APPENDIX A

Assessment Criteria

6 Initial option assessment (Steps 5 - 6)

6.1 Step 5 – Generating options

6.1.1 In order to identify an appropriate intervention that can achieve the objectives set out in Chapter 5, a multi-layered optioneering process is required.

6.1.2 Optioneering within Stage 1 of the Transport Appraisal Process for a transport intervention can be undertaken in a three-step process of Multi-Criteria Assessment (MCA) framework:

A. Appraising a range of strategic level solutions (rather than specific interventions) including all transport modes, managing demand as well as the option to do nothing. The result of this stage is to identify which strategic approaches should be focused on in the remainder of the appraisal

B. Undertaking a long-listing exercise identifying as many feasible options which fall under the preferred strategic approach, and then assessing those options against the criteria to lead to a shortlist.

C. Further assessment of the shortlisted options to identify a set of preferred options to take forward of further assessment in the Outline Business Case (OBC).

6.1.3 The content of the previous chapters of this report highlight that the fundamental transport issues are caused by available capacity are outweighed by excess demand in the local area. Strategic solutions should therefore be seeking to introduce additional capacity, reduce the demand on the network or a combination of the two.

6.1.4 At Stage A (the strategic level), potential solutions can be drawn from all transport modes and methods of managing demand. The list of solutions has been identified as:

- Do nothing
- New/improved bus services - provide more bus services on the A13, A1089, A282 and on smaller roads in and around the Chafford Hundred/Grays area.
- Increased rail frequencies - increase services from Chafford Hundred, Grays, Tilbury Town and Purfleet railway stations
- Demand management - implement parking charges at intu Lakeside shopping centre, or install road charges on or between the A13, A282 and A1089
- Park & Ride – build a remote Park & Ride site and provide onward transport
- Online highway improvements – improving the existing highway infrastructure.
- Offline highway improvements – new roads or substantial infrastructure to provide east facing access to the A13
- Traffic management - implement effective road closures in the Grays/Chafford Hundred area which do not worsen the level of traffic congestion elsewhere in the area. Also apply Traffic Regulation Orders to restrict the types of vehicles able to route through the area.
- Active travel – providing dedicated infrastructure for pedestrians and cyclists, improving the local connectivity and safety

6.1.5 The outcome of Stage A will provide one or more selected strategic solutions which have been assessed as providing the best opportunity for meeting the scheme objectives and resolving the identified transport problems.

6.1.6 At Stage B, a second round of optioneering will identify a long-list of options drawn from the preferred strategic solutions.

6.2 Multi-criteria assessment methodology

6.2.1 The MCA framework used in evaluating the potential solutions and options is Mott MacDonald's in-house **In**vestment **S**ifting and **Evaluation T**oolkit (INSET). INSET is a scalable and flexible tool that can be adapted for any stage of the scheme business case development process to help decision-makers manage information on investment options and evaluate them across multiple criteria. It provides a clear and transparent audit trail to demonstrate how selected schemes have been prioritised or selected for further scheme development and enables a wider conversation around the merits of individual schemes or investment decisions. For other studies, INSET has been used in stakeholder engagement sessions, transport committee meetings and in peer review settings to illustrate how robust decisions have been arrived upon.

6.2.2 INSET functions through undertaking a scoring assessment of multiple criteria which could include social, economic or environmental indicators of scheme performance. Assessment criteria are commonly defined as measurable elements that can be linked to an evidence base. Based on the detail of the data provided, a scoring framework is developed through which each of the criteria can be appraised. This can range from a simple "Yes/No" query (e.g. does the scheme pass through a flood risk area?) to a more quantified response based on scoring bands (e.g. how much employment land could be unlocked by this intervention?).

Themes

6.2.3 For the assessment of the A13 East Facing Access study, the following themes have been set:

- Transport benefits
- Wider economic benefits
- Environmental impact
- Social impacts
- Alignment with objectives
- Deliverability

6.2.4 Underpinning the assessment of these themes are structured main and sub criteria. The number of criteria changes depending on the stage of the assessment as the level of detail and appraisal increases. Table 10 provides the incremental evolution of the criteria used for assessment at the three stage of optioneering.

Table 10: Assesstment criteria by INSET stage

Theme	Stage A - Strategic solutions		Stage B -Long-list options		Stage C - Short-list options	
	Main criteria	**Sub criteria**	**Main criteria**	**Sub criteria**	**Main criteria**	**Sub criteria**
Transport Benefits	Local connectivity	Improve local connectivity	Local connectivity	Improve local connectivity	Local connectivity	Reduce journey times on the B186/A1306 through West Thurrock and Chafford Hundred
						Reduce journey times on other routes through West Thurrock
	Strategic connectivity	Improve strategic connectivity	Strategic connectivity	Improve strategic connectivity	Strategic connectivity	Reduction in traffic between A126 and M25
						Reduction in delay at A13 junctions
	Congestion relief	Ability to relieve congestion	Congestion relief	Ability to relieve congestion	Congestion relief	Reduced local road network delay
						Reduced strategic road network delay
Wider Economic Benefits	Potential to deliver and mitigate for growth	Potential to deliver and mitigate for growth	Enable development	Improved access to land	Enable development	Improved access to land
			Mitigate for growth	Increased transport capacity	Mitigate for growth	Increased transport capacity
Environment	Environmental impact	Impact on the environment	Environmental impact	Air quality	Environmental impact	Air quality
				Landscape		Landscape
				Cultural heritage		Cultural heritage
				Ecology		Ecology
				Noise		Noise
				Water		Water
Social Impacts (Quality of Life)	Social impact	Social impacts	Social impact	Social impacts	Safety	Reduce personal injury accidents on the network
					Severance	Reduced volume of traffic on local road network
Alignment with Objectives	Alignment with objectives	Fit with wider policy objectives	Alignment with objectives	Fit with wider policy objectives	Alignment with objectives	Fit with wider policy objectives
		Population & economic growth		Population & economic growth		Population & economic growth
		Sustainable growth in Lakeside basin		Sustainable growth in Lakeside basin		Sustainable growth in Lakeside basin
		Physical and mental wellbeing.		Physical and mental wellbeing.		Physical and mental wellbeing.
Deliverability	Affordability	Scheme cost	Affordability	Scheme cost	Affordability	Scheme cost
	Complexity	Level of complexity	Complexity	Level of complexity	Complexity	Engineering complexity
						Public acceptability
						Stakeholder acceptability
						Timescales

Option scoring

6.2.5 INSET allows for a variety of scoring mechanisms which can be tailored to suite specific criteria. For example, environmental impacts may be scored on a 5-point or 7-point scale from large negative being the lowest score and large positive the highest score. Alternatively, an option's fit to local policy may range from 0-5 where 5 is a strong fit. Some criteria may simply have a yes or no answer. INSET not only allows for various methods to be used within the same framework, it can also 'normalise' all scores to allow the different mechanisms to be treated in the same way.

6.2.6 Furthermore, INSET allows criteria to be weighted depending on importance to the overall assessment.

6.3 Step 6 – Initial sifting

INSET Stage A

6.3.1 At this stage, transport benefits have been treated as the most important factor. Therefore, the category has been given a weighting of two, whereas all other categories are one. Additionally, within the deliverability category, the complexity score has been deemed twice as important as the estimated costing of the scheme. The deliverability category weighting has remained at one.

6.3.2 Table 11 summarises a comparison of how the strategic solutions scored against the six assessment themes. Whilst a Do Nothing scenario has been included within the assessment, it is used as a baseline against which to compare the other solutions. As such, it's performance will not be commented as it will clearly fail to resolve the known transport problems.

6.3.3 Within the table, very good describes criteria which the scheme does not have any negative qualities against. Good describes the criteria schemes mostly provide benefit to, with reasonably good highlighting that there are some negativities. Neutral describes the criteria that the scheme does not impact. Very poor indicates that there are no positives the scheme provides when compared with the criteria and poor describes criteria where the negatives outweigh the positives.

6.3.4 Offline and online highway are shown to be most effective at providing transport benefits whilst it is felt that bus priority lanes, traffic management and demand management will have the least impact due to the failure to result in mode shift and an improvement in the operation of the network.

6.3.5 For the Wider Economic Benefits theme, the assessment concludes that offline highway will have the highest impact through its ability to mitigate for planned or future growth. Aspirations to deliver growth may come forward quicker with offline improvements that allow access to land.

6.3.6 Active travel, bus priority lanes, park & ride, new/improved bus services and increase rail services all have positive environmental benefits, whilst offline and online highway schemes have negative environmental impacts. All other schemes are neutral.

6.3.7 All schemes are expected to have a positive impact on quality of life, apart from demand management which will be costly to the user and unfairly disadvantage those on lower incomes.

6.3.8 Active travel is the scheme that is most in line with the objectives, due to the fact it is sustainable and has positive benefits to health. Traffic management and demand management do not align to any of the objectives in a significant way.

6.3.9 All schemes have been scored highly for deliverability except for rail services which would require new signalling systems to allow more services, and park & ride largely due to the complexity and cost..

6.3.10 An offline highway scheme comes out with the highest overall benefits. It is expected to provide benefits in all categories apart from the environment. This will be considered at the following stage. Active travel, bus priority lanes and online highway also rate highly.

6.3.11 However, bus priority has very low transport benefits, whilst the lanes may improve journey time for passengers, there is not likely to be a significant enough increase in patronage to have an impact on the congestion. Additionally, the introduction of bus priority lanes likely means a reduction in traffic lanes, which would lead to increased congestion in some areas which would not solve the problem assessed in this report. Furthermore, any improvements to the bus service are unlikely to result in the necessary modal shift to reduce congestion.

6.3.12 Whilst an active travel scheme has positive implications, it would have no large impact on existing congestion or providing additional capacity for future development. Instead, active travel should be considered with a scheme which will also improve capacity.

Table 11: INSET Stage A – Comparison of strategic solution scores

Scheme	Transport Benefits	Wider Economic Benefits	Environment	Social Impacts (Quality of Life)	Alignment with Objectives	Deliverability
Offline highway	Very Good	Very Good	Poor	Good	Good	Very Good
Active Travel	Reasonably Good	Neutral	Good	Good	Very Good	Very Good
Online highway	Very Good	Good	Poor	Good	Reasonably Good	Very Good
Bus Priority Lanes	Neutral	Neutral	Good	Good	Reasonably Good	Very Good
Traffic management	Neutral	Neutral	Neutral	Good	Neutral	Very Good
Park & Ride	Reasonably Good	Neutral	Good	Good	Good	Neutral
New/ improved bus services	Reasonably Good	Neutral	Good	Good	Reasonably Good	Reasonably Good
Increased rail frequencies	Reasonably Good	Neutral	Good	Good	Reasonably Good	Neutral
Do nothing	Neutral	Neutral	Neutral	Neutral	Very Poor	Very Good
Demand management	Neutral	Neutral	Neutral	Poor	Neutral	Very Good

6.3.13 The conclusions of the initial sifting of the strategic solutions are provided in Table 12 along with a decision on whether they should pass to the next stage of the assessment or not.

Table 12: INSET Stage A - Strategic solution summary

Option	Description	Pass / Fail	Summary of assessment
A	Do nothing	Fail	○ The existing problems with congestion and delay will remain, no additional capacity will be created ○ The air quality in the area will continue to be affected ○ Drivers will still have to sit in congestion ○ No immediate costs
B	New/ improved bus services	Fail	○ Could lead to slight increase in patronage ○ Minimal impact on capacity and reduction in emissions ○ Provides sustainable alternative for local residents ○ Can be costly and complex to implement
C	Increased rail frequencies	Fail	○ Could lead to slight increase in patronage ○ Minimal impact on capacity and reduction in emissions ○ Provides sustainable alternative for commuters to/from the area ○ Would be costly and complex to implement new signalling systems
D	Demand management	Fail	○ Congestion and delay could be shifted elsewhere if road charges were implemented ○ The relative impact on overall congestion and omissions would be minimal ○ Cause of economic disparity ○ Reasonably low cost
E	Park & Ride	Fail	○ Would likely lead to a small increase in capacity ○ The correct location could improve accessibility of new development ○ Potentially small reduction in emissions ○ Can be costly and complex
F	Online highway	Pass	○ Would provide some reduction in congestion and increase capacity slightly ○ Minimal positive environmental impacts ○ Can be delivered more easily than offline highway improvements
G	Offline highway	Pass	○ Could significantly reduce localised congestion and improve capacity ○ Minimal positive environmental impacts ○ Could be implemented with sustainable measures ○ Costly and complex to implement
H	Traffic management	Fail	○ Could have a negative impact on congestion and capacity overall ○ Could locally improve air quality and noise pollution, but have a negative impact elsewhere ○ Potentially improving the local area for residents ○ Low cost
I	Bus Priority Lanes	Pass	○ Reduce journey time for passengers ○ Limited potential to result in mode shift ○ Potentially reduce traffic lanes, therefore increasing congestion in some areas ○ Provides sustainable alternative for local residents ○ Can be costly to acquire the land
J	Walking/cycling infrastructure	Pass	○ Improve local connectivity ○ Minimal impacts on congestion and air quality ○ Sustainable alternative, health benefits ○ Can be implemented alongside another scheme, therefore reasonable low cost

INSET Stage B

6.3.14 A long-list of 21 offline and online highway interventions have been identified for the second appraisal stage, for which sketches and descriptions can be seen in Table 13.