoral profile of employment is changing. Higher density employment uses (services) are growing at expense of lower density (manufacturing). London's employment has grown from 4.6 million jobs in 2000 to 5.6 million in 2015 and is projected to grow to 6.3m in 2031, and 6.8 million jobs by 2041.	Growth in employment expected to be concentrated in CAZ and central London. Professional services expected to grow by 80% by 2041; with an 80% decline in manufacturing over the same period. Projecting forward to 2041, the largest growth in employment is expected in central and inner London where 1.4 million jobs are expected in the City of London and Westminster alone, with a further 1.4 million spread across the remainder of the central sub-region	Capacity constraints could jeopardise employment growth in CAZ / Central London and Canary Wharf.	Demand in employment growth in central London will be dependent on the capacity on rail routes and multi-modal connectivity towards central London. Productivity decline/stagnation.	**Economic Competitiveness**	<mark>Significant issue for MTS</mark>

IIA Topics	Indicator	Targets	Current quantified data	Trends	Evolution without the MTS review	Key issues	Likely significant impacts on…	Present condition/ Level of significance for MTS
Economic competitive-ness From an MTS perspective, measured based on: Public transport experience including speed or utility of accessible services, crowding, the ability to board services and ease of interchange	People's access to jobs Perception of journey experience Public transport crowding Asset condition Public transport reliability and capacity		Fewer connections across the river in east London. Levels of economic activity are lower and unemployment rates higher in east London. DfT data shows that vehicle KM in London in 2015 were 9.9% lower than in 2000. 2009-2015: 19.8% growth in underground journey stages. 6.2% growth in bus passenger stages. DLR increase of 67.1% in journey stages. Road congestion has increased on average from 2006 to 2015. In east London, high demand and lack of resilience at the current river crossings lead to very slow and unreliable journeys, constraining economic growth.	Vehicle KMs increased in 2014 having been in decline since 2000 but were down 0.3% year on year in 2015. Despite a falling car mode share, cars KMs are forecast to rise by around 8% in 2041. Van Kms are forecast to rise by 26%. Forecasts show an 87 per cent rail passenger kilometre increase coupled with a 65 per cent increase in Underground passenger kilometres from 2011 to 2041.	Agglomeration benefits may be tempered by so-called congestion costs that are the consequences of a mass of businesses and people competing over scare resources. Pressure on public transport system will continue.	Improving congestion and overcrowding on public transport. Reducing road traffic congestion. Poor service quality means that south and south east London suffers from poor access to jobs, hampering growth.	**Economy** – journey experience and attractiveness for businesses to operate in London **Economy** – London's global reputation **Environment** – resources and natural capital **Safety** – levels of actual and perceived crime **Safety** – levels of KSI **Equality groups** – people on low incomes, older people and disabled people, people living in outer London	==Unfavourable== ==Significant issue for MTS== MTS has a direct impact on this issue which affects a variety of IIA topics and is pertinent from the equality, health, safety and economic perspectives.

IIA Topics	Indicator	Targets	Current quantified data	Trends	Evolution without the MTS review	Key issues	Likely significant impacts on…	Present condition/ Level of significance for MTS
Flood risk Includes: Tidal flooding River flooding Surface flooding Groundwater flooding	Assets at flood risk Cost of damage due to flood risk		100's of kms of road and rail are at risk of surface water flooding in London. There are 85 sites (57 no. Stations, 16 no. Shafts and 10 no. Tunnel Portals and 2 no. others) on the London Underground which are at high and rising risk of flooding.[20] The total annualised flooding risk has been established as approximately £6.7M, with the most significant risks being from flooding associated with water mains bursts (65% overall) and pluvial /surface water events (32% overall).	Flooding will continue to be a risk for London. The rising sea level will steadily reduce the level of protection that defences offer and increased heavy rainfalls will increase surface water flooding and flooding from drains.	Without additional measures to adapt to potential impacts of climate change the resilience of the transport system may not be sufficient to accommodate the risks of flooding. It is estimated that climate change could increase fluvial and coastal risk by a factor of eight to 12 times. By the 2080s, winters will be 30% wetter, heavy winter rainfall could occur twice as frequently and the number of storms crossing the UK each winter could increase from five to eight[21].	Adapting transport infrastructure to be flood resilient. 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. Effects of climate change the growing need for adaptation.	**Environment** – flood risk **Environment** – threat of global climate change **Economy** – journey experience and attractiveness for businesses to operate in London **Economy** – London's global reputation	Unfavourable Significant issue/critical issue for MTS Increasing probability of flooding will potentially make this issue to be critical for MTS.

[20] London Underground Comprehensive Review of Flood Risk (LUCRFR) project (TfL 2016).
[21] Royal Geographical Society, http://www.rgs.org/OurWork/Schools/Teaching+resources/Key+Stage+3+resources/The+geography+of+science/Flood+in+London+A+Mission+Impossible.htm

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IIA Topics	Indicator	Targets	Current quantified data	Trends	Evolution without the MTS review	Key issues	Likely significant impacts on…	Present condition/ Level of significance for MTS
Geology and soils Soil resources Contaminated soil Geological features Designated geological sites	Proportions of Soil type throughout London Changes in Geological features over time		Soils in London have high levels of contamination from substances such as lead. Much of the land within London is classed as urban or non-agricultural use. Approximately 14,000ha of land is dedicated to agriculture with the Lea Valley containing the largest area of horticulture and allotments, covering approximately 830ha.	Atmospheric deposition of pollutants to soil has reduced over time. Soils in London have high levels of contamination from substances such as lead.	Increased pressure on soils resulting from competing demands and pressures, pressure good agricultural land outside of London.	Soils remain at risk of acidification and eutrophication caused by atmospheric deposition. Some soils in London have high levels of contamination from heavy metals, lead, solvents and other hazardous hydrocarbons.	**Environment** - the loss of soil organic matter reduces soil quality, affecting the supply of nutrients and making it more difficult for plants to grow, and increases emissions to the atmosphere **Human health** - impacts of contaminated land on human health	Unfavourable However, in the context of MTS, the soil contamination will be dealt through the planning system, while atmospheric deposition is affected by air pollution and will be addressed through air quality topic in the MTS.

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IIA Topics	Indicator	Targets	Current quantified data	Trends	Evolution without the MTS review	Key issues	Likely significant impacts on…	Present condition/ Level of significance for MTS
Housing Supply, Quality, Choice and Affordability Refers to: Provision of housing	Number of vacant compared to occupied housing Number of houses built per year Housing price inflations	49,000 homes per annum (London Plan)	Net completion of conventional housing was at 23,986 for 2013/14, representing 80% of the annual target. Affordable homes delivered: 2011/2012 – 17,200 2012/2013 – 8,700 Currently, only half of the homes London needs are being built. [22] London's Growth Areas have the potential to provide 570,000 new jobs and at least 300,000 new homes. Around 49,000 new homes will be required every year in London over the next two decades, due to rapid population growth and an existing backlog of need.	Completion rates are well below the target. Proportion of affordable homes decreased and fell to 28% in 2015.	London is experiencing significant population and employment growth. Housing targets will be continued to be consistently below the London Plan target. Affordable homes delivery will continue to decline.	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. Significant upfront investment in infrastructure, including transport, to unlock large sites for development. Housing to be close to public transport networks – the density of development is constrained through planning guidance. Not sufficient supply of affordable housing to maintain London's competitiveness.	**Health** – levels of physical activity **Economy** – number of jobs **Equality** – affordability of housing **Environment** - impact on natural environment and air quality (domestic emissions).	Unfavourable Significant issue for MTS MTS has a direct and indirect role in the provision of housing; an issue which affects a variety of IIA topics and is pertinent from the equality, health, safety and economic perspectives.

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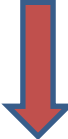
[22] Transport for London (2016) MTS Presentation to stakeholders 18 February 2016.

IIA Topics	Indicator	Targets	Current quantified data	Trends	Evolution without the MTS review	Key issues	Likely significant impacts on…	Present condition/ Level of significance for MTS
Design Refers to: Topography, watercourses, land use and pattern, vegetation, public open space and cultural heritage features Pavements and roads, cleanliness of open spaces and the quality of local parks Traffic speed, traffic congestion, road markings, signage directions and the extent to which streets are cluttered	Land use area %		Londoner's satisfaction with streets, pavements and public spaces has generally remained reasonable over the years. 72 per cent of Londoners say that they would walk more if there was improved safety and security, for example better street lighting or safer road crossings, and 66 per cent say that they would walk more if streets were cleaner and more attractive.	In 2011 road users were most satisfied with the working condition of traffic lights, street lighting, drainage, road markings and signage directions. They were least satisfied with traffic congestion, the availability and condition of cycle lanes and the time allowed to stop, pick-up and drop-off in loading bays for commercial vehicles. ⟷	In the absence of the MTS review, deficiencies in open spaces may not be properly addressed.	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.	**Environment** – visual amenity biodiversity and air quality. **Health** – community cohesion **Health** – levels of physical activity **Health** – quality of life and wellbeing **Economy** – social cost from reducing/increasing the number of cars on the road **Safety** – levels of KSI	Favourable

IIA Topics	Indicator	Targets	Current quantified data	Trends	Evolution without the MTS review	Key issues	Likely significant impacts on…	Present condition/ Level of significance for MTS
Materials and waste Refers to: Materials, substances or objects which have no further use and are disposed of e.g. primary raw materials such as aggregates and minerals and secondary manufactured products	Amount of hazardous waste produced by the transport sector Amount of waste recycled		In 2013, London produced 4.7 million tonnes of commercial and industrial waste accounting for about 32 percent of London's total waste. Of all the waste collected in 2014/15, 21% was landfilled. London recycled, reused or composted 30% of waste. The transport, storage and communication sectors accounted for roughly 18,107 tonnes (5%) of London's hazardous waste in 2011. London produces 7.2 million tonnes of construction, demolition and excavation waste each year equating to 48 percent of all waste arising.	Amount of waste landfilled is decreasing with more being incinerated in energy from waste facilities. The amount of hazardous waste produced by London is increasing. With increasing trends in recycling, there has been a decreasing trend in the amount of waste sent to landfill. ⟷	The amount of waste generated is likely to increase. The amount of hazardous waste produced by London is likely to increase.	Reducing the amount of waste produced by the transport sector. Using and promoting sustainable forms of transporting waste. Managing large volumes of hazardous waste currently sent to landfill. Reduce amount of waste produced, increase reuse, re-manufacturing and recycling in all construction and operational practices.	**Environment** – air pollution **Environment** – biodiversity **Environment** – threat of global climate change **Economy** – zero waste economy **Economy** – resource efficiency and innovation	Favourable MTS can play its role in applying principles of circular economy when aiming for waste reduction, reuse, re-manufacturing and recycling in all construction and operational practices. Waste management can be considered alongside transport planning.

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IIA Topics	Indicator	Targets	Current quantified data	Trends	Evolution without the MTS review	Key issues	Likely significant impacts on…	Present condition/ Level of significance for MTS
Noise and vibration Refers to: Unwanted noise / sound	Perception of noise Proportion of people exposed to roadside and railway noise above threshold		Main source of ambient noise in London is road traffic, followed by rail. 13% of people rate road transport as the greatest source of noise and consider it a 'serious problem'.[23] 41% of Londoners were disturbed by road traffic in 2012.[24] Aviation noise affects people living within proximity to an airport.	Satisfaction with the level of transport related noise has shown a steady increase over the previous five years, however there are still a large number of people exposed to roadside and railway noise above the threshold in Greater London. 	New transport infrastructure development will likely to contribute to the increasing proportion of people exposed to noise above the threshold.	Parts of the population are exposed to roadside and railway noise that exceeds the threshold. Aviation noise affects people living within proximity to an airport.	**Environment** – noise pollution **Equality groups** – younger people, those living closest to busy roads **Health** – quality of life and wellbeing. Noise disturbance can increase levels of annoyance, anxiety, sleep disruption and can be associated with cardiovascular disease through increased blood pressure **Health** – community cohesion **Economy** – social costs	<mark>Unfavourable</mark> <mark>Significant issue for MTS</mark> MTS has a direct impact on this issue which affects a variety of IIA topics and is pertinent from the environmental, equality, health and economic perspectives.

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[23] Mayor's Ambient Noise Strategy (2004)

IIA Topics	Indicator	Targets	Current quantified data	Trends	Evolution without the MTS review	Key issues	Likely significant impacts on…	Present condition/ Level of significance for MTS
Water resources and quality Includes: Waterbodies Quality of water within waterbodies	Change in water quality in rivers and estuaries Pollution from waste water on water bodies Physical modifications to water bodies		Physical modifications affect 44% of water bodies in the Thames river basin district. Pollution from waste water affects 45% of water bodies in the Thames river basin district. In 2013, pollution from towns, cities and transport affected 17% of water bodies in the Thames river basin district.[25] Changes to the natural flow and level of water affects 12% of water bodies in the Thames river basin district. Length of surface water rated as being of good biological quality has seen a notable reduction for the period from 2013-2015.[26]	Uncertainty to identify trend occurring as a result of transport infrastructure development on the water quality and pollution.	In the longer term, water resources will be affected by drier summers and a greater potential for drought. 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.	Physical modifications to water bodies. Pollution from waste water on water bodies and surface water run-off.	**Environment** – water quality and availability	Unfavourable Significant issue for MTS MTS can cause a direct impact on this issue which affects water quality and availability. Opportunity for MTS to address this issue at the policy level.

[24] Transport for London (2012) Perceptions of the travel environment.
[25] http://environment.data.gov.uk/catchment-planning/RiverBasinDistrict/6/Summary
[26] Environment Agency. (2009). Water for life and livelihoods. River Basin Management Plan Thames River Basin District. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/289937/geth0910bswa-e-e.pdf

IIA Topics	Indicator	Targets	Current quantified data	Trends	Evolution without the MTS review	Key issues	Likely significant impacts on…	Present condition/ Level of significance for MTS
Health and Health Inequalities **Refers to:** The health of the population in terms of general health, lifestyle, life expectancies and other health determinants	Life expectancy (years) at birth of most and least deprived 20% of wards, by sex	Adults need 150+ minutes a week of physical activity to stay healthy. To reduce childhood obesity and increase physical activity to 70%[27].	In 2015, 57.8% of adults were achieving the recommended 150+ minutes of physical activity a week[28]. London has the highest rate of childhood obesity in the country. Only 6 out of 10 children are a healthy weight when they start secondary school. 58% of men and 51% of women in London are either overweight or obese. Around one million Londoners suffer from some form of mental disorder, such as depression.[29] An estimated 72,000 Londoners are thought to suffer from dementia – a figure expected to increase 2.5 fold by 2050, largely	Positive change has been identified, although difference still exists. Obesity is a growing problem and is likely to continue. Active lifestyles and healthy eating campaigns will help reduce this trend.	In the absence of the MTS review this issue may not be properly addressed.	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. Areas with high levels of environmental noise are often	**Equality groups** – younger people, those living closest to busy roads **Health** – quality of life and wellbeing **Economy** – social costs, costs to NHS	Unfavourable Critical issue for MTS MTS has a direct impact on this issue affecting a variety of IIA topics and is pertinent from the health, economic and equality perspectives

[27] In 2015, a partnership of agencies across London (Mayor of London, London Councils, NHS England and others) jointly committed to a shared ambition that by 2020, 70 per cent of adults in London will get 150 minutes of moderate-intensity physical activity each week. http://hellowae.com/realising-the-benefits-of-active-travel/. Realising the benefits of Active Travel. J. Jarvie, April 12, 2016.

[28] World Health Organisation (2016) Physical activity. Accessed on 26 May 2016 from: http://www.who.int/topics/physical_activity/en/
[29] Transport for London (2016) Travel in London Report 9, 2016.

IIA Topics	Indicator	Targets	Current quantified data	Trends	Evolution without the MTS review	Key issues	Likely significant impacts on…	Present condition/ Level of significance for MTS
			reflecting a relative ageing of London's population.[30] An estimated 28 per cent of Londoners do less than 30 minutes of physical activity per week.[31]			socially deprived.		

[30] Ibid
[31] Ibid

Appendix D. MTS iterations register

Subject	IIA advice	TfL response/changes made
MTS draft objectives	**9 September 2016**	**29 September 2016**
Objective 6: *Tackling London's air quality challenge*	Query arose whether overall objective 6 and policies it encompassed address inequalities of air quality challenge. Will it be picked up in the detailed proposals for each policy? However, it would be better to mainstream issues of inequality to air pollution exposure in the overarching objective 6.	This objective has been reworded to: *'Reduce transport's contribution to poor air quality and other direct negative impacts on health'*. A greater emphasis has been given to the issue of health in the new version for this objective.
Objective 8: *Making cycling attractive for everyone*	Policy: *Implement the Healthy Streets approach to make walking an attractive choice for everyone* was not used for Objective 8.	No change to directly address this comment has been made.
Policy: *Use transport infrastructure and land to enhance London's natural environment and reduce impacts on the wider natural and built environment*	No mentioning of 'historic environment' in this policy.	Additional policy: '*Protect and enhance London's built environment and heritage*' has been included under MTS objective 13: *Use transport infrastructure and land to help enhance London's built and natural environments and reduce impacts on the wider natural environment, aiming for a net gain in biodiversity.*
Policy: *Ensure that TfL achieves a net improvement in biodiversity in the way that we maintain our assets and deliver new projects*	*Wouldn't it be better worded: 'Ensure integration of biodiversity and the network of green spaces to provide a range of sustainability benefits during transport infrastructure planning, design and operation'*	This policy has been re-worded to: '*Enhance London's natural environment in order to improve healthy living and wellbeing by delivering a net gain in biodiversity on all new transport schemes, maintenance programmes and through delivering new green infrastructure*'.
Policy: *Reduce transport noise and vibration*	*This is a health and health inequality issue mainly.*	This policy was moved under Priority: 'To deliver healthy streets and pleasant places' for MTS objective 7: '*Reduce transport's contribution to poor air quality and other direct negative impacts on health*'.
Objective 14: *Enhancing the natural environment and ensuring London is resilient to extreme weather and climate*	*The first five policies are a good fit under 'Priority: Supports the economy, new homes and jobs' as they have economic consequences.* *However, is it better to have a separate strategic objective for 'enhancing the natural environment' and move it under 'Priority: Delivers Healthy Streets and*	A new MTS objective 13 '' *Use transport infrastructure and land to help enhance London's built and natural environments and reduce impacts on the wider natural environment, aiming for a net gain in biodiversity*' has been included under the Priority*: 'Deliver healthy streets and pleasant places'*.

change	*pleasant places' to the left, middle column. It will better fit under this priority as it has environmental and human health dimension/consequences. In this way there will be an opportunity for inclusion of another policy, i.e. 'Ensure that TfL achieves net improvement in biodiversity and enhance London's natural environment to improve healthy living and wellbeing'. It is not clear if the notion of the role of natural environment for human health and wellbeing through sustainable transport infrastructure planning has been fully addressed in the current wording of policies and objectives.*	One of the policies under new objective 13 has been re-worded to emphasize the importance of London's' natural environment role in improving healthy living and wellbeing: '*Enhance London's natural environment in order to improve healthy living and wellbeing by delivering a net gain in biodiversity on all new transport schemes, maintenance programmes and through delivering new green infrastructure*'.
Objective 16: *Improving efficiency of delivery and servicing*	Query on how transport planning contributes to the principles of circular economy and how it was reflected in MTS objectives.	New policy under Priority '*Deliver healthy streets and pleasant places*' has been added: '*Reduce Impacts on the wider natural environment associated with supply chains and waste*'.
High Level Assessment of Illustrative Interventions Modelling	**9 November 2016**	**2 December 2016**
A high level assessment of the core reference case and six illustrative interventions to identify their likely sustainability outcomes.	Economic, Equality, Social, Environmental and Health Effects have been identified to inform the TfL policy makers on the likely impacts of each specific intervention. These have been assessed, in insolation from other proposals to evaluate their sustainability benefits and effects on their own merits.	TfL will be taking the results of the high level commentary on board when formulating the draft policies and proposals, thus ensuring that the development of the strategy is carried out in an informed way, taking into consideration different perspectives and impacts on sustainability.
MTS Draft I High Level Assessment	**10 January 2017**	**20 January 2017**
Chapter 2. Vision		
Recommendation 1:	The strategy should deliver significant benefits for mobility impaired and other groups who currently experience a wide range of barriers to travel. This should be reflected in the vision.	This recommendation has been incorporated, alongside a draft proposed target: *"Public transport journey time / customer care and the accessibility of the public transport system should be improved. We will work towards X% of trips / stations being step-free by 2040."*
Recommendation 2:	The Vision can include references to: 1. UN Sustainable Cities commitments. 2. A 'sustainable transport system'. 3. A commitment to challenging and reducing crime (which then gives a logic to	1. UN Sustainable Cities is not explicitly referenced but the intention is there 2. Text includes: "*The goal of our transport strategy must be to help make London the most open, economically attractive, liveable,*

	Policy 4). 4. Inclusion of 'travelling more safely and securely.' 5. Resilience in the context of climate change. 6. Good (green) economic growth, increasing diversity and equal opportunities.	*and environmentally sustainable city in the world.*" 3. Text includes: "*We will work with our partners to challenge and reduce crime on our networks and make sure our customers feel safe as they travel about the system*". 4. As above plus reference to adopting Vision Zero for road safety. 5. Text now acknowledges transports role in "*enhancing London's environment and resilience to climate change*" and the strategy aims to "*ensure that air quality and climate change are examined*", with a commitment that *London's public transport fleets to be zero emission by XX, for all new cars and vans sold in London to be zero emission by XX and by 2050 for the entire transport system to be net 'zero carbon'.*" 6. Text now acknowledges that the "*transport system has a vital role to play in addressing inequality, improving social integration and increasing opportunities for all Londoners*" and commits to "*increase in capacity and connectivity to new parts of London to enable at least 1.2 million new jobs to be created and over a million new homes*" and to improving the accessibility of the system for all users.
Recommendation 3:	TfL to consider inclusion of targets for air quality and CO2 in the Vision.	The strategy now states that transport will be "zero emission" by 2050 which represents the ultimate AQ and CO2 targets. It is intended that further (interim) targets will be agreed before publication.
Recommendation 4:	We suggest the wording of the Vision to be further enhanced as follows: *'A sustainable transport system that meets the diverse needs of all Londoners and communities', enabling London to accommodate its fast growing population, increasing diversity and good (green) economic growth; enhance its global competitiveness and increase equal opportunities for all Londoners; improve its environment through enhancing London's natural capital and the services and benefits it provides; reduce waste and resource consumption; improve Londoner's health, health inequalities, quality of life and personal well-being; improve inclusion and social integration through an accessible and integrated city approach; reduce crime and improve travelling more safely and securely; and*	The strategy now contains reference to all except: • enhancing London's natural capital and the services and benefits it provides; Decided the terminology 'natural capital' is jargon. Instead the strategy describes the specific benefits under the relevant policies and proposals which include enhancement to the natural environment.

	supporting London in becoming a resilient and sustainable city in meeting its COP21 targets and contributing to implementation of the sustainable development goals.	
Chapter 3. A Good Public Transport Experience		
Recommendation 5:	TfL to consider giving references to: 1. UN Sustainable Cities Goal 11: Make cities inclusive, safe, resilient and sustainable. That then gives a logic to the inclusion of community safety without overemphasizing the crime and disorder elements of TfL's statutory commitment under the Crime and Disorder Act Section 17. 2. Policy 5 to give reference to overcrowding (and working to reduce overcrowding) as safety issue. 3. Partnerships to support the delivery of MTS priorities - which should include London Transport Community Safety Partnership.	1. Change not made. To be considered either in chapter introduction or Vision chapter when draft is developed further. 2. Change made. Text now includes reference to safety and station closures for safety reasons. 3. Change not made. For consistency, reference to the Police has now been removed to align with general approach of not naming specific stakeholders.
Chapter 4. Healthy Streets and Healthy People		
Recommendation 6:	When considering protection and enhancement of green spaces it needs to be done using a coherent methodology rolled out across transport, environment and health strategy. Provide a better linkages between the role of natural environment and ecosystem services it provides to benefit the mental, physical health and personal well-being of Londoners, acknowledging that all three London strategies have potential to facilitate people's connection with nature across their policies.	We are proposing a net gain in biodiversity as the way that we demonstrate improvement in this area. This is in line with the national planning policy framework and is easier to monitor than trying to measure all of the individual components of ecosystem services. It is intended that policies in the MTS align with the other mayoral strategies.
Recommendation 7:	To include accessibility and inclusion as a stated priority for healthy streets. The policies should deliver these outcomes.	Reference to this will be added as a priority for this particular policy area. It will also be included where appropriate within specific policies and proposals around healthy streets delivery.
Recommendation 8:	Include personal safety beyond traffic/transport incidents in Policy 9.	This has been added to the policy section – a personal safety proposal may also be required but needs to be developed with TfL Enforcement & On-Street Operations.
Recommendation 9:	It is recommended to include concrete short term proposals to address poor air quality around schools and hospitals and most vulnerable people, for example, under Policy 14: Reduce emissions from road	The MTS has long term strategic actions to address air quality generally. More detailed actions around exposure to poor air quality will be captured in the London Environment Strategy.

	transport to improve air quality, health and impacts on climate change. (86 of the 100 secondary schools London exposed to the highest NO2 levels in 2013 were above the annual mean limit of 40μgm, and recent studies have shown that people living nearby busy roads are also at higher risk to develop dementia.[32])	
Recommendation 10:	To include reference to enhance existing historic environment in relevant policies or proposals. For example: 'Protect and enhance London's built environment and heritage'.	This will be added into policy 12, in particular the third proposal under this area which focuses on urban realm improvements.
Recommendation 11:	To include specific proposals to reduce the number of people exposed to high levels of noise from roads and railways.	TfL does not currently have ways of measuring noise levels of impacts as a result of transport so it is impossible to set a quantified level of ambition. We will add proposals which describe some of the actions we are taking to reduce road and rail noise.
Recommendation 12:	To address reduction in inequalities in climate change effects across London. Policies do not explicitly recognise the issue of climate change and extreme weather events in relation to London's transport system and its impacts on human health inequalities (i.e. elderly people can be disproportionally affected by heat on the underground, heat islands on the streets. Summer heatwaves may make public transport uncomfortable, and can affect the health of Londoners, particularly of vulnerable people. Recognition of this inequality in the document is recommended.	Now included.
Recommendation 13:	TfL to consider inclusion of the policy addressing management of materials and waste. For example: 'Reduce impacts on the wider natural environment associated with supply chains and waste'.	This is covered in the responsible procurement proposal in the new homes and jobs section. We will add more explanatory text to highlight the benefits in terms of reducing impacts of supply chains and waste. TfL's responsibilities and actions in this area will also be covered in the London Environment Strategy.
Chapter 5. New Homes and Jobs		
Recommendation 14:	TfL to consider including references to 'safety and security' in design and public realm policies.	Change made. Reference to safety and security in the public realm now referenced in policy text (policy 16).

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[32] http://www.telegraph.co.uk/science/2017/01/04/living-near-busy-road-may-raise-risk-dementia-major-study-pollution/

Recommendation 15:	Policies in general to include more targets to quantify easier economic benefits and consider inclusion of the interim targets to monitor the progress.	Change not made. We have noted that this will need to be considered as part of the analytical workstream.
Recommendation 16:	TfL to consider inclusion of a policy addressing sustainable management of construction and demolition waste from new transport schemes, sustainable use of resources, recycling and the principles of the circular economy.	This is covered in the responsible procurement proposal in the new homes and jobs section. TfL's responsibilities and actions in this area will also be covered in the London Environment Strategy.
MTS Options – Summary of IIA findings & recommendations	**24 March 2017**	**29 March 2017**
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.	Policy 12: Although policies aspire 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 stronger policy is likely to be needed to ensure appropriate safeguards are passed on to the project level. Therefore the wording of the policy will be amended to reflect these safeguards to the effect of: "…..*This would be delivered through specific commitments detailed within the relevant planning consent secured for individual schemes, i.e. DCO, Hybrid Built, EIA and etc.*"
Recommendation 2:	The Draft Revised MTS 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.	Text amended to: *Proposal 56: The Mayor, through TfL and working with the boroughs, will seek to reduce the impacts of excessive noise and vibration levels from road transport in London where practicable by…*
Recommendation 3:	*To consider establishing a noise monitoring framework to measure the impacts of surface transport on the quality of life close to the major corridors.*	*Text amended to:* *Proposal 56 – included: Monitor noise close to major road corridors to measure the impacts of road transport.*

Recommendation 4:	Text should be added in respect of Policy 12 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)	Text amended to: *Policy 12: The Mayor, through TfL and the boroughs, will seek to ensure that the development of new transport schemes and the management of existing transport infrastructure protect existing and provide new green infrastructure to deliver a net positive impact on biodiversity. This would be delivered through specific commitments detailed within the relevant planning consent for the scheme, including Habitat Regulation Assessments and management plans as appropriate, with special attention made to protecting designated spaces such as Sites of Importance for Nature Conservation.* *Transport schemes should maximise opportunities to protect, promote and enhance London's built heritage and sites of cultural importance.*
Recommendation 5:	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.	Would fit under Policy 12. However TfL decided against reference to European sites within the MTS as it was considered that under Natural England guidance carrying out an HRA is a legal requirement anyway.
Recommendation 6:	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). Consider additional measures over and above the current proposals of extending the ULEZ to address pollution from target private cars and light goods vehicles across the whole of Greater London.	Policy 9/ Proposal 30 No change proposed. TfL considers ULEZ an urgent and short term commitment. The LES will also have more detail on this aspect.
Recommendation 7:	Stronger commitments could be made to reduce the inequalities in affordable housing for those who are from low income households, younger people and disabled people through the inclusion of targets for the development of surplus TfL land specifically for this purpose.	Text amended to: *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.*
Recommendation 8:	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.	Text amended to: *Proposal 54: The Mayor, through TfL, will seek to work with transport and other infrastructure providers in London to undertake a dedicated programme of research to understand and prioritise risk of*

		severe weather and climate change on London's transport network and minimise its impacts on the most vulnerable user groups.
Recommendation 9:	Include proposals and targets to address issue of congested pavements.	Text amended to: *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…*
Recommendation 10:	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.	Text amended to: *Policy 13: The Mayor, through TfL and working with the boroughs, other transport and infrastructure providers, will seek to ensure that London's transport is more resilient to the impacts of severe weather and climate change, and ensure services can effectively respond to extreme weather events, so that it continues to operate safely, reliably and with a good level of passenger comfort.*
Recommendation 11:	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.	Text amended to: *Policy 9: The Mayor, through TfL, and working with the boroughs, will take action to reduce emissions from the most polluting vehicles on London's roads, especially diesel, to improve air quality, using a ccombination of measures including reducing the need to travel by motorised vehicles, retrofitting, renewable fuels, road pricing, parking charges / levies, procurement, traffic restrictions / regulations and local measures.*
Recommendation 12:	The MTS should encourage opportunities for enhancement the historic environment where opportunities exist.	Additional wording added: *Opportunities should also be explored for the enhancement and protection of London's historic environment where opportunities exist.*
Recommendation 13:	The MTS could include a policy to encourage waste minimisation and re-use for the purposes of minimising the associated environmental impacts.	Text amended to: *By designing new infrastructure following the waste management hierarchy 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.*

Appendix E. Consultation Draft MTS 3 Options IIA Assessment

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

Topic	IIA objective	Assessment guide questions *Will the strategy…? SEA, EQIA, HIA, HRA, AEI, CSIA*	IIA	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 Crossrail 2 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 and proposals in the Draft Revised MTS 3)*
Air quality	1. To reduce emissions and concentrations of harmful atmospheric pollutants, particularly in areas of poorest air quality and reduce exposure	• Reduce NO_x, PM_{10} and $PM_{2.5}$ emissions from road transport? • Reduce the number of people exposed to levels of NO_2 concentrations that exceed $40\mu g/m^3$? • Reduce inequalities in access to clean air across London, particularly for those: - 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?	SEA	**-** Poor air quality is a major problem for London with high levels of NO_x, PM_{10} and $PM_{2.5}$ 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. Option 1 may lead to severe crowding on public transport (PT) by 2041. 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, human health 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.	**+** Option 2 contains a number of proposals aiming to reduce harmful emissions through transitioning the vehicle fleets to cleaner vehicles: • 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 the 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. 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 congestions 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	**++** 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 will improve human health and the environment.

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Topic	IIA objective	Assessment guide questions *Will the strategy…? SEA,* *EQIA, HIA, HRA, AEI, CSIA*	IIA	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
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		• Reduce costs to the economy resulting from premature deaths due to poor air quality?			and would encourage a shift to more sustainable low-polluting forms of travel modes of transport thus reducing emissions of greenhouse gasses and of priority pollutants (e.g. PM, NO_x, NO_2), i.e. walking and cycling (low-polluting forms of travel). 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 air pollutants and smog and reduce particulate pollution by absorbing and filtering particulate matter.	
			EqIA	--	0/+	+

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0/+				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. 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.	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 NO_2 exceedance in Outer London while additional standards for cars and vans in Inner London will target areas of London with higher concentrations. 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. 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.	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.
			HIA	**-**	**-**	**0/+**
				Air pollutants cause around 9,400 equivalent deaths every year in London due to poor air quality. Large numbers of the population are exposed to levels of NO_2 above the EU limit value. 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.	TfL's emissions modelling indicates that the proposals under Option 2 could mean that more than 70% of London's roads will meet NO_2 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 $PM_{2.5}$ 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	Option 3 offers the most potential for health improvements through reduction of air quality emissions from reduced car use.

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					is expected to set specific targets for PM$_{2.5}$ which are aligned with the WHO standards.	
			HRA	**0**	**+**	**+**
				Only a small number of European sites within the GLA and wider zone of influence are considered to be specifically sensitive to air pollution (i.e. Epping Forest SAC and Wimbledon Common SAC). Current trends suggest that policies and proposals in the current MTS (2010) are unlikely to offer positive effects to European sites via air quality. Without additional measures to tackle the issue of air quality, London will continue to be non-compliant with legal limits with higher levels of exposure to pollutants. Increasing economic growth and development will lead to increased car use and congestion leading to localized air quality issues. The current MTS (2010) includes specific text in relation to air quality and European sites associated with Policy 15 as follows, paragraph 180: *"Poor air quality is known to have adverse effects on habitats including European designated sites of nature conservation importance. The Mayor's commitment to a reduction in polluting emissions from transport also aims to reduce the adverse impact of poor air quality on such sites".*	Policies and proposals plus additional packages in Option 2 for further optimising the network, incremental expansion and new connections would reduce emissions from road transport and improve air quality as compared to Option 1 and could mitigate effects on European sites sensitive to effects of nitrogen deposition and acidification (which include Epping Forest SAC and Wimbledon Common SAC). Option 2 currently includes no specific text in relation to air quality and European sites which is a weakness in the strategy in respect of protection of European sites.	Additional packages in Option 3 are likely to significantly improve air quality via reduction of car mode share 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. Option 3 currently includes no specific text in relation to air quality and European sites which is a weakness in the strategy in respect of protection of European sites.
			AEI	**0**	**0**	**+**
				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. ULEZ will improve the situation in central London.	Measures to improve air quality plus policies to reduce car trips by 10% will have a positive economic impact in terms of reducing premature deaths and health costs. However the introduction/expansion of low emission zones will impose costs on businesses as they have to replace/retrofit vehicles to meet the required standards or pay the requisite charge. At this stage it is not clear if the economic benefits will outweigh the costs.	The additional measures that will lead to considerable reduction in vehicle kilometres will lead 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 faster journey times. However, there may be some short to medium term adverse economic impacts on some economic sectors and small business.

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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	• 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?	HIA	-	-	-
				Option 1 suggests a number of proposals to reduce the likelihood and severity of climate change through emission reduction strategies. The option also includes some proposals to improve the resilience of London's transport system to extreme weather events. However, none of the proposals within the option directly addresses the impacts that climate change will have on human health. It also does not address in detail the growing ageing population and the unequal effects that climate change will have on vulnerable populations, i.e. the effects that may affect more people with time as the population ages. This is not necessarily the case, as measures to increase active travel and reduce sedentary behaviour for travel in general (excluding during these events) can also improve health and delay disease and thus keep people healthier to older ages. Additionally, 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 can be increased congestion and crowding on alternative modes of transport such as public transport and cars. Depending on the duration of the events, some people can be encouraged to remain at home and not travel. A similar situation occurs during periods of extreme cold, when snow or icy conditions can both precipitate asthma attacks, strokes and heart attacks and can also lead to injuries through pedestrian falls. Fractures and other injuries tend to be more serious among older people, due both to different patterns of injury and to the effects of co-morbidity, with worse sequelae for older people, in general.	Option 2 acknowledges the key 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 these issues but commits to undertaking research into the issues and implementing measures based on the research. Such measures are likely to take a significant amount of time to implement. The impacts of climate change such as flooding and episodes of extreme heat are already occurring and as such, significant health impacts are likely to arise prior to the implementation of these measures. Additionally, as with Option 1, 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 also have small effects on absorbing carbon emissions but will have a greater effect on providing shade for pedestrians and other road users.	Option 3 offers the same outcomes as Option 2; it does not contain additional proposals to further assist in achieving the objective.

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			AEI	--	0	0
				Increases in extreme weather events due to climate change will damage the resilience of the transport network and increase the cost and complexity of maintaining operational performance standards. London's highway drainage systems are not designed to cater for the high volumes of rainfall and the London network of underground tunnels is also vulnerable to flooding. Therefore, in the absence of additional proposals to increase the resilience of the transport network, costs will likely to continue to rise to maintain operational performance.	Option 2 contains proposals such as Proposal 42 on implementing SUDs and policies such as tree planting which will have local benefits and reduce impact on vulnerable people but will have little economic impact. While 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 understood there are no concrete proposals to address the issue. However, it is assumed that new infrastructure set out in the Strategy will have resilience built in.	While demand management measures included in Option 3 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 goes down a higher proportion of people will be impacted unless further action is taken to improve resilience of existing infrastructure, which may include greater use of infrastructure and SUDs as a result of freeing up road space.
			EqIA	0	0	0
				Option 1 suggests a number of proposals to address issues of climate change and extreme weather events in relation to London's transport system and its impacts on human health. However, Option 1 does not address in detail the growing ageing population and the unequal effects that climate change will have on the vulnerable population. The impacts of climate change will not be equal or fair, and are likely to increase existing inequalities. The effects of climate change will not be experienced equally among London's population and are likely to increase existing inequalities due to population ageing. The proposals in Option 1 may not be sufficient to address the growing need to adapt to climate change in an equitable way.	The impact of Option 2 is the same as Option 1.	The impact of Option 3 is the same as Option 2 and 1.
			SEA	0	+	+
				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.	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	Option 3 does not offer any additional measures on top of measures included in Option 2.

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					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 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.[33] Promotion of green infrastructure can be one of the most effective tools available for managing environmental risks such as flooding and heatwaves.	
	3. To help tackle climate change through reducing greenhouse gas emissions and moving towards a zero carbon London by 2050	• Reduce transport's contribution to CO_2 emissions? • 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?	SEA	**0** 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 CO_2 emissions with HGVs and buses expected to contribute a higher proportion of CO_2 emissions in the future as other sectors are expected to decarbonise more rapidly. There is currently a requirement to reduce road traffic by 40% in order to meet current 2025 CO_2 emissions reduction target. As London is not currently meeting the Mayor's CO_2 emission target i.e. a reduction in London's CO_2 emissions by 60% of 1990 levels by 2025 means that Option 1 does not sufficiently address the issue of CO_2 emissions reduction and the Mayor's CO_2 emissions targets are likely not be met if additional reduction measures are not put in place by the MTS.	**+** 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. Proposals to increase the tree canopy will have small effects on absorbing carbon emissions. Option 2 has a clear target of achieving London's entire transport system to be net 'zero carbon' by 2050. Modal shift policies are usually weak in terms of the quantity of CO_2. Modal shift measures can be effective when well targeted, particularly when integrated with demand management measures. They cannot, however, form the corner-stone of effective CO_2 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.	**++** The additional policies and proposals in Option 3 are likely to lead to reduction in car use and thus further reduction in CO_2 emissions and reduce reliance on petrol and diesel products-fossil fuels, with consequential benefits for air quality.

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[33] London Underground Comprehensive Review of Flood Risk (LUCRFR) project (TfL 2016).

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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	• 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?	**AEI**	**0** Without additional measures, demand for energy for transport is expected to increase as private transport continues to grow.	**+** Mode shift and improved energy efficiency will make transport less energy intensive although considerable investment in new infrastructure is also energy intensive.	**+** Massive mode shift from car towards more sustainable modes will lead to large energy savings. While reduced congestion on the road network will improve energy efficiency for those that continue to use it although considerable investment in new infrastructure is also energy intensive.
			HIA	**0** Option 1 includes a limited amount of proposals to increase the uptake of green/cleaner fuels (e.g. the implementation of ULEZ in Central London). It does not contain proposals that encourage the uptake of renewable energy specifically.	**0** Option 2 does not contain significantly more measures that encourage the uptake of the green/cleaner fuels than Option 1. It includes some measures to increase the level of low carbon energy generation on TfL's estate or supply to its assets. TfL supplied modelling indicates that Option 2 does not reduce CO_2 emissions any more than Option 1. This suggests that the proposals Option 2 contains do not sufficiently encourage the uptake of green/cleaner fuels and renewable energy.	**+** Option 3 presents a package of pricing schemes and proposes further pricing strategies. TfL supplied modelling indicates that this is able to reduce CO_2 emissions from Option 1 to two million tonnes per annum by 2041. This suggests that Option 3 is effectively able to shift the reliance on fossil fuels and encourage the uptake of green/cleaner fuels and renewable energy.
			SEA	**0** Option 1 does not seek to provide infrastructure to make a better use of renewable energy sources.	**+** Option 2 contains the Greenwich Power Station project which will install additional generation alongside the existing engines and deliver significant electricity and carbon savings. It also contains proposals 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 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 on energy storage technology to save costs and encourage the growth of electrified transport in London. Proposed provision of new green infrastructure such as green roofs can greatly 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	**+** The impact of Option 3 is the same as Option 2 as the additional packages are not likely to have an impact.

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					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.	
			EqIA	0	?	?
				Option 1 does not indicate that it would provide smart and affordable energy system for all; as a result there is no impact of Option 1 on the contribution to provision of smart and affordable energy system for all.	Option 2 contains proposals to produce additional green power at Greenwich and reuse waste heat to support new heat networks. In addition Option 2 will also ensure systems are put in place to manage energy demand associated with the transition to ULEVs. Although the strategy commits to increasing the level of low carbon generation on TfL's land and supply to it assets, there are no specific policies or plans around the provision of smart and affordable energy systems for all. The impact of this option is therefore unclear.	The impact of Option 3 is the same as Option 2 as the additional packages are not likely to have an impact.
Flood risk	5. To manage the risk of flooding from all sources and improve the resilience of people, property and infrastructure to flooding	• 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	HIA	-	+	+
				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 or the risk that flooding pose to people. As the frequency of flooding increases, the risks and impacts on people will increase. The proposals to increase resilience of the transport system are unlikely to be sufficient to reduce the impacts of flooding on human health, particularly on mental wellbeing.	Option 2 contains proposals to manage existing flood risks and avoid new flood risks through the implementation of SuDS and other surface water strategies. These proposals can reduce the risk that flooding poses to human health.	Option 3 offers the same outcomes as Option 2; it does not contain additional proposals to further assist in achieving the objective.
			AEI	-	0	0
				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. TfL's highway drainage systems are not designed to cater for the high volumes of rainfall and London network of underground tunnels is also vulnerable to flooding. Therefore, in the absence of additional proposals to increase the resilience of the transport network, costs will likely to continue to rise to maintain operational performance.	While there are proposals to undertake research to understand and prioritise risk of severe weather and climate change on London's transport network until these are understood, there are no concrete proposals to address the issue. However, it is assumed that new infrastructure set out in the Strategy will have resilience built in.	While there are proposals to undertake research to understand and prioritise risk of severe weather and climate change on London's transport network until these are understood, there are no concrete proposals to address the issue. However, it is assumed that new infrastructure set out in the Strategy will have resilience built in. While measures will reduce some of the causes of climate change by increasing mode shift – greater dependence on

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						public transport increases the risk of London becoming less resilient to climate change, that is, if a network goes down a higher proportion of people will be impacted.
Geology and soils	6. To conserve London's geodiversity and protect soils from development and over intensive use	• Promote the use of brownfield land?	SEA	**0** Option 1 does not address explicitly the threat to London's geodiversity values as a result of increased demand for transport infrastructure. Some soils in 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 would need greater consideration through the planning process.	**0** Option 2 offers the same outcomes as Option 1; it does not contain additional proposals to further assist in achieving the 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. Also, trees have the potential to remove and immobilise contaminants through the processes of phytoremediation and phyto-stabilisation, and these processes are an inexpensive in situ approach to remediation. The establishment of vegetation on contaminated previously 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.	**0** Option 3 offers the same outcomes as Option 2; it does not contain additional proposals to further assist in achieving the objective.
Historic Environment	7. To conserve and enhance the existing historic environment, including sites, features, landscapes and areas of	• Protect and enhance the built environment around key transport facilities, including removing barriers to use? • Protect and enhance valued/important built environment and	HIA	**+**	**+**	**++**

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	historical, architectural, archaeological and cultural value in relation to their significance and their settings.	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?		Heritage assets are likely to continue to be preserved through legislation. However in addition to such protection, Option 1 contains proposals that are likely to enhance and increase access to historic environment. Proposals included within the 'better streets' initiative such as 'creating clear and easily understandable routes and spaces to make it easier for cyclists, pedestrians and disabled people to get about' (see proposal 83, MTS 2010) will have a positive health impact as it will remove barriers to use and increase community connectivity.	Option 2 introduces the 'Healthy Streets Approach' which involves a package of measures that will ultimately enhance key transport facilities, making them more accessible to all. Proposals such as implementing step-free access will increase access to historic environment and will remove barriers of use 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. 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 effects of Option 2 at a strategic level on the historic, archaeological and cultural environment of London as a whole are not expected to be significant.	Option 3 has further health benefits than Option 1 or 2 as it will result in decreased congestion and reduce the dominance on cars on the street. The reduced congestion, in conjunction with the proposals contained in Option 2, will further enhance the key transport facilities and make them more accessible to all by removing further barriers to use.
			SEA	0	0	0

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				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 Crossrail 2 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 and proposals in the Draft Revised MTS 3)*
				Option 1 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. 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 effects of Option 1 at a strategic level on the historic, archaeological and cultural environment of London as a whole are not expected to be significant.	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.	Option 3 offers the same outcomes as Option 2; it does not contain additional proposals to further assist in achieving the objective.
			EqIA	**0**	**+**	**+**
				The transport schemes proposed in Option 1 are unlikely to have positive effects on the accessibility and inclusivity for all existing historic/cultural/archaeological environments.	New transport schemes proposed in Option 2 are likely to have positive effects through promoting improved accessibility and inclusivity for all within existing historic/cultural/archaeological environments and their landscapes through inclusive design and management.	The impact of Option 3 is the same as Option 2 as the additional packages are not likely to have an impact.
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	• 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?	SEA	**-**	**0/+**	**0/+**
				Option 1 does not refer to encouraging the movement of waste to more sustainable methods such as rail and river transport and does not promote materials efficiency in all construction and operational practices.	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	Option 3 offers the same outcomes as Option 2; it does not contain additional proposals to further assist in achieving the objective.

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		• Increase the use of recycled materials I 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?			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).	
			AEI	**0**	**+**	**+**
				Option 1 does not promote the principles of circular economy when aiming for waste reduction, reuse, remanufacturing and recycling.	Option 2 contains proposals 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 tunnels to warm 454 homes. The strategy builds on this by introducing further schemes that exploit Tube waste heat, using land and assets for new low-carbon energy generation, and working alongside TfL's other business areas on energy storage technology to save costs and encourage the growth of electrified transport in London.	Option 3 offers the same outcomes as Option 2; it does not contain additional proposals to further assist in achieving the objective.
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 outcome for biodiversity	• Protect and enhance the character of local greenscapes? • Enhance the ecological function and carrying capacity of the greenspace network? • 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	SEA	**0**	**+/?**	**+/?**
				At present, London is facing key issues such as protecting green spaces and erosion of valued natural places as a result of increased pressure for transport infrastructure; 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 limited amount of proposals to enhance transport's contribution to the natural environment.	Option 2 has a number of policies and proposals to improve the natural environment in London: • 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 demonstrate positive changes in biodiversity.	Option 3 offers the same outcomes as Option 2; it does not contain additional proposals to further assist in achieving the objective.

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				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 Crossrail 2 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 and proposals in the Draft Revised MTS 3)*
		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 habitats? • Avoid damage to sites, protected species and habitats, especially where there is a designation of international, national, regional or local importance?			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. 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. 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. 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. 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. 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.	
			HIA	**0**	**-**	**-**
				Option 1 does not specially address connecting people to natural environment, especially those within the most urbanised parts of the city. It contains one proposal to improve the quality and diversity of London's natural environment through 'greening' open spaces across the transport system. However, the increase in 'green' spaces is likely to be significantly less than the increase in urbanised spaces as a result of transport development and expansion projects. As a result of the increased development, people are unlikely to feel more connected	Option 2 commits to protecting officially designated spaces, 'providing new green infrastructure 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	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 reallocation.

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				to London's natural capital.	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 Healthy 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.	
			AEI	**0**	**0**	**0**
				Option 1 does not really address the monetary value of natural capital of London.	Option 2 includes proposals recognising the importance of natural capita, however these are not monetised.	Option 3 offers the same outcomes as Option 2; it does not contain additional proposals to further assist in achieving the objective.
			HRA	**-**	**0**	**+**
				Current trends suggest that policies and proposals in the current MTS (2010) are unlikely to offer positive effects (and may result in negative effects) to European sites via air quality, natural capital and natural environment and water resources and quality. Without additional measures to tackle the issue of air quality, London will continue to be non-compliant with legal limits with higher levels of exposure to pollutants. Increasing economic growth and development will lead to increased car use and congestion leading to localized air quality issues. Increased transport development will lead to pressure to use areas of green space for development purpose, severing corridors and reducing quality and quantity of natural environment and connectivity between areas of green space. 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. Poor air quality, pressure on green space and poor water quality could all adversely affect European sites. The current MTS (2010) includes the following specific text in relation to European sites associated with Policy 14:	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 locations relating to sensitive European sites making any major effects (positive or negative) unlikely. Policies and proposals plus additional packages in Option 2 for further optimising the network, incremental expansion and new connections would reduce emissions from road transport and improve air quality as compared to Option 1 and mitigate effects on European sites sensitive to effects of nitrogen deposition and acidification (which include Epping Forest SAC and Wimbledon Common SAC). 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. 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	Policies and proposals relating to air quality, natural capital and 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. Additional packages in Option 3 are likely to significantly improve air quality via reduction of car mode share 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. Protecting and enhancing London's green infrastructure (e.g. Policy 7 and associated proposals), may enhance individual European sites or a network of

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				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 Crossrail 2 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 and proposals in the Draft Revised MTS 3)*
				"All policies and proposals promoted or brought forward by the strategy will not adversely affect the integrity of any European site of nature conservation importance, either alone or in combination with other plans and projects. Where an assessment is more appropriate at sub-regional or local level planning, it will be undertaken in accordance with best practice to ensure the aims of the objectives of the strategy are upheld. Any policies and proposals which have the potential to improve accessibility to such European sites will be assessed to ensure the effect of increased visitor pressure does not adversely affect their integrity". This strengthens the strategy in respect of protection of European sites.	accessibility to European 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 dependant on its location, extent and design. Projects referred to in relation to Option 2 would be subject to project specific Habitat Regulations Assessment to ensure no adverse effects to the integrity of European sites. 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.	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. Projects referred to in relation to Option 3 would be subject to project specific Habitat Regulations Assessment to ensure no adverse effects to the integrity of European sites. The Option 3 currently includes no specific text in relation to European sites which is a weakness in the strategy in respect of protection of European sites.
Noise and vibration	10.To minimise noise and vibration levels and disruption to people and communities across London and reduce inequalities in exposure	• Reduce the number of people exposed to high levels of noise from roads and railways? • Contribute to effective traffic management to reduce noise levels? (also for HRA) • To minimise and reduce road, rail and aviation noise and vibration levels and disruption to all people and communities across London	HIA	**-**	**0**	**+**
				Outer London high streets, town centres and communities can be traffic dominated, noisy and polluted, eroding local economic vitality and quality of life for residents. Currently in London, parts of the population are exposed to roadside and railway noise that exceeds the threshold. Option 1 can lead to congestion and overcrowding resulting in poor connectivity by public transport. Additionally, poor performance by the bus network can lead to high private car use leading to congestion on the roads which will accumulate greater noise levels on the roads affecting people, especially those living in proximity to roads, thus increasing health inequalities. Option 1 proposals are limited and this issue will likely persist. Noise increases blood pressure; interferes with sleep (though intermittent noise is probably more important than the almost constant noise from road traffic); and affects concentration. Noise near schools (from roads or airports) affects children's educational attainment, which has long-term effects on health and exacerbates inequalities.	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 supplied 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 proposed Heathrow airport expansion.	TfL supplied modelling predicts that the proposals included in Option 3 will result in reduced congestion and a significant decrease in car share across London. This reduced level of congestion and car share is likely to reduce the level of noise people are exposed to from road traffic.

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				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 Crossrail 2 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 and proposals in the Draft Revised MTS 3)**
-/?			SEA	-	-/?	-/?
				Currently in London, parts of the population are exposed to roadside and railway noise that exceeds the threshold as well as aviation noise. This is likely to have negative effects on the environment and human health. Option 1 proposals are limited and this issue is likely to persist. TfL does not currently have ways of measuring noise levels of impacts as a result of transport so it is impossible to set a quantified level of ambition.	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. 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. There are potential impacts on the natural environment due to some of the schemes in this scenario affecting Natura 2000 sites. 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. 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 against this IIA objective. 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. In the long-term, a switch to electric vehicles will potentially have significant beneficial effects with regard to noise	Option 3 offers the same outcomes as Option 2; it does not contain additional proposals to further assist in achieving the objective.

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					reduction from road transport.	
			EqIA	-	-/?	+
				Currently in London, parts of the population are exposed to roadside and railway noise that exceeds the threshold with road traffic being the main source of ambient noise in London, followed by rail. Option 1 proposals are limited and it is expected that overall road traffic will continue to grow which will lead to increased congestion and noise. Those living closest to busy roads are likely to be impacted along with children and the elderly being most likely to suffer the effects of high noise levels. There is increasingly more evidence [34] that suggests exposure to noise is a cause of non-auditory damage to the body (e.g. cardio-vascular, endocrine, metabolic, gastro-intestinal and neurological systems). Performance in certain tasks (such as reading, writing and listening) can also be affected by noise that is sudden or continuous. The groups most at risk are children (babies, preterm/low weight and small gestational age babies and children with disabilities [35]), the elderly, the chronically ill and people with a hearing impairment. In cases where some noise is unlikely to cause hearing loss, it can be an annoyance and reduce the effectiveness of those exposed to it. Those who live and/or work near these streets that are on lower incomes and cannot afford to relocate are likely to be disproportionally affected. TfL does not currently have ways of measuring noise levels of impacts as a result of transport so it is impossible to set a quantified level of ambition. Proposal 86 (MTS 2010) currently includes some noise reduction and mitigation measures but this is limited only to areas significantly affected by transport noise and does not seek to eliminate noise.	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 disportionately 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. 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 disproportionally 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. 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.	Main source of ambient noise in London is road traffic, followed by rail. 13% of people rate road transport as the greatest source of noise and consider it a 'serious problem' [36]. A fifth of Londoners are annoyed or disturbed in their homes by noise with buses and lorries creating the most disturbing noise. The additional demand management and pricing policies will significantly reduce the number of buses, coaches and HGVs in London. This will have a positive impact on noise and vibrations from road traffic. 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. 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 disproportionally affected by new noise levels during this time. It is therefore important that these new infrastructure schemes adhere to environmental standards and practices

[34] http://www.disabilitysafe.org.au/noise
[35] http://www.who.int/ceh/capacity/noise.pdf
[36] Mayor's Ambient Noise Strategy (2004)

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						required by the relevant consenting process which will in the vast majority of cases ensure that significant environmental effects are mitigated.
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	• 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?	SEA	**0**	**0**	**0**
				Main issues in London in respect to water resources quality are physical modifications to water bodies and pollution from waste water 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. Option 1 does not specifically address water quality. Therefore this issue is heavily reliant on legislation at the project level stages. New transport schemes would be subject to environmental appraisal and Environmental Impact Assessment, as appropriate, to ensure protection of the water resources and quality.	Main issues in London in respect of water resources quality are physical modifications to water bodies and pollution from waste water 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. Option 2 does not specifically address water quality. Therefore this issue is heavily reliant on legislation at the project level stages. New transport schemes would be subject to environmental appraisal and Environmental Impact Assessment, as appropriate, to ensure protection of the water resources and quality.	Option 3 offers the same outcomes as Option 2; it does not contain additional proposals to further assist in achieving the objective.
			HRA	**0**	**+**	**+**
				Option 1 does not specifically address water quality. Therefore this issue is heavily reliant on legislation at the project level stages. Current trends suggest that policies and proposals in the current MTS (2010) are unlikely to offer positive effects to European sites via water resources and quality. 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. 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.	The draft MTS 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 amenity".* Projects referred to in relation to Option 2 would be subject to project specific Habitat Regulations Assessment to ensure no adverse effects on the integrity of European sites.	The draft MTS 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 amenity".* Projects referred to in relation to Option 3 would be subject to project specific Habitat Regulations Assessment to ensure no adverse effects on the integrity of European sites.
Connectivity	12.To enhance	• Improve connectivity by	AEI	**-**	**+**	**+**

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				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 Crossrail 2 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 and proposals in the Draft Revised MTS 3)*
	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	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		London faces issues of poor orbital connectivity by public transport in outer London. It also has: • Reduced public transport connectivity across London as a result of congestion and overcrowding 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; and • Reduced connectivity in Central London by walking as a result of congestion and overcrowding on pavements and footpaths. Option 1 includes proposals for improving walking and cycling which can lead to growth in cycling to 6% mode share in 2041. Option 1 includes proposals which are likely to decrease congestion on the footpaths: • Deliver a new pedestrian and cycle bridge between Rotherhithe and Canary Wharf; and • Pedestrianise Oxford Street. Option 1 also delivers a 30% car mode share in 2041; a 6% decrease from 2015 but there is still an increase in vehicle kilometres. At the same time, Option 1 can lead to severe crowding by 2041 and some growth in outer London and growth in vans across the city leading to more traffic. The issues of poor connectivity are likely to deteriorate further as a result of increasing pressure on the transport system. Despite the above proposals, Option 1 will lead to a worsening congestion across London and increasing cost of congestion to the economy.	Option 2 builds on Option 1 and contains a number of additional proposals to improve connectivity, as well as improvements to bus services. Option 2 Improves access to employment opportunities in areas less well served by rail thereby supporting economic growth in these areas. It also improves access to employment opportunities for lower income groups who are more dependent on bus links. Package B would restore bus growth across London (particularly in the centre) and reduce the impact of car traffic on roads of high place value. Package C drives rail and underground growth further with line upgrades and metroisation leading to reductions in crowding on key corridors. Package D leads to connectivity improvements along key corridors, widespread crowding reduction and more noticeable vehicle km reduction. Packages achieve mode shift, public transport growth and relieve crowding, however they do not have significant impact on traffic volumes to relieve congestions to provide less traffic dominated city.	Demand management and road pricing provides a significant mode shift leading to significant reductions in road congestion and increases in vehicle speeds which should provide a significant economic boost to London's economy. However these measures are likely to lead to increased congestion at stops and stations due to mode shift which will have economic costs.
			HIA	**-**	**+**	**+**
				Option 1 includes proposals for encouraging walking and cycling which may lead to a 4% growth in cycling by 2041. An increase in cycling mode share will lead to active travel resulting in improved health. Option 1 also includes proposals which are likely to decrease congestion on some footpaths: • Deliver a new pedestrian and cycle bridge between	In addition to the proposals included in Option 1, Option 2 contains proposals to improve cycling and walking connectivity through the 'Healthy Streets Approach', which will ultimately benefit human health. Option 2 also includes proposals to build a cycle network of new Quietways, the Central London Cycle Grid, more Cycle Superhighways and the Mini-Hollands in Enfield, Kingston	Option 3 builds upon the proposals in Option 2 and includes a range of further enhancements such as providing improved information to travellers (e.g. live information as to the level of crowding) and road pricing which will increase the level of sustainable mode

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				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 Crossrail 2 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 and proposals in the Draft Revised MTS 3)*
		infrastructure, value of ecosystem services and multifunctional land use and connectivity.		Rotherhithe and Canary Wharf; and • Pedestrianise Oxford Street. Despite these proposals, the issue of congestion and overcrowding on footpaths across Central London is likely to worsen as a result of the increased population. This will result in decreased accessibility for vulnerable people who view congestion and overcrowding as a major deterrent for travel. .	and Waltham Forest, as well as improve bikeshare infrastructure. Option 2 contains a number of proposals to increase accessibility to transport, services and employment; this would benefit those within outer London communities who are disproportionally 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. However, there are no proposals that directly address the issue of congestion and overcrowding on footpaths across Central London, which is likely to worsen as a result of the increased population. Additionally, Option 2 is likely to lead to increased road congestion which also restricts accessibility.	share. These proposals 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 disproportionally impacted by lack of access. However, there are no proposals that directly address the issue of congestion and overcrowding on footpaths across Central London, which is likely to worsen as a result of the increased population.
			CSIA	**-**	**+**	**+**
				Option 1 will result in severe crowding by 2041. Overcrowding on the public transport can lead to an 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 susceptive to issues of safety on public transport.	Option 2 contains proposals to increase public transport connectivity across London which can result in reduction in congestion and crowding on services particularly at peak times which will reduce safety risks.	Option 3 contains proposals to increase public transport demand 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 a modal shift from driving to public transport, it is mitigated by the proposals to increase public transport capacity and connectivity across London which can reduce congestion and overcrowding on services particularly at peak times will reduce safety risks.
			EqIA	**0**	**+**	**+/?**
				Severance can be caused by transport infrastructure, motorised traffic and natural barriers such as rivers. Areas of high severance contribute to reduced active travel due to limited walkability and cyclability. This option contains some proposals (such as additional river crossings) that improve accessibility and connectivity of places which will reduce severance and the consequent inequalities affected by it. However they	Option 2 contains policies and proposals that will improve accessibility for all and reduce inequalities for those groups that are greatly affected. 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. The additional river crossings and bridges in East London in particular will reduce severance for the low income families in	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

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				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 Crossrail 2 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 and proposals in the Draft Revised MTS 3)*
				will be compromised by rising crowding, which is the biggest barrier to public transport for disabled customers. In addition, crowding will likely impair access for those with mobility issues and travelling with heavy luggage or a buggy. This will be further exacerbated by the rising population of the over 65s by 2041.	that area. The strategy considers how social needs transport could be better integrated with other public transport services. This will ensure that the most vulnerable who view public transport as a barrier, are not negatively impacted.	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.
			SEA	**0**	**-/?**	**-/?**
				Increased connectivity could increase visitor pressure on European sites. The current MTS (2010) includes the following specific text in relation to European sites associated with Policy 14: *"….. Any policies and proposals which have the potential to improve accessibility to such European sites will be assessed to ensure the effect of increased visitor pressure does not adversely affect their integrity".* This strengthens the strategy in respect to protection of European sites. 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.	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 European sites. 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. Projects referred to in relation to Option 2 would be subject to project specific Habitat Regulations Assessment to ensure no adverse effects to the integrity of European sites.	Option 3 offers the same outcomes as Option 2; it does not contain additional proposals to further assist in achieving the objective.

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				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 Crossrail 2 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 and proposals in the Draft Revised MTS 3)*
Infrastructure	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	• 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?	AEI	0	++	++
				Option 1 includes proposals to deliver 11,000 new homes with 50% of them to be affordable.	The proposals set out will support substantial 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. Extending bus services to open up sites not on the rail network is also proposed. Improved connectivity will increase access to employment and opportunities across London.	Reduced car demand potentially frees up more space for housing as less space is needed for car parking. Further reductions in congestion will also improve accessibility.
			HRA	0	-/?	-/?
				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.	In comparison to Option 1, additional packages for expansion of the transport infrastructure and new connections could impact European sites both directly and indirectly depending on their location and extent. In comparison to Option 1, additional packages for expansion of the transport infrastructure and new connections could increase visitor pressure on European sites (a negative effect) via improving connectivity and accessibility to European sites. Further infrastructure improvements could also unlock land that has capacity for housing. The development of new housing could pose a threat to European sites dependant on its location, extent and design. Projects referred to in relation to Option 2 would be subject to project specific Habitat Regulations Assessment to ensure no adverse effects to the integrity of European sites.	Option 3 offers the same outcomes as Option 2; it does not contain additional proposals to further assist in achieving the objective.
Economic	14.To maintain	• Improve interchange	AEI	-	+	+

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				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 Crossrail 2 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 and proposals in the Draft Revised MTS 3)*
competitiveness and employment	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	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?		Option 1 may lead to increased crowding by 2041 and some growth in outer London and growth in vans across the city leading to more traffic as well as leading to weaker performance of bus network. 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 of its ability to attract a flexible labour force. Poor services connectivity as a result of congestion, particularly in the south and south east London will suffer even greater from poor access to jobs, further hampering economic growth. Demand in employment growth in central London will be dependent on the capacity on rail routes and multi-modal connectivity towards central London, which with further overcrowding on the rail network, projected to increase by, is not likely to be met, leading to productivity decline/stagnation.	Option 2 contains a number of proposals which will provide significant economic benefits to businesses through a substantial increase in transport capacity. 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). Supporting infrastructure to HS2 will radically improve access between London and the UK's key economic centres. Additional transport provision will improve resilience although with levels of usage there will be limited spare capacity available to provide any material improvement in resilience. Compared to Option 1, Option 2 has an increase in public transport capacity causing an additional reduction in crowding, although there will not be a significant change in traffic volumes.	Demand management will radically reduce congestion on the road network and should lead to significant improvements in bus service reliability and journey times. However crowding levels are likely to increase on public transport due to substantial increases in passenger numbers. This will reduce network resilience due to lack of spare capacity.
			EqIA	0/+	+	+
				Option 1 includes limited proposals to increase accessibility to employment, training and up-skilling opportunities for all; however it contributes to the alleviation of poverty by providing affordable/discounted travel for disadvantaged sections of the community.	Option 2 includes proposals that can increase accessibility to employment, training and up-skilling opportunities for all. This is achieved through ensuring accessibility for all and increasing the transport networks (via additional bridge crossings) to areas which were previously less accessible such as East London and Silvertown. Option 2 also includes the 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 during the Mayor's term. Option 2 will likely increase accessibility to employment, training and up-skilling opportunities for all? There are important health consequences of employment. It will reduce potential negative effects of poor employment (exposure to toxins; high demand/low control jobs) and contribute to health consequences from employment – reduce adverse effects on mental and physical health of unemployment – both lack of	Option 3 presents the same benefits as those listed in Option 2. The additional packages related to demand management and pricing may have a slight 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.

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				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 Crossrail 2 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 and proposals in the Draft Revised MTS 3)*
					income and lack of self-esteem; provide benefits of steady employment (particularly income); etc.	
Sustainable Land Use	15. Make the best and most efficient use of land so as to support sustainable patterns and forms of development?	• Make the best use of land through appropriate development on brownfield sites and use of existing transport network? • Support delivery of a net positive outcome for biodiversity?	SEA	**0**	**+/?**	**+/?**
				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 of green space. Option 1 has limited amount of proposals to enhance transport's contribution to the natural environment.	Option 2 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: - 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. 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. There are a number of policies and proposals to improve the natural environment in London: • 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 circular economy).	Option 3 offers the same outcomes as Option 2; it does not contain additional proposals to further assist in achieving the objective.

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				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 Crossrail 2 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 and proposals in the Draft Revised MTS 3)*
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	• 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?	AEI	**-**	**++**	**++**
				Option 1 can lead to severe crowding by 2041 and some growth in outer London and growth in vans across the city leading to more traffic as well as leading to weaker performance of bus network. 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 of its ability to attract a flexible labour force. Poor services connectivity as a result of congestion, particularly in the south and south east London will suffer even greater from poor access to jobs, further hampering economic growth. Demand in employment growth in central London will be dependent on the capacity of rail routes and multi-modal connectivity towards central London. However , overcrowding on the rail network is projected to increase leading to productivity decline/stagnation. Option 1 contains proposals to build 11,000 new homes on 300 acres of TfL-owned land, with 50% of them to be affordable.	The proposals set out will support substantial housing development, Crossrail 2 alone aims to facilitate the delivery of around 200,000 homes. In addition, extension of Overground and Bakerloo 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.	The proposals set out will support substantial housing development, Crossrail 2 alone aims to facilitate the delivery of around 200,000 homes In addition, extension of Overground and Bakerloo 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. Reduced car demand potentially frees up more space for housing as less space is needed for car parking. Further reductions in congestion will also improve accessibility.
			EqIA	**0**	**+**	**+**
				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. Despite efforts to maximise affordable housing provision on TfL owned sites, Option 1 does not directly address contribution to the provision of affordable housing London-wide.	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.	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.
			HRA	**0**	**-/?**	**-/?**

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				The current MTS (2010) includes the following specific text in relation to European sites associated with Policy 14: "….. Any policies and proposals which have the potential to improve accessibility to such European sites will be assessed to ensure the effect of increased visitor pressure does not adversely affect their integrity". This strengthens the strategy in respect of protection of European sites. 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.	Option 2 contains proposals to build 11,000 new homes on 300 acres of TfL-owned land. In addition, extension of Overground and Bakerloo will support the delivery of 11,000 and 25,000 new homes respectively. Dependant on the specific locations of these developments this could increase visitor pressure on European sites in comparison to Option 1. 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. Projects referred to in relation to Option 2 would be subject to project specific Habitat Regulations Assessment to ensure no adverse effects to the integrity of European sites.	Option 3 offers the same outcomes as Option 2; it does not contain additional proposals to further assist in achieving the objective.
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	• Improve accessibility for all to historic and cultural environments?	AEI	**0** Option 1 does not specifically include proposals that can increase accessibility for all to historic and cultural environments.	**+/?** Option 2 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. However, Option 2 does not contain concrete proposals to address non-physical barriers for people with sensory or cognitive impairments.	**+/?** Option 3 offers the same outcomes as Option 2; it does not contain additional proposals to further assist in achieving the objective.
Accessibility	18.To maximise accessibility for all in and around London	• Improve accessibility to 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	AEI	**0** Option 1 includes limited proposals that can increase accessibility to all public transport modes.	**+** Option 2 proposals contain a number of measures to increase accessibility to all public transport modes, including: • 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.	**++** By removing a large amount of traffic, severance should be reduced improving accessibility to public transport.

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		the services they require? • Increase accessibility to key services and facilities for all? • Improve access to areas of biodiversity interests? • **Encourage a modal shift to more sustainable forms of travel?** • Address areas with deficiencies of access to open space? • Reduce levels of crime on the transport network, in particular violent assaults and sexual offences?			Taxi rank accessibility.	
			EqIA	**-**	**+**	**+**
				Issues of overcrowding associated with Option 1 will negatively impact this objective. The current MTS (2010) and the TfL Business Plan contain proposals for improved accessibility. 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. 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. 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.	Option 2 sets out very clearly in its Vision that the public transport system must be inclusive and accessible for all. 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. 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. 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. 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 groups, job seekers). 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.	Option 3 has the same benefits as Option 2. The additional packages in Option 3 do not provide any further benefits in accessibility.
			SEA	**0**	**-/0**	**-/0**
				Option 1 has minimum proposals to improve access to areas of biodiversity interests, i.e. it does not make a measurable contribution towards ensuring Londoners have access to a green space within 250m of where they live.	Option 2 has a number of policies and proposals to improve natural environment in London: • 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. Option 2 does not address deficiencies of access to open space anywhere in the documents. It does not give enough focus in improving access to natural environment which is	Option 3 has the same benefits as Option 2. The additional packages in Option 3 do not provide any further benefits in accessibility.

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				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 Crossrail 2 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 and proposals in the Draft Revised MTS 3)*
					likely to improve the wider built environment and sense of space, appreciate the natural environment and connect people with nature. Therefore, it is likely to have a negative effect against this objective as it does not set out measures to address this issue.	
			HRA	**0**	**-/?**	**-/?**
				Increased accessibility to green space could increase visitor pressure on European sites. The current MTS (2010) includes the following specific text in relation to European sites associated with Policy 14: *"….. Any policies and proposals which have the potential to improve accessibility to such European sites will be assessed to ensure the effect of increased visitor pressure does not adversely affect their integrity".* This strengthens the strategy in respect of protection of European sites. 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.	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 European sites. 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. Projects referred to in relation to Option 2 would be subject to project specific Habitat Regulations Assessment to ensure no adverse effects to the integrity of European sites.	Option 3 is very much as per Option 2 in respect of impact of improved connectivity. 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 European sites. Option 3 currently includes no specific text in relation to European sites which is a weakness in the strategy in respect of protection of European sites. Projects referred to in relation to Option 3 would be subject to project specific Habitat Regulations Assessment to ensure no adverse effects to the integrity of European sites.
			HIA	**0**	**+**	**+**
				Option 1 includes proposals to pedestrianise Oxford street, deliver new cycle paths and facilities, and makes the roads safer to cycle on, which will contribute to encouraging a modal shift towards sustainable transport. The proposals to encourage walking and cycling may lead to a 4% growth in cycling by 2041, and a decrease of 5.7% in car mode share. Despite these proposals, the issue of congestion and overcrowding on footpaths across Central London is likely to worsen as a result of the increased population. This will result in decreased accessibility for vulnerable people who view congestion and overcrowding as a major deterrent for travel.	In addition to the proposals included in Option 1, Option 2 includes enhancements such as the 'Healthy Streets Approach' and increased step-free access across the network. TfL supplied modelling shows that the proposals to encourage walking and cycling may lead to the same 4% growth in cycling by 2041 as Option 1, but a further 2.3% decline in car mode share. However, similarly to Option 1, the issue of congestion and overcrowding on footpaths across Central London is likely to worsen as a result of the increased population. This will result in decreased accessibility for vulnerable people who view congestion and overcrowding as a major deterrent for travel.	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. This would encourage a modal shift away from private vehicles, with people having more active lifestyles. TfL supplied modelling shows that this Option 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,

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				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 Crossrail 2 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 and proposals in the Draft Revised MTS 3)*
				Additionally, Option 1 includes a number of proposals to improve station accessibility. However, Option 1 may also lead to overcrowding which is the biggest barrier to public transport for disabled customers.	Additionally, Option 2 may also lead to overcrowding on PT which is the biggest barrier to public transport for disabled customers.	including those who are disproportionally impacted by lack of access. The proposals to encourage walking and cycling are likely to lead to the same 4% growth in cycling by 2041 as Option 1 and 2, but a further 11.6% decline in car mode share and a 9% increase in PT use is also likely. However, there are no proposals that directly address the issue of congestion and overcrowding on footpaths across Central London, which is likely to worsen as a result of the increased population.
			CSIA	**0**	**+**	**+**
				Option 1 does not specifically address violent assaults and sexual offences. It also does not address the lack of regulation around private hire vehicles to increase the standards of safety. BAME groups and women may be more vulnerable and susceptible to issues of safety when using this mode of transportation. Option 1 does not reflect the Mayor's community safety priority 'Keeping children and young people safe.'	Option 2 includes prioritising action on issues that disproportionately affect some customers more than others. This includes ground breaking 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. Vulnerable groups such as women who maybe at higher risk of sexual offences when travelling in certain modes of transport such as private hire vehicles will be protected through transparent and effective regulation which will bring about higher standards of safety for all customers.	Option 3 presents the same benefits as those listed in Option 2. The additional packages do not have an impact on reducing the 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 the perceptions of safety	• 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.	HIA	**0**	**+**	**+ +**
				Option 1 does not specifically address violent assaults and sexual offences. The Option 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. However, these are likely to be outweighed by the increased level of crowding that also may occur. Vehicle speeds are likely to reduce across London under Option 1. Additionally, a number of other proposals are aimed enhanced road safety. This will likely result in	Safety concerns are a barrier to active travel and contribute to inactivity which, in turn, has impacts on health and wellbeing. 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. The new 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. Additionally, the Option proposes increased levels of security provided on PT, which would contribute to reducing anxiety and stress through an increased perception of safety. This	In addition to the improvements likely under Option 2, Option 3 also includes a number of proposals that are likely to lead to reduced car use and consequently increased safety and the perception of safety for cyclists and pedestrians.

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		groups such as girls, women, older people and people living in low income areas)? • 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?		fewer injuries and deaths on the road and encourage more active transport. Option 1 does not reflect the Mayor's 2017-21 community safety priority 'Keeping children and young people safe.'	would result in a positive health impact, particularly for those who view safety concerns as a barrier to public transport. However, this reduction in stress is likely to be outweighed by the increased level of crowding that also may occur. The option contains a number of 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.	
			CSIA	**0**	**+**	**+**
				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. Option 1 has limited proposals to address crime, safety and security. The connection between the emerging priorities of the London Transport Community Safety Partnership and the MTS has not been identified.	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. Option 2 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. 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. This is a priority in Option 2 and includes the employment of additional compliance officers. The connection between the emerging priorities of the London Transport Community Safety Partnership and the MTS has not been identified.	Option 3 presents the same benefits as those listed in Option 2. The additional packages do not have an impact on reducing the proportion of people who do not use the public transport network due to perceptions of safety. It will also not have any direct impact on increasing security and resilience to major incidents on the network. The connection between the emerging priorities of the London Transport Community Safety Partnership and the MTS has not been identified.
			AEI	**0**	**+**	**+**
				Option 1 includes limited proposals to create a travel environment that feels safe to all users during the day time and night time.	Option 2 includes a goal to create an environment where people are safe and feel safe, however they choose to travel. To do this, 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 our services at all times. This goal implies addressing safety issues during day and night times.	Option 3 includes a goal to create an environment where people are safe and feel safe, however they choose to travel. To do this, 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 our services at all

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						times. This goal implies addressing safety issues during day and night times.
			EqIA	**0**	**+**	**+**
				Option 1 includes limited proposals to 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 low income areas).	Option 2 aims 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. Option 2 will have positive effects on public perception of safety and security amongst women and BAME groups who rely on buses and tube services and are more sensitive to safety issues on public transport. This is achieved through: • Adopting the new 'Vision Zero' approach to reducing death and serious injury on roads. • Improving the safety of London's Taxi and private industry through the employment of additional compliance officers. 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. Differences exist between ethnic groups in terms of injury rates from road traffic accidents (this refers to injuries sustained by any road users, so it includes pedestrians, cyclists and car occupants). For both children and adults, road traffic injury rates are higher among black Londoners compared to white and Asian Londoners. Black adults are 1.36 times more likely to be injured on the roads than white adults and 1.32 times more likely to be injured than Asian adults. A similar pattern is seen for children. Option 2 does not contain proposals to target these specific groups. Active travel targets unlikely to be met unless this barrier to travel is addressed. Some groups in society are likely to remain reluctant to use public transport, particularly at certain times of day.	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.

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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	• 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?	EqIA	**-** 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. 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. A number of proposals within Option 1 are aimed at reducing the level of noise pollution. However, the increased congestion on the roads and the increased level of development is likely to outweigh the benefits of these proposals and ultimately annoyance caused by transport noise is likely to be exacerbated. This is particularly problematic as noise disproportionately affects disadvantaged members of society who live in noisy areas and those with mental health issues who are particularly susceptible to annoyance caused by transport noise.	**+** 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. At the same time increase in cycling mode share and use of PT will lead to active travel increase improving health of people overall. However, Option 2 is also likely to lead to congestion and the similar amounts of air quality emissions as Option 1.	**++** 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 Option 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.
			HIA	**-** A significant proportion of Londoners do not currently achieve the recommended 150 minutes of physical activity per week. Additionally, London has the highest rate of childhood obesity in the country and a significant proportion of adults are overweight or obese. Whilst Option 1 includes some proposals to increase active transport, the proposals are unlikely to significantly increase the health of London's communities or reduce their level of inactivity. A number of proposals within Option 1 are aimed at reducing the level of noise pollution. However, the increased congestion on the roads and the increased	**0** 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. The proposed Direct Vision Standard will have direct positive effects on human health and safety by improving the safety of	**+** 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. This would result in significant improvements to health due to the

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				level of development is likely to outweigh the benefits of these proposals and ultimately annoyance caused by transport noise is likely to be exacerbated. This is particularly problematic as noise disproportionately affects disadvantaged members of society who live in noisy areas and those with mental health issues who are particularly susceptible to annoyance caused by transport noise. 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. 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 pavements footways across the city. Congestion and crowding is a major barrier to transport for the disabled.	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. At the same time increase in cycling mode share and use of PT will lead to active travel increase improving health of people overall. Proposed improved green infrastructure networks can accommodate routes for walking and cycling and would encourage shift to more active modes of transport thus reducing emissions of priority pollutants from transport (e.g. PM, NO_x, NO_2). 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 $PM_{2.5}$ 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 $PM_{2.5}$ which are aligned with the WHO standards.	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. 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.
			AEI	**0**	**+**	**+**
				This option supports increased walking and cycling thereby improving physical health.	This option supports increased walking and cycling thereby improving physical health.	The large mode shift to more sustainable modes supports the policy objectives.
Equality and	21.To make	• Encourage all groups to	HIA	**0**	**+**	**++**

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Inclusion	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	travel actively? • Make the transport system legible, safe and easy to use by all? • Plan to provide for a changing population into the future (in particular a more diverse and aging population)?		Option 1 includes a range of proposals to encourage more cycling and walking. These proposals can lead to a 4% increase in cycling across London and are aimed at different groups including 'employers, schools, community groups, other organisations and individuals'. However, the issue of congestion and crowding on footpaths across Central London is likely to worsen as a result of the increased population. This will result in decreased accessibility for some groups of people who view congestion and overcrowding as a major deterrent for travel. Additionally, Option 1 includes a number of proposals to improve station accessibility. However, Option 1 may also lead to crowding which is seen as the biggest barrier to active transport for disabled customers.	In addition to the proposals included in Option 1, Option 2 includes enhancements such as the 'Healthy Streets Approach' and increased step-free access across the network, allowing access to all user groups. TfL supplied modelling shows that the proposals to encourage walking and cycling may lead to the same 4% growth in cycling by 2041 as Option 1, but a further 2.3% decline in car mode share. However, similarly to Option 1, the issue of congestion and overcrowding on footpaths across Central London is likely to worsen as a result of the increased population. This will result in decreased accessibility for vulnerable people who view congestion and overcrowding as a major deterrent for travel. Additionally, Option 2 may also lead to crowding on PT which is the biggest barrier to public transport for disabled customers.	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. TfL supplied modelling shows that this Option 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 disproportionally impacted by lack of access. The proposals to encourage walking and cycling are likely to lead to the same 4% growth in cycling by 2041 as Option 1 and 2, but a further 11.6% decline in car mode share and a 9% increase in PT use is also likely. However, there are no proposals that directly address the issue of congestion and overcrowding on footpaths across Central London, which is likely to worsen as a result of the increased population.
			CSIA	**0**	**+**	**+**
				Option 1 contains limited proposals and policies to make the transport system legible, safe and easy to use by all. At present, there are increasing levels of reported of violent assaults and sexual offences on the transport network and anti-social behaviour on the transport network is perceived as a deterrent to its use by many Londoners.	Option 2 includes proposals that will use the principles of accessible for all, 'healthy streets' to improve spaces. It also supports Vision Zero and includes plans to improve the design and layout of street space and the areas near transport gateways such that they are legible, attractive, safe and accessible for all. Option 2 also contains plans to deal with unwanted sexual behaviour and hate crime which will improve safety on the transport networks.	Option 3 presents the same benefits as those listed in Option 2. The additional packages do not have an impact on improving the legibility, safety and ease of use of the transport system.
			EqIA	**0**	**+**	**+**

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				Option 1 contains limited proposals and policies to provide for changing populations into the future (in particular more diverse and aging population).	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 Option 2, 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 in Option 2 are future proofed for a more diverse and aging population.	Option 3 presents the same benefits as those listed in Option 2.
Social integration	22.To ensure London has socially integrated communities which are strong, resilient and free of prejudice	• 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)?	EqIA	**-**	**+**	**+**
				Issues of overcrowding associated with Option 1 will negatively impact this objective. Although Option 1 contains some proposals for improved accessibility, they will be compromised by rising crowding, which is the biggest barrier to public transport for disabled customers In addition, overcrowding will likely impair access for those with mobility issues and travelling with heavy luggage or a buggy. This will be further exacerbated by the rising population of the over 65s by 2041.	In addition to addressing the issues of overcrowding in Option 1, Option 2 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. There are also other services available to help alleviate physical accessibility related impacts 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. 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. Increased number of river crossings will also remove physical barriers to movement for groups of people living in lower socio-economic group and deprived areas to be better connected thus improving social integration.	Option 3 contains the same benefits as those presented in Option 2. However demand pricing would 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.
Design	23.To create attractive, mixed use neighbourhoods, ensuring new buildings and spaces are appropriately designed that promote and enhance existing sense of place	• 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 attractiveness and access for all? • Create and maintain a safe and attractive public realm	HIA	**0**	**0**	**+**
				Option 1 includes a number of proposals to enhance streetscapes and remove barriers to use through the 'better streets' initiative. These include pedestrianizing Oxford Street (one of the world's most polluted streets) and improving town centres. TfL is proactively investing in infrastructure and other improvements, and are ensuring that safety and security are considered in the planning and design of all services. Option 1 also includes strategies that will reduce vehicle speeds across London and enhance road safety. This	Option 2 introduces the 'Healthy Streets Approach' making the city a more attractive and accessible place in which to live, work and travel. Implementation of the policies and proposals in Option 2 would result in more accessible and better integrated public transport and an increase in active transport facilities. However, similarly to Option 1, despite these efforts, issues of congestion, noise, poor air quality will persist, and car mode share will remain high.	Option 3 offers the best option to achieve this objective. The proposals included in Option 2, 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. However, unlike Option 1 or 2, Option 3 contains additional measures that will be able to reduce the key problems that

Topic	IIA objective	Assessment guide questions *Will the strategy…? SEA, EQIA, HIA, HRA, AEI, CSIA*	IIA	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 Crossrail 2 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 and proposals in the Draft Revised MTS 3)*
	and distinctiveness, reducing the need to travel by motorized transport	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		will likely result in fewer injuries and deaths on the road and encourage more active transport. However, despite these efforts, issues of congestion, noise, poor air quality will persist, and car mode share will remain high.		prevent London from achieving this objective; namely, issues of congestion, noise, poor air quality, perceptions of poor safety, and high car mode share. Option 3 is able to effectively address these issues and lead to better health outcomes.
			EqIA	+	++	++
				The current data indicates that whilst Londoner's satisfaction with the public realm has remained reasonable over the years more can be done to improve cycle lanes and lighting on streets. Poor quality public realm can discourage active travel and its use. Option 1 includes proposals that will use the principles of accessible for all, 'healthy streets' to improve spaces. It also supports Vision Zero and includes plans to improve the design and layout of street space and the areas near transport gateways such that they are legible, attractive and accessible for all. Public realm will also be improved by planting more trees to reduce urban heat island effect which will allow everyone to use the streets.	In addition to the benefits listed in Option1, Option 2 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. Policy 9 states that the public transport system should be developed and integrated to offer a good experience for all Londoners. The policy also aims to improve the "whole journey" experience which will be achieved through several proposals. Some of which include working with the relevant stakeholders to improve walking and cycling routes, improving local streets to create environments that promote cycling and walking; improving London's legibility. Public realm will also be improved through proposed tree planting which will reduce urban heat island effect, allowing everyone to use the streets. Option 2 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. 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.	Option 3 includes further benefits in addition to those listed in Option 2. Data from 2014 indicated that pedestrian death rates nationally are highest in children and elderly people with vulnerable road users making up 82% of fatalities and 80% of killed or seriously injured casualties (KSI).[37] Demand management and pricing will further reduce number of vehicles in London which will have a disproportionate benefit to vulnerable road users.
			CSIA	+	+	++
				The support of Vision Zero in Option 1 will contribute positively to the public's perception of safety from traffic. Option 1 also contains policies and proposals to improve the safety and security on the public transport network and the on the streets which will encourage more people	The policy to make better use of street space for people rather than vehicles will make these spaces safer for pedestrians and cyclists. The issue of safety is also addressed through the policy to ensure that crime and the fear of crime will remain low on the streets and transport	Perceived safety from traffic is associated with reduced traffic speed and volume. Additional demand management and pricing introduced in Option 3 will further reduce the number

[37] Transport for London (2015g) Casualties in Greater London during 2014. Accessed on 25 July 2016 from: http://content.tfl.gov.uk/improving-the-health-of-londoners-transport-action-plan.pdf

Topic	IIA objective	Assessment guide questions *Will the strategy…?* SEA, EQIA, HIA, HRA, AEI, CSIA	IIA	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 Crossrail 2 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 and proposals in the Draft Revised MTS 3)*
				to walk and cycle.	networks. There are also numerous policies to encourage Londoners to walk and cycle more often and that these areas are safe and accessible for all. The proposals include additional pedestrian and cycle bridges and new walking routes.	of buses, HGVs and lorries on the roads. 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 to a lower volume of traffic, this is mitigated through the implementation of Vision Zero which incorporates safe speeds. 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.[38] One study found that environmental hazards related to traffic and falls risks can be significant barriers to walking for seniors[39]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.
			SEA	0	-/0	-/0

[38] Davison K, Lawson C. (2006) Do attributes in the physical environment influence children's physical activity? A review of the literature. International Journal of Behavioral Nutrition and Physical Activity. 2006;3(1):19).
[39] Lockett D, Willis A, Edwards N. (2005)Through seniors' eyes: an exploratory qualitative study to identify environmental barriers to and facilitators of walking. Can J Nurs Res. 2005 Sep;37(3):48-65).

Topic	IIA objective	Assessment guide questions *Will the strategy…? SEA, EQIA, HIA, HRA, AEI, CSIA*	IIA	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 Crossrail 2 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 and proposals in the Draft Revised MTS 3)*
				Option 1 has minimum proposals to improve access to areas of biodiversity interests, i.e. it does not make a measurable contribution towards ensuring Londoners have access to a green space within 250m of where they live.	Option 2 has a number of policies and proposals to improve natural environment in London: • 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. Option 2 does not 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 environment and sense of space, appreciate the natural environment and connect people with nature. Therefore, it is likely to have a negative effect against this objective as it does not set out measures to address this issue.	Option 3 has the same benefits as Option 2. The additional packages in Option 3 do not provide any further benefits in accessibility.

Appendix F. Description of the TfL modelling outputs as the basis for the strategic Options

TfL have carried out a comprehensive programme of transport modelling work to inform the policy development of the draft MTS3. This has included package modelling. In this report: Option 1: Do minimum matches the TfL core reference case (package A). Option 2 represents the interventions included in packages A, B, C and D, and Option 3 represents all the interventions plus those included in packages E and F.

Option 1: 'Do minimum'

- Travel demand is expected to increase in proportion to the growth in population. TfL forecasts that the demand for travel in London will increase by at least 5 million trips per day, from around 27 million trips per day, today, to around 32 million in 2041. Additional trips will mostly be by public transport or active travel, with only a small increase in car trips.

- Mode share will change. Most of the additional travel demand will be in the form of more public transport, walking and cycling trips, with the percentage mode share for car travel falling from 36% in 2015 to 30% in 2041.

2015 Mode Share   **2041 Option 1 Mode Share**

Public Transport   Walk   Cycle   Car

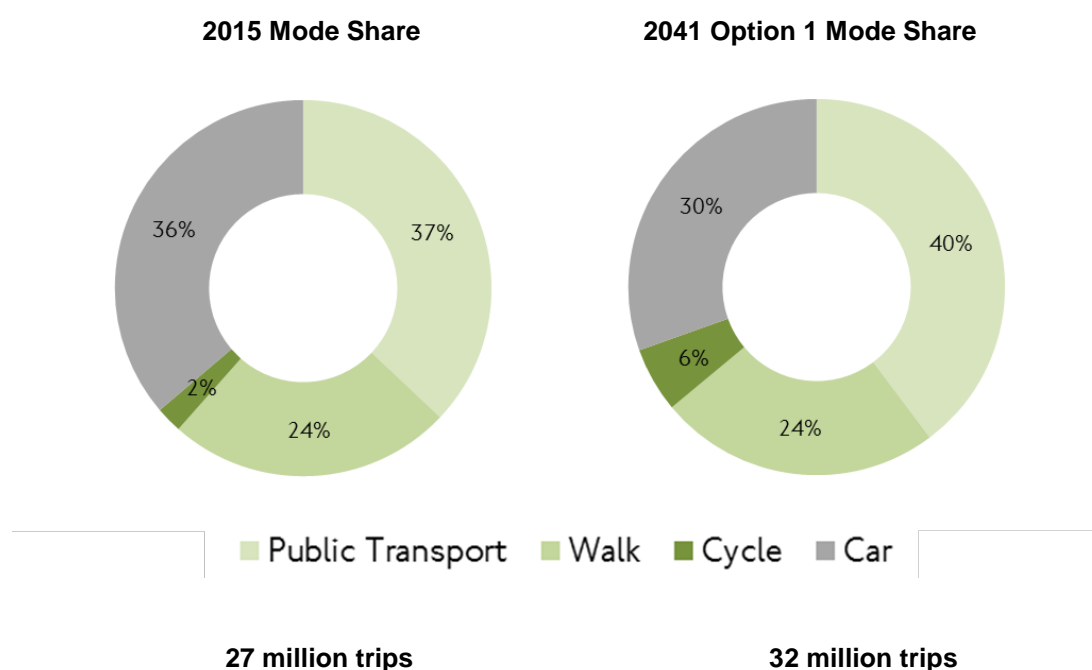**27 million trips**   **32 million trips**

Figure 1: Mode share change between 2015 base and in 2041 with MTS Option 1.

- There will be strong growth in public transport demand, particularly for rail based modes in Option 1. TfL forecasts show a 54% increase in rail and Underground boardings and a 57% increase in rail and Underground passenger km from 2015 to 2041 within the GLA. This is resulting from London's growth and supported by the extra capacity provided on the networks by interventions such as the Elizabeth line.

- Bus patronage growth is forecast to be lower than rail growth in Option 1 with an increase of 18% in bus passenger km from 2015 to 2041, reflecting lower capital investment and service enhancements. Bus usage is expected to broadly keep pace with population growth in outer London, with bus passenger km forecast to fall 16% in central London, and rise 11% in inner London and 25% in outer London. The TfL Business Plan proposes a reallocation of bus services from central to inner and outer London. Unmitigated, planned changes to the road network in central London would also reduce

general traffic and bus speeds, and these supply issues are likely to result in reduced bus passenger kilometres in central London and modest growth in inner London.

- Overall road traffic is expected grow modestly, at a rate slower than population growth. Any growth is driven by rising population and growth of vans which are an increasing proportion of the total traffic. Traffic volumes are expected to fall in central London, with growth concentrated in outer London where there are fewer public transport options and car ownership and use is less constrained. Growth here is primarily driven by rising population, as well as growth in van traffic, which will form an increasing proportion of total motorised vehicle traffic.

- Highway capacity for motorised traffic will be lower in the future as a result of a range of changes related to Healthy Streets, including pedestrian priority and public realm schemes, which remove capacity for general road traffic. This results in higher delays and lower average vehicle speeds.

- Congestion is expected to continue to increase. Overall vehicle speed is expected to decrease by up to 25% in central London from 2015 levels, with average vehicle speeds decreasing across the GLA.

- Given only funded investment, demand for public transport is projected to increase at a faster rate than supply from 2021. From 2015 to 2041, passenger kilometres travelled in severely crowded conditions are expected to increase by 50 per cent on the Tube and 90 per cent on National Rail.

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

This option aims to maximise public transport to its full potential. Option 2 attempts to encourage the use of public transport instead of car through the construction of large scale public transport investment projects such as Crossrail 2, the Bakerloo Line Extension and HS2. It also includes Overground extensions and frequency uplifts, orbital rail and strategic interchange investment, DLR extensions and Tram extensions and frequency uplifts.

2041 Option 1 Mode Share

2041 Option 2 Mode Share
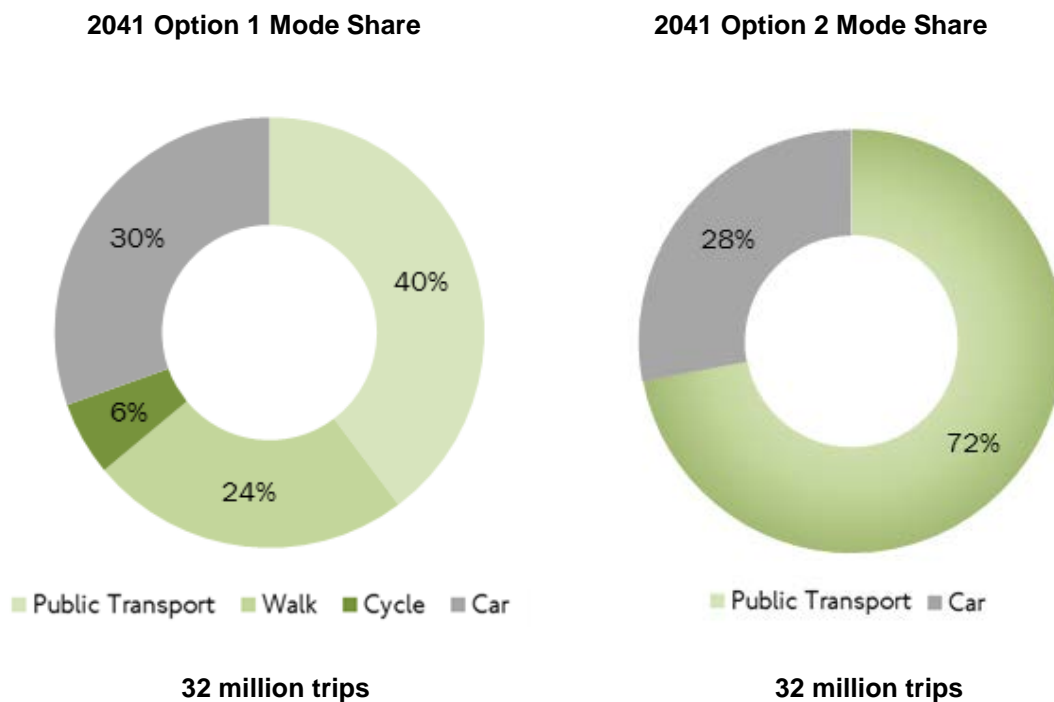
32 million trips

32 million trips

Figure 2: Mode share change for 2041 between Options 1 and 2

- Public transport improvements have a moderate impact on mode share and lead to falling car mode share from 30% in Option 1 to 28% in Option 2. Option 2 also sees at least 1% increase in rail, Underground and bus mode shares.

- Major public transport investment leads to continued growth in public transport demand between Option 1 and 2. Public transport infrastructure investment in Option 2 increases public transport passenger km by 18% in 2041 compared to Option 1. These improvements also lead to widespread crowding relief, with a 24% reduction in passenger kilometres travelled at a density greater than 4 passengers per square metre across all rail modes in the morning peak.

- In outer London and across the GLA, vehicle use is forecast to increase from 2015 to 2041 in Option 1, and the investment proposed in Option 2 will reduce some of that increase, but does not reduce vehicle use below 2015 levels.

Option 3: Option 2 with additional demand management and road pricing levers to maximise mode shift to sustainable modes

In addition to the public transport investment in Option 2, Option 3 includes increased parking charges, road space reallocation schemes and road pricing measures, in an attempt to reach the 80% sustainable (walking, cycling and public transport use) mode share target set out in the MTS vision.

2041 Option 1 Mode Share   **2041 Option 3 Mode Share**

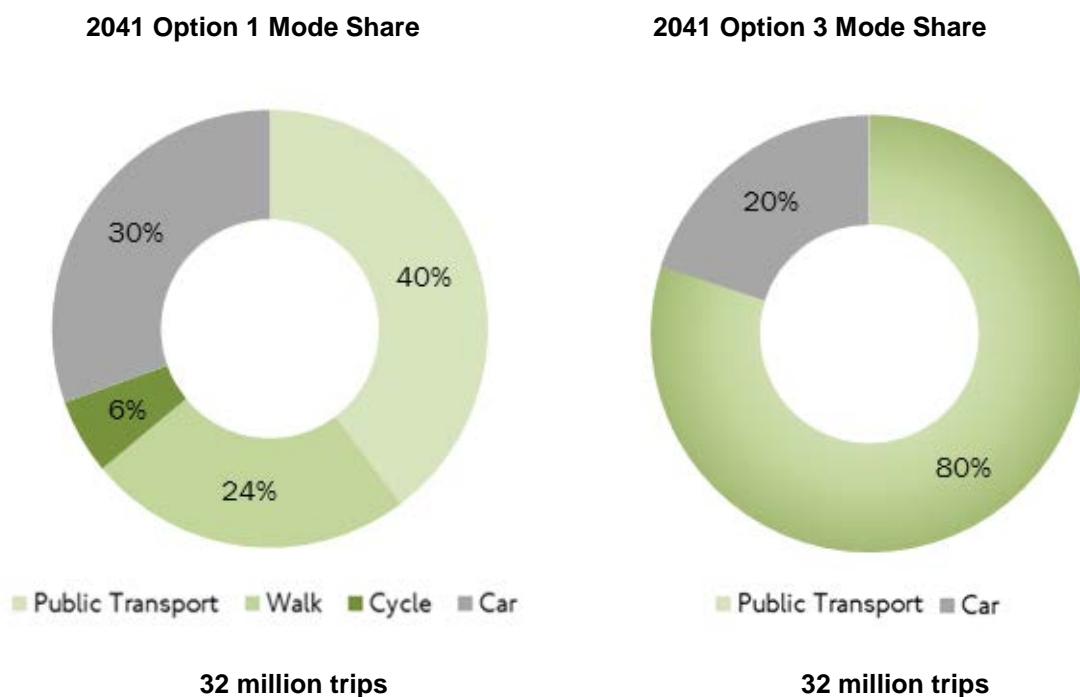**32 million trips**   **32 million trips**

Figure 3: Mode share change for 2041 between Options 1 and 3

- The significant demand measures included in Option 3 achieve an 80% sustainable mode share. Car mode share drops further from 30% in Option 1 to approximately 20% in Option 3, with an increase in walking mode share of 2%, rail of 4%, Underground of 2% and bus of 4%.

- Option 3 leads to a significant reduction in GLA vehicle km in 2041. There is an overall reduction of approximately 18% with option 3 in 2041 compared to the levels in Option 1, with traffic reduced by 7% from 2015 levels. 16% of this reduction from Option 1 comes from the distance based charging proposal included in this package.

Appendix G. Consultation Draft MTS 3 emissions reductions forecast

MTS – Emissions Impact (TfL, March 2017)

1. NO_x and NO_2 – impact of measures in the short term

Measures in the MTS are forecast to deliver reductions in road transport NO_x emissions by the early 2020s. Figure 1 below shows the estimated reductions of each measure against baseline. It also shows the estimated level of emissions reduction required to support compliance with legal concentration limits of NO_2 on 70% and 99% of London's roads.

Road Transport NOx Emissions 2020
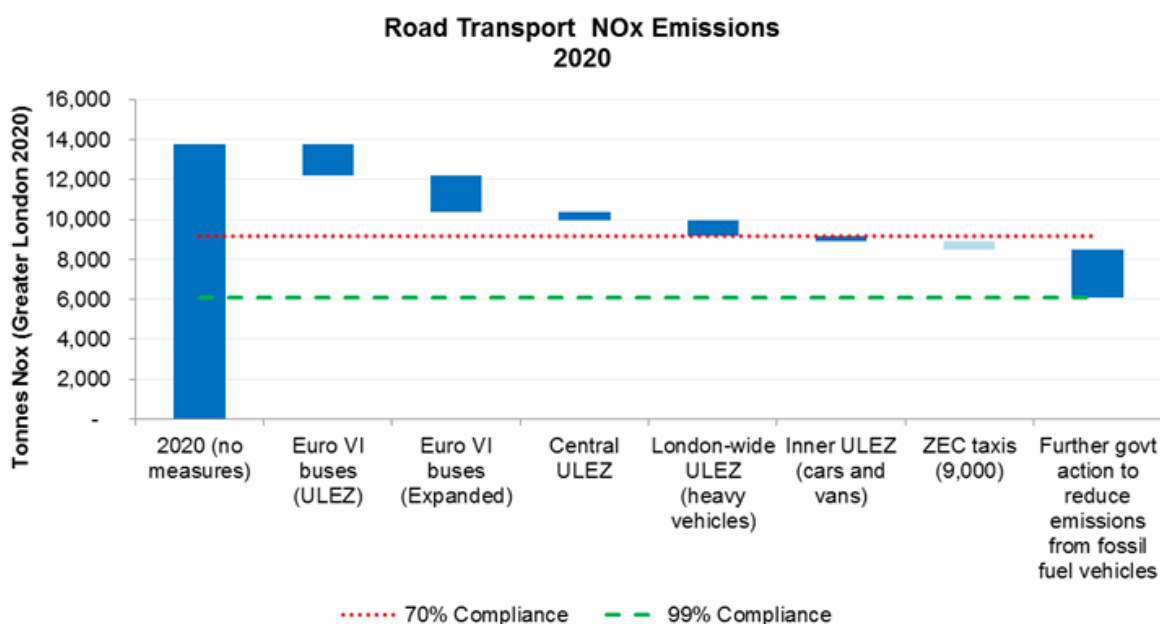
······· 70% Compliance   — — 99% Compliance

Figure 1: Reduction in 2020 Road transport NO_x vs. baseline, based on measures described in the MTS, and estimated remaining action required to achieve NO_2 compliance limits

2. CO_2 – impact of MTS on 2040 emissions

Figure 2 below shows total transport CO_2 emissions in London in 2013, as well as modelled emissions of 2041 under (a) the Reference Case (b) Package D, (c) Package F and (d) "Full Strategy" – Package F plus changes in road vehicle technology following the Roadmap to Zero Emission Road Transport described in chapter 3 of the draft MTS. The strategy forecast is based on measures to support road and rail transport in London reaching full zero emission by 2050.
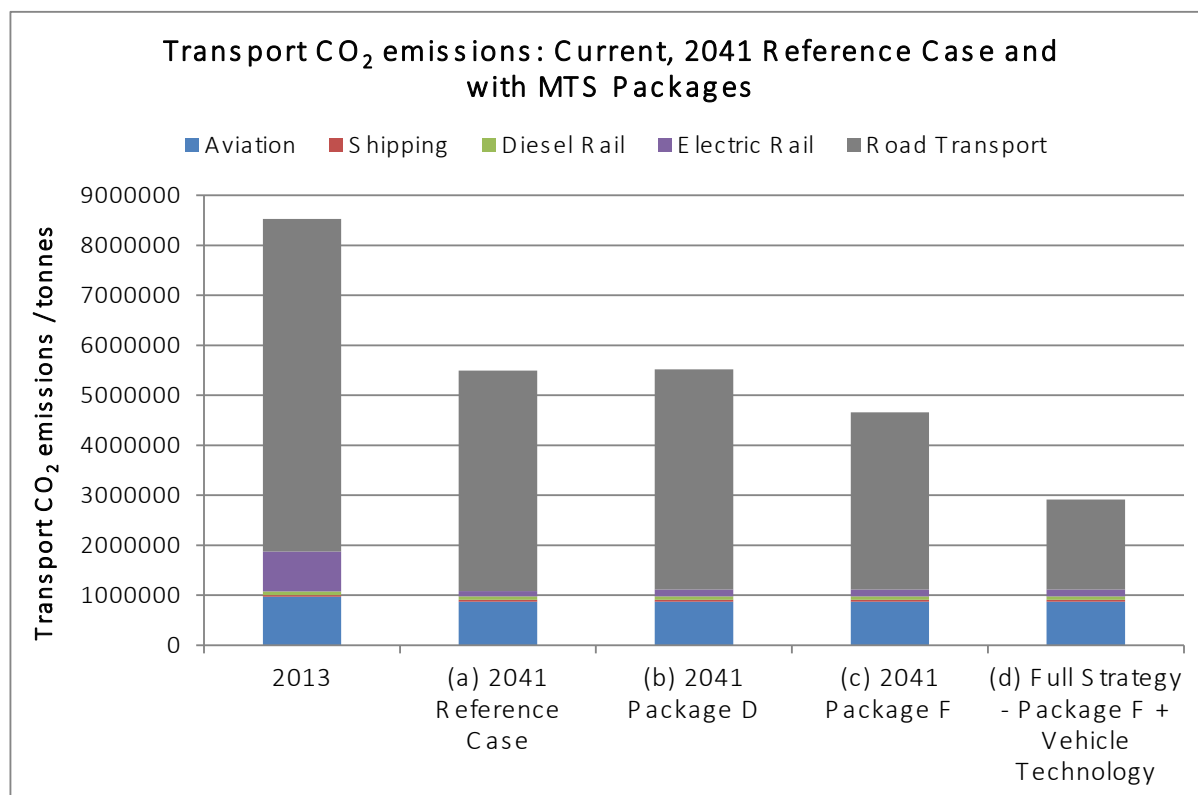
Figure 2: Impact of the MTS in transport CO_2 emissions

Assumptions:

- CO_2 emissions from grid electricity based on government forecasts (https://www.gov.uk/government/collections/energy-and-emissions-projections)
- Aviation emissions based on the 2013 LAEI.
- No expansion of Heathrow airport.

3. Particulate Matter – 2041

Table 1 shows the impact of the MTS on road transport Particulate Matter emissions under each of the scenarios described above.

Table 1: Impact of the MTS on particulate matter emissions from road transport in London.

Road transport emissions / tonnes / year	2013	2041 Reference Case	2041 Package D	2041 Package F	2041 Full Strategy
$PM_{2.5}$	873	584	582	462	460
PM_{10}	1348	1106	1101	873	861

Appendix H. General list of 'core' monitoring topics in scope for Travel in London reports

MTS – Monitoring (TfL, May 2017)

The Travel in London report, produced annually by TfL, will be the principal means of monitoring and reporting on the implementation of the Mayor's Transport Strategy 3. Travel in London reports are intended to serve a range of purposes, offering an authoritative repository of contemporary statistics and trends relating to transport and travel in London, as well as an interpretative commentary designed to assist policy development. The content of these reports will cover a range of 'core' topics and indicators that relate directly to the Strategy outcomes, as well as a variable content that focuses on specific contemporary concerns from year to year. A formal set of quantitative outcome indicators for the revised Strategy is under development, and Travel in London Report 10, due to be published at the end of 2017, will reflect this new framework.

Bearing in mind this review, the following list sets out what might be regarded as the 'core' indicator/topic set for Travel in London reports. Much of this information will arise from TfL's 'business as usual 'monitoring, although some specific new indicators, with appropriate supporting research, may need to be created to better reflect the outcomes of the revised Strategy. This list is also a sub-set of TfL's wider monitoring activity, which can also be drawn upon as necessary, as well as other monitoring work undertaken by third parties. This element of flexibility is important so that the content of Travel in London reports can adequately reflect and inform contemporary policy issues as they arise.

Core Topics for Travel in London reports

Overall travel

- Travel behaviour of London residents and relationship to socio-demographic characteristics. Reflects TfL's comprehensive LTDS survey.
- Overall volumes of travel in London. Reflects comprehensive 'operational' data (e.g. counts, Oyster CLoCCs, etc.).
- Mode specific demand trends and patterns. Relationship of these to population, economy, etc.
- Connectivity (e.g. WebCAT), access to jobs/opportunities, public transport accessibility levels (PTAL).
- Overall demographic and economic trends in London.

Performance of the public transport networks

- Transport supply by mode (public transport).
- Operational reliability by mode (public transport).
- Relationship between supply and demand (crowding).
- Indicators of public transport quality (customer satisfaction- type indicators).
- Public transport operational safety.

Road network/Healthy streets

- Traffic volumes and trends (comprehensive).
- Comprehensive cycle monitoring programme.
- Pedestrian volumetric and attitudinal monitoring.
- Active travel.
- Healthy Streets indicators.
- Customer satisfaction and behavioural indicators (streets).
- Traffic congestion and journey time reliability.
- Freight volumes and characteristics.

- Road safety

Environment, equalities and housing

- Air quality concentrations (comprehensive)
- Emissions (comprehensive, including CO_2)
- Vehicle fleet compositions (Euro standards).
- Indicators of physical accessibility of transport networks.
- Public transport fares – affordability.
- New residential development 'unlocked' by transport infrastructure.
- Wider environment issues – noise, biodiversity and climate change resilience.

Appendix I. Abbreviations

AEI   Assessment of Economic Impacts

BAME   Black, Asian and Minority Ethnic Groups

CAZ   Central Activity Zone

CO_2   Carbon Dioxide

CSIA   Community Safety Impact Assessment

DCO   Development Consent Order

DfT   Department for Transport

DLR   Docklands Light Railway

DVS   Direct Vision Standard

EIA   Environmental Impact Assessment

EqIA   Equality Impact Assessment

GHG   Greenhouse Gas

GLA   Greater London Authority

HIA   Health Impact Assessment

HRA   Habitats Regulations Assessment

HUDU   Healthy Urban Design Unit

IIA   Integrated Impact Assessment

KSI   Killed or Seriously Injured

LES   London Environment Strategy

LGBT   Lesbian, gay, bisexual and transgender people

LGV   Large Goods Vehicle

LIPs   Local Implementation Plans

LTS   London Transportation Studies

MPS   Metropolitan Police Service

MTS   Mayor's Transport Strategy

NO_2   Nitrogen Dioxide

ODPM   Office of the Deputy Prime Minister

PM_{10}   Particulate Matter (measuring 10μm or less)

PT   Public Transport

PTAL   Public Transport Accessibility Level

SA   Sustainability Appraisal

SAC   Special Areas of Conservation

SEA   Strategic Environment Assessment

SME   Small and Medium Enterprise

SPA   Special Protection Area

SUDS   Sustainable Urban Drainage Systems

TfL   Transport for London

ULEV   Ultra-Low Emission Vehicle

ULEZ   Ultra-Low Emission Zone

WHO   World Health Organization

ZEC   Zero Emission Capable

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