

Transport for London



Silvertown Tunnel Distributional Impact Appraisal

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1. Introduction

Purpose of report

- 1.1. Transport for London is proposing to construct a new bored tunnel under the river Thames between the Greenwich Peninsula and Silvertown (“the Silvertown Tunnel”).
- 1.2. This report is the initial Distributional Impact Appraisal of the scheme and forms part of the Outline Business Case (OBC), one of several documents for public consultation starting in October 2014. It will be updated during the preparation of the Full Business Case for any consequent Development Consent Order (DCO) process.
- 1.3. The non-statutory consultation provides a preliminary opportunity for stakeholders to comment on the scope and methodology of the assessment prior to its completion. There will be a further opportunity to comment on the full Distributional Impact (DI) Appraisal when TfL undertakes the statutory pre-application consultation on the proposed application for any a Development Consent Order (DCO) submission for the Silvertown Tunnel in 2015.
- 1.4. The report undertakes an initial appraisal of the variance of the transport impacts of the Silvertown Tunnel across different social groups. The assessment has been prepared in line with current guidance, Department for Transport (2014) *WebTAG Distributional Impact Appraisal TAG Unit A4.2*.
- 1.5. At this stage of the project and its design it is not possible to undertake a full analysis on many of the distributional indicators – this will be undertaken at the time of the Full Business Case when more detailed information is available. Rather this report provides an initial assessment of the groups likely to be differentially affected by the proposal through a DI ‘screening’ process summarises the key likely issues and then provides information on how each element of the later detailed analysis will be carried out.
- 1.6. The full Distributional Impact Appraisal will inform the Health Impact Assessment (HIA) and Equality Impact Assessment (EQIA) at the statutory consultation stage.

Project objectives

- 1.7. The River Crossing programme objectives and the project objectives and requirements for the Silvertown scheme are described in full in the Silvertown Needs and Options Report¹. The Silvertown Tunnel scheme objectives are:
 - PO1: to improve the resilience of the river crossings in the highway network in east and southeast London to cope with planned and unplanned events and incidents.
 - PO2: to improve the road network performance of the Blackwall Tunnel and its approach roads.

¹ Silvertown Crossing Assessment of Needs and Options Report, TfL, 2014

- PO3: to support growth in east and southeast London by providing improved cross-river transport links for business and services (including public transport).
- PO4: to integrate with local and strategic land use policies.
- PO5: to minimise any adverse impacts of any proposals on health, safety and the environment.
- P06: to ensure where possible that any proposals are acceptable in principle to key stakeholders, including affected boroughs.
- PO7: to achieve value for money.

Project description

- I.8. The Silvertown Tunnel scheme is made up of a new bored tunnel running between the Blackwall Tunnel Southern Approach on the Greenwich Peninsula to the Tidal Basin roundabout in the Royal Docks area –see Figure I-1.

Figure I-1 Silvertown Tunnel location plan



- I.9. Key elements of the proposal are:
- Twin tunnels creating a dual two-lane connection;
 - User charging to manage demand for the Blackwall and Silvertown Tunnels and their approach routes; and
 - Full dimensional clearance in the Silvertown Tunnel providing unrestricted access to all vehicle types including double-decker buses and goods vehicles.

Scope of the DI appraisal

I.10. There are eight transport benefit indicators that are to be assessed in the distributional impact appraisal – these are as follows:

- User benefits
- Noise
- Air quality
- Accidents
- Security
- Severance
- Accessibility
- Affordability

I.11. Table I-1 sets out the groups of people to be identified in the analysis for each indicator.

Table I-1 Scope of social-demographic analysis for distributional impacts

Social Group Data set	User benefits	Noise	Air quality	Accidents	Security	Severance	Accessibility	Affordability
Income Distribution	✓	✓	✓				✓	✓
Children: proportion of population aged <16		✓	✓	✓	✓	✓	✓	
Young adults: proportion of population aged 16-25				✓			✓	
Older people: proportion of population aged 70+				✓	✓	✓	✓	
Proportion of population with a disability					✓	✓	✓	
Proportion of population of Black and Minority Ethnic (BME) origin					✓		✓	
Proportion of households without access to a car						✓	✓	
Carers: proportion of households with dependent children							✓	

Modelling and other information

- 1.12. The DI report is based on information supplied by other work streams relating to the Outline Business Case, in particular modelling and work on user charging.
- 1.13. Strategic transport modelling of the Silvertown Tunnel scheme (reported in the Silvertown Tunnel Traffic Forecasting Report) has been undertaken to predict the scheme impacts, and Economic Appraisal modelling (in TUBA) has been undertaken to appraise the transport benefits, transport disbenefits, revenues and scheme costs (reported in the Silvertown Tunnel Economic Assessment Report²). Transport models have been prepared for 2021 and 2031 to assess the transport impacts in light of population growth and background changes in travel behaviour. The earliest planned opening year for the tunnel is 2021.
- 1.14. The Silvertown Tunnel scheme is evaluated against an assumed future reference case (“Do-Minimum”) scenario. While proposals to the east of Silvertown are outside the scope of this assessment, the reference case includes an assumption that the Woolwich Ferry will be replaced (retained as a free service with 30% additional capacity).
- 1.15. The Silvertown User Charging Note³ sets out a range of charging options to manage demand for the river crossings. Under the central case tested, both the Silvertown and Blackwall Tunnels assume a charge at the same level as the Dartford Crossing in the morning peak northbound and the evening peak southbound. A charge of 50% of the Dartford charge has been assumed to apply to vehicles travelling in the contra-peak directions, and in both directions in the inter-peak period. Note that work on charging options is ongoing and these are current assumptions used in the various assessments.

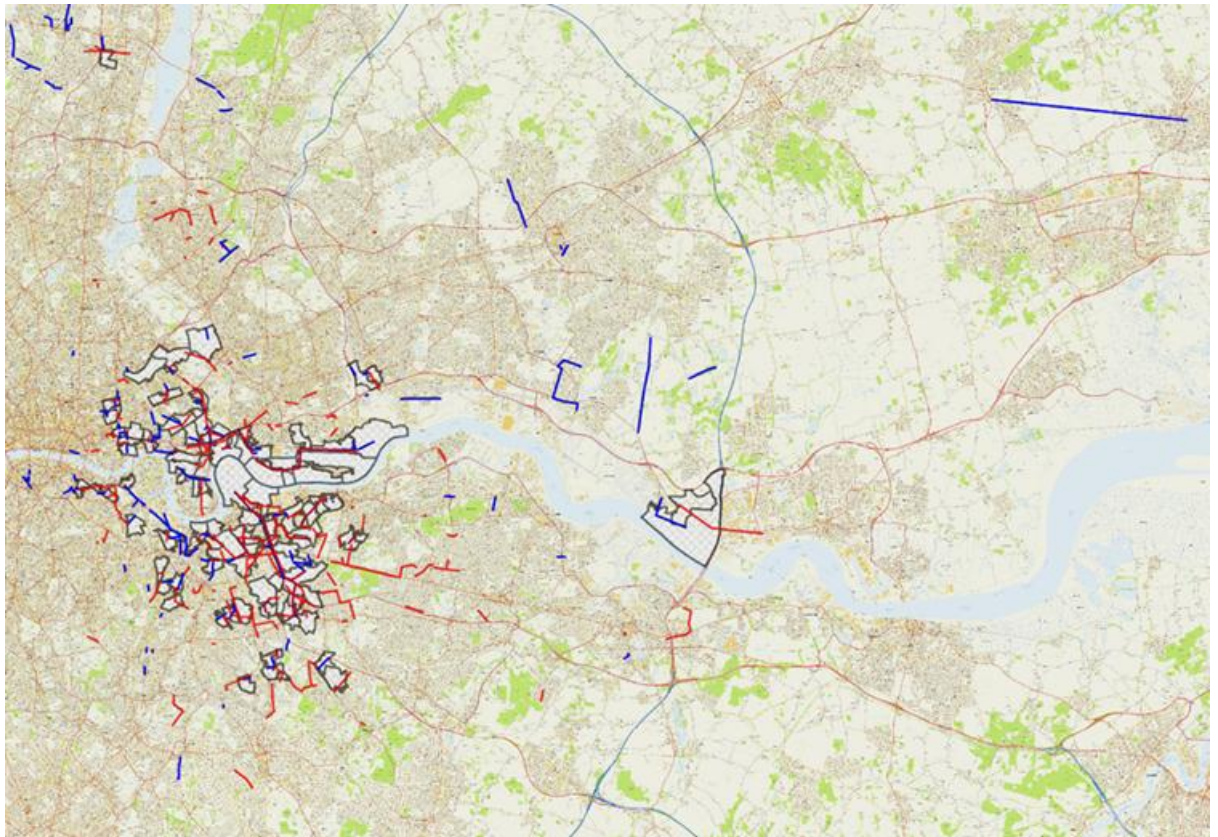
Initial Area of assessment

- 1.16. The area of assessment is dependent on the indicator assessed, but many indicators use the change in vehicle volumes as an important part of the definition of the area of assessment.
- 1.17. This initial report uses changes in traffic flows to suggest a deliberately broad area of assessment for DI screening purposes - this area will be refined for any future distributional impact assessment.
- 1.18. Figure 1-2 shows the links which in 2021 AM (blue) and 2021 PM (red) exceeded a 10% increase in volumes between the do-nothing and do-something model scenarios, on links with a base flow of greater than 60 vehicles per minute. Links with flows less than 60 vpm have been ignored, as these are very small volumes in the context of most urban roads.

² Silvertown Tunnel Economic Assessment Report, TfL, 2014

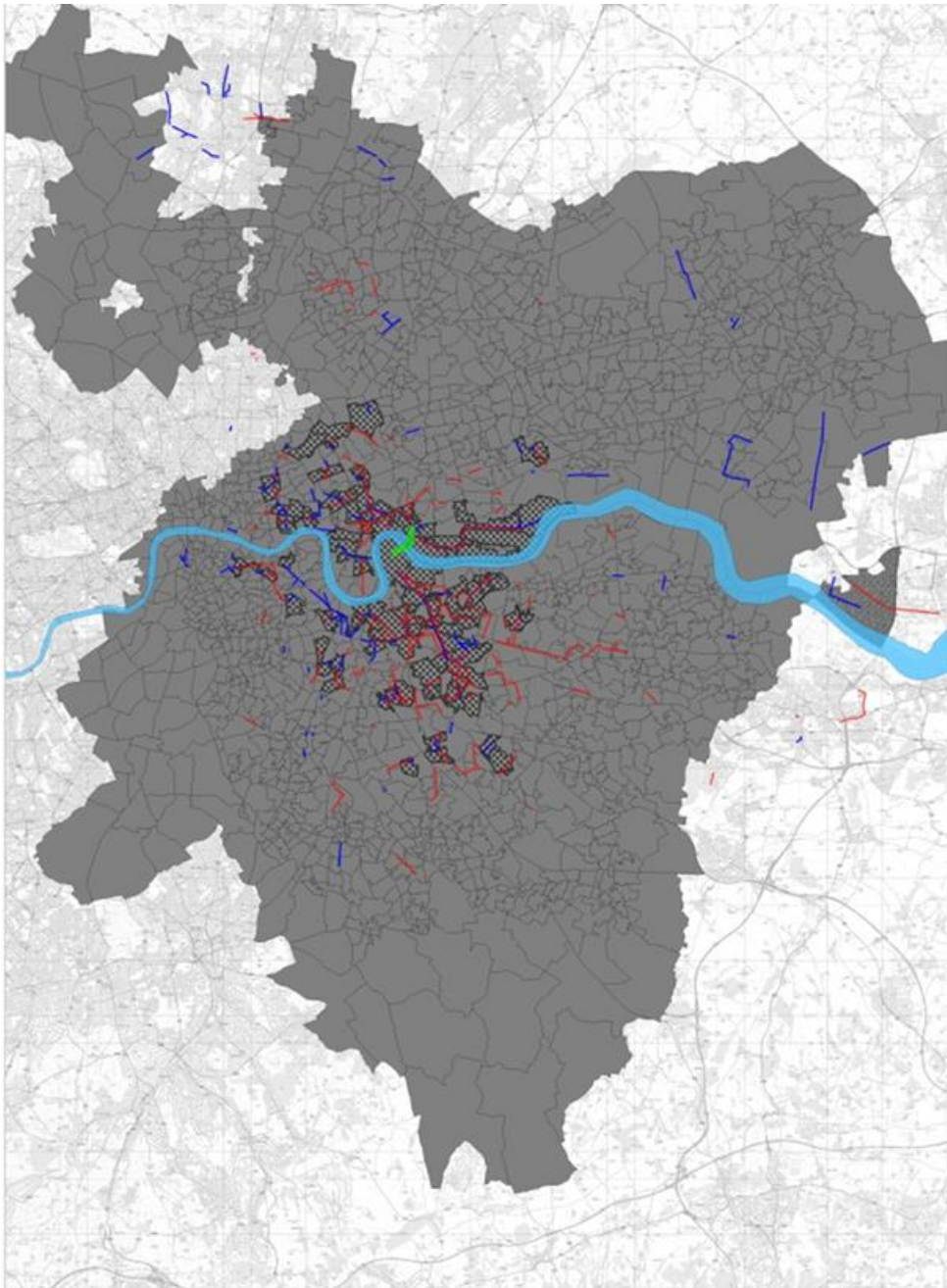
³ Silvertown Tunnel Silvertown User Charging Note, TfL, 2014

Figure 1-2 Links where vehicle flows increase > 10% or more in Silvertown scenario



- I.19. The figure shows a distinct cluster of links around the crossing, and a few scattered links some distance away, which are believed to be part of the 'noise' of a large strategic model of this type. These outlying links have accordingly not been considered for DI analysis.
- I.20. Based on the analysis, an initial area of assessment has been defined deliberately broadly as in Figure 1-3 – the links where changes of 10% or more is expected are shown clearly clustered around the Blackwall Tunnel. It is likely that the vast majority of all DI impacts will be within this area, with the possible exception of the user benefits and personal affordability indicators, for which a wider area may be relevant.

Figure I-3 Area of Initial Assessment



- I.21. The chosen area contains 90% of the links where flows changes of 10% or greater have been estimated. Any links omitted are at the periphery of the model simulation zone or are in the model buffer zone.
- I.22. In any future business case the area of assessment will be refined for each indicator based upon the latest modelling results – the focus will be on smaller areas where material changes are likely.

2. Existing conditions

Introduction

- 2.1. This section presents the existing transport and movement networks in the vicinity of the proposed Silvertown Tunnel and describes in summary the role of the Blackwall Tunnel in the existing road network. A broad indication of existing volumes of cross-river movements by all modes is described, expressed in both the number of person trips and the number of vehicles, and a summary of current network operating conditions is described.
- 2.2. For a more detailed analysis of the operational issues encountered at the Blackwall Tunnel, please refer to the Silvertown Crossing Assessment of Needs and Options Report and Transport Assessment⁴.

Transport provision

- 2.3. There has been a period of sustained investment in public transport capacity across the whole of east London over the past 20 years and this will continue with the introduction of Crossrail services from 2018. Conversely, there has been little investment in the road network in east London with only three crossings in 23km between Tower Bridge and the M25 (Dartford).
- 2.4. As a result in the morning peak hour, there are over 69,000 cross-river trips in east London in the peak northbound direction, of which over 57,000 are by public transport modes. The limited number of road crossings east of London Bridge carry just over 12,000 northbound car, taxi or goods vehicle person trips.
- 2.5. In terms of use by longer-distance traffic and high volumes, the only current 'strategic' cross-river highway link between central London and the M25 is the Blackwall Tunnel. It is an essential river crossing for freight and servicing vehicles and it also carries a significant number of peak commuter coach trips to Canary Wharf and central London. However it suffers from excessive congestion and long delays during peak periods, with queues of many hundreds of vehicles – journey times are also very unreliable due to the number and effect of incidents in the tunnels.
- 2.6. A single scheduled bus service uses the Blackwall Tunnel, namely route 108 which is a 24-hour service scheduled to operate around every 10 minutes during the day between Stratford and Lewisham. This service is also impacted by the delays and reliability issues noted above and is limited to single decker vehicles due to height restrictions in the northbound tunnel.
- 2.7. The Blackwall Tunnel consists of two separate tunnel bores- the northbound tunnel is characterised by more vehicle restrictions and lower capacity than the southbound

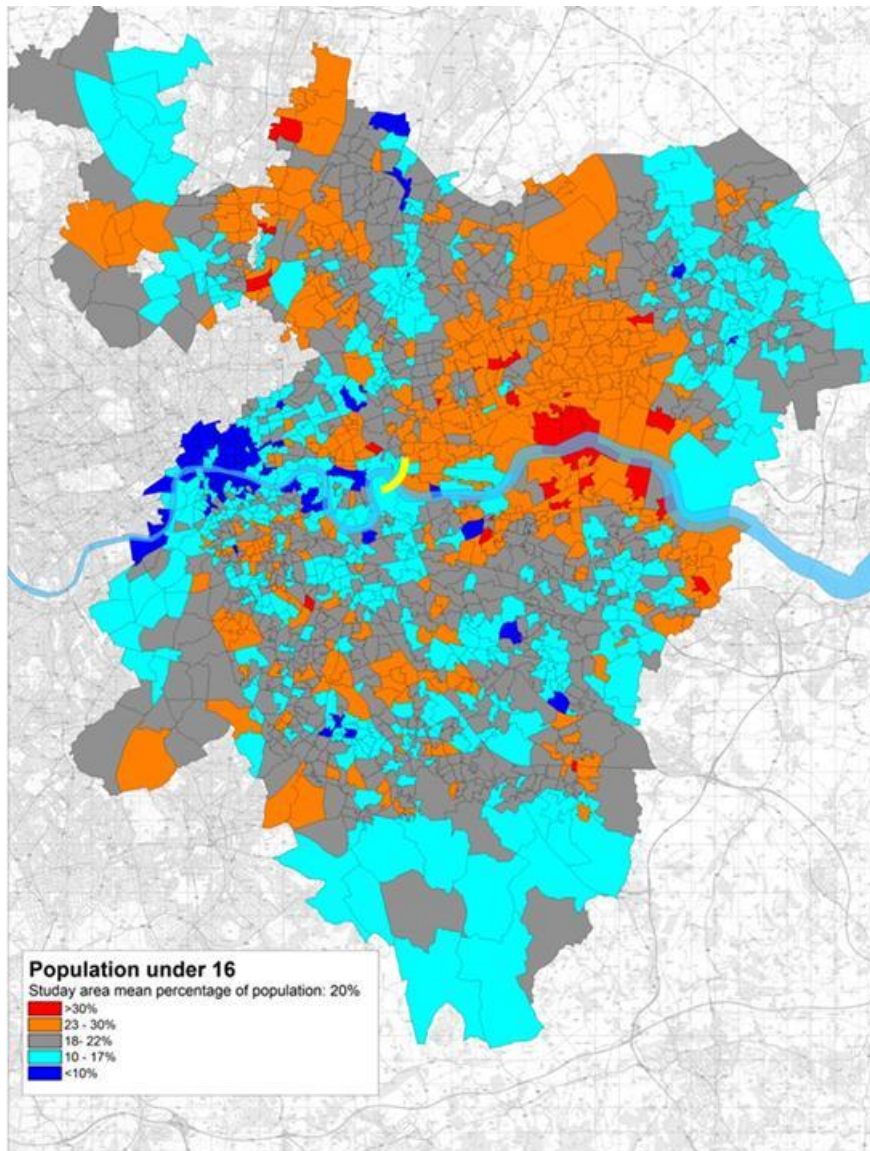
⁴ Silvertown Crossing Assessment of Needs and Options Report, TfL, 2014 and Silvertown Tunnel Transport Assessment, TfL, 2014

tunnel. Unplanned closures of the Blackwall Tunnel regularly have an impact on network resilience.

Socio-economic information on the initial assessment area

2.8. Initial information on some key demographic groups is provided below to assist the DI screening process. Figure 2-1 shows the percentage of the population under 16 in the initial assessment area compared to the mean percentage (20%) for the study area - the population under 16 must be taken into account in 6 of the 8 DI assessments. The areas with a high percentage of the population under 16 are to the north and east of the proposed Silvertown tunnel.

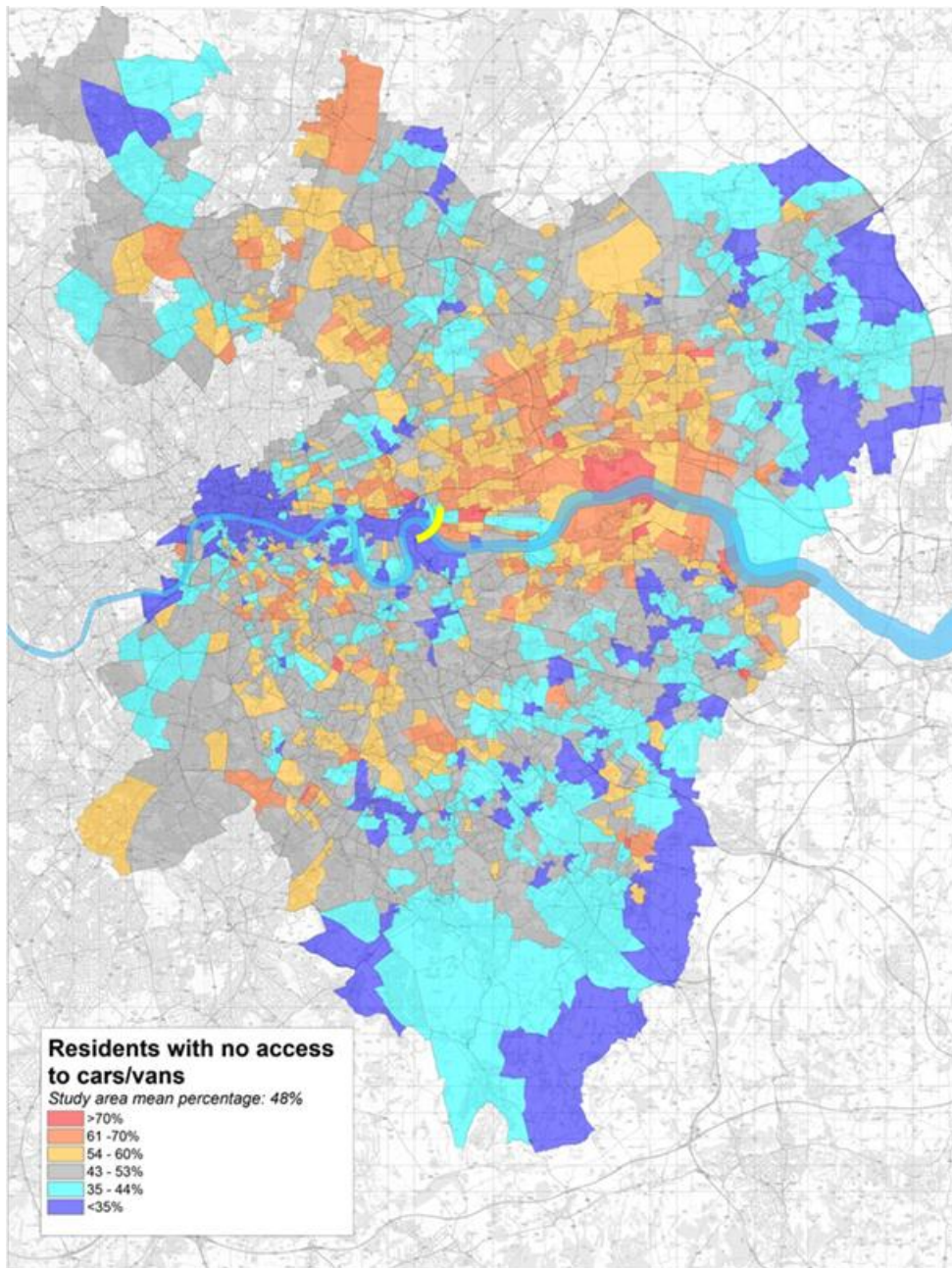
Figure 2-1 Population under 16



2.9. Figure 2-2 shows the percentage of population with no access to cars/vans compared to the mean percentage (48%) in the initial assessment area. The areas with a high relative percentage are to the north and east of the proposed Silvertown tunnel. As well as being taken into account in two distribution impact assessments, the proportion of residents with no access to cars/vans is used as one indicator of

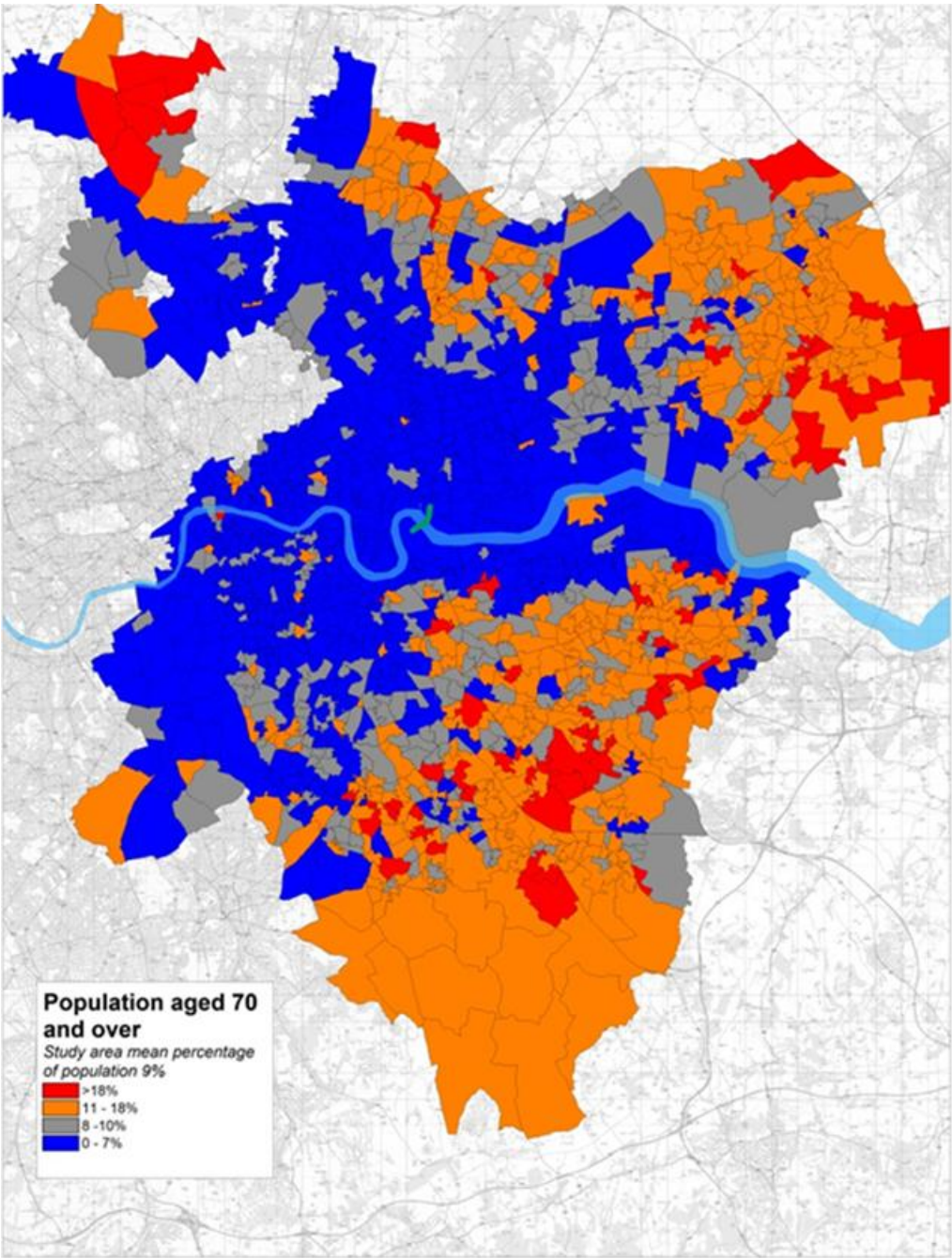
economic deprivation – which is taken into account in 6 distribution impact assessments.

Figure 2-2 Areas with a high proportion of population with no access to cars/vans



2.10. Figure 2-3 shows the areas with the percentage of population aged 70 years or more compared to the mean percentage (9%) in the initial assessment area- this is used in assessing 4 of the DI indicators. Most of the areas with a high proportion of the aged population are some distance from the proposed Silvertown Tunnel.

Figure 2-3 Areas with a high proportion of the population >70 years old



3. Distributional Impacts of User Benefits

Introduction

- 3.1. According to WebTAG guidance user benefits of schemes are experienced in certain areas and by certain groups of people. Whilst it is not possible to attribute social impacts to user benefits, there are distributional impacts that should be considered in the appraisal process.
- 3.1. Consequently it is important to understand the pattern of user benefits and disbenefits generated by the transport intervention as it develops. Where there is evidence of the intervention having particularly high benefits or disbenefits to a particular group, mitigation ought to be considered.

Screening

- 3.2. A broad initial screening has been undertaken, looking at user benefits/disbenefits. This has initially been performed at TUBA sector level, to give an overview of the effects that the Silvertown tunnel will have. For the Full Business Case DI appraisal analysis will be carried out at a much finer traffic zone or LSOA⁵ area level to reduce the risk that benefits/disbenefits for individual groups could be masked by changes in other groups.
- 3.3. Transport user benefits have been estimated using TUBA, the DfT's appraisal software. TUBA has been run at a sector level (see Figure 3-1). User benefits in TUBA comprise the following benefit types:
 - Time benefits
 - Local Authority tolls
 - Fuel vehicle operating cost benefits
 - Non-fuel vehicle operating cost benefit
- 3.4. Time benefits and VOC benefits have been calculated for all modelled time periods and user classes for each year of the 60 year appraisal period (2021 – 2080).
- 3.5. TUBA calculated User Benefits for the following time periods using appropriate assumptions regarding the annualisation of benefits for the modelled time periods:
 - AM peak (7am-10am weekdays)
 - PM peak (4pm-7pm weekdays)
 - Inter-peak (10am-4am and 6am to 7am, 7pm to 10 pm weekdays)
 - Weekends and Bank Holidays

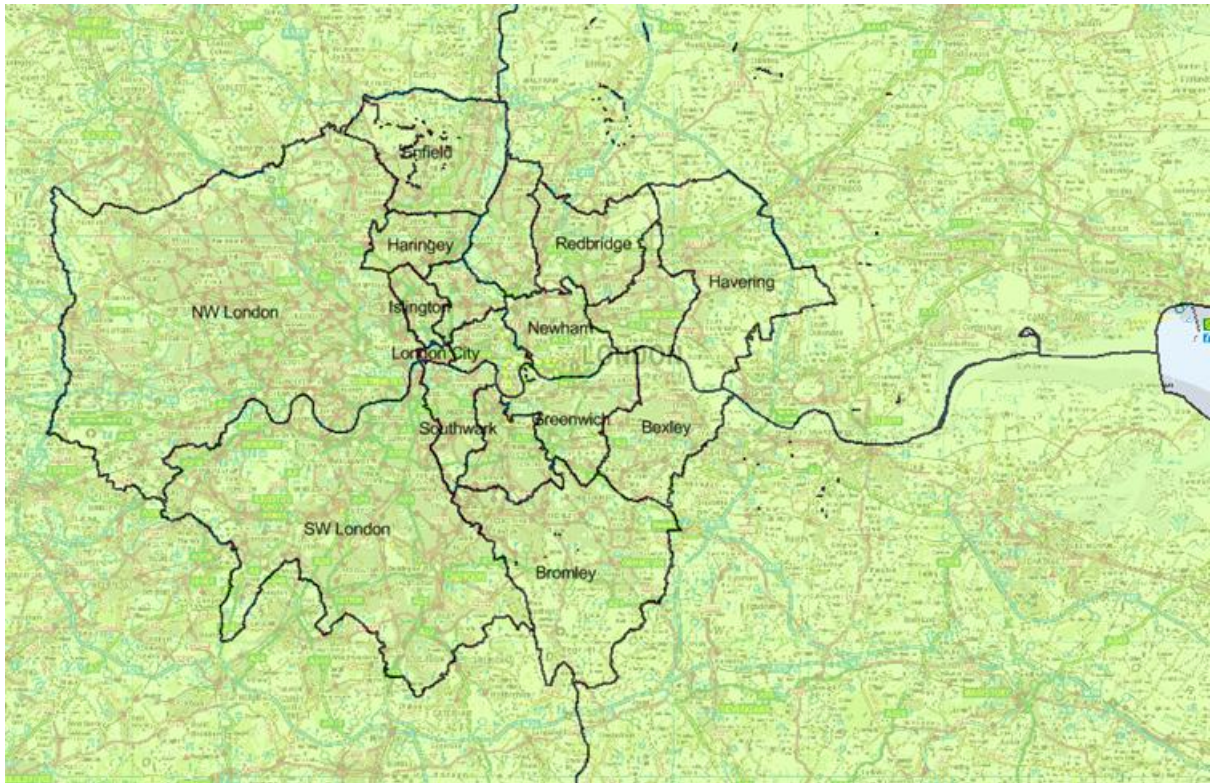
⁵ Census lower layer super output areas

- 3.6. For the purposes of the appraisal, benefits for all of the above time periods were considered.
- 3.7. TUBA outputs are also disaggregated by the following vehicle categories and journey purposes:
- Car Commute
 - Car Business
 - Car Other (Leisure, education etc.)
 - Light Goods Vehicles (LGV) and
 - Heavy Goods Vehicles (HGV)
- 3.8. We note that there are additional benefits for coach and bus users, calculated outside of TUBA that will need to be considered in the full DI analysis – these have not been included in this report.
- 3.9. The analysis of User Benefits is used to inform the distribution of impacts on **non-business** journeys only. Distributional Impact analysis is not conducted on business journeys, because these impacts are experienced by businesses and not individuals. Therefore the transport benefits of business trips have been removed from the TUBA output data set in this appraisal.
- 3.10. Analysis of user benefits has been undertaken by home location. The benefit outputs from TUBA are presented as benefits by Origin Destination trip. The origin of a particular trip is not necessarily the trip's home location. To overcome this issue the zonal benefits in the AM Peak are assumed to be the total of the benefits *from* that sector and in the PM Peak the zonal benefits are assumed to be the total of the benefits *to* that zone. For the Interpeak period the zonal benefits are taken as the average of the sum of the benefits to and from each zone.
- 3.11. This approach is justified based on the assumption that there is likely to be a very high proportion of home based car trips (commuting and other) leaving individual zones in the AM peak and conversely a high proportion of home based car trips (commuting and other) entering individual zones in the PM Peak.

Assessment Area

- 3.12. The transport model covers all of the UK, but obviously benefits diminish further from out from the intervention, and are non-existent at the extremes of the model.
- 3.13. The impact area should be defined as the area in which the transport intervention will result in changes to the cost of travel (including both time-based costs and financial costs) for users of the transport network.
- 3.14. The Silvertown Tunnel TUBA analysis derived from the model results is configured to analyse and present transport benefit statistics by sector. The sector system is presented in Figure 3-1.
- 3.15. The TUBA sectoring covers a larger area than the initial area of assessment, described in the introduction to this report. In this report we have screened the data at the sector level, to give an overview of the distributional impacts of user benefits. The area used for assessment of user benefit will be refined for the Full Business Case stage.

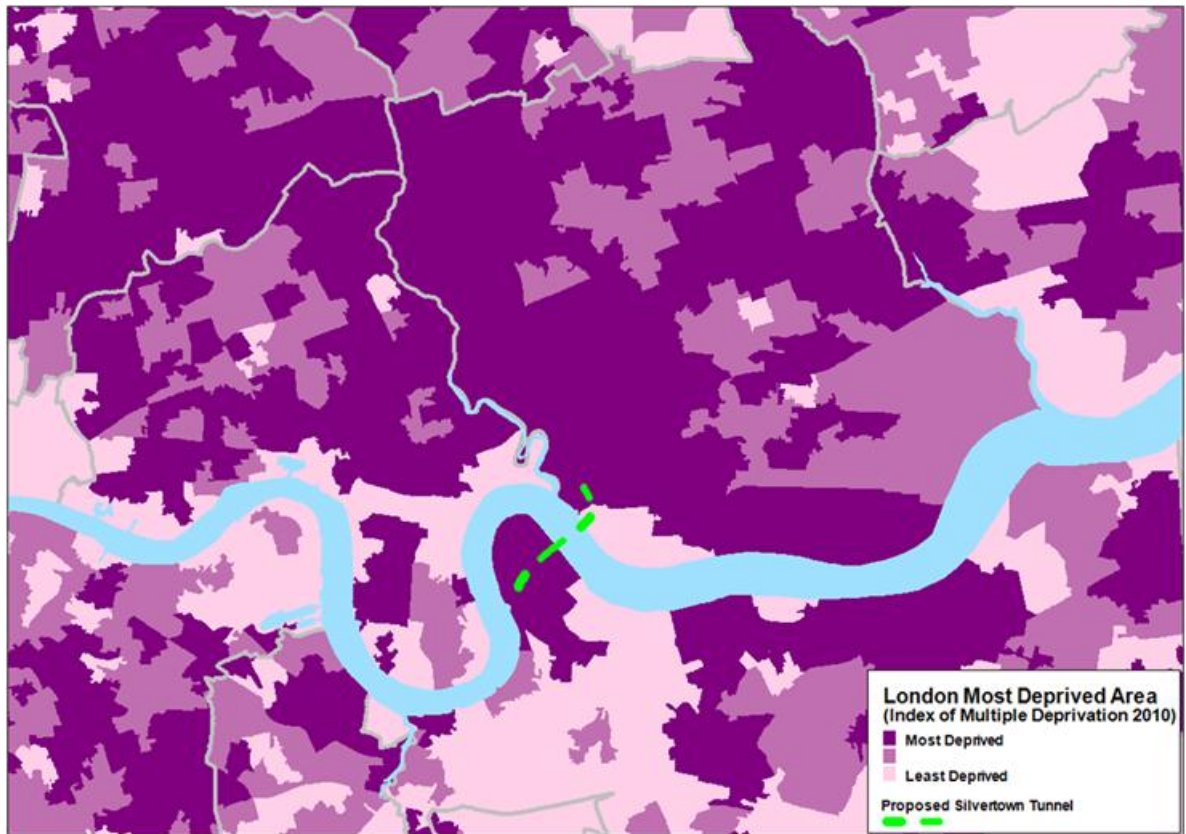
Figure 3-1 Tuba sector output areas



3.16. Figure 3-3 shows the areas near the scheme which are most deprived. Preliminary indications are that some of these areas may incur impacts from the scheme, although further more detailed work on the DI appraisal for the Full Business Case is required to confirm such effects. This will need to take into account:

- The extent of crossriver travel by these population groups
- The mode share of this travel and how benefits to bus/coach users (not included in the figure and table above) will benefit users in these areas.

Figure 3-2 East London – most deprived areas



Assessment

- 3.17. At this stage it is not possible to carry out a detailed assessment, however the preliminary screening work makes it likely that a full assessment will be necessary at the Full Business Case Stage.
- 3.18. In order for a more detailed assessment to be carried out:
- 3.19. A more detailed TUBA appraisal (at zonal level) will be run to give user benefits at a finer geographic level – giving benefit details by LSOAS/ELHAM Zone
- 3.20. Where little impact of the scheme is recorded at the current level of detail checks will be made to ensure that this does not mask changes cancelling each other out within a sector. If this is the case then the area of assessment will be adjusted accordingly
- 3.21. Within the new area of assessment a comprehensive assessment will be carried out, assessing the user benefit for the different levels of deprivation as measured by different metrics.
- 3.22. These will be combined together where possible and represented within a table, as per the WebTAG guidance. This will present the data by sector and deprivation quintile, by LSOA and deprivation quintile, total benefits and disbenefits summed of LSOAs, the share of benefit and disbenefits by quintile and the share of the population by deprivation quintile in the assessment area.

3.23. If it is not possible to combine the data, or doing so risks misrepresenting the distributional impact then separate tables will be produced for different deprivation metrics.

4. Distribution Impacts of noise

- 4.1. An assessment of the distributional and other impacts of air quality has yet to be undertaken, but will be carried out for any future Full Business case see the Silvertown Tunnel Introductory Environmental Assessment Report⁶. The analysis will follow the guidance set out in WebTAG Unit A4.2 (Distributional Impact Appraisal) and other relevant guidance. For information on air quality

⁶ • Silvertown Tunnel Introductory Environmental Assessment Report, TfL, 2014

5. Distribution Impacts of Air quality

- 5.1. An assessment of the distributional and other impacts of noise has yet to be undertaken, but will be carried out for any future Full Business case see the Silvertown Tunnel Introductory Environmental Assessment Report. The analysis will follow the guidance set out in WebTAG Unit A4.2 (Distributional Impact Appraisal) and other relevant guidance.

6. Distribution Impacts of Accidents

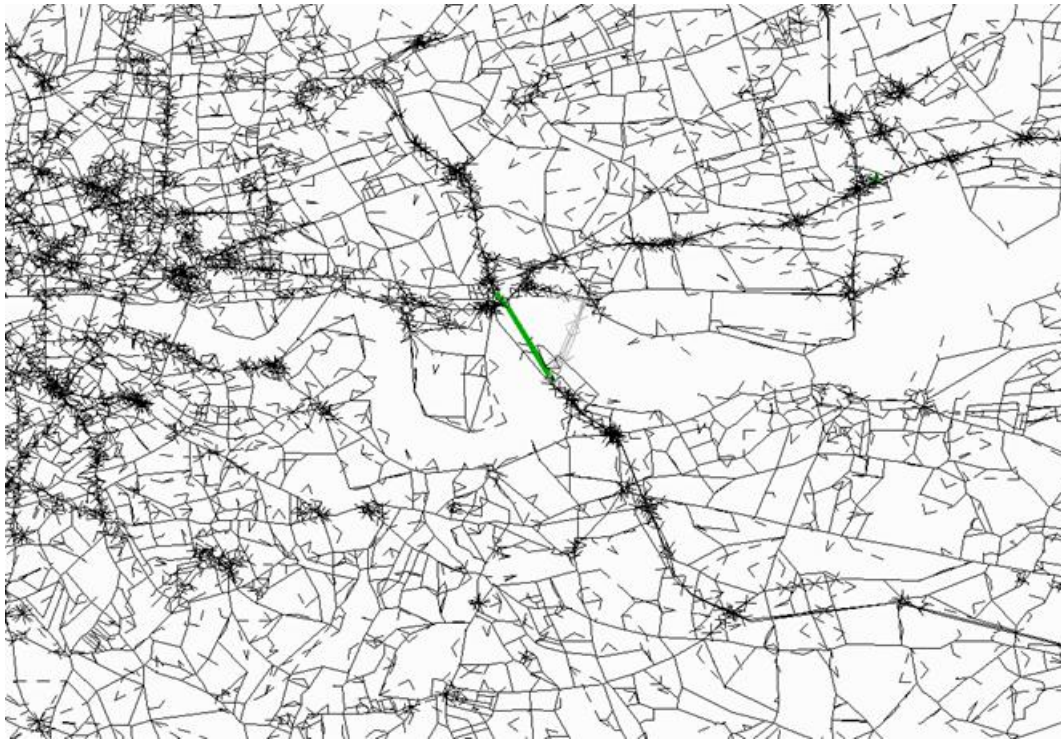
Introduction

- 6.1. Most transport-related accidents, injuries and deaths occur on the road network. Vulnerable groups (in terms of their accident risk) include children and older people (both particularly as pedestrians), young males and motorcyclists. There is also a strong link between deprivation and road accidents: children from social class V are five times more likely to be involved in a fatal road accident than those from social class I. Young males are also relatively vulnerable as drivers, and this group should also be considered if there is evidence that they form a significant proportion of casualties on the road network.
- 6.2. The guidance requires that consideration should also be given to the implications of accidents for users of the public transport network, particularly in terms of falls at bus stops and railway stations. Given the limited scale of the public transport interventions proposed and the stage of the designs, such an analysis can be excluded from the appraisal at this stage. This analysis therefore focuses on highway accidents only.

Screening

- 6.3. In addition to links where flows increase by more than 10% in the do-something scenario (see Figure 1-2), changes in speed are also a good screening indicator for accidents. Figure 6-1 shows (in green) links which have an increase in speed of greater than 10%, for the morning peak in the year 2021. The significant increases in speed are in the Blackwall tunnel in counter-peak direction.

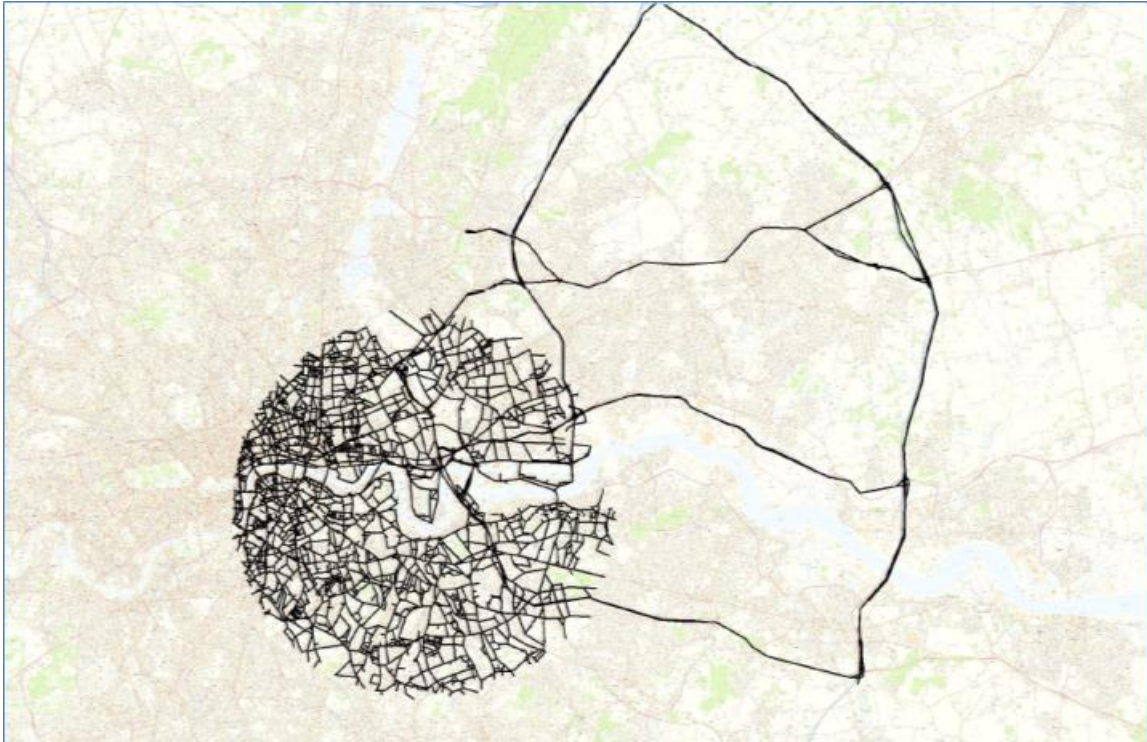
Figure 6-1 : Links with an increase in speed >10% 2021 am peak



- 6.4. An analysis of the impact of the Silvertown Tunnel scheme on accidents has also been undertaken using COBA-LT⁷, and is reported in the Silvertown Tunnel Economic Assessment Report. This link-based assessment predicts the change in the total number of accidents and casualties on each link within the network.
- 6.5. COBA-LT analysis was undertaken on the study area shown in Figure 6-2. This area is an initial assessment area chosen to be contained within the assessment area described within the first section of this report and to coincide with links which see a change in flow and those which are known to be major radial routes for the crossing.

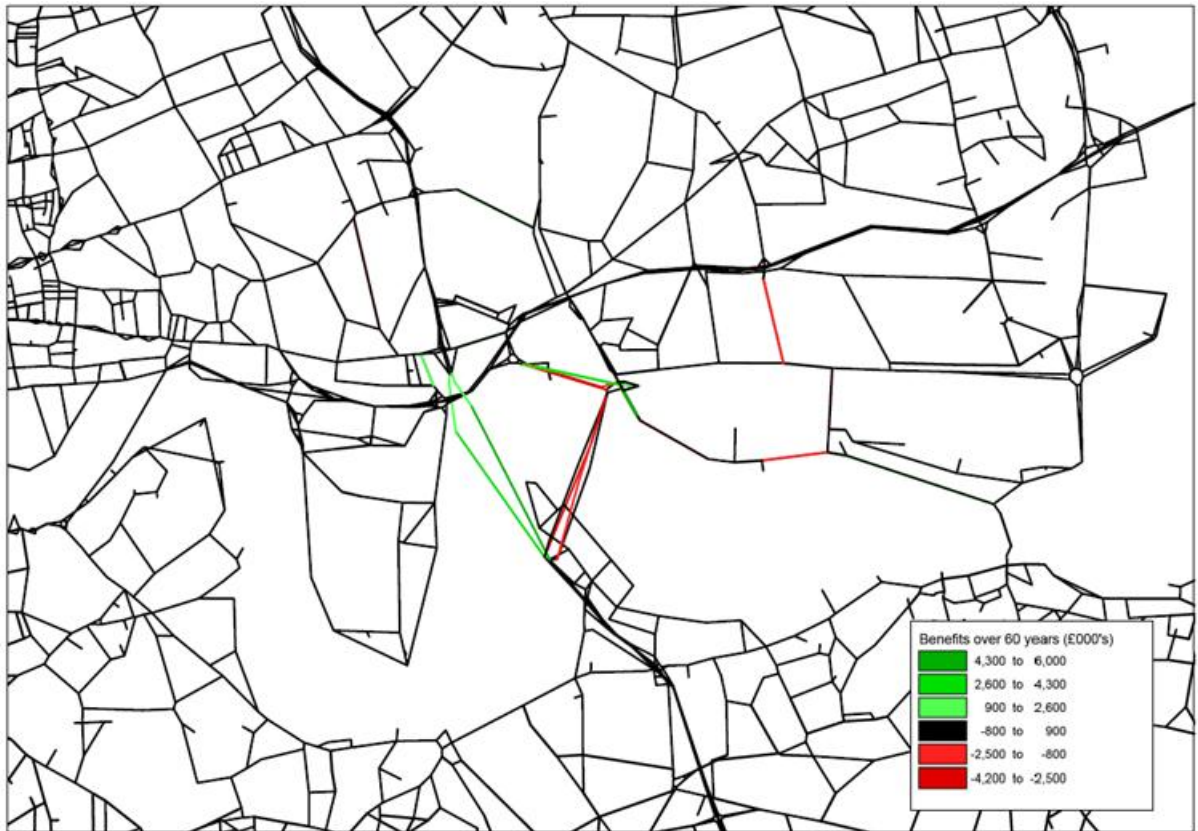
⁷ Cost and Benefit to Accidents – Light Touch, DfT. COBALT User Guide Version 2013.02, DfT, December 2013

Figure 6-2 – COBA-LT Study Area



- 6.6. Work is still ongoing on modelling estimates of changes in flows, and how these might relate to accidents. While some river crossing volumes are predicted to increase, this is primarily the result of a release of queued vehicles already on the network rather than 'new' vehicles, and this may not be taken fully into account yet in the initial COBA-LT results presented below. Further work will be undertaken during the full DI appraisal.
- 6.7. Initial work on the COBA-LT analysis indicates that the overall study area shows an increase in accident costs of £6,556,000 for the defined area of 11,321 links over 60 years – this is a 0.04% change from the 'without scheme' total, well within the margin of error of the model used.
- 6.8. However, this initial estimate does not yet take into account the fact that much of the change in traffic volumes is due to the reduction in existing queueing rather than additional traffic volumes, and that there are significant numbers of accidents related to the existing queueing/merging points at Blackwall Tunnel, which will be reduced by the scheme. Future work will clarify these changes and identify any mitigation necessary, but for the initial estimate the conservative assumption of an increase in cost has been applied.
- 6.9. Figure 6-3 shows an extract of the COBA-LT network and the accident impact on each link (expressed as a monetary benefit or disbenefit).

Figure 6-3 - Extract from COBA-LT accident assessment



6.10. The assessment shows a very small proportional changes in accidents and casualties attributable to implementing the Silvertown Tunnel scheme and a very limited impact area. As noted above, these changes have been estimated using COBA-LT, which uses inputs of modelled flows on the study area network and local accident rates, but may not take into account fully the nature of this particular scheme, which does not increase traffic volumes significantly. The results are also well within the limits of uncertainty of the model used, and the overall effect is considered to be neutral.

Assessment

- 6.11. At this stage a detailed assessment of the impact of the Silvertown Tunnel on accidents relating to different user groups has not been undertaken.
- 6.12. The preliminary screening indicates that the area of assessment used for the COBA-LT screening is acceptable, but this will be reviewed at the Full Business Case Stage.
- 6.13. A full assessment of the scheme will be carried out taking into account the population age splits within each detailed area of analysis in the COBA-LT assessment area.
- 6.14. Following the guidance, the detailed assessment will consider:
- Defined vulnerable casualty groups
 - Change in physical layout that could impact on the defined vulnerable groups
 - Changes in traffic flow or speed that could impact on the defined vulnerable groups

7. Distribution Impacts of Severance

Introduction

- 7.1. Literature has highlighted the groups in society that are potentially vulnerable to the effects of severance as a result of the transport network. Such groups include people without access to a car, older people, and people with disabilities and parents with pushchairs. Children are also considered to be potentially vulnerable to severance as they are more likely to cross the road at dangerous crossing points, and find it difficult to judge the speed of traffic, hence putting themselves at risk of road accidents.
- 7.2. These groups often experience longer journey times, or are often required to use pedestrian routes that are inappropriate and difficult to use. Mitigation measures such as footbridges and underpasses can also cause severance, by creating longer journey times for users, compared with at grade crossings.

Screening

- 7.3. Work is still ongoing to understand the detailed traffic routeings of vehicles accessing the Blackwall and Silvertown Tunnels. Once this work is completed, a more detailed assessment of the streets and junctions that will experience higher or lower volumes of traffic will be produced.
- 7.4. Consequently at this design stage it is not possible to provide an accurate assessment as to the distributional impact on severance in the immediate vicinity of the Silvertown Tunnel.
- 7.5. However the assessment of severance for the Silvertown Tunnel contained within the Social Impact Assessment report⁸ identifies neighbourhoods located at either side of the Silvertown Tunnel that currently suffer from levels of severance that can be classed as severe:
 - Greenwich Peninsula West
 - Silvertown
 - Aberfeldy / Leamouth
- 7.6. In Silvertown and Greenwich there is no plan to change pedestrian access, further than reinstating current access at the end of construction. The information in relation to changes in traffic volumes and speeds discussed in section 0 above in relation to accidents provides a good indication of the likely areas of potential future impact.

⁸ Silvertown Tunnel Social Impact Assessment, TfL, 2014

Screening

7.7. For the next business case a complete screening will be carried out. This will consist of:

- The area of assessment for severance will be redefined, to allow for greater detail to be analysed for three areas immediately around links where a change in flow is expected.
- An assessment of the proportion of the population likely to be affected by severance will be carried out
- This will then be compared with the proportions of vulnerable groups in each area.
- This will then be used to give a qualitative assessment in each area, and an overall assessment for the scheme.
- For severance impacts in the immediate vicinity of the scheme, an assessment will be carried out when detailed scheme drawings are available.

8. Distribution Impacts of Security

Introduction

- 8.1. Transport interventions can impact upon the personal security of transport users or other persons. The principal security impacts on road users relate to situations where they are required to leave their vehicle (e.g. car parks) or where they are forced to stop or travel at low speeds. For freight users, security impacts relate to both the security of drivers and goods carried. For public transport users certain social groups may suffer from greater anxiety when using public transport leading to the potential suppression of travel, which could reduce the effective accessibility of the transport system.

Screening

- 8.2. The Silvertown Tunnel is not expected to have any material impact on security issues in the area. While road users are typically more vulnerable to crime while vehicles are standing or slow-moving, there is no evidence that the Blackwall Tunnel Approach is dangerous there are significant numbers of other users at all times of the day and indeed the level of congestion precludes obvious escape routes.
- 8.3. Some elements of the highway works to link the tunnel to the existing road network may affect the level of natural surveillance affecting the personal security of pedestrians in the area.
- 8.4. The scheme, and principally the proposed service improvements to the 108 and 129 bus routes is likely to have minor positive impacts on security.
- 8.5. At this stage it is consequently proposed to only undertake a qualitative assessment of this DI indicator for the full DI appraisal. The analysis will follow the guidance set out in WebTAG Unit A4.2 (Distributional Impact Appraisal) and other relevant guidance.

9. Accessibility Impacts

Introduction

- 9.1. The guidance recommends that accessibility impacts of an intervention proposal should be considered throughout the appraisal process, since accessibility is of key importance in the operation of the transport system.
- 9.2. The appraisal of accessibility within this Unit focuses on the public transport accessibility aspect of accessing employment, services and social networks. This provides a holistic approach to considering the accessibility needs of different groups of people, taking into a wide range of factors, including journey times to reach key destinations, service frequencies and provision of accessible boarding at stops.
- 9.3. This links with severance impacts (see TAG Unit A4.1), which appraises barriers to accessibility within a local community, focusing on walking to local facilities, including access to the public transport stop. It also links with Security, Personal Affordability, Journey Quality, and Option Values and Non-Use Values impacts (also in TAG Unit A4.1) and Section 10 on personal affordability impacts, because these impacts and issues themselves can act as barriers to accessibility.
- 9.4. The approach also considers the end-to-end journey, which includes the physical access on to and within the public transport system (such as low floor access vehicles, capacity for wheelchairs) and aspects such as audio visual announcements informing passengers that the vehicle is stopping.

Screening

- 9.5. The Silvertown Tunnel is likely to lead to reliability improvements to the existing bus route 108, and TfL is considering additional more direct cross-river bus links, which will be of particular benefit to older or mobility impaired persons who may find interchange at North Greenwich difficult.
- 9.6. There may be a positive impact on some lower income public transport users since new cross-river bus links may reduce the need to interchange to the (more expensive) Underground or Emirates Air Line services. However the scheme is likely to have a negative impact on some lower income car drivers due to the road user charges planned (see affordability impacts in section 10).
- 9.7. New cross-river bus links will lead to wider travel horizons for residents of some nearby regeneration areas, providing a low-cost travel options to access employment and education opportunities on the opposite side of the river Thames.
- 9.8. Pending conformation of impact on existing bus services and potential implementation of new services, it is recommended that a decision should be made at full DI stage if the assessment should be qualitative or detailed, depending on final public transport.

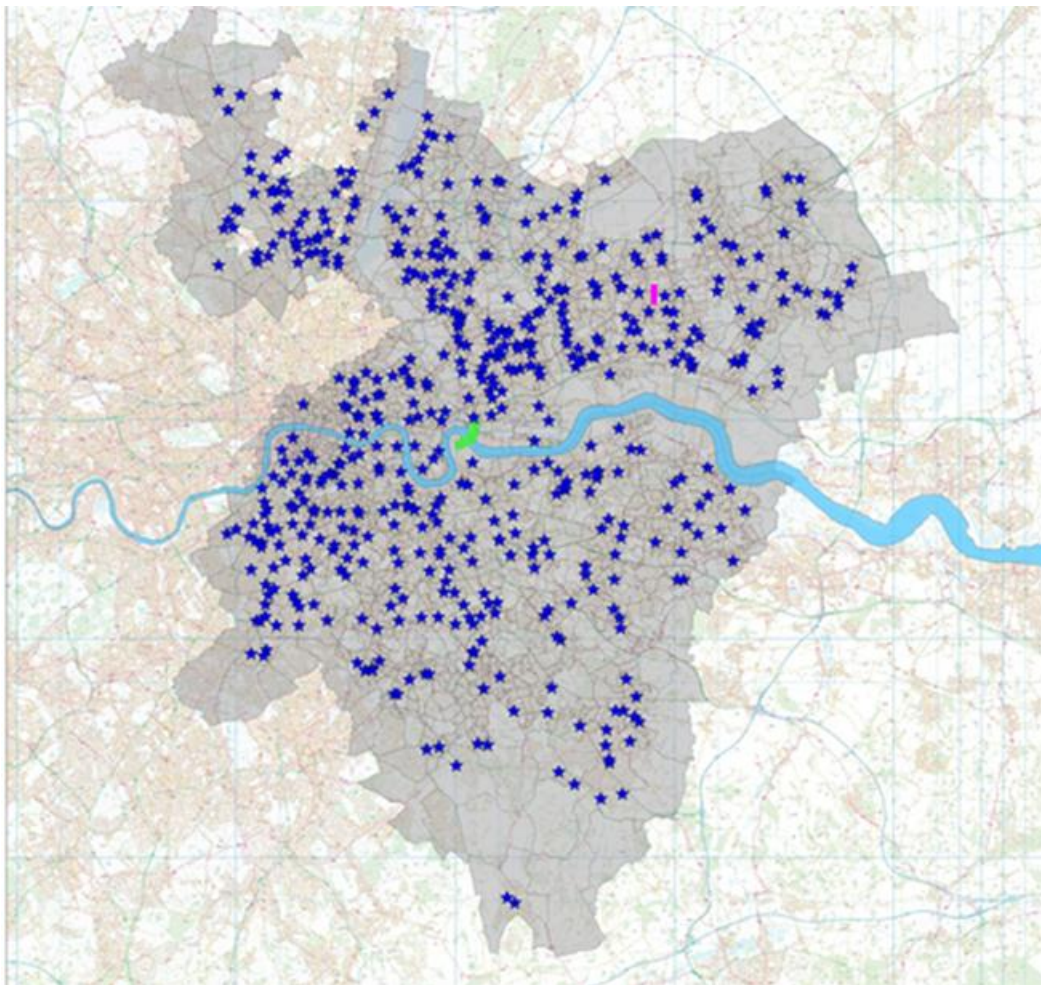
Assessment

- 9.9. If a future detailed DI assessment is required, it will focus on the area around the proposed alterations to public transport routes, and will take into account the findings of the severance assessment.
 - A new area of assessment will be mapped, taking into account changes in bus

routes, and key destinations for journeys – an example is GP surgeries, shown in Figure 9-1 . Other local amenities will also be mapped in the full DI appraisal.

- The importance of different elements of the journey will be ranked for each journey type, and the level of importance of each journey will be assessed. These will be used to give an overall score for each vulnerable group.
- These scores will then be used in conjunction with the level of population in each group in each of the affected areas to give a qualitative assessment of the changes in accessibility for each group.

Figure 9-1 GP surgeries in the initial assessment area



10. Personal Affordability Impacts

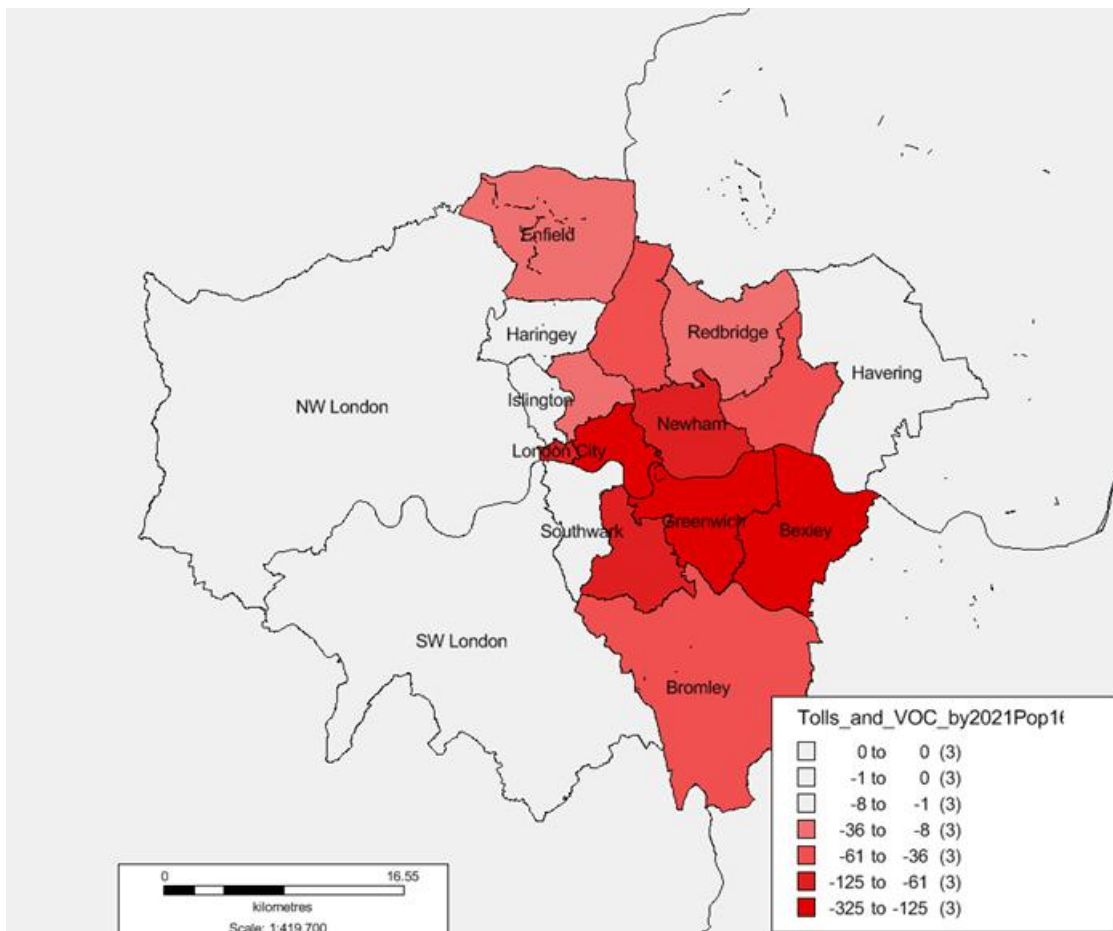
Introduction

- 10.1. The introduction of user charging on the Blackwall-Silvertown Crossing will have a direct and tangible impact on the affordability of travel by car for some users.
- 10.2. The most significant impacts of the costs of travel are on young and old people, and low-income households, particularly when travelling to employment or education. People with disabilities may also suffer significant disbenefits when faced with higher costs, due to limited transport choices, whilst unemployed adults also have difficulties in accessing services (including training), again due to low incomes.

Screening

- 10.3. The personal affordability assessment is concerned with changes in the monetary cost of travel that form part of the decision making processes for travellers. It mirrors the user benefit appraisal component and can be based on the user charge assessment as considered in the Transport Economic Efficiency analysis, but requires a further qualitative analysis to ensure that all key monetary impacts can be considered by impact group irrespective of their inclusion in formal modelling processes.
- 10.4. As the principles are similar to the derivation of transport user benefits and transport user changes, the basic personal affordability assessment can be captured as an output from TUBA, in this case only for 'non-working time' (which includes travel to and from work).

Figure 10-1 Potential focus of distribution impacts on personal affordability



Analysis of impact

10.5. There are only two elements of this type of appraisal that will be assessed for the relevant area of assessment (1) car fuel and non-fuel cost (a TUBA benefit) and (2) user charges (a TUBA disbenefit) – see Table 10-1.

Table 10-1 Scope of potential changes in the costs of travel

Mode	Cost change	Cost change expected	Change captured in TUBA	Quantified impact
Car	Car fuel and non-fuel cost	Yes	Yes	PV+£27m
	Road user chargers	Yes	Yes	PV-£370m
	Public parking charges – management	No	-	
	Other car charge/costs	No	-	
Public transport	Bus fares	No	-	
	Rail fares	No	-	
	Rapid transit fares	No	-	
	Mode shift between public transport modes due to change in supply	No	-	
	Concessionary fares	No	-	
	Other public transport charges/costs	No	-	
Non-motorised Modes	Walking costs (in the vast majority of cases, nil)	No	-	
	Cycling costs	No	-	

10.6. At this stage, pending further work on user charges, it is not possible to carry out a detailed assessment as to how these cost changes will affect different groups of the population. However the preliminary screening work makes it clear that one is necessary.

10.7. In order for more detailed work to be carried out and before a full assessment can be completed:

- A more detailed TUBA appraisal will be run, to give user benefits on a finer geographic level – giving benefit details by LSOAS or traffic zone.
- Where little impact of the scheme is recorded at the current level of detail checks should be made to ensure that this does not mask changes cancelling each other out within a sector. If this is the case then the area of assessment will be adjusted accordingly.
- Within the area of assessment a comprehensive assessment should be carried out, assessing the user benefit for the different levels of deprivation as measured by different metrics.

- These will be combined together where possible and represented within a table, analysing by quintiles of deprived areas the user charges by (1) geographic area (2) proportional share of the charges.
- If it is not possible to combine the data, or doing so risks misrepresenting the distributional impact then separate tables will be produced for different deprivation metrics.

11. Conclusion

- 11.1. The DI pro-forma below shows the conclusions from this DI screening process, with recommendations on future full assessment and qualitative assessment for two indicators to be undertaken for the future full DI appraisal.
- 11.2. In the detailed DI analysis for the Full Business Case the conclusion will describe and summarise the DI results that are used in the AST.

Distributional Impact Appraisal Screening Pro-forma

Indicator	(a) Appraisal output criteria	(b) Potential impact (yes / no, positive/negative if known)	(c) Qualitative Comments	(d) Proceed to Step 2
User benefits	The TUBA user benefit analysis software or an equivalent process has been used in the appraisal; and/or the value of user benefits Transport Economic Efficiency (TEE) table is non-zero.	TUBA outputs give positive TEE impacts, and indicate a net user benefit, but some areas may experience disbenefit. Bus/coach benefits require further assessment	User benefits are spread over a wide geographic area and many socio-economic groups.	A full assessment should be carried out for the full area
Noise	Any change in alignment of transport corridor or any links with significant changes (>25% or <-20%) in vehicle flow, speed or %HGV content. Also note comment in TAG Unit A3.	An assessment of the impact of noise has not been undertaken at this stage - refer to the Silvertown Tunnel Introductory Environmental Assessment Report.		A full assessment should be carried out for any future full business case.
Air quality	Any change in alignment of transport corridor or any links with significant changes in vehicle flow, speed or %HDV content: <ul style="list-style-type: none"> • Change in 24 hour AADT of 1000 vehicles or more • Change in 24 hour AADT of HDV of 200 HDV vehicles or more • Change in daily average speed of 10kph or more • Change in peak hour speed of 20kph or more • Change in road alignment of 5m or more 	An assessment of the impact of noise has not been undertaken at this stage – refer to the Silvertown Tunnel Introductory Environmental Assessment Report		A full assessment should be carried out for any future full business case.
Accidents	Any change in alignment of transport corridor (or road layout) that may have positive or negative safety impacts, or any links with significant changes in vehicle flow, speed, %HGV content or any significant change (>10%) in the number of pedestrians, cyclists or motorcyclists using road network.	There are some increases above 10% in vehicle flow and speed on some roads in the immediate vicinity of the scheme, and initial COBA-LT results indicate accident changes. However these may not yet take into account the specific nature of the scheme yet.	Detailed analysis will be needed around the key areas of change	A full assessment should be carried out for the relevant area.
Security	Any change in public transport waiting/interchange facilities including pedestrian access expected to affect user perceptions of personal security.	A low level impact on this issue is expected		A qualitative assessment only should be carried out for any future full business case.

Indicator	(a) Appraisal output criteria	(b) Potential impact (yes / no, positive/negative if known)	(c) Qualitative Comments	(d) Proceed to Step 2
Severance	Introduction or removal of barriers to pedestrian movement, either through changes to road crossing provision, or through introduction of new public transport or road corridors. Any areas with significant changes (>10%) in vehicle flow, speed, %HGV content.	At this stage of design it is difficult to assess perceptions of severance, but given anticipated changes in vehicle flows and speeds further detailed work is needed		A full assessment should be carried out for any future full business case.
Accessibility	Changes in routings or timings of current public transport services, any changes to public transport provision, including routing, frequencies, waiting facilities (bus stops / rail stations) and rolling stock, or any indirect impacts on accessibility to services (e.g. demolition & re-location of a school).	A low level impact on this issue is expected		A decision will be made at full DI stage if the assessment should be qualitative or detailed, depending on final public transport proposals .
Affordability	In the current case: Car fuel and non-fuel operating costs (where, for example, rerouting or changes in journey speeds and congestion occur resulting in changes in costs); Road user charges (including discounts and exemptions for different groups of travellers);	The scheme includes a road user charge for use of the Silvertown tunnel. TUBA outputs show changes in car fuel and non-fuel operating costs	User costs are spread over a relatively wide geographic area	A full assessment should be carried out for the entire area.