Draft Revised Mayor's Transport Strategy: Integrated Impact Assessment: Appendix D: Assessment Framework

Report for Transport for London

MVA in Association With ERM and Future Inclusion

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ERM

future inclusion

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Appendix D – Assessment Framework

1 Introduction

1.1 This Appendix shows the detailed assessment frameworks that have been used in the assessment of the Options considered during the development of the Draft Revised MTS and the Preferred Option as reflected in the version of the Draft Revised MTS published for public consultation. The framework consists of a series of focus areas under six headings and is discussed in more detail in Chapter 6 of the IIA report.

1.2 Note that all the numerical estimates on which these assessments are based are subject to some uncertainty, the principal consideration being the broad shape of the analysis with the conclusions in the assessment being robust to small changes to specific numbers.

1.3 A scoring system, based on the severity and magnitude of the predicted impact, has been used to show the expected impacts.

Table D.1 Nature and Magnitude of Significant Impacts

Significance of Impact	Colour Code	Description
Strong positive	✓✓	A **positive** impact of **moderate to major** magnitude
Positive	✓	A **positive** impact of **minor to moderate** magnitude.
Neutral	-	An impact where **no** change from the current situation is expected.
Uncertain	?	Where uncertainty exists as to the overall impact – or – there are both positive and negative impacts
Negative	X	A **negative / adverse** impact of **minor to moderate** magnitude.
Strong negative	XX	A **negative / adverse** impact of **moderate to major** magnitude.

1.4 The first set of assessment tables given in this Appendix contains the assessment of Options 1, 2 and 3:

- **Option 1**: The 'Do Minimum' option. This followed the current London Plan approach to spatial and land use planning. Option 1 was based on the current MTS and included committed transport investment; that is TfL investment as set out in the current TfL Business Plan to 2017/18 and the rail investment set out in the Government's railway

investment programme (HLOS) up to 2014[1]. Population and employment growth create increased travel demand. Compared to today in 2026 passenger-km are predicted to increase by 28%, passenger boardings by 23% and road traffic by 5%. Congestion is expected to grow by 12% but investment will reduce public transport crowding by 16%.

- **Option 2**: This Option was also based on the current London Plan approach to spatial and land use planning, but extending the timeframe to 2026 and incorporating the drafting of revised MTS policies and proposals broadly in line with this pattern of development[2]. Transport assumptions include improved radial capacity (to cope with job expansion) and cycling initiatives.

- **Option 3:** This Option used an approach to spatial and land use development involving greater emphasis on decentralised development, including strategic intervention in Outer London Development Centres; together with the drafting of revised MTS policies and proposals broadly in line with this pattern of development within a timeframe up to 2026. Half the then-projected job growth in the central area between 2016-2026 (70,000 jobs or 5% of total Central London and Isle of Dogs employment) was re-allocated to four strategic Outer London development centres. Transport assumptions include improved radial capacity – to cope with increase in central area jobs, orbital transport improvements in outer London and additional bus services to serve outer London.

1.5 The second set of assessment tables contains the assessment of the Preferred Option, as encapsulated in the Draft Revised MTS. The derivation of the Preferred Option, which incorporates some aspects of both Options 2 and 3, is explained in the main IIA Report.

1.6 The final table in this Appendix sets out the predicted cumulative impacts across the Draft Revised MTS, Draft London Plan and Draft EDS.

2 Modelling Data

Schemes included in the Modelling of Options 1, 2 and 3

2.1 Detailed modelling was carried out by TfL on each of the four Options as described in Appendix B. A summary of the schemes are given in Table D.2.

[1] It includes retention of the WEZ within the congestion charging zone and the continued implementation of the LEZ (including Phase 3 in October 2010).

[2] The time horizon for modelling at that time was 2026 and this was used to provide evidence on the comparative performance of the options. Subsequent analysis has had the benefit of more recent projections of population and employment for 2031 and these were used in the assessment of the preferred option.

Table D.2 Summary of Schemes in Options

Option 1
As detailed in Appendix B, Table B.1
Option 2
Option 1 plus further enhancements, to test the impact of additional investments focused on the land use set out in the current London Plan. The increased investment includes: National Rail: - London Overground further capacity enhancements - Additional service and capacity enhancements, predominantly on radial existing rail lines - New services including extensions to Crossrail and Airtrack service from Heathrow London Underground: - Additional capacity and service enhancements including Northern Line service separation and service increases on selected lines DLR and Tramlink extensions
Option 3
Option 1 plus the further enhancements appropriate to a different pattern of land use with greater emphasis on decentralised development. This involved enhancement to radial capacity and provision, but less than in Option 2. It also, unlike Option 2, included more focus on provision of additional public transport capacity in, from and to the outer London centres with increased employment in Option 3.
Preferred Option
This is set out in detail in Figure 80 of the Draft Revised Mayor's Transport Strategy (pages 275-284)

Modelled Effects of Assessment of Options 1, 2 and 3

2.2 A summary of the modelling data 2026 for the three Options is given in Table D.3 below. Also included here are data for 2006, to provide readers with a comparison with conditions that currently prevail. The effect of the planned schemes is that there will be an increase in public transport capacity, as measured by planning guideline capacity (PGC), of 14% capacity for Option 2 and 15% capacity for Option 3, compared to Option 1.

2.3 It can be seen that the statistics are very similar across the three Options with the exception of PT crowding which reduces in Options 2 and 3 compared to Option 1. The principal difference between Options 2 and 3 is in the location of some employment and associated public transport provision. Hence the overall statistics in the numbers of trips shows little difference at the London wide level.

Table D.3 Summary of Modelling Data – 2006 and Options 1, 2 and 3 for 2026

	2006	Option 1	Option 2	Option 3
Highway Delay Rate (mins/km) morning peak	0.98	1.10	1.12	1.12
Public Transport Overcrowding	55%	46%	36%	36%
CO_2 (Million Tonnes Per Annum)	9.8	8.9	9.0	9.1
Vehicle Speed in morning peak period (km/h)	24.2	23.3	23.1	23.0
12 Hour Car kms (million kms)	44.0	46.4	46.8	46.7
12 Hour Car km / head	5.82	5.62	5.67	5.66
Average time to closest three GP surgeries by public transport(minutes)	9.9	9.9	9.9	9.9
Average time to closest three further education colleges by public transport (minutes)	31.4	30.6	30.4	30.2
Average time to closest three further education colleges from areas with 10% worst deprivation by public transport (minutes)	27.0	26.3	26.1	25.9

Notes: Projections to 2026 using population and employment estimates from the "Further Alterations to the London Plan"
Public Transport Overcrowding is calculated as the proportion of Tube/Rail passenger kilometres which are in excess of Planning Guideline Capacity of 1.0.
CO_2 figures are for ground based transport emissions including ground based aviation
Trips values represent 24 hour trips

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Preferred Option Data and Reference Case Forecast

2.4 During the period when the Preferred Option was being developed, new population and employment data to 2031 were provided by GLA. Modelling was therefore undertaken of a TfL Reference Case and the Preferred Option with these new data. The TfL Reference Case differed from Option 1 in that the Western Extension Zone was excluded from the modelling. Whilst Option 1 could still have been taken as a basis for comparison, it was decided that the updating of population and employment forecasts was of greater strategic importance than the exclusion of WEZ, which was known to have only a limited effect on London-wide transport performance. For this reason the TfL Reference Case Forecast, with more up-to-date population and employment figures, has been used as the basis for comparison for the Preferred Option.

2.4.1 It should also be noted that the modelling of the Chelsea-Hackney Line in the Reference Case is based on the Safeguarded route, however the Draft Revised MTS proposes that the Chelsea-Hackney Line is reviewed to ensure that it is providing the maximum benefits and value for money.

2.4.2 The Preferred Option increases the public transport (PGC) capacity by 23% over the TfL Reference Case Forecast.

2.4.3 Table D.4 summarises the modelling data for the TfL Reference Case Forecast and Preferred Option, together with data for 2006. It is estimated that the Preferred Option will reduce

highway delay by 3%, public transport crowding by 36%[3] and CO_2 emissions by 17% over the TfL Reference Case Forecast. This is brought about by a large increase in cycling trips and a reduction in use of other modes.

Table D.4 Summary of Modelling Data – Preferred Option[4]

	2006	TfL Reference Case (2031)	Preferred Option (2031)	% Change (Preferred Option against TfL Reference Case)
Highway Delay Rate (mins/km) morning peak	1.0	1.1	1.1	-3%
Public Transport Overcrowding morning peak	55%	50%	32%	-36%
CO_2 (Million Tonnes Per Annum)	9.8	8.2	6.8	-17%
Vehicle Speed in morning peak period (km/h)	24.2	22.9	23.5	3%
Car/Taxi/Motorcycle Trips (millions per day)	10.1	10.4	10.2	-3%
Rail/Underground/DLR / Bus Trips (millions per day)	7.2	9.1	9.1	-0%
Cycling Trips (millions per day)	0.4	0.9	1.4	>40%
Walking Trips (millions per day)	5.7	7.1	6.9	-4%

Notes: Public Transport Overcrowding is calculated as the proportion of Tube/Rail passenger kilometres which are in excess of Planning Guideline Capacity of 1.0
CO_2 figures are for ground based transport emissions including ground based aviation
Trips values represent 24 hour trips
Public Transport Trips include Rail, Underground, DLR and Bus trips

2.4.4 These data have been used within the assessment of the Preferred Option.

[3] Note that crowding on public transport would grow significantly – from 55% of am-peak passenger-km on rail and Underground being crowded in 2006 to 67% in 2031. Investment in the Reference Case reduces this to 50%. However, the increase in public transport provision in the Preferred Option is expected to reduce crowding levels by an estimated 36% over the Reference Case

[4] All figures are best estimates given the available evidence

3 Assessment of Options 1, 2 and 3

Assessment Approach to Options 1, 2 and 3

3.1.1 The assessment of these Options has been provided in tabular form within the structure of the Assessment Framework, previously highlighted. This allows the reader to view what the relative performance of the Options is, against the specific objectives set out in the Framework.

3.1.2 Options 2 and 3 have been assessed **against the baseline of Option 1 and comparative to each other**. Option 1 has not, therefore, been given an assessment 'score' or rating, as it is the baseline against which Options 2 and 3 (the preliminary Options for the Draft Revised MTS) have been assessed.

3.1.3 The assessment highlights the **nature and magnitude of the significant impacts** – as set out at the beginning of this Appendix – which collectively determine how the individual Options perform. For example: relative to Option 1, Option 2 is predicted to give rise to a positive impact of minor to moderate magnitude, against the baseline of Option 1, in respect of 'protecting and enhancing the physical environment'. This, therefore, has been rated and colour coded light green, in accordance with our tabulated coding.

3.1.4 This assessment has focused on assessing the **implications of the differing spatial and land use models** underpinning these Options, and the **implications these have in terms of facilitating sustainable transport provision, and economic, social and environmental sustainability generally** within and across London.

Framework Assessment Objectives	Option 1: Do-Minimum	Option 2	Option 3
Primary Objective A – To contribute to, and facilitate, more sustainable and efficient economic progress within London			
1. Promote more sustainable transport and travel patterns for all users and potential users of the London transport system		✓✓	✓✓
	• Option 1 encourages the use of public transport and walking and cycling over car use, and encourages development that reduces the need to travel. • This option also promotes the use of cleaner vehicles and car clubs as well as moving towards a low carbon GLA fleet. • Compared to 2006, Option 1 is estimated to decrease the average car kms per person by 3%, but with the expected increase in population, there is a predicted overall rise in car kms of 5%. Congestion levels are expected to rise by 12% in the morning peak. Crowding on public transport is estimated to decrease by 16% due to substantial investment in major projects and the tube PPP programme.	• Option 2 builds from Option 1 but encourages more cycle trips at the expense of both public transport and car trips through smarter travel programmes, reallocation of road space, improvement of transport interchanges and greater provision of cycling facilities and public transport services. • Option 2 also encourages a greater uptake of low carbon car technology and a low carbon public transport fleet. • Congestion levels are similar to Option 1 but public transport crowding is additionally reduced by 23% through increased investment in public transport capacity. • The impact of Option 2 is assessed as **positive** and **moderate to major** in magnitude.	• Public transport will be increased in outer London compared to Option 2, which will help to promote more sustainable travel patterns in outer London. • With more jobs being located in outer London, there will be increased congestion in these areas. • More cycling initiatives are planned for the outer London centres which will encourage modal shift to more sustainable modes. • Although some jobs are re-allocated in Option 3, overall congestion levels, crowding and system performance are all estimated to be similar to Option 2 at a global level, although the distribution of congestion across London will be different. • As with Option 2, the impact of Option 3 is assessed as **positive** and **moderate to major** in magnitude.
2. Increase the economic efficiency and environmental and social sustainability of freight transport and transfer within and around London and the South East		✓	✓
	• Option 1 include freight specific measures, such as promoting delivery and servicing plans, but with a change in mode share from car to public transport, there is expected to be some extra capacity on London's roads for freight vehicles, albeit the levels of congestion in the future year are expected to worsen from the present	• Option 2 contains measures that safeguard existing distribution and logistics facilities and promote new facilities where appropriate. • A new rail freight terminal is suggested as well as delivery and servicing plans to minimise the impact of freight delivery on	• Option 3 contains similar measures to Option 2, promoting new freight facilities. • The promotion of outer London town centres is expected to have a mixed effect, with freight transfer in outer London likely to become more efficient with greater focus on the town centres, but

Framework Assessment Objectives	Option 1: Do-Minimum	Option 2	Option 3
	day. • The Low Emission Zone will encourage freight vehicles to have lower carbon emissions. There are also plans to increase freight efficiency. • It is recognised that there will be some improvements in the sustainability of freight travel but that are opportunities for additional investment in freight facilities.	shopping and the movement of people. • Overall, there is assessed to be a **positive** impact that is **minor to moderate** in magnitude.	deliveries that are serving both Central and the outer London centres likely to become less efficient. However, this impact is expected to be small. • Overall, there is expected to be a **positive** impact that is **minor to moderate** in magnitude.
3. Facilitate and contribute to regeneration across all communities in London		✓	✓✓
	• Measures to improve transport inclusion for some users to the transport system, for example step-free access to some stations, are included in the TfL Business Plan. • For Option 1, the average access times to local services (schools, supermarkets and GPs) by public transport are expected to remain unchanged from the current year, but access by public transport to further education is predicted to decrease by 3% (as calculated by TfL's ATOS model).	• Option 2 includes policies to encourage regeneration and increase transport inclusion onto the transport system for different types of users. • Option 2 slightly reduces the average journey time to further education by 1%. • Therefore, there is assessed as having a **positive** impact that is **minor to moderate** in magnitude.	• Option 3 includes similar policies to Option 2 on encouraging regeneration and increasing transport inclusion on the transport system for different types of user. • The new infrastructure and services in outer London is expected to stimulate economic development and regeneration in these communities. • Option 3 is predicted to increase the accessibility to further education over Option 2 as there is increased public transport provision in outer London. • Overall, the impact is assessed as **positive**, and **moderate to major** in magnitude.
4. Contribute to enhanced productivity and competitiveness amongst all		✓	✓
	• Compared to 2006, with greater public transport provision and limited highway capacity	• Compared to Option 1, Option 2 includes network changes which encourage travel to	• Option 3 has similar increases in PT capacity to Option 2, although the capacity improvements

Framework Assessment Objectives	Option 1: Do-Minimum	Option 2	Option 3
businesses within the London area	improvements, there should be improved business efficiency for trips by public transport, but a reduction in business efficiency for highway trips. • Compared to 2006, in the future year, Option 1 has an increase in PT capacity of over 30% (Planning Guideline Capacity), resulting in a reduction in crowding of 16%. Conversely, the level of congestion on the roads has increased by 12%. • Journey times to further education by public transport are expected to decrease slightly by 3%.	Central London which is expected to have agglomeration benefits to and between businesses, but to the detriment of businesses in outer London in comparison with Option 3. • Compared to Option 1, Option 2 has an increase in public transport capacity causing an additional reduction in crowding of 23% although there is no change in highway congestion. • There is expected to be a slight decrease in access times to further education by public transport. • Overall, the impact is assessed as **positive** and **minor to moderate** in magnitude.	are in different locations, providing better access to outer London centres. This is expected to encourage productivity and competitiveness to businesses in outer London. • With relocation of some businesses to outer London centres from Central London, there is expected to be a small loss in agglomeration benefits. • There is no overall improvement in congestion is expected, although there is predicted to be a worsening of congestion in local areas around the outer London centres. • There are predicted improvements to accessibility over Option 1, both to central London and to outer London centres which are assessed as having a **positive** impact **minor to moderate** in magnitude.
5. Help to facilitate and contribute to increased employment and earnings especially in low-waged areas		✓	✓
	• Option 1 contains job opportunities and training initiatives to deliver the TfL Investment Programme, for example, 14,000 people are expected to be employed on Crossrail alone. • The new schemes are also expected to improve accessibility, with the average journey time to further education from present day expected to slightly decrease by 3%.	• Compared to Option 1, Option 2 is predicted to improve slightly the accessibility to further education for all Londoners and those living in the most deprived areas (by 1% in both cases). • There is expected to be a **positive** impact which is **minor to moderate** in magnitude.	• Compared to Option 2, there is a reduction in public transport provision to Central London which is expected to reduce the accessibility of commuters to Central London. • However, Option 3 is estimated to improve slightly the accessibility to further education for all Londoners and those living in the most deprived areas compared to both Option 1 and Option 2, with greater accessibility to outer

Framework Assessment Objectives	Option 1: Do-Minimum	Option 2	Option 3
			London centres. • As with Option 2, Option 3 is estimated to result in a **minor to moderate positive** impact.
6. Contribute to the alleviation of poverty and its contributory factors		✓	✓
	• In Option 1, there are measures included to provide better transport services to development, regeneration and employment areas, as well as encouraging more cycling and walking trips. • Option 1 is expected to result in a similar level of accessibility compared to present day.	• Option 2 builds on Option 1 through focussing measures on deprived areas and improving the inclusiveness of the transport system for different types of disabled users. • Cycling policies are included in this Option, and these are expected to increase the number of cycling trips by 400% from 2000 to 2026. • Option 2 is assessed as having a **positive** impact **minor to moderate** in magnitude.	• As with Option 2, Option 3 includes measures that focus on deprived areas and improving the inclusiveness of the transport system for different types of disabled users. • Cycling policies are included in this Option, and these are expected to increase the number of cycling trips by 400% from 2000 to 2026. • Option 3 is assessed as having a **positive** impact which is **minor to moderate** in magnitude.

Framework Assessment Objectives	Option 1: Do-Minimum	Option 2	Option 3
Primary Objective B – To enhance equality and actively mitigate the barriers to this			
1. To address the barriers to equality of access for all users and potential users of the London transport system		✓✓	✓✓
	• As part of the TfL Business Plan, Option 1 includes measures to improve the inclusiveness to the transport system with continued development of Dial a Ride and travel assistance scheme, increasing the number of stations with step free access, interchange improvements at major stations, a continued programme to make all bus stops accessible, and provision of more information during the journey. • Option 1 also includes measures that focus on personal safety, although the policies are not targeted at specific groups.	• Option 2 builds upon Option 1 with a greater range of initiatives aimed at increasing personal safety and at making the transport system more physically accessible. • Option 2 also includes measures to improve information on accessible facilities and educating transport staff on the needs of different people. • Option 2 would seek to ensure that transport remains affordable for different equality target groups. Also included in this option, as are measures to promote investment in deprived areas and those delivering regeneration. • This option is assessed as having a **positive** impact **moderate to major** in magnitude.	• Option 3 includes the same measures as Option 2, making the transport system more inclusive and affordable. • This Option is assessed as having a **positive** impact which will be **moderate to major** in magnitude.
2. To give all users and potential users equal opportunity to access the London transport system and sustainable transport choices[5]		✓✓	✓✓
	• With this option, between 2006 and the forecast year, there is expected to be an increase in the proportion of trips made by public transport, cycling and walking at the expense of car trips so Londoners will be making more sustainable travel choices (in 2006, 43% of trips are made by car, and	• Option 2 includes initiatives which are focussed on making the transport system more inclusive to different users including promoting investment in deprived areas, promoting the use of local labour on transport infrastructure schemes and improving	• With more jobs available in outer London centres with Option 3, there is estimated to be opportunity for more people to work close to where they live, encouraging social inclusion. • Option 3 contains similar policies to Option

[5] This heading has been slightly amended from previous versions of the Assessment Framework in order to place a clear emphasis on facilitating all aspects of inclusion

Framework Assessment Objectives	Option 1: Do-Minimum	Option 2	Option 3
	in the forecast year, 39% of trips are expected to be made by car). • Compared to 2006, accessibility to local services such as GPs, supermarkets and schools by public transport is not expected to change by the forecast year, but the average journey time to further education is expected to slightly decrease by 3%.	information provision for deaf, disabled and older people. • Compared to Option 1, there is expected to be an increase in cycling trips at the expense of both public transport and car, indicating more sustainable travel choices. This increase affects Londoners as a whole; cycling policies are not specifically focussed at equality groups. • Option 2 also is expected to increase accessibility slightly, reducing social exclusion. • This option is assessed as having a **positive** impact that is **moderate to major** in magnitude.	2, with a similar anticipated mode shift from public transport and car to cycling expected across London as a whole, and the network being made more inclusive to different equality groups. • This option is therefore assessed as having a **positive** impact that is **moderate to major** in magnitude.

Framework Assessment Objectives	Option 1: Do-Minimum	Option 2	Option 3
Primary Objective C - To contribute to enhanced health and wellbeing *for all* within London			
1. To address health inequalities and factors which negatively impact upon health and wellbeing		✓	✓
	• Option 1 will enhance inclusiveness and thereby assist in tackling inequalities experienced by those with limited access to transport system and the wider opportunities this affords in terms of availing of employment and services. • There exists opportunity in this option for a direct focus upon tackling inequalities more broadly and the wider determinants of health and wellbeing which transport can positively impact upon.	• Option 2 will enhance inclusion to transport, services and employment and generally tackle the negative impact to health and wellbeing which lack of access creates. By facilitating a general framework of increased access, it is likely that all will benefit. • Measures targeted at specific groups, through for example, concessionary fares, will generate particular benefit to those experiencing inequality and therefore, more effectively tackle barriers and factors leading to inequality. • The impact of this option is, therefore, assessed to be **positive** and of **minor to moderate** magnitude.	• Option 3 would facilitate increased access to transport, services and employment, this impacting beneficially upon those within outer London communities who are disproportionately impacted by lack of access and whose health and wellbeing consequently is negatively impacted. The regenerative potential for enhanced transport provision within outer London areas will broadly enhance health and wellbeing and again serve to reduce inequalities. • Offsetting this otherwise beneficial impact, is the potential negative impact on communities surrounding major radial routes in outer London, who may experience increased, localised, emissions to air, as well as increased noise levels through the predicted increase in road traffic and congestion which is likely to arise under this Option. • The overall impact is, assessed to be **positive** and of **minor to moderate** in magnitude but noting the major qualification to this in respect of the impact of increased emissions to air.

Framework Assessment Objectives	Option 1: Do-Minimum	Option 2	Option 3
2. To promote enhanced health and wellbeing for all		✓	✓
	• Option 1 will deliver a degree of enhanced health and wellbeing through the provision of increased services and accessibility. There was not, however, a direct focus upon proactively seeking to promote health and wellbeing, therefore, the benefit which arose was primarily indirect in magnitude.	• Option 2 is anticipated to generally promote enhanced health and wellbeing through increasing inclusiveness of transport, services, employment and benefiting the broad range of determinants which affect health and wellbeing. This benefit will be felt by Londoners a whole. • The impact is assessed to be **positive** and **minor to moderate** in magnitude.	• As with Option 2, Option 3 will facilitate increased access to transport, employment and through the economic development/regeneration which Option 3 is anticipated to generate, a better quality of life generally. By improving some of the determinants of health and wellbeing, it is likely that this Option will generally have a positive impact. • Anticipated increased congestion in outer London areas may, however, have the potential to negatively impact upon emergency services provision and increased congestion is also likely to give rise to increased localised air emissions, with negative associated impacts to health. • The impact is assessed to be **positive** and of a **minor to moderate** magnitude
3. Improve air quality and the noise climate across London		✓	?
	• Air quality is a major challenge faced by London and the role of transport as one of the major contributors to this, reiterates the importance of proactively seeking to reduce transport-related emissions which is acknowledged under this Option.	• Option 2's centralised approach offers the potential to tackle the 'hot spots' of poor air quality, typically in and around central and inner London, thereby making a difference in terms of air quality and noise levels in these areas. • The centralised approach does not, however, specifically target the culture of heavy car use amongst	• Option 3 should facilitate investment in new infrastructure and services within outer London which has the potential to encourage a modal shift towards public transport, walking and cycling, as well as tackling the 'hot spots' in central and inner London. • The modelling indicates, however, that there is anticipated to be an increase in travel by car, suggesting that the

Framework Assessment Objectives	Option 1: Do-Minimum	Option 2	Option 3
		outer London, where around half of all trips are made by car. To the extent that the generalised approach does not address this culture – though does seek to create a modal shift generally – there is a potential lost opportunity here. • Nonetheless, with MAQS, the overall impact of this Option is positive and should reduce air pollution emissions and improve the noise climate across London as a whole. • The impact is assessed to be **positive** and of a **minor to moderate** magnitude.	reliance upon car use may be difficult to tackle and/or significantly greater investment in new infrastructure and services is required. • Increased congestion is also anticipated to occur through displacement of traffic from central London. With this comes the potential for increased localised emissions to air and the detrimental impact this will have upon such areas. • With increased congestion comes the potential for elevated noise levels in impacted areas. The overall balance of the impact for this Option is taken to be **uncertain**.

Framework Assessment Objectives	Option 1: Do-Minimum	Option 2	Option 3
Primary Objective D – To promote safety and security *for all* working, travelling and using London transport services and facilities			
1. Increase security and resilience to major incidents on the network		✓	✓
	• Option 1 includes limited policies to deal with increased security and resilience to major incidents on the network.	• Option 2 includes several measures to deal with major incidents. These include investing in equipment to mitigate against extreme weather events, enhancing existing counter terrorism measures on public transport modes, investing in technology to mitigate against terrorist attacks and improving staff training to improve responses to extreme weather events, terrorist attacks and other civil emergencies. • This option is therefore assessed to have a **positive** impact that will be **minor to moderate** in magnitude.	• As with Option 2, Option 3 contains similar measures to deal with major incidents. • With more jobs in outer London town centres, there is expected to be a greater resilience across London to major incidents compared to Option 2. • This option is assessed as having a **positive** impact that is **minor to moderate** in magnitude.
2. Increase road safety for vehicular users, pedestrians and cyclists		✓	✓
	• Option 1 contains several measures that aim to increase road safety such as implementing road safety engineering schemes, prioritised by collision and casualty data, targeting engineering, enforcement and education campaigns to reduce KSIs amongst pedestrians, cyclists and motorcyclists and trials of pedestrian countdown information and time-distance camera technology. • TfL modelling data shows that there is expected to be an increase of 5% in car kilometres between 2006 and 2026 in	• Option 2 builds on the road safety measures of Option 1 through introducing in-vehicle telematics, increasing education and advertising campaigns including focusing on communities and groups which have high casualty rates, greater road safety enforcement and improving goods vehicle driver safety. • TfL modelling data shows that there will be a similar mode share of walking trips to Option 1, but a large increase in the number of cycling trips, increasing the	• For Option 3, there will be a greater emphasis placed on cycling in the town centres, and policies concerning the safety of cyclists and pedestrians in these areas should be prioritised. • As with Option 2, Option 3 will produce an increase in cycling compared to Option 1, but policies to improve road safety are also included in this Option. • Again, with the mitigation measures for increased cycling, the overall assessment is of a **positive** impact that is **minor to moderate** in

Framework Assessment Objectives	Option 1: Do-Minimum	Option 2	Option 3
	Option 1, and an increase in mode share of cycling trips. These increases suggest that there will be an increase in collisions involving cyclists.	expected number of road safety incidents. • With the mitigation measures for increased cycling, there is assessed to be an overall **positive** impact that is **minor to moderate** in magnitude.	magnitude.
3. Increase staff and passenger safety on all modes of transport	✓	✓	✓
	• Option 1 contains measures to reduce crime on the public transport system, but does not contain specific measures to address accidents on the public transport system. • Injury rates to staff and passengers on public transport in London are already very low. In addition, there is expected to be a decrease in public transport crowding of 16% which will reduce the probability of accidents.	• Option 2 is predicted to reduce public transport crowding by 23%. It also includes a number of measures aimed at increasing safety on public transport e.g. reducing passenger risk from slips, trips and falls at stations, reducing collision risks on rail modes, improving level crossing safety, enhancement of railway staff health and safety regulations, improved bus driver training, use of technology on London buses to reduce collision risks, extra staffing at bus stations and on open-platformed buses and increasing safety of river services. • There is an opportunity for additional measures to reduce the risk of accidents and improve safety for those using the transport systems, with a focus on equality target groups. • Overall, there is assessed to be a **positive** impact that is **minor to moderate** in magnitude.	• As with Option 2, Option 3 is also predicted to reduce public transport crowding by 23%, and also contains a number of policies to increase public transport safety, potentially strengthened with a greater focus on equality groups. • The spatial difference between Options 2 and 3 is unlikely to have a significant impact on the public transport safety between the two Options. • Overall, the assessment suggests there will be a **positive** impact that is **minor to moderate** in magnitude.

Framework Assessment Objectives	Option 1: Do-Minimum	Option 2	Option 3
4. Contribute to the reduction of crime and fear of crime for all users and potential users of the London transport system		✓✓	✓✓
	• Option 1 includes several different measures that will help reduce crime and fear of crime including refurbishment of London Overground and DLR stations and interchanges to "design" out crime, additional officers and special constables on the transport network to enhance visible policing, an alcohol ban on TfL's services, increase in the use of CCTV and a crackdown on taxi touting.	• Option 2 builds on Option 1 with additional proposals. In particular, through greater partnering and intelligence sharing between different policing organisations; designing and implementing safer walking routes from residential areas to bus stops and stations; setting standards for access and cycling parking at new developments; increasing uniformed staff numbers on the public transport system; targeting all transport infrastructure vulnerable to graffiti, trespassing and vandalism; enhancing real time travel information; targeting persistent fare evaders; and raising public awareness of travel at night. • The impact is assessed to be **positive** and **moderate to major** in magnitude.	• As for Option 2, Option 3 contains policies to reduce crime and the fear of crime. With the development of outer London town centres, it is likely that areas around these development centres will become safer as they are used by more people. • The impact of this option is assessed to be **positive** and **moderate to major** in magnitude.

Framework Assessment Objectives	Option 1: Do-Minimum	Option 2	Option 3
Primary Objective E - To contribute to the mitigation of and adaptation to climatic change			
1. To contribute to the reduction of GHG emissions arising from within the London area 2. To reduce GHG emissions arising from operations and service provision		-	-
	• Option 1 contains several policies aimed at reducing GHG emissions through a mixture of mode shift and technological advancements. • In the Option 1 situation, CO_2 emissions are expected to reduce by 9% between 2006 and 2026, this equating to a reduction from 9.8mta in 2006 to 8.9 mta by 2026.	• The anticipated modal shift towards more sustainable forms of transport, coupled with enhanced efficiencies in operations/services and technology (including increasing standards for vehicles), will cause a reduction in CO_2 emissions. • Option 2 is anticipated however, to give rise to a slight increase in CO_2 emissions with modelling indicating an anticipated increase to 9.0mta in 2026. • Taking into account that efficiencies in operation should offset the slight anticipated increase, the overall impact is assessed to be **neutral**.	• The modelling undertaken by TfL indicates that, while Option 3 will result in some modal shift to public transport, it will also result in localised congestion at the outer London centres, while relieving central area congestion. As a consequence it will result in very slightly higher emissions of CO_2 than Option 2. • The percentage disparity is, however, minimal (9.1 mta under Option 3 as opposed to 9.0 mta under Option 2). • As with Option 2, the overall impact is marginally adverse but broadly **neutral**.
3. To enhance and facilitate adaptation to the impacts of climate change		-	-
	• It is anticipated that with Option 1, the issue of adaptation to climate change impacts would be addressed give that they are very much a focus of the GLA and TfL.	• Options 2 and 3 are not structured in such a way that they include separate specific policies for adaptation, so to this extent, they would not be expected to have a very different outcome to each other or Option1. • However, Options 2 and 3 include additional infrastructure schemes and additional services compared to Option 1, and therefore there would be an opportunity in developing these proposals to ensure that climate change adaptation is taken into account.	

Framework Assessment Objectives	Option 1: Do-Minimum	Option 2	Option 3
Primary Objective F – To protect and enhance the physical, historic, archaeological and socio-cultural environment and public realm?			
1. To promote more sustainable resource use and waste management		-	?
	• Both sustainable resource use and waste management are issues on which the GLA and TfL have a close focus on and this would be the case in a business as usual scenario.	• Option 2 is anticipated to largely mirror Option 1 with the continuing focus on central London operations and services, not giving rise to any anticipated significant increase in resource use or waste generation. • Efficiency drives could potentially lead to reduced resource use though increased services and new schemes may offset this. • Overall, the impact is assessed to be **neutral.**	• Option 3's more decentralised approach and the anticipated need to invest in new infrastructure and services within outer London, may give rise to increased resource use, in particular, around Metropolitan Town Centres or hubs. • Such new provision does offer the opportunity to integrate efficiencies in design and operation but the potential exists for an aggregate increase in resource use. • Overall, the impact is assessed to be **uncertain.**
2. To protect and enhance the built environment and streetscape through planning and operations		-	?
	• It is not anticipated that the built environment or streetscape will deteriorate significantly under Option 1 and there are existing policies which serve to protect and have due regard to the built environment and streetscape through transport planning.	• Option 2 is expected to be similar to Option 1 and to deliver similar outcomes i.e. Option 2 does not include specific policies to protect and enhance the built environment and streetscape. • Option 2 includes more transport infrastructure schemes which will potentially require land take and may have the potential to affect the built environment and streetscape. These schemes would be subject to environmental appraisal and Environmental Impact Assessment, as appropriate, to ensure protection of the built	• As with Option 2, TfL have an ongoing commitment to sensitive integration and operation of services/infrastructure and the environmental assessment which would pre-empt their introduction. • On the basis of TfL's modelling, Option 3 is expected to result in localised congestion in outer London areas, even after the additional investment and measures, (focussed on polycentric development) included in Option 3. • Any further additional measures may need to be developed in areas of outer London which are less developed and are

Framework Assessment Objectives	Option 1: Do-Minimum	Option 2	Option 3
		environment 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 built environment of London as a whole is not expected to be significantly different to Option 1. • The impact is assessed to be **neutral**.	less affected by the intensive transport infrastructure associated with central London. There are no firm schemes to take into account in relation to additional schemes, which would need to provide value for money and there may be a potential for adverse effects on the character and function of streetscapes. • The overall impact is assessed to be **uncertain**, given the unknown scale and of 'additional' future services and infrastructure.
3. To protect and enhance the historic, archaeological and cultural environment through planning and operations		-	?
	• It is not anticipated that the historic, archaeological and cultural environment built environment or streetscape will deteriorate significantly under Option 1 and there are existing policies which serve to protect these parts of the environment.	• In terms of policy on this objective, Option 2 is expected to be similar to Option 1 and to deliver similar outcomes. • Option 2 includes more transport infrastructure schemes which will potentially require land take and may have the potential to affect the historic environment. These schemes 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	• As with Option 2, TfL have an ongoing commitment to sensitive integration and operation of services/infrastructure and the environmental assessment which would pre-empt their introduction. • On the basis of TfL's modelling, Option 3 is expected to result in localised congestion in outer London areas, even after the additional investment and measures, (focussed on polycentric development) included in Option 3. • Any further additional measures may need to be developed in areas of outer London which are less developed and are less affected by the intensive transport infrastructure associated with central London. There are no firm schemes

Framework Assessment Objectives	Option 1: Do-Minimum	Option 2	Option 3
		effects of Option 2 at a strategic level on the historic, archaeological and cultural environment of London as a whole is not expected to be significantly different to Option 1. • The impact is assessed to be **neutral**.	to take into account in relation to additional schemes, which would need to provide value for money and there may be a potential for adverse effects on the character and function of streetscapes. • The impact is assessed to be **uncertain**.
4. To protect and enhance the natural, physical environment, including biodiversity, flora and fauna through planning and operations 5. To protect and enhance greenscapes, riverscapes and waterways through planning and operations		-	?
	• TfL is already committed to various initiatives to protect and enhance the natural and physical environment and this would continue in a business as usual scenario.	• In terms of policy, Option 2 is expected to be the same as Option 1 and to deliver similar outcomes. It is noted that Option 2 includes more transport infrastructure schemes which will potentially require landtake and may have the potential to affect the natural and physical environment, including greenscapes. • These schemes would be subject to environmental appraisal and Environmental Impact Assessment, as appropriate, to ensure protection of the natural and physical environment 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 natural and physical environment of London as a whole is not expected to be	• On the basis of TfL's modelling, Option 3 is expected to result in localised congestion in outer London areas, even after the additional investment and measures, (focussed on polycentric development) included in Option 3. • Any further additional measures may need to be developed in areas of outer London which are less developed and are less affected by the intensive transport infrastructure associated with central London. There are no firm schemes to take into account in relation to additional schemes, which would need to provide value for money and there may be a potential for adverse effects on the character and function of the natural and physical environment. • Offsetting this is the ongoing commitment by TfL to sensitive integration and operation of such services/infrastructure and the environmental assessment which would pre-empt their

Framework Assessment Objectives	Option 1: Do-Minimum	Option 2	Option 3
		significantly different to Option1. • The impact is assessed to be **neutral**.	introduction – as discussed in Option 2. • The overall impact is assessed to be **uncertain**, given the unknown scale and location of such services and infrastructure.

Preferred Option Assessment

Note: The change in base for comparison from Option 1 (2026) to the TfL Reference Case Forecast (2031) has precluded direct comparison between Options 2 and 3 and the Preferred Option.

Primary Objective A - To contribute to, and facilitate, more sustainable and efficient economic progress within London		
Secondary Objectives	**Preferred Option Assessment**	
1. Promote more sustainable transport and travel patterns for all users and potential users of the London transport system	✓	• A fundamental aim of preparing the Draft Revised MTS in parallel with the London Plan and EDS is to achieve a greater degree of integration between transport and land use that should promote more sustainable travel patterns. • The Draft Revised MTS contains several proposals that encourage the use of more sustainable, less congesting, modes of transport through encouraging public transport, walking and cycling trips, including the smarter travel programme. The Draft Revised MTS also sets out the intention, if necessary, to manage the demand for travel, through setting appropriate parking standards and if necessary through pricing incentives, on roads and public transport, in order to meet its overall objectives. • There are proposals to improve business access to employment through ensuring appropriate transport capacity and connectivity on the major radial corridors into Central London as well as by ensuring appropriate connectivity is established on major radial and orbital transport corridors into metropolitan town centres, especially in outer London. • There are also proposals to ensure that London's limited road space is used as efficiently as possible through a variety of measures such as smoothing traffic flows, using intelligent traffic control systems, reducing the obstructions caused by street works and a trial of allowing powered two-wheel vehicles to use bus lanes. • The Draft Revised MTS recognises the need to introduce measures in London's most deprived areas, as well as areas targeted for regeneration, to support wider regeneration initiatives across the city. • The Draft Revised MTS promotes the use of cycling and walking through infrastructure changes, land use planning and development policies and behavioural change measures; there is expected to be an increase in cycling trips of over 40%. • The Draft Revised MTS also promotes a cleaner private vehicle fleet and seeks to minimise the emissions from London's transport system. • The rating reflects the measures that the Draft Revised MTS contains to encourage modal shift to more sustainable modes of transport and is expected to be **positive** and **minor to moderate** in magnitude.

Primary Objective A - To contribute to, and facilitate, more sustainable and efficient economic progress within London		
Secondary Objectives	**Preferred Option Assessment**	
2. Increase the economic efficiency and environmental and social sustainability of freight transport and transfer within and around London and the South East	✓	• The Draft Revised MTS contains proposals to encourage a shift of freight from road to rail, with new freight facilities currently being developed, and proposals to support new sites for strategic rail freight interchanges. There is also a proposal to ensure appropriate transport capacity and connectivity on radial corridors into Central London for freight access to business and commercial markets. • There are plans to increase freight efficiency and sustainability through the use of Delivery and Servicing Plans, the Freight Operator Recognition Scheme and Construction Logistics Plans. • The Draft Revised MTS contains proposals to examine the potential to increase the use of the River Thames and London's canal network for waterborne freight transport including utilising safeguarded wharves. If waterborne freight does increase, then it will be essential for this increase to be undertaken in a sustainable manner. • The Draft Revised MTS recognises that freight vehicles can generate noise nuisance, and there is a policy for noise reduction measures targeting freight. There are also incentives to encourage uptake of low emission vehicles. • The outcome is expected to be **positive** and **minor to moderate** impact in improving the efficiency and sustainability of freight transport.
3. Facilitate and contribute to regeneration across all communities in London	✓ ✓	• The Draft Revised MTS contains proposals to increase inclusion to the public transport network for all users. • The Draft Revised MTS also contains a policy to secure transport and design improvements in London's most deprived areas so as to increase accessibility to jobs and services. In parallel with other initiatives to tackle social barriers such as low ambition and educational attainment included in the EDS and other Mayoral strategies; these transport policies will help support regeneration of deprived areas. • There are also policies to support wider regeneration across the city. The Draft Revised MTS proposes that the Mayor and TfL will work with the LDA, boroughs and others to maximise benefits in regeneration areas through the use of Frameworks and Partnerships to support regeneration of "opportunity areas", "areas for intensification" as well as Strategic outer London Development Centres and Industrial Locations. • The Draft Revised MTS includes a number of policies to improve the accessibility across London, with enhanced radial and orbital movements to Central London and town centres, as well as providing better access to London's airports and other international gateways.

Primary Objective A - To contribute to, and facilitate, more sustainable and efficient economic progress within London		
Secondary Objectives	**Preferred Option Assessment**	
		• The **positive** and **moderate to major** impact rating reflects the expectation that the proposals in the Draft Revised MTS will contribute to regeneration across London.
4. Contribute to enhanced productivity and competitiveness amongst all businesses within the London area	✓	• With the predicted increase in London's population, there is expected to be greater congestion with the TfL Reference Case Forecast predicting an increase in congestion of 17% on London's roads compared to present day. The Draft Revised MTS contains proposals to mitigate this impact (reducing congestion compared to the TfL Reference Case Forecast by 3%), including encouraging greater use of more sustainable modes such as public transport, walking and cycling; smoothing traffic flows; and improving highway management and control through advanced technologies. Thus while congestion is likely to increase business costs, especially in relation to freight transport, the improvement of public transport options for personal travel may offset this disadvantage. • Without investment, crowding on public transport would grow significantly – from 55% of am-peak passenger-km on rail and Underground being crowded in 2006 to 67% in 2031. Investment in the Reference Case reduces this to 50%. The substantial planned investment in rail, Underground and public transport systems in the Preferred Option will increase capacity on the public transport network by some 23% over the TfL Reference Case Forecast. This is expected to reduce overall crowding at peak periods (a reduction of 36% over the Reference Case in the morning peak), with attendant benefits to quality of life. Many workers will arrive at work in better condition physically and mentally, contributing positively to business productivity. • Proposals to increase connectivity to central London and to strategic centres in outer London should facilitate and promote greater economic activity in those places which in turn will contribute to the productivity advantages arising from clustering of specialist service providers and consequent agglomeration benefits. • The increase in public transport provision should improve access to jobs and training opportunities, boosting London's economic activity through providing a greater pool of potential employees within a commutable distance of jobs. • Proposals to improve access to London's international gateways are expected to promote tourism, a significant part of London's economy. • The rating reflects the **positive** impact that the Draft Revised MTS policies will have on increasing the capacity of London's transport network. On balance, taking account of the likely increase in highway congestion, this is expected to be **minor to moderate** in magnitude.

Primary Objective A - To contribute to, and facilitate, more sustainable and efficient economic progress within London		
Secondary Objectives	**Preferred Option Assessment**	
5. Help to facilitate and contribute to increased employment and earnings especially in low-waged areas	✓	• The Draft Revised MTS contains policies to improve accessibility to jobs and services overall and specifically to include measures in London's most deprived areas, opportunity areas and areas for intensification to support wider regeneration. This could also have beneficial impacts on the health and wellbeing of people living in deprived communities. • The jobs created by transport investment will provide the opportunity to develop the skills of Londoners through, for example, the tunnelling academies. • The **positive** rating reflects the increase in accessibility to jobs and opportunities for both all Londoners and those living in areas of deprivation and is expected to be **minor to moderate** in magnitude.
6. Contribute to the alleviation of poverty and its contributory factors	✓	• The Draft Revised MTS includes a policy to improve access to opportunities and services for all Londoners, in particular improving access to jobs, health care, education, retail and leisure facilities, in the context of overall growth in population and employment. This has the potential to improve the take-up of jobs by residents in deprived communities, leading to reduced welfare dependence and improvements in health and wellbeing. • The Draft Revised MTS contains a policy to improve the efficiency and effectiveness of the transport system with an aim to reduce the costs borne by the fare and tax payer. Affordability of transport costs is recognised as a barrier to some people and measures to address this are included in the Draft Revised MTS through targeting of fares concessions. • The transport schemes proposed should increase job opportunities in London (in planning, design and construction) and provide opportunities for skills training. • The contribution of the Draft Revised MTS in facilitating greater economic activity and improving accessibility of jobs should contribute to the wider Mayoral strategies to counter deprivation and inequality. • The **positive** rating of **minor to moderate** magnitude reflects the expectation that policies to improve accessibility and prioritise measures to assist regeneration of deprived areas will help alleviate poverty.

Primary Objective B – To enhance equality and actively mitigate the barriers to this		
Secondary Objectives	**Preferred Option Assessment**	
1. To address the barriers to equality of access for all users and potential users of the London transport system	✓ ✓	• Improving the quality of life for all Londoners (including workers and visitors as well as residents) is an underlying principle of the Mayor's Vision for London that establishes overarching goals for all his strategies. The Draft Revised MTS sets out policies to address improving inclusiveness of the transport system, tackling deprivation and targeting investment in regeneration areas. The Draft Revised MTS is therefore expected to make a significant contribution to reducing barriers to access and hence promoting equality of opportunity. • The Draft Revised MTS includes a policy to improve the physical inclusiveness of transport networks, stations, services and vehicles for all Londoners and to focus on improving accessibility for the 'whole journey'. As one example, the proportion of National Rail stations with step-free access is expected to increase from 31% today to 47% in 2015. • The Draft Revised MTS also includes policies to improve the availability, quality, quantity and timeliness of information about the transport system to remove barriers to travel and to improve the attitudes of transport staff and travellers towards each other, to ensure excellence in customer service and hence to help establish a social environment that does not present a barrier to travel. • The barrier of high fares has also been addressed with a policy to ensure that the cost of transport is affordable through targeted fares concessions. • The Draft Revised MTS contains a commitment to continue the provision of door-to-door services for specific user groups. • The Draft Revised MTS also contains policies aimed at improving transport opportunities in areas of deprivation: enhancing connectivity, reducing community severance, promoting community safety, enhancing public realm and improving access to jobs and services, and also prioritising measures in London's most deprived areas to support wider regeneration initiatives across the city. • There is also a policy to improve local air quality at air quality hotspots which are often in areas of deprivation. • The Draft Revised MTS policies on safety and security deal with reducing crime and fear of crime which affect some equality groups more than others, and can therefore be a barrier to travel.

Primary Objective B – To enhance equality and actively mitigate the barriers to this		
Secondary Objectives	**Preferred Option Assessment**	
		• While policies on reducing barriers to travel are clearly identified in the Draft Revised MTS, the document could include additional reference to equality of opportunity throughout by noting where policies have a disproportionate impact on inclusion – for example where safety and security measures or street design improve transport inclusiveness. • A significant issue is the commitment to delivery which is strengthened by the Accessibility Plan included in the Draft Revised MTS. • The positive rating reflects the range of policies that the Draft Revised MTS includes to address barriers to equality of access for all users. Due to the costs involved, the transport system cannot be made completely accessible to all users in the short term, but it is recognised that the Draft Revised MTS makes inclusion a high priority. • The overall impact is assessed as **positive** and **moderate to major** in magnitude.
2. To give all users and potential users equal opportunity to access the London transport system and sustainable transport choices[6]	✓	• The Mayor is committed to creating Equal Life Chances for All[7] and the Draft Revised MTS reflects these principles. • The Draft Revised MTS is supported by TfL's Disabilities Equalities Scheme which is revised every three years; it sets out in detail what TfL is going to do to ensure that the services it offers are accessible to disabled people. TfL also operates a Race Equalities Scheme and a Gender Equalities Scheme. These schemes involve consultation with various groups to understand the issues of most concern to them. Engagement is also planned through a policy to promote information, training and behavioural change measures (e.g. smarter travel) targeted at encouraging the take up of physically active forms of transport. There is also a policy to improve the availability of information about journeys across London according to different levels of mobility, hearing, learning and visual impairment. • The Draft Revised MTS contains policies aimed at improving transport opportunities in areas of deprivation: enhancing connectivity, reducing community severance, promoting community safety, enhancing public realm and improving access to jobs and services, and also introducing measures in London's most deprived areas to support wider regeneration initiatives across the city.
		• The **positive** rating of **minor to moderate** in magnitude reflects the range of policies that address giving equal opportunities to making sustainable travel choices, through engagement with different groups,

[6] This heading has been slightly amended from previous versions of the Assessment Framework in order to place a clear emphasis on facilitating all aspects of inclusion

[7] See Mayoral Policy on GLA website

Primary Objective B – To enhance equality and actively mitigate the barriers to this		
Secondary Objectives	**Preferred Option Assessment**	
		promoting walking and cycling and improving the inclusiveness of the transport system to both those who live in deprived areas and those with different types of impairments.

Primary Objective C - To contribute to enhanced health and wellbeing for all within London		
Secondary Objectives	**Preferred Option Assessment**	
1. To address health inequalities and factors which negatively impact upon health and wellbeing	✓	• For those people who experience health inequalities through living in heavily trafficked areas, the policies and proposals included in the Draft revised MTS which focus on air quality and traffic noise would be expected to have a minor positive impact, as described below. <u>Air Quality</u> • Air quality is a prominent health issue for London and road transport in particular is a major contributor of the key pollutants. The Draft Revised Strategy, along with the emerging Draft MAQS, provides an opportunity to improve air quality over the next 20 years, with associated health benefits. The problem of air quality is a hard one to solve and it will require substantial and concerted measures to drive down concentrations of key pollutants to levels that are compliant with air quality standards in all locations. There is a clear benefit to reducing airborne concentrations beyond mere compliance with air quality standards. It is widely understood that the population's health status improves for reductions in exposure to pollutants regardless of the absolute value of the concentration.
		<u>Noise</u> • In recent years the health effects of noise have become better understood, although there remain great uncertainties in terms of many effects of noise and health. Health impact assessments now routinely quantify community annoyance, sleep disturbance and effects on children's learning and there is growing evidence of other effects linked to stress including cardiovascular disease and hypertension[8]. Environmental noise therefore affects the wellbeing of great numbers of people in London and all over the UK. Major roads pass through communities throughout London and the UK, and it is possible that there are inequalities in noise exposure. While some people choose to live in locations with high noise levels, others such as individuals who are placed in social housing, for example, may live in

[8] Environmental Noise and Health in the UK, A draft report published by the Health Protection Agency on behalf of an ad hoc Expert Group on the Effects of Environmental Noise on Health, July 2009.

Primary Objective C - To contribute to enhanced health and wellbeing for all within London		
Secondary Objectives	**Preferred Option Assessment**	
		areas with high noise levels without choosing to do so. • There are elements of the Draft Revised MTS, as well as the emerging National Noise Strategy, which address noise-related health inequalities, primarily through the use of noise reduction measures for the noisiest residential areas. Defra's draft Noise Actions Plan for agglomerations proposes the identification of 'high priority' locations - those with very high noise levels ($L_{10,\ 18\ hr}$ 76dB) - as well as 'important areas' for the noisiest 1% of dwellings. In this way, noise 'hot-spots', which have not been addressed in the past (e.g. they may fall between the Noise Insulation Regulations) may be offered noise mitigation in the future. • The Draft Revised MTS (Section 5.18.3) notes that the Mayor opposes additional expansion of Heathrow. This policy will clearly have positive impacts in terms of reducing noise at Heathrow, even if expansion is absorbed elsewhere at other London airports. Heathrow is currently (July – November 2009) consulting on its draft Noise Action Plan for 2010-2015. • Overall, the impact of the Draft Revised MTS in respect of impacts on health inequalities through noise and air quality is broadly predicted to be **positive** and **minor to moderate**.
	✓	<u>Regeneration</u> • Access to services is a determinant of health and wellbeing, and the contribution of the Draft Revised MTS to enhancing access to these (amongst others) is likely to have a positive impact upon health and wellbeing, this being particularly the case for socio-economically deprived people and specific equality groups. • By addressing factors such as safety and security, the Strategy will also have a direct beneficial impact upon the health and wellbeing of Londoners, since there is a strong interrelationship between the promotion of equality and the health and wellbeing of those who suffer inequality (disproportionately impacted). • Addressing barriers to equality will also provide a strong beneficial impact to those suffering inequality, therefore, proposals aimed at facilitating regeneration will generate tangible benefits. • The overall impact is predicted, therefore, to be **positive** and of a **minor to moderate** magnitude**.**
2. To promote enhanced health and wellbeing for all	✓	• The policies and proposals have been carefully screened to avoid any obvious adverse effects on health and wellbeing, although many are neutral in this regard. Transport is a determinant of health and

Primary Objective C - To contribute to enhanced health and wellbeing for all within London	
Secondary Objectives	**Preferred Option Assessment**
	almost all policies have implications for health in some way, either directly or indirectly. A vibrant economy is a prerequisite for good health, providing employment and income for Londoners and the transport system allowing people to access these opportunities. This is particularly the case with respect to areas of high socio-economic deprivation – using transport to facilitate development will, therefore, bring benefit to the health and wellbeing of those living within such areas, and Londoners generally. It is also noted that healthier workforces would be expected to contribute to increased economic productivity. • One of the most positive ways the Draft Revised MTS promotes enhanced health is through the acknowledgement that encouraging increased physical activity through Smarter Travel initiatives will have desirable outcomes. If these outcomes can be achieved, then the Draft Revised MTS is expected to make a positive contribution to reduced obesity, reduced cardiovascular disease, reduced diabetes and several other indicators of health and wellbeing, with some lesser offset in the form of a potential increase in road traffic injuries to pedestrians and cyclists. As with other initiatives, the scale of benefit is dependent upon wide scale uptake and initiatives to facilitate this are positive. • Policies in the Draft Revised MTS aimed at tackling safety and security will also have a direct beneficial impact upon the health of Londoners, as well as enhancing a sense of wellbeing. Reducing crime and fear of crime will improve both physical and mental wellbeing, allowing greater accessibility to opportunities through greater access to the transport system. • Policies in the Draft Revised MTS are also expected to improve physical accessibility of all Londoners and to help to improve mental wellbeing and health as people achieve greater independence. Enhancing connectivity will enhance the social capital of areas and be beneficial to the health and wellbeing of those living within such areas. Reducing community severance and enhancing community cohesion will also be beneficial in terms of health and wellbeing. Social networks are also supported by an effective transport network and facilitating secure access to social networks will provide a health benefit in itself. • The proposals in the Draft Revised MTS are expected to deliver a more efficient transport system and less public transport crowding which will reduce stress levels of those travelling, helping those commuting to arrive at the workplace in a healthy state, thereby contributing to economic performance. The policies and proposals set out in the Strategy under Quality of Life in relation to built and historic environment, biodiversity, air

Primary Objective C - To contribute to enhanced health and wellbeing for all within London		
Secondary Objectives	**Preferred Option Assessment**	
		quality and noise collectively have the potential to make a positive contribution to enhancing the health and wellbeing of Londoners through improving the social capital of areas. The overall impact is predicted, therefore, to be **positive** and of a **minor to moderate** magnitude.
3. Improve air quality and the noise climate across London	✓	**Air Quality** • The overall effect of the Draft Revised MTS and the emerging Draft MAQS is to reduce emissions of PM_{10} and NO_x, relative to the base case. Emissions will decline considerably in any event, through the implementation of measures already in place. The emerging Draft MAQS is able to make predictions of emissions up to 2015 only; any attempt to produce a quantified estimate of reductions beyond this date carries too much uncertainty to make it meaningful. The emerging Draft MAQS describes the proposals for reducing emissions including planned and also additional non-funded measures). Together with the natural turnover of the fleet, these should deliver around a 25 – 30 per cent reduction in PM_{10} emissions by 2012 and around 40 percent by 2015 (compared to the 2006 baseline). • The emerging Draft MAQS also predicts a reduction in NO_x emissions of around 60 – 65 percent by 2015 (compared to 2006). • With one exception, the policies and proposals in the Revised Draft MTS relating to air quality are all aimed at reducing emissions and thereby improving air quality. Any reduction in concentrations of transport related pollutants will result in health benefits for the population experiencing the reduction in exposure, as measured by outcomes such as shortening of life and hospital admissions. Work carried for the assessment of the introduction of the LEZ has quantified benefits in these terms, including the Phase 3 element that was to have been introduced in 2010. Although this Phase, relating mostly to LGVs, would have delivered a slightly smaller improvement than earlier and later phases, its benefit would still have been significant when expressed in terms of the numbers of people experiencing lower concentrations of PM_{10} and NO_2. Specific commentary on the removal of WEZ and deferral of Phase 3 LEZ is included in Appendices E and F. The impact of the deferral of Phase 3 on health is assessed as “uncertain”, as the compensatory or mitigation measures will be included in the MAQS and have not been quantified in health terms. • In seeking to provide an alternative means of reducing emissions, it should be recognised that the geographical extent of any consequent reduction in exposure to air pollutants is critical in determining the magnitude of the health benefits. For example, a focus on improving air quality in central London and on ‘hotspots’ will benefit a relatively small number of people, even though the benefit for this smaller population will be larger on a ‘per person’ basis, than achieving emission reductions on a London wide basis,

Primary Objective C - To contribute to enhanced health and wellbeing for all within London	
Secondary Objectives	**Preferred Option Assessment**
	as the LEZ seeks to do. Further, the policies and proposals are not designed specifically to benefit deprived or disadvantaged communities more than others, although any policies that improve air quality near heavily trafficked roads are likely to have this effect, because of the way the housing market operates. • A general aim of the MTS is to reduce the need to travel, thereby decreasing the number of journeys, and also achieve a modal shift away from road vehicles to lower or non polluting forms of transport, e.g. walking and cycling (cycling trips are predicted to increase by over 40% compared to the TfL Reference Case Forecast). If successful, the outcome of this will be lower emissions which may lead to a reduction in the concentrations of airborne pollutants. The effects of this benefit will be experienced across London, but will produce most benefit to human health in those places where any modal shift is greatest • LEZ: deferring the introduction of Phase 3 of LEZ until 2012 will postpone the positive impacts on air quality which are likely to be achieved through this phase and therefore the impact of deferment will be a minor adverse effect in terms of emissions. Counterbalancing this, the Draft Revised MTS and the emerging Draft MAQS provide the framework for several other initiatives that could achieve emission reductions. • The timing of measures to reduce transport related air pollution is a significant factor. Whilst any reduction brings some benefits in health terms, there is an immediate problem with the non compliance with legally binding air quality standards set by the European Union. The problem is most acute for PM_{10} in parts of central London, while NO_2 concentrations are anticipated to exceed the limit value near major roads across Greater London. As the Draft Revised MTS notes, London must play its part in assisting the UK government in meeting these limit values in the very near future and a reduction in road traffic related air pollution is essential if the limit values are to be met. The impetus for the measures necessary to achieve compliance will come from the MAQS and these are additional to those set out in the Draft Revised MTS. This is because the most effective proposals in the Draft Revised MTS for reducing emissions will not have a significant affect in the timescale required to meet limit values for NO_2 and PM_{10}. • Specific commentary on the removal of WEZ and deferral of Phase 3 LEZ is included in Appendices E and F. In the context of London as a whole the impact on air quality of the removal of WEZ and the deferral of LEZ Phase 3 will not be significant. The impact of the deferral of LEZ Phase 3 is assessed as “uncertain” for overall effects on health. The compensatory or mitigation measures included in the emerging Draft MAQS and have not yet been quantified in health terms. • Making improvements to air quality in London will be achieved through

Primary Objective C - To contribute to enhanced health and wellbeing for all within London	
Secondary Objectives	**Preferred Option Assessment**
	many of the same mechanisms as reducing greenhouse gas emissions. The most critical of these is a dramatic penetration of low or zero carbon vehicles into the fleet, most obviously through the widespread uptake of electric vehicles, as indicated in Proposal 92. This would be the most effective means of reducing emission by the amount required to make a significant difference to London's air quality and the associated health effects in the longer term. • Achieving this uptake will take some time, however and, in the meantime, improvements will have to come about through more modest reductions in emissions to be achieved through changed driver behaviour (Proposal 95), targeted measures aimed at specific vehicle categories (e.g. taxis) (Proposal 91) and a focus on those areas with the most acute air quality problems, especially in relation to compliance with air quality standards (Proposal 93). • Taking into account the conclusion on the deferral of LEZ Phase 3 on health, the Draft Revised MTS is expected overall to have a **positive** impact, **minor to moderate** in magnitude.
	✓ **<u>Noise</u>** • Large changes in traffic are required to bring about significant changes in traffic noise (i.e. at least 25%) and the Strategy would not be expected to bring about changes on this scale. • Overall, the Strategy includes a number of measures to encourage a mode shift (encouraging greater use of public transport, walking and cycling); while this will potentially have some noise benefits, these will be minor. However it is acknowledged that these measures will provide some benefits through small-scale, positive approaches. • Much of the Draft Revised MTS is aimed at improving public transport. It can be demonstrated that shifting a given number of people a given distance by train, bus or boat is, in general, fundamentally quieter (providing vehicle occupancy is high and other factors such as speed are comparable). Therefore noise benefits are expected through improvements in public transport. • Similarly the policies and proposals within the Draft Revised MTS which aim to encourage a mode shift and reduce road traffic are likely to reduce population exposure to road traffic noise. Here, there can be more subtleties in determining if a real reduction is achieved and how large or valuable a reduction might be. For example, often when traffic congestion is reduced, traffic speeds increase, which, unless starting from very low speed, tends to increases the noise from individual vehicles and so can offset the noise reduction due to reduced traffic volume. Hence, other traffic control measures may be needed to ensure both modal shift and

Primary Objective C - To contribute to enhanced health and wellbeing for all within London	
Secondary Objectives	**Preferred Option Assessment**
	traffic reduction measures actually deliver noise reductions. Even so, the resultant noise reductions tend to be small in terms of perception. Such small reductions may be judged as insignificant to individuals, but if they are delivered at a city-wide level can be shown to generate strategic noise exposure benefits and arguably health benefits. (The WebTAG methodology for assessing changes in population annoyance can demonstrate this). • Some proposals will give rise to specific benefits, such as Proposal 85 which includes measures to reduce noise associated with the transport fleet. Measures such as London lorry control schemes and encouraging joint procurement of lorries will lead to a reduced impact from noise, especially at night. Proposal 86 commits to developing the London Lorry Control Scheme to give exemption for companies operating quieter vehicles. Noise from individual lorries can give rise to very acute local disturbance from deliveries in residential areas at night. A strategy to encourage quieter lorries may deliver a general benefit but care will be needed to ensure that particular difficulties with specific locations are not overlooked. • The Draft Revised MTS also includes a number of proposals to address noise directly. For example, proposal 85 encourages new quieter buses and public sector service vehicles. The Strategy notes the noise benefits which other sections of the strategy, addressing the car fleet, are expected to deliver. Electric vehicles are certainly quieter than conversional vehicles, as shown by the recent work on adding noise sources to prototype electric cars so that pedestrians can here them approaching. There are clearly major benefits to be had from electric cars, albeit over long time frames. • The policies to gradually replace the bus fleet with quieter models or hydrogen models will clearly deliver some noise benefit, increasingly so if buses take an increased proportion of traffic. • Proposal 88 seeks to encourage the development and use of quieter aircraft, working with national government. Whilst individual aircraft have become sustainably quieter since the advent of commercial jets in the 1950s, additional reductions will be smaller, can conflict with gaseous emissions controls and are likely to be achieved over longer timeframes. Heathrow already has strong incentives for quieter aircraft, and it is difficult to see how the Mayor will have a big effect on the development of quieter aircraft. • The Draft Revised MTS gives several commitments to improving maintenance and noise emissions from London's railways. These not only address historical concerns, but clearly offer prospects of real local improvements.

Primary Objective C - To contribute to enhanced health and wellbeing for all within London		
Secondary Objectives	**Preferred Option Assessment**	
		• Commitment to resurfacing roads with low noise road surfaces where possible within maintenance programmes will deliver appreciable benefits potentially to whole neighbourhoods. • There is also a commitment to address noise in traffic signalling programming. Accelerating and breaking not only increases noise level, but also adds to perceived noisiness so both quantifiable and unquantifiable local benefits are achievable. • Overall the impact is expected to be **positive** and **minor to moderate** in magnitude.

Primary Objective D - To promote safety and security for all working, travelling and using London transport services and facilities		
Secondary Objectives	**Preferred Option Assessment**	
1. Increase security and resilience to major incidents on the network'	✓	• The Draft Revised MTS contains several proposals to continue to plan and prepare for major incidents, responding to changing risks and threats. • There is a proposal that seeks to reduce the likelihood and impact of potential terrorist attacks on the transport system. • Proposals are also included that seek to improve real-time management of the road system, utilising technology developments, to minimise disruption and increase journey reliability. Other policies seek to maintain road asset condition and smooth traffic flows, both of which will contribute to improved highway network resilience. • The Draft Revised MTS also refers to utilising industry best practice in preparing contingency plans for major incidents on the transport network, including the preparation of recovery plans. • Overall the Draft Revised MTS policies and proposals are intended to reduce the risks posed by terrorism, severe weather and other unpredictable events and to minimise the impacts of any consequent disruption to networks ad services. • The **positive** rating of **minor to moderate** in scale represents the recognition within the Draft Revised MTS of the importance of security and resilience to major incidents on the network. Reference to the needs of different equality groups during major incidents and a raising of awareness and understanding of security issues amongst both staff and travellers might also be addressed.

Primary Objective D - To promote safety and security for all working, travelling and using London transport services and facilities		
Secondary Objectives	**Preferred Option Assessment**	
2. Increase road safety for vehicular users, pedestrians and cyclists	✓ ✓	• Ensuring the safety and security of all Londoners is a component of one of the Mayor's six overarching goals for the London Plan. Transport Safety and Security are also one of the six identified major challenges facing the transport system. As such safety and security are afforded a very high priority in the Draft Revised MTS. • Casualties from road traffic collisions have fallen significantly in London in recent years but there is still an imperative to continue to reduce accidents. • The Draft Revised MTS contains specific proposals aimed at improving road safety for all users. In particular it includes proposals to establish new road safety targets and to develop a new road safety plan, in partnership with other stakeholders. • The Draft Revised MTS proposes to continue implementing targeted physical engineering and other measures to improve road safety across London's road network and to improve enforcement of speed limits, including through intelligent speed adaptation (ISA). • Safety for cyclists is specifically addressed noting the need to mitigate the expected increase in conflicts from an increased number of cyclists and pedestrians. • The Draft Revised MTS includes a policy to continue public information, education and engagement measures to improve road user behaviour and reduce the risk of collisions. • Proposals are included to address the high rate of accidents in vehicles being driven in the course of work, including promoting road safety training for freight vehicle drivers. The safety of road maintenance workers will also be monitored. • There is a commitment to continue monitoring road safety, particularly injury inequalities, and to publish the results. Monitoring the road safety performance of other highway management initiatives, such as "traffic smoothing" should be a part of this effort. • The **positive** rating of **moderate to major** impact reflects the range of policies to improve road safety for both road users and those working on or close to the highway, and for recognising the additional risks for cyclists and pedestrians who are expected to increase in number as a result of initiatives in the strategy.

Primary Objective D - To promote safety and security for all working, travelling and using London transport services and facilities		
Secondary Objectives	**Preferred Option Assessment**	
3. Increase staff and passenger safety on all modes of transport	✓	• Accident rates on public transport modes in London are already very low, but the Draft Revised MTS seeks to ensure that safety standards are maintained as provision and passenger numbers increase. • The Draft Revised MTS contains a policy to seek to reduce accidental fatality and injury rates on London's rail networks, with TfL working in concert with other stakeholders, including the train operating companies. • The proposal also contains a specific aim to reduce London Bus road user fatality, major and minor injury rates. • The Draft Revised MTS notes that TfL and other operators have a duty to ensure staff safety through the Health and Safety at Work Act. As noted above, road safety collision prevention measures in the Draft Revised MTS include proposals to address the high rate of accidents among those driving for work purposes and to monitor safety among road maintenance workers who are frequently at high risk. • A policy is also included in the Draft Revised MTS that seeks to maintain and improve operational safety across all public transport modes. This policy covers both improving rolling stock and physical infrastructure to improve safety, and enhancing inclusiveness through better design at stations to reduce the injury risk for passengers. • The **positive** rating of **minor to moderate** scale reflects the expected outcome of policies to improve staff and passenger safety.
4. Contribute to the reduction of crime and fear of crime for all users and potential users of the London transport system	✓ ✓	• Reducing crime and fear of crime is a major element of the Mayor's overarching goal to ensure the safety and security of all Londoners and one of the components of the challenges facing transport policy identified in the Draft Revised MTS. This topic is a high-profile Mayoral concern. • The Draft Revised MTS contains specific proposals aimed at reducing crime, fear of crime and anti-social behaviour on or near the transport system. These policies include: greater partnership working with other organisations to integrate and maximise policing and community safety; targeting resources to reduce priority crimes and anti-social behaviour on issues of greatest concern to the public; and providing safe transport options at night. • Proposals are included in the Draft Revised MTS to design out crime through enhancing the quality of the public realm and transport infrastructure and through implementing technology solutions to improve the safety and security of the travelling public. • There is also a proposal to enhance public education and engagement programmes to raise awareness of the effect on inconsiderate and anti-social behaviour on others. Related proposals also seek to increase public

Primary Objective D - To promote safety and security for all working, travelling and using London transport services and facilities		
Secondary Objectives	**Preferred Option Assessment**	
		confidence in policing and public safety through better channels of communication. • The proposals are expected to have a **positive** impact of **moderate to major** impact, reflecting the range of positive, high profile measures that are proposed to reduce both crime and the fear of crime for users of the London transport system.

Primary Objective E - To contribute to the mitigation of and adaptation to climatic change		
Secondary Objectives	**Preferred Option Assessment**	
1. To contribute to the reduction of GHG emissions arising from within the London area 2. To reduce GHG emissions arising from operations and service provision	✓	• TfL modelling suggests that the Draft Revised MTS will reduce CO_2 emissions in 2031 by 17% compared to the TfL Reference Case Forecast. • The dual emphasis upon mitigation and adaptation measures is central to effective planning in regard to climate change. Integration between the measures identified within the Strategy and the forthcoming Climate Change Strategy is evidently essential and will reiterate the importance being ascribed to integrated strategic delivery. The economic policies within the Strategy support a modal shift to more sustainable modes of transport (public transport, cycling and walking) which will have a positive impact on the effects of transport emissions on climate change. • Ground based transport is estimated to contribute 22% of London's CO_2 emissions and the Draft Revised MTS provides a number of policies and proposals which aim to reduce the overall amount of greenhouse gas emissions substantially. However, as the document notes, this will require a step change in the mitigation of transport emissions. The most obvious step change will be the widespread use of low or zero carbon vehicles, with electric vehicles using a de-carbonised supply being the most likely means to achieving this aim. The Mayor and TfL can facilitate this transition through various forms of encouragement and the provision of the requisite infrastructure but cannot ultimately force the outcome unless a LEZ for all vehicles is introduced. The Draft Revised MTS does not advocate this and the use of electric or low carbon vehicles by a majority of road users can only come about should they become economically attractive or some form of demand management is introduced. • In reducing CO_2 emissions, there is also a role for demand management

Primary Objective E - To contribute to the mitigation of and adaptation to climatic change	
Secondary Objectives	**Preferred Option Assessment**
	measures in changing travel patterns/modal shift and attenuating impact this will bring in terms of reducing CO_2 emissions. • The central means to tackle the carbon footprint of transport in London is in large part dependent upon achieving widespread deployment of low-to-zero carbon vehicles (across all modes) with a decarbonised electricity supply. Whilst the Mayor has made some proposals regarding de-carbonised electricity generation and micro-generation (Proposal 106), it is critical that central government facilitates the provision of a decarbonised electricity supply. Tackling car use and road freight will provide two mechanisms to reduce the carbon footprint of transport provision and the strong emphasis upon both has the potential to generate significant benefit. For the deployment of alternative technology to be effective, this will require wide-scale deployment of supporting infrastructure and the engagement of wider stakeholders to facilitate this development. The commitment to the provision of electricity charging points is welcomed (Proposal 104) and will provide a strong context for this. It is critical that central government assumes a role in facilitating the manufacture of affordable low carbon vehicles to enable wide scale uptake, concurrent with the creation of infrastructure to facilitate their use. • Enhancing efficiency of operations and in particular driver efficiency will not only encourage drivers to be mindful about the impact of how they drive/operate vehicles but also provide reduced carbon footprint of such activities. To be effective, there will need to be wide scale deployment of this, including public awareness and attenuating changes. It should also be noted that transport efficiency improvements to reduce the effects of climate change can be particularly effective when focused on deaf, disabled and older people and people with small children and luggage thereby leading to benefits in relation to equality and inclusion. It should also be noted that measures which reduce emissions, such as smarter travel initiatives and the take-up of 'active travel' would be expected to have a positive outcome on health and wellbeing. • Although it is expected that road vehicle trips will increase from current day levels due to the expected increases in population, the Draft Revised MTS includes measures to help smooth traffic flows which will have a beneficial impact on vehicle emissions. Proposals to improve the distribution of freight through servicing plans and other efficiency measures are likely to reduce emissions caused by these vehicles. If there is an increase in waterborne freight, however, it will be necessary to mitigate against potential adverse environmental impacts.

Primary Objective E - To contribute to the mitigation of and adaptation to climatic change		
Secondary Objectives	**Preferred Option Assessment**	
		• It is noted that the Draft Revised MTS supports additional airport runway capacity in the South East as a measure to support the economy and international competitiveness, emphasising sustainable airport operations. An overall increase in air travel will have detrimental climate change, air quality and noise impacts, and mitigation of these impacts should be addressed where possible, in partnership with the DfT. • The role of the Mayor in encouraging energy efficiency and other technological improvements through the Draft Revised MTS has the capacity to stimulate business expertise in this developing market, helping to create new economic activity, in line with the more sustainable economic future sought for London. This is relevant to all three assessment objectives under climate change. • Overall, the Strategy would be expected to have a **positive** impact of a **minor to moderate** magnitude
3. To enhance and facilitate adaptation to the impacts of climate change	✓	• Noting the importance of assessing existing and future risk posed by climatic change, the Draft Revised MTS highlights the need to carry out a risk assessment of vulnerabilities in the transport system and in transport infrastructure to a future climate with a greater frequency of extreme events. This will have a significant and positive impact in terms of adapting to climate change. In addition, the Mayor's commitment to the undertaking of carbon footprinting of all new infrastructure schemes is very positive and will positively contribute towards Mayoral targets/strategy for abatement and adaptation. • Additional transport capacity (both road based and public transport) should be built to be durable during severe weather conditions in order to minimise disruptions and this is reflected in the Draft Revised MTS policies and proposals. The design of new infrastructure represents an opportunity to incorporate adaptation measures at a lower cost than 'retrofitting' existing infrastucture. • Mitigating and abating the effects of climatic change would be expected to have a beneficial impact upon health, ameliorating negative impacts, in particular, heat stress. • The proposal (112) to plant additional trees will be beneficial in combating the urban heat island effect and thereby ameliorate extreme summer temperatures. • The role of forthcoming Mayoral strategies, in particular, the Climate Change Mitigation and Energy Strategy will be pivotal to providing an overarching strategic approach to addressing climate change mitigation and adaptation. • Overall, the Strategy is expected to have a **positive** impact of a **minor to**

Primary Objective E - To contribute to the mitigation of and adaptation to climatic change		
Secondary Objectives	**Preferred Option Assessment**	
		moderate magnitude

Primary Objective F - To protect and enhance the physical, historic, archaeological and socio-cultural environment and public realm		
Secondary Objectives	**Preferred Option Assessment**	
1. To promote more sustainable resource use and waste management	✓	• In general, it is recognised that both the GLA and TfL have internal measures/policies which govern how they act in relation to sustainable resource use and waste management within their own organisations through, for example, responsible procurement, though these measures/policies do not form part of the Draft Revised MTS. • The Draft Revised MTS is looking to achieve the use of Smarter Travel Options, to reduce the need for travel and to reduce journey distances in London, and to encourage walking, cycling and public transport use, all of which will make a contribution to more efficient sustainable resource use. • It is also anticipated that policies in the Strategy and investment in new public transport brought about by the Strategy will contribute to regeneration in areas of relative deprivation, so helping to bring back into active use brownfield sites. It is thought that this will make a contribution to more efficient sustainable resource use. • The Draft Revised MTS includes a number of new infrastructure schemes – these will increase require raw materials and aggregates. It will be essential that sustainability principles are observed in procuring materials for the construction of new infrastructure schemes. • Overall, the Strategy would be expected to have a **positive** impact of a **minor to moderate** magnitude.
2. To protect and enhance the built environment and streetscape through planning and operations	✓	• The Draft Revised MTS recognises the role that it can play in protecting and enhancing the built environment and streetscape. The proposals (Section 5.17 of Draft Revised MTS) seek to enhance the built environment by improving the layout and design of streets, in particular by providing clear, easily understandable routes and shared spaces, taking into account local context and the needs of those using it. In so doing, materials will be used which are sustainable in the long-term. • Given the large number of streets that fall under the Mayor's remit and the number of streets which TfL stations, cycle-ways and walkways interlink with, the Draft Revised MTS has an opportunity

Primary Objective F - To protect and enhance the physical, historic, archaeological and socio-cultural environment and public realm	
Secondary Objectives	**Preferred Option Assessment**
	to bring about a notable positive effect on the built environment and streetscape. In implementing the Draft Revised MTS, it will be critical to ensure that opportunities to improve streetscape are undertaken not only in areas well known for their built environment and streetscape, but also in areas of relative deprivation. The Draft Revised MTS explicitly recognises the role that 'better streets' can have in bringing communities together and in restoring a sense of pride in an area. • Investment in streetscape in more deprived areas would not only improve the quality of the environment, but may also serve to improve perceptions and offer opportunities to help design out crime, thus encouraging the take up of walking, cycling and public transport use and contributing to an improved quality of life. The policies and proposals in the Draft Revised MTS relating to the built environment and streetscape are also expected to have benefits for health and wellbeing arising from an improved environment and a reduction in accidents through good design. • The Draft Revised MTS seeks to enhance the built environment by improving the layout and design of streets, in particular by providing clear, easily understandable routes and shared spaces, taking into account local context and the needs of those using it. • The Draft Revised MTS is supported by proposals for a Better Streets implementation plan and will deliver various flagship streetscape improvement schemes, based on case studies undertaken already (e.g. Kensington High Street). These proposals are expected to have a very positive effect. • The Draft Revised MTS also provides for improvements to streets, pedestrians and cycle routes within the area of influence of stations and the public realm adjacent to major transport investments. Provision is also made for public realm factors in designing transport infrastructure in residential areas, such as bus stops and lighting, which will also contribute positively to the built environment and streetscape. • The Draft Revised MTS, by contributing to the protection and enhancement of the built environment and built heritage, will serve to make London a more attractive and enjoyable place to visit. This would be expected to have positive outcomes in terms of tourism. Protecting and enhancing the built environment contributes to positive experiences on London by workers and business visitors, encouraging economic activity and competitiveness. • There are many cases where general policies and proposals should

Primary Objective F - To protect and enhance the physical, historic, archaeological and socio-cultural environment and public realm		
Secondary Objectives	**Preferred Option Assessment**	
		be introduced taking into account particular groups of users. For example changes to the built environment should take account of the needs of different users to ensure inclusiveness for all, and electric vehicles are a particular issue for visually impaired people in relation to shared space; mitigation should therefore be addressed in the design process. • The overall impact is expected to be to be **positive** and of a **minor to moderate** magnitude.
3. To protect and enhance the historic, archaeological and cultural environment through planning and operations	✓	• The Draft Revised MTS specifically refers to the importance of local historic and cultural context in relation to its 'better streets' approach for the built environment and streetscape. (See Proposal 82 and Section 5.17.2 of the Draft Revised MTS). The policies and proposals described in relation to the built environment and streetscape objective would be expected to contribute to protecting and enhancing the setting of historic buildings and monuments in London, some of which are stations themselves. The role the Draft Revised MTS will play will recognise the importance of these heritage features in terms of their historic value, as well as their cultural importance and the enjoyment that Londoners and visitors can derive from them. While the Draft Revised MTS is expected to play a role in contributing to the protection and enhancement of London's heritage, by improving accessibility by public transport, walking and cycling, it will also play a role in making it easier for people to access and enjoy areas or sites which are desirable for their heritage. • With respect to specific projects that are expected to be implemented as a result of the Draft Revised MTS, TfL will actively address cultural heritage and archaeology, amongst other environmental matters, in developing business cases for these schemes, including evaluation of the environmental performance of transport proposals. Projects which are taken forward to development consent stage will be supported by environmental appraisal and Environmental Impact Assessment (EIA) where appropriate (see Paragraph 800 of the Draft Revised MTS). • As part of this process appropriate cultural heritage and archaeological mitigation or enhancement would be developed and taken into account prior to making development consent decisions. • Overall, the policies and proposals included in the Draft Revised MTS to enhance the built environment and streetscape would be expected to give rise to a positive effect with respect to heritage. A **positive** impact, **minor to moderate,** is anticipated**.**

Primary Objective F - To protect and enhance the physical, historic, archaeological and socio-cultural environment and public realm		
Secondary Objectives	**Preferred Option Assessment**	
4. To protect and enhance the natural, physical environment, including biodiversity, flora and fauna through planning and operations	✓	• With respect to specific projects that are expected to be implemented as a result of the Draft Revised MTS TfL will actively address biodiversity matters, amongst other environmental matters, in developing business cases for these schemes. The Draft Revised MTS provides a commitment that projects which are taken forward to development consent stage will be supported by environmental appraisal and EIA where appropriate. As part of this process appropriate biodiversity mitigation or enhancement will be developed and biodiversity matters will be taken into account in development consent decisions. • As described in the Draft Revised MTS, the Mayor has many initiatives to encourage biodiversity, in particular in relation to land it owns and protects and with respect to its buildings (e.g. 'living' roofs and bat boxes). The Draft Revised MTS seeks to build on existing biodiversity initiatives, recognising the benefits that this can bring not just to the environment, but also to people's quality of life and health and wellbeing. • An Appropriate Assessment screening exercise has been undertaken in relation to the requirements of the Habitats Regulations. A policy provision has been included in the Draft Revised MTS to address the requirements of the Habitats Regulations and to protect the nature conservation objectives of Natura 2000 sites. • The Draft Revised MTS recognises the range of initiatives already underway which include protecting and enhancing biodiversity in open spaces across the transport network, for example, in green spaces alongside roads and railways and using spaces such as roof buildings (Proposal 89). The Draft Revised MTS seeks to build on these initiatives through a policy which provides for the planting of new trees across London (Proposal 112). • The priority afforded to the protection of the natural environment, in its many and varied forms, will enhance the contribution the Draft Revised MTS makes to environmental sustainability. The interaction between transport and the natural environment is varied and impacts arise both directly and indirectly. Addressing direct impacts, the commitment of the Mayor to ensure that infrastructure and operations duly take account of and seek to protect the physical environment, is critical at both the strategic and scheme level application. The Draft Revised MTS has also been developed, taking into account the way transport can contribute to goals of the Mayor's Biodiversity Strategy. • Overall, the Strategy is expected to have a **positive** impact of a **minor to moderate** magnitude.

Primary Objective F - To protect and enhance the physical, historic, archaeological and socio-cultural environment and public realm		
Secondary Objectives	**Preferred Option Assessment**	
5. To protect and enhance greenscapes, riverscapes and waterways through planning and operations	✓	• The Draft Revised MTS makes clear that the Mayor is committed to protecting and enhancing green spaces and includes a policy to work with other agencies and stakeholders to 'make the most' of greenspaces alongside roads, rivers, cycle greenways strategic walking routes, green grids, roof tops and railways lines. • London has a large number of green spaces that are also valued in part because they offer escape for the noise of the city. Increasingly in recent years the health benefit of relatively quiet areas used for relaxation has become recognised. The Environmental Noise Directive (2002) requires the preservation of defined 'quiet areas' and this is very much included in the Environmental Noise (England) Regulations 2006, as amended that enforce this directive. Defra has researched how best to protect quiet areas, and is consulting on its draft proposals in Agglomeration Noise Actions Plans. This places importance on quiet areas that previously was not recognised, and will allow local authorises to ensure their noise climate and amenity is preserved. The Draft Revised MTS (Section 5.18.2) recognises that there is scope to action where people are significantly affected by noise through the Environmental Noise (England) Regulations. • Overall, the Strategy is expected to have a **positive** impact of **minor to moderate** magnitude. Enhancement measures have been identified in respect of this.

Predicted Cumulative Impacts across the Draft Revised MTS, Draft London Plan and Draft EDS

Draft London Plan	Draft Economic Development Strategy (EDS)	Draft Revised Transport Strategy	Cumulative Effects
Social IIA Objectives			
There are anticipated to be a number of positive effects against the social IIA objectives arising from the draft replacement London Plan. In particular from policies in Chapters 2, 3 and 6. The impetus on increased housing provision and the focus on regenerating deprived areas will be beneficial. Furthermore, the greater emphasis on outer London in specific policies is likely to contribute positively. The pressures arising from social growth (such as increased pressure on land and demand for resources) are anticipated to be mitigated by other policies within the Plan.	There will be positive social effects arising from the EDS. Key proposals supporting these objectives can be found in Chapters 2 and 4 particularly for health and well-being and equality objectives. Indirect positive effects will also be felt with proposals which support the reduction of unemployment.	In line with its stated goals of 'enhancing the quality of life for all Londoners', 'improving transport opportunities for all Londoners' and 'enhancing the safety and security of all Londoners', the Draft Revised MTS is anticipated to give rise to positive effects across the key elements of social sustainability. In particular it is expected to contribute to enhanced equality and improved health and wellbeing through tackling barriers to travel and promoting a positive framework for factors contributing to this. Key to this, are the policies which contribute to improved accessibility, inclusive design, economic development and increased physical activity. Strategic policies are set out in Chapter 4 and proposals in Chapter 5.	There is anticipated to be a positive cumulative effect as the strategies are likely to support and complement each other, contributing towards the social IIA objectives.

Draft London Plan	Draft Economic Development Strategy (EDS)	Draft Revised Transport Strategy	Cumulative Effects
Economic IIA Objectives			
Chapter 4 is specifically focussed on contributing towards improvements in the economy. In combination with measures in Chapter 5 to adapt to, and mitigate climate change, as well as secure energy supplies (which will support the stability and reduce the vulnerability of the economy) there is likely to be a positive contribution towards the objectives. The focus on regeneration is also likely to contribute to economic IIA objectives. The drive to improve outer London's competitiveness with surrounding area and regenerate its deprived areas is also likely to contribute positively. The pressures arising from economic development (such as the pressure on land) are anticipated to be mitigated by policies that contribute positively to the environmental IIA objectives.	The effects are positive and significant for the promotion of a stable and diverse economy. Key proposals which contribute to this objective can be found in Chapters 1 and 2, but this objective is also supported by the proposals in Chapters 3, 4 and 5. The proposals will support taking advantage of economic opportunities associated with climate change, maintaining London as a premier global location to do business and improving productivity.	In line with its stated goal of 'supporting economic development and population growth', the Draft Revised MTS is anticipated to give rise to positive effects in facilitating more sustainable and efficient economic progress in London, in particular through the promotion of integrated land use planning which the Draft Revised MTS - in conjunction with the draft replacement London Plan and EDS – facilitates through tackling congestion and promoting sustainable forms of freight transportation. Strategic policies are set out in Chapter 4 and proposals in Chapter 5.	There is likely to be a positive cumulative contribution towards the economic IIA objectives as the strategies are anticipated to support and complement each other.

Draft London Plan	Draft Economic Development Strategy (EDS)	Draft Revised Transport Strategy	Cumulative Effects
Environmental IIA Objectives			
The policies set out predominantly in Chapters 5 and 7 are likely to contribute to the protection of the environment. Other policies elsewhere that promote a reduction in pollution and CO_2 emissions (such as in Chapter 6) are also likely to contribute towards environmental IIA objectives.	The effects are positive and significant for climate change mitigation. The key proposals which contribute to this can be found in Chapter 3.	In line with its stated goals of 'reducing transport's contribution to climate change and improving its resilience' and 'enhancing the quality of life for all Londoners', the strategy is anticipated to give rise to positive effects in relation to environmental sustainability. The Draft Revised MTS contains policies to protect the environment with respect to the development of new infrastructure and policies which seek to enhance the built environment and biodiversity along the transport network. It also contains policies to tackle climate change and address key sources of transport noise. These will have a positive effect with respect to the environment. It should be noted that the policies set out in the Draft Revised MTS pertaining to air quality, are to be delivered in conjunction with the emerging Draft Mayor's Air Quality Strategy. Strategic policies are set out in Chapter 4 and proposals in Chapter 5.	It is anticipated that there will be a positive cumulative effect as the strategies are likely to support and compliment each other to contribute towards achieving the environmental IIA objectives.