Silvertown Tunnel Development Consent Order

Local Impact Report

The Royal Borough of Greenwich

15th November 2016
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A. INTRODUCTION

The Royal Borough of Greenwich (RBG) lies to the east of Central London along the south bank of the River Thames, which forms its 8.5 mile norther boundary. It has an area of 5,044 hectares.

RBG is bounded by the London Boroughs of Bexley to the east, Bromley to the south, Lewisham to the west. On the northern bank of the Thames are the London boroughs of Tower Hamlets, Newham and Barking and Dagenham.

RBG has three town centres, the World Heritage Site of Maritime Greenwich situated on the Thames in the north western part of the Borough, Woolwich (also on the river Thames) in the in the centre of the Borough, and Eltham in the south.

Growth in the Borough is rapid, and 4 Opportunity Areas are designated by the Greater London Authority in the north of the Borough at Greenwich Peninsula, Charlton Riverside, Woolwich and Abbey Wood/Thamesmead. An Intensification Area lies to the south of Greenwich Peninsula at Kidbrooke.

The 2011 Census recorded that 254,557 residents live within the Royal Borough, with the population having increased by over 40,000 people (18.7 per cent) in the ten years since the 2001 Census.

RBG’s primary public transport hubs are in the north of the Borough, where access to the London Underground Jubilee Line at North Greenwich and the two Docklands Light Railway Extensions at Woolwich and Greenwich will be further enhanced in 2018 with the opening of two Crossrail stations at Woolwich and Abbey Wood.

Although radial links by rail to Central London are strong, north-south links within the Borough itself are bus reliant and generally perceived to be slow. The River Thames still acts as a major barrier to movement for road based traffic, and the limited vehicle crossings (at Blackwall Tunnel and Woolwich Ferry) constitute major traffic attractors.

Free cross river links for pedestrians (and cyclists) are found at Woolwich where both the foot tunnel and ferry are options, and with the foot tunnel at Greenwich. The Emirates Air Line at Greenwich Peninsula is also available for pedestrians and cyclists, however it is charged.

The Borough is unusual in that it displays both Inner and Outer London characteristics. In terms of the extent to which the population is affected by deprivation, the 2015 Indices of Multiple Deprivation show that 23 per cent of the Greenwich population are estimated to live in the most deprived LSOAs in England, an improvement since 2010 when 44 per cent of the borough’s population were reported to live in the most deprived areas.
B. SUMMARY OF CONCERNS

1. RBG accepts the need for a package of river crossings of the Thames in east London, including a crossing at Silvertown, to support growth and address the current lack of resilience.

2. RBG’s S42 response provided qualified support for the proposal chiefly because the traffic forecasting and modelling work which underpins predictions of impacts was incomplete and not validated.

3. RBG remains concerned about the potential impact of the proposal concerns included in RBGs Relevant Representation and these concerns are expanded on in this Local Impact Report.

4. RBG acknowledges the announcements made on River Crossings by the Mayor of London on 4th October, however these proposals are not included in the deposited documents and are therefore not addressed in detail in this report.

5. The “assessed case” model is still not agreed as adequate for travel forecasting and provides insufficient confidence of predictions of traffic movements and consequent environmental impacts.

6. Concerns arising from a lack of confidence in the assessed case include:

   i. The forecast environmental impacts, during and post construction, particularly air quality and noise impacts;

   ii. The traffic model and associated traffic impact forecasting, including the ‘compaction’ of the southbound pm peak southbound through increased capacity which effectively increases queuing on the local network where junctions are already at or near capacity;

   iii. A lack of confidence in the validity of the output from the tested sensitivity scenarios arising from a lack of confidence in the assessed case model, particularly in relation to the level of charge assumed;

   iv. The fact that the modelled bus routes, on which socio-economic benefits are predicated, which although included in the Mayor’s announcement, do not currently have TfL’s commitment to their funding secured by the DCO.

   v. The disproportionate impact on Borough resident and businesses of paying peak charge in both peak periods, given the high local IMD, in the absence of a discount scheme within charging proposals. The failure of TfL’s submissions to give a single, validated, source of the Origin and Destination figures which support their hypothesis of a residents discount undermining the traffic demand management leads to a lack of confidence in this conclusion.

   vi. The impact during construction including the lack of a disaggregated (north/south) commitment to the movement of materials by river, acceptable construction vehicle routes and the inclusion of Brewery Wharf as a viable option;

   vii. The absence of any proposed mitigation to manage increases in future demand on local junctions (indicated in both the reference and assessed case models) prior to the opening of the scheme;

   viii. The absence of an acceptable mechanism, framework and triggers for any changes to the future charging regime.
ix. The lack of arrangements for agreeing Monitoring and Mitigation, with assured TfL funding for the timely implementation of required schemes of mitigations and the lack of inclusion of a hypothecated Community Fund to address unintended consequences.

x. Recognising that charges at the Woolwich Ferry cannot be applied without primary legislation, the absence of proposed and effective mitigation to address the impact of forecast demand to use the Ferry. Notwithstanding the concerns raised over the Assessed Case model there is still an increase in queueing demonstrated by TfL;

xi. The absence, as an integral part of the proposal, of a committed and funded public transport element to a quantum that, at least, matches the public transport modal increase forecast in the Transport Assessment

xii. Despite the Mayor’s announcement the absence of acceptable (i) protection and improvement of walking and cycling routes abutting the scheme’s limits of deviation and (ii) integral arrangements (such as pedestrian/cycle ferries) to support cross-river movement of pedestrians and cyclists within the draft DCO.

An Issues matrix has been prepared which summarises the actions needed to to remove the issues raised in this local impact report. This is included as Appendix 2 of this report.
C. THE ROYAL BOROUGH’S COMMENTS ON THE SCHEME OBJECTIVES

7. The Statement of Case (Document Reference 7.1) sets out in section 6 the scheme benefits. This includes a set of objectives for the scheme. RBG wishes to make the following comments on the extent to which these objectives have been met from RBG’s perspective.

**PO1: Improve resilience of river crossings in the highway network in east and south east London to cope with planned and unplanned events and incidents**

RBG agrees that the provision of an additional river crossing will improve the resilience of the highway network but that the additional river crossing should be part of a package of schemes to truly improve the resilience in the area.

**PO2: Improve road network performance of Blackwall Tunnel and approach roads**

It is noted that the Blackwall Tunnel performance is improved through the provision of an additional tunnel. However, it is not agreed that the local links, network and approach roads to the tunnels have improved performance particularly in the PM peak.

**PO3: Support economic and population growth in east and southeast London by providing improved cross-river road transport links**

The provision of additional bus services and routes will support the economic growth in association with the provision of the proposed tunnel. However this objective will only be fully met if the proposed increase in services is secured through inclusion in the DCO.

A reduction in journey times and improved journey time reliability shown in the assessed case are welcomed, however this has to be balanced against the impact the charge has on residents and business decisions (and ability) to use the new link.

**PO4: To integrate with local and strategic land use policies**

Agreed in part, Silvertown tunnel was always accepted as part of a package of cross river links.

**PO5: To minimise any adverse impacts of any proposals on communities, health, safety and the environment**

RBG does not believe that this objective has been secured by the current proposal.

The Assessed Case model is not yet agreed by RBG, and the subsequent social and environmental assumptions made by the promoter are therefore still questionable. Additionally TfL is not proposing any traffic mitigation through the DCO. Local traffic modelling has not been carried out and as a result unintended impacts could impact negatively on the communities in RBG without any surety that mitigation will be implemented in a timely manner.

**PO6: To ensure where possible that any proposals are acceptable in principle to key stakeholders, including affected boroughs.**

Previous responses to consultation, both preliminary and statutory, on the scheme have stated RBG’s acceptance for the need for a scheme as part of a package of measures to relieve traffic congestion arising from the current infrastructure. RBG’s support has been in
principle subject to the satisfactory assessment methodology, namely traffic modelling. RBG has not agreed the outputs from the Assessed Case modelling.

**PO7: To achieve value for money and, through road user charging, to manage congestion**

It is not possible to comment on whether this objective has been met due to the lack of agreement for the Assessed Case modelling outputs which would be used to assess value for money and management of congestion.
D. RELEVANT RBG PLANNING POLICIES AND DOCUMENTS

Summary of the Proposals

8. The overall Scheme involves the construction of a twin bore road tunnel providing a new connection between the A102 Blackwall Tunnel Approach on Greenwich Peninsula (Royal Borough of Greenwich) and the Tidal Basin roundabout junction on the A1020 Lower Lea Crossing/Silvertown Way (London Borough of Newham). The Silvertown Tunnel would be approximately 1.4km long and would be able to accommodate large vehicles including double-deck buses.

9. The main works to be carried out within the area covering land in RBG include:

- Construction of the tunnel and associated tunnel portal.
- Improvement and re-alignment of the existing A102 Blackwall Tunnel Southern Approach southbound carriageway and associated works.
- Improvement and widening of the existing A102 Blackwall Tunnel Southern Approach northbound carriageway and associated works.
- Improvements to the alignment of the existing Tunnel Avenue to provide a segregated and independent local two-way carriageway.
- Construction of the proposed Silvertown Tunnel Southern Approach northbound carriageway.
- Construction of the proposed Silvertown Tunnel Southern Approach southbound carriageway.
- Construction a new bus-only links between the existing A102 Blackwall Tunnel Southern Approach, Millennium Way and the proposed Silvertown Tunnel Southern Approach.
- Construction of a new Boord Street foot and cycle bridge across the A102 Blackwall Tunnel Southern Approach and Tunnel Avenue and removal of the existing Boord Street bridge.
- Construction of a Silvertown Tunnel services compound including services buildings and associated access, parking, fencing and landscaping in the vicinity of the South Portal.
- Works to replace structures and apparatus associated with statutory undertakers.
- Ancillary or related development consisting of works within highways, works within the river area and works within the general area.

10. The application shows an Illustrative Scheme Layout of the works. The final design and layout will be subject to the details that come forward pursuant to the final DCO.

Relevant Development Plan Documents

11. The Development Plan is comprised of the London Plan March 2016 (consolidated with alterations since 2011) (“The London Plan”) together with the Greenwich Local Plan – Core Strategy with Detailed Policies (Adopted 30th July 2014) - “The Core Strategy”. The following policies are considered to be of relevance to the Silvertown Tunnel proposal from the perspective of RBG.
12. The proposed Silvertown Crossing is supported in principle in the Core Strategy.

D.1.1 Spatial Strategy

*Greenwich Peninsula Strategic Development Location ("GPSDL")*

13. Paragraph 3.3.17 of the Core Strategy identifies Greenwich Peninsula as the location of the majority of development, particularly residential development, in the Borough over the plan period. It states 'The area will be transformed from its industrial heritage into a vibrant, mixed use location.' A new outline Masterplan for the area – “The 2015 Greenwich Peninsula Masterplan” was approved by RBG in December 2015.

14. Paragraph 3.3.20 recognises that parts of the site are safeguarded for a potential new river crossing from the eastern edge of the Peninsula to Silvertown, in order to improve connectivity with the north side of the Thames.

15. Greenwich Peninsula is designated as an Opportunity Area in terms of Policy 2.13 of the London Plan.

16. Whilst the Local Plan provides safeguarding for the Silvertown Tunnel, the provision of the Tunnel should not be to the detriment of the delivery of the other future development on the Peninsula by causing increased levels of air pollution.

17. The scheme should not fetter future development with details of its physical layout – e.g. prohibiting access from public transport to surrounding land, creating pedestrian un-friendly environment, or creating an additional physical barrier on the site.

18. This is a regeneration area and the proposal should ensure that cycling, pedestrian and public transport accessibility are maintained and/or enhanced wherever possible during both construction and operational phases.

19. One of the predicted benefits of the scheme is the introduction of additional cross-river bus services to improve public transport (PT) links between south-east and east London, notably with the growing employment areas in the Royal Docks and Canary Wharf and with the significant development expected on the Greenwich Peninsula. This should be secured in the DCO.

*Greenwich Peninsula West Strategic Development Location ("GPWSDL")*

20. Again the scheme should not fetter future development with details of physical layout – e.g. prohibiting access from public transport to surrounding land, creating pedestrian un-friendly environment or creating an additional physical barrier on the site.

21. This is a regeneration area and the proposal should ensure that cycling, pedestrian and public transport accessibility are maintained and/or enhanced wherever possible during both construction and operational phases.

*Greenwich Town Centre*

22. Paragraph 3.3.29 specifies that ‘Greenwich Town Centre's role as a visitor destination and centre for education will be enhanced. This will include the continuing protection and promotion of Maritime Greenwich as a World Heritage Site....’
D.1.2 Strategic and Detailed Policies in the Core Strategy and corresponding relevant policies in the London Plan 2016

Policy H1 New Housing (London Plan Policy 3.3 Increasing Housing Supply)

23. Linked to the comments above regarding the GPSDL and GPWSL, this policy specifies that ‘New housing is expected to be developed in Royal Greenwich’s six Strategic Development Locations.’ Similarly, the provision of the Tunnel should not be to the detriment of the delivery of new housing on the Peninsula and elsewhere in east Greenwich by potentially reducing the quality of the living environment with increased levels of air pollution.

Policies EA1 and EA3 Economic Development and Greenwich Peninsula West

24. A new urban quarter will be created at Greenwich Peninsula West as shown on the Proposals Map as a Strategic Development Location (SDL). The SDL will include a range of uses including residential and commercial.

25. The new development at Greenwich Peninsula West will require sufficient buffering from the retained Strategic Industrial Location land and the safeguarded Victoria Deep Water Terminal and Tunnel Wharves to minimise the potential for conflicts of use and interference to new residents.

26. A masterplan SPD has been prepared for Greenwich Peninsula West to guide development in this area.

27. These policies set out the strategies for increasing economic investment and increasing employment opportunities in the Borough. This incorporates the locations that will be the main focus of economic development including a new employment and creative industries hub at North Greenwich; designating a new leisure-led District centre at North Greenwich encompassing the O2 Arena and surrounding area; the development of new urban quarters at Greenwich Peninsula West and designating Strategic Industrial Locations, which includes part of Greenwich Peninsula West.

Policy EA5 Tourism

28. This policy seeks inter alia to secure the position of the Maritime Greenwich World Heritage Site and the Peninsula as major tourist centres and to ensure that major tourist facilities are well served by public transport.

Policy EA(c) Skills and Training (London Plan Policy 4.12 Improving Opportunities for All)

29. In terms of this policy training and skills in Greenwich will be promoted by supporting the establishment of training provision and employment, and seeking contributions towards GLLaB, this will be through a S106 agreement with TfL.

Policy TC4 Greenwich Town Centre
30. Policy requires inter alia protection and enhancement of the historic character and reduction in the impact of traffic.

**Policy TC5 North Greenwich District Centre**

31. Policy states it should be a leisure-led Centre. The improved transport link would support the development of leisure based uses. However, more clarity is required regarding public transport improvements through the proposed bus route enhancements which should be secured in the dDCO.

**Policy DH1 Design (London Plan Policies 5.3 Sustainable Design and Construction, 7.4 Local Character, 7.5 Public Realm, 7.6 Architecture, )**

32. States that ‘All developments are required to be of a high quality of design and to demonstrate that they positively contribute to the improvement of both the built and natural environments.’

**Policy DH3 Heritage Assets (London Plan Policy 7.8 Heritage Assets and Archaeology)**

33. ‘Protect and enhance the heritage assets and settings of Royal Greenwich including inter alia the Maritime Greenwich World Heritage Site and applying a presumption in favour of the preservation of statutory listed buildings and their settings.’

**Policy DH4 Maritime Greenwich World Heritage Site (London Plan Policy 7.10 World Heritage Sites)**

34. ‘RBG will protect and enhance the Outstanding Universal Values (the 'Values') of the inscribed Maritime Greenwich World Heritage Site.’

**Policy DH(f) Advertisements**

35. ‘RBG will normally give express consent for large posters or other advertisement displays provided they do not affect local amenity, harmonise with the scale and character of the surrounding area and do not affect public safety.’

**Policy DH(g) Local Views**

36. ‘Development should not have a materially adverse effect on the overall perspective and essential quality of the Local Views’

**Policy DH(i) Statutory Listed Buildings (London Plan Policy 7.8 Heritage Assets and Archaeology)**

37. ‘Proposals for development which would detract from the setting and proportions of a Listed Building or group will be resisted.’

**Policy DH(k) Thames Policy Area (London Plan Policy 7.29 The River Thames)**

38. ‘RBG will seek a high quality of design respecting the special character of the River Thames within the Thames Policy Area including incorporating sustainable modes of transport, consideration of local views, protect the river for wildlife and nature conservation.’
39. Only a minor section of the above ground works to the A102 Blackwall Tunnel Southern Approach would fall within the area. No adverse visual impact is expected.

Policy DH(m) Archaeology (London Plan Policy 7.8 Heritage Assets and Archaeology)

40. The authorised development would fall within a defined Area of Archaeological Potential in terms of this policy as shown on Figure 4 on pg. 113 of the Core Strategy.

Policy OS2 Metropolitan Land (London Plan Policy 7.17 Metropolitan Open Land)

41. ‘All Metropolitan Open Land as defined on the proposals map will be maintained and its open character protected from inappropriate development. Only specific uses will be allowed on MOL unless they would result in an adverse change to the character of the land.’

42. Special Category Land Plan (Document Ref. 2.4) shows permanent acquisition of rights over subsoil and surface land of northern most tip of Central Park MOL. This was included in the original safeguarding area.

Policy OS4 Biodiversity (London Plan Policy 7.19 Biodiversity and Access to Nature)

43. ‘Royal Greenwich's rich biodiversity and geodiversity will be protected, restored and enhanced, including the priority habitats and species identified in the Greenwich Biodiversity Action Plan.’

Policy OS(f) Ecological Factors (London Plan Policy 7.21 Trees and Woodlands)

44. ‘Development proposals will be expected to take account of ecological factors.’

Policy E1 Carbon Emissions (London Plan Policy 5.2 Minimising Carbon Dioxide Emissions)

45. ‘Carbon emissions will be reduced in accordance with the Mayor’s energy hierarchy. All major development proposals will require an energy assessment.’
Policy E2 Flood Risk (London Plan Policies 5.12 Flood Risk Management and 5.13 Sustainable Drainage)

46. ‘RBG’s Strategic Flood Risk Assessment must be used to inform development and reduce flood risk in Royal Greenwich.’

Policy E3 Residual Flood Risk

47. ‘In addition to the measures within policy E2, development within those areas protected by flood defences but with a high residual risk classification – as indicated on Figure 8 below - should implement risk reduction measures with the primary aim of reducing risk to life.’

Policy E(a) Pollution (London Plan Policy 7.15 Reducing and Managing Noise, Improving and Enhancing the Acoustic Environment and Promoting Appropriate Soundscapes)

48. Under this policy proposed development should not have a significant adverse effect on the amenities of adjacent occupiers or uses or result in the unacceptable emission of noise, light, vibrations, odours, fumes, dust, water and soil pollutants or grit.

Policy E(c) Air Pollution (London Plan Policy 7.14 Improving Air Quality)

49. ‘Development proposals with the potential to result in any significant impact on air quality will be resisted unless measures to minimise the impact of air pollutants are included. Such planning applications should be accompanied by an assessment of the likely impact of the development on air quality.

Policy E(e) Contaminated Land (London Plan Policy 5.12 Contaminated Land)

50. ‘A preliminary site investigation, prior to the determination of a planning application, will normally be required if a site is known to be, or is likely to have been, in contaminative uses. Where contamination is found, RBG will need to be assured that the development can be built and occupied safely without any adverse environment or health impacts, otherwise conditions requiring full remedial action will be imposed to deal with:

   i. The particular type or types of contamination;

   ii. The problems of the ground exhalation of gases;

   iii. The protection of controlled waters; and

   iv. The restoration of land to beneficial use.’

Policy E(f) Living Roofs and Walls (London Plan Policies 5.10 Urban Greening and 5.11 Green Roofs and Development Site Environs)

51. ‘New build development proposals should be designed to incorporate living roofs or walls.’
Policy CH1 Cohesive Communities and London Plan Policy 3.2 Improving Health and Addressing Health Inequalities

52. ‘All development must include measures that help to create and maintain cohesive communities, that encourage diversity and reduce inequalities between areas. One of the requirements is that developments are expected to create safe streets, including measures that allow for shared surfaces/spaces and improve the permeability of the environment.’

Policy CH2 Healthy Communities and London Plan Policy 3.2 Improving Health and Addressing Health Inequalities

53. ‘All development must allow and enable residents to lead more healthy and active lifestyles. Measures that will help to build healthier communities and address health inequalities must be incorporated into development where possible.’

London Plan Policy 5.22 Hazardous Substances and Installations

54. ‘When assessing developments near hazardous installations:

b) site specific circumstances and proposed mitigation measures should be taken into account when applying the Health and Safety Executive’s Planning Advice Developments near Hazardous Installations (PADHI) methodology.

c) the risks should be balanced with the benefits of development and should take account of existing patterns of development.’

London Plan Policy 7.13 Safety, Security and Resilience to Emergency

55. Development proposals should contribute to the minimisation of potential physical risks, including those arising as a result of fire, flood and related hazards. Development should include measures to design out crime in proportion to the risk.

D.1.3 Highways Policies

Policy IM1 Infrastructure

56. ‘RBG will ensure, through the use of conditions and planning obligations attached to planning permissions, that all qualifying development provides for the infrastructure, facilities, amenities and other planning benefits that are necessary to support and serve it and to offset any consequential planning loss to the local area in a way that secures the best use of land and a properly planned, well designed, accessible and integrated environment. RBG will seek appropriate planning obligations in accordance with its Planning Obligations SPD.’


57. IM3: ‘RBG will support those transport schemes that are critical to RBG’s development and will advocate and work in partnership with relevant agencies to deliver a new package of Thames river
crossings in East London, including the continued safeguarding of the Silvertown Link Tunnel and the Gallions Reach crossing.’

58. IM(a): ‘When planning transport provision for major developments and extensive sites where comprehensive development can take place, developers should have regard to:

i. The road hierarchy;

ii. Building into highways networks speed management and design criteria for speeds no greater than 20 mph; and

iii. Incorporating appropriate traffic calming measures and encouraging residential roads to be designed as shared spaces.’

Policy IM4 – Sustainable Travel

59. ‘RBG supports the development of an integrated and sustainable transport system that is extensive in coverage and meets the needs of residents, businesses, workers and visitors in Royal Greenwich. All development in Royal Greenwich should contribute to improved accessibility and safety, and reduce the use of the private car and the need to travel. Development should be designed for the needs of pedestrians, cyclists and public transport users first.’


60. Maximising the movement of bulk materials by water, including construction and demolition materials.

Policy IM(b) Walking and Cycling (London Plan Policies 6.9 Cycling and 6.10 Walking)

61. ‘RBG is committed to protecting and enhancing Royal Greenwich’s footpaths and cycle ways and new developments should provide for the needs of their users.’

62. Commitments towards pedestrian and cycle provision are absent from the dDCO as set out in paragraph xii of this LIR.

D.2 Royal Greenwich Infrastructure Delivery Plan

63. The Infrastructure Delivery Plan supports the production of the Core Strategy and identifies the future infrastructure and service needs for the Borough for the plan period.

64. In 2.1.30 of the plan RBG supports in principle a new fixed tunnel link at Silvertown to provide congestion relief to the Blackwall Tunnel and improve cross-river connectivity for vehicle traffic and its delivery in conjunction in with a second crossing at Gallions Reach (2.1.30) as a preferred location for this crossing where currently land is safeguarded for this purpose.

D.3 Community Infrastructure Levy Regulations 2010

65. It is noted that Article 3(2) of the draft DCO in effect disapplying the Community Infrastructure Levy Regulations 2010, by making clear that any building comprised in the
authorised development is to be deemed to be a type that does not trigger liability for payment of the Community Infrastructure Levy.

66. Clarification by the applicant on why the proposed buildings are exempt is required.

D.4 June 2011 Local Implementation Plan for Transport (LIP)

67. The LIP provides the investment framework to deliver that programme and the associated benefits to public health, local air pollution and social cohesion from a focus on walking, cycling, public transport and car sharing. In relation to River Crossings the Objective 9 of the LIP states RBG will:

68. Continue to promote and support a package of Thames River Crossings (including the development of a fixed crossing at Gallions Reach) and the further development of passenger River Services, to improve access to key employment areas and address severance in the East of the Borough and intensification of river use overall.

D.5 2014/17 LIP Delivery Plan

69. The LIP ‘Delivery Plan’ is an interim document required by TfL pending the production of the next Mayor’s Transport Strategy and associated LIP Guidance. It reports against the LIPs targets and further develops the 3 year programme for the Borough’s continued investment plan.

D.6 Cycling Strategy

70. RBG Cycling Strategy commits to ‘more cycling, more often and even more safely’ through sustained investment in networks of cycling routes and associated behaviour change measures.

D.7 Parking Strategy

71. Adopted in 2014 the strategy sets RBG’s aims and objectives for managing parking demand in RBG

D.8 2016 Borough Road Safety Plan and Child Road Safety Audit

72. The annual Borough Road Safety Plan and Child Road Safety Audit assess road casualties on links, cells and nodes during each calendar year, charting progress and next steps required to continue substantial reductions in casualties that have been achieved in recent years.
D.9 Air Quality Action Plan

73. The Air Quality Action Plan sets out what RBG will be doing to improve air quality. The plan has been developed to complement the Air Quality Management Area, which covers the whole borough.

74. An Annual Status Report (ASR) is filed in fulfilment of Part IV of the Environment Act 1995. As part of the new London Local Air Quality Management system introduced in April 2016, the power to approve these reports sits with the Mayor of London, pursuant to Part IX of the Greater London Authority Act 1999. On 9th Nov 2016 RBG was Awarded Cleaner Air Borough status in recognition of improvements made to Air Quality in the Borough.

D.10 The Health and Wellbeing Strategy for the Royal Borough of Greenwich

Health and Wellbeing Board 2015-2018; ‘Healthy Greenwich, Healthy People

75. The Health and Wellbeing Strategy, based on a clear understanding of the needs of the population (through the Joint Strategic Needs Assessment process) is core to the delivery of integrated health and care services in RBG.
E. THE VISUAL IMPACT OF THE SCHEME

76. The analysis and comments in this section are based on the description of the scheme set out in Chapter 4 of the Environmental Statement (ES), together with the Illustrative Scheme presented in the Design and Access Statement (DAS).

**Description**

77. On the south side, the A102 would be widened to create new slip road links to the Silvertown Tunnel. The new carriageways would tie-in to the existing road network at grade, transitioning to the tunnel portals in short lengths of retained cutting increasing in depth of between 0.5m and 8.0m. An open cut section would be required where the approach roads fall from existing ground levels to the tunnel portal. These would be formed by the construction of retaining walls, varying in height, with a maximum retained height of approximately 8m at the tunnel portals. A new flyover would be built to take southbound traffic exiting the Blackwall Tunnel over the northbound approach to the Silvertown Tunnel. The proposed northbound approach to the Silvertown Tunnel would pass beneath a realigned A102 Blackwall Tunnel Approach Southbound carriageway. The existing Blackwall Tunnel Approach southbound would be raised onto a new bridge spanning across the new Silvertown Tunnel northbound approach.

78. The Scheme includes minor changes to Tunnel Avenue including allowing access for all vehicles between Blackwall Lane and Ordnance Crescent. The Boord Street footbridge over the A102 would be replaced with a new pedestrian and cycle bridge.

79. A Tunnel Services Compound sited within operational land and containing the services buildings and providing parking for operational and maintenance vehicles would be located close to the portal to house the plant and equipment necessary to operate the tunnel. Hardstanding and vehicle access roads would be provided around the compound to facilitate ease of access and egress of service vehicles and personnel undertaking maintenance tasks.

80. A noise barrier with a minimum of 1.8m in height will be located along the secant piled walls in the vicinity of the tunnel portals, as indicatively shown on the General Arrangement Plans.

81. The head houses are small structures located at the surface through which access can be gained to the tunnel inverts. The head houses will be up to 10m x 5m in plan and 4m in height. The permitted envelope within which the Head House shall be sited, sits along the route of Edmund Halley Way within the consented 2015 Greenwich Peninsula Masterplan. The red line that defines the zone within which the Head House shall be located, overlaps in part with a landscaped park area as denoted within the consented masterplan and designated as MOL. The Head House may be incorporated into the landscape, incorporated as a ground level component of a larger building development or established as a free standing pavilion.

82. Main construction works would likely commence in late 2018 and would last approximately four years with the Scheme including the new tunnel opening in 2022/2023.
Design

83. The Design and Access Statement (DAS) sets out the Illustrative Design for the permanent above ground structures and access arrangements (portals, junctions & tunnel ancillary buildings), landscaping and urban realm areas plus the replacement Boord Street pedestrian and cycle bridge on the Greenwich Peninsula. It provides an example of how the Design Principles (Document Reference: 7.4) could be translated into physical form.

84. In terms of the DCO, the scheme will be subject to limits of deviation (LoD) which represent an ‘envelope’ within which the tunnel and highway works would be constructed. The maximum vertical deviation of the Scheme design is +0.5m for above ground elements, and +3.0m for the below ground tunnel elements. The Scheme may deviate downwards to any extent necessary. The maximum horizontal deviation is limited for the Scheme by the other transport infrastructure and the land in permanent ownership in the immediate vicinity of the scheme.

85. It is acknowledged that the detailed design of the above ground structures (i.e. the road network, public realm area, new Boord Street footbridge and south portal compound buildings and structures) may take a different form than that shown in the DAS. Under Requirement 4 of Part 1 of Schedule 2 of the draft DCO, construction of any permanent above ground buildings and structures must not commence until details of their siting, design and external appearance have been submitted to and approved by RBG as the Local Planning Authority.

86. The final detailed design of the scheme is to come forward in detailed submissions to RBG, should the DCO be granted. The authorised development is required to be implemented and designed in accordance with the Design Principles, a certified document, in terms of Requirement 3(1) of Part 1 of Schedule 2 of the draft DCO. According to the definition in Requirement 1 Part 1 of Schedule 2 of the draft DCO the Design Principles ‘set out the principles for the detailed design of the authorised development’.

87. The Design Principles include the establishment of the Silvertown Tunnel Design Review Panel (DRP) ‘to provide design assurance throughout the detailed design process for the authorised development.’ (Requirement 1 Part 1 of Schedule 2 of the draft DCO) and which must be engaged during the detailed design of the authorised development (Requirement 3(1) of Part 1 of Schedule 2 of the draft DCO). The DRP will focus on the above ground elements of the Scheme. The Panel’s role is secured through a DCO Requirement and the terms of reference are set out in Appendix A of the Design Principles.

88. It is considered that the arrangements for the preparation and approval of the final scheme designs are appropriate. The Illustrative Scheme described in the (DAS) is considered to be of a high quality. It demonstrates how the above ground elements could be developed within the Order limits and in accordance with the Design Principles. RBG does require some amendments to the Design Principles which are set out below. Subject to these changes, adherence to the Design principles and the establishment of the DRP would ensure that the design of the scheme would be in accordance with the relevant design, landscaping and ecological policies in the RBG Core Strategy and the London Plan 2016.
**Landscaping**

89. In Greenwich the landscaping involves the creation of grass verge areas created as part of the junction reconfiguration and new roads and these will continue onto the embankments for the new flyover. The area between the flyover and the existing A102 Blackwall Tunnel Southern Approach road is identified as providing a greater opportunity for some additional tree planting, and a more extensive grass area beneath. In addition, appropriate landscape and planting would be included on the Millennium Way edge of the portal buildings to ensure that an appropriate edge is presented to future development.

90. The landscape design is currently at the illustrative design stage and has not yet been finalised. The DAS outlines how the Scheme planting may look and the Biodiversity Action Plan (BAP) (Document Reference: 6.3.9.8), prepared as mitigation for ecological impacts includes requirements for the type of habitat that should be created within the landscaping areas. The Detailed Design will be undertaken by the Contractor prior to construction and approved by the DRP which will consider the design principles and the BAP.

91. Unlike the Silvertown portal, the Illustrative Design for the Greenwich portal vicinity is designed to optimise function and place making for vehicle drivers because pedestrians and cyclists are prohibited from using the Blackwall and Silvertown Tunnels.

92. It is stated in para 5.5.6 of the DAS that there would be no wildflower mixes used in the landscaped areas on the Greenwich side, with amenity grass being suggested instead as a low maintenance standard mix which is more suited to the highway verges that will typify the design on the southern side. RBG does not agree with this proposal as these inaccessible areas provide good conditions for wildflower meadows. It is considered that wildflower meadows require less maintenance and provide more biodiversity enhancement than amenity grassland. It is suggested that the design principles be amended to include provision off some wildflower meadow planting on the Greenwich side of the scheme.

93. The existing line of mature trees adjacent to the Boord Street Bridge ramps will need to be removed to enable construction of a replacement bridge, but it is stated within the application that they will be replaced with semi-mature trees once works are completed. However it is not clear how this undertaking would be secured and implemented and it is suggested that this be included within the Design Principles.

**Lighting**

94. Outside of the tunnels, at the Greenwich end, it is proposed that both the A102 and Tunnel Avenue are illuminated, which is consistent with the existing situation for these roads. Twin luminaire lighting columns up to 10m high are proposed in the strip between the northbound A102 and Tunnel Avenue. Lighting would also be used for personal security and to illuminate cycle ways and footways. The bus link from Millennium Way to the Silvertown Tunnel portal will also be lit. All highway lighting luminaires would use LEDs mounted on steel lighting columns. Street lighting will be connected to and controlled by a Central Management System and therefore the lighting will be able to be varied in accordance with daylight and the requirements of TfL.

95. All highway lighting, including within the tunnel would be in accordance with the appropriate design standards and relevant guidance for light emissions and light spill for highways lighting and use energy efficient illumination throughout.
**Heritage Assets**

96. The Grade II Listed Blackwall Tunnel Entrance Building sits within the Order limits of the Scheme on the Greenwich side. Greenwich Peninsula is also within sight of the Maritime Greenwich World Heritage Site. RBG agrees with the conclusions in Chapter 8 of the ES that it is not considered that there will be any foreseeable material impacts to the settings of these heritage assets from the additional above ground visual elements during the construction and operation of the Scheme.

97. The assessment has identified potential impacts to the Grade II listed Blackwall Tunnel entrance building as a result of settlement. A requirement for further assessment of construction effects on this structure during the detailed design stage has been identified. (ES Para 8.8.6) Para. 8.6.9 of the ES explains that appropriate mitigation to prevent structural damage to the building will be secured through the CoCP. However, there is no clear undertaking in the in the CoCP to manage and implement the required mitigation. The CoCP therefore needs to be amended to address this.

98. The ES concludes that the predicted increase in traffic of no more than 10% will have no discernible effects and therefore there will be no impact to the significance of the Greenwich World Heritage site as a result of increased traffic flows associated with the Scheme (ES, para 8.6.10). However, as set in Section E below, RBG is concerned about the potential displacement of additional traffic through the Maritime Greenwich World Heritage Site and the potential negative impact of this aspect of the scheme on the World Heritage Site.

**Townscape and Visual Analysis**

99. Using the Illustrative Scheme layout submitted as part of the application, the above ground structures and associated public realm areas that would affect the visual impact on the local townscape are the proposed South Portal buildings and structures, the proposed Silvertown Tunnel Southern Approach roads, the proposed replacement Boord Street pedestrian and cycle bridge, alterations to the existing A102 Blackwall Tunnel Southern Approach roads alterations to Tunnel Avenue and associated public realm landscaping.

100. The immediate location consists of the existing road infrastructure of the Blackwall Tunnel Southern Approach roads, various commercial premises and is currently dominated by the Greenwich Gasholder Station. It is not in a conservation area but does fall within Local Views 1, 7, 9 and 11 as set out in Policy DH(g) of the Local Plan. The grade 2 listed Blackwall Tunnel entrance is also located within the safeguarded area. Future surrounding development would include the approximately 10 to 34 storey buildings to the east to be delivered under the 2015 Greenwich Peninsula Masterplan. The South Portal site forms part of and is surrounded to the north-west, west and south by the Greenwich West Strategic Development Location. In the vicinity of the site, this area currently consists mostly of industrial areas but is planned to become part of a new mixed use urban quarter.

101. A townscape (urban landscape) and visual impact assessment has been undertaken, which considers townscape character and views, the findings of which are presented in Chapter 15 0f the ES. The assessment concludes that the Scheme would not result in significant townscape and visual effects. The main findings of the assessment are:

- The Scheme would not significantly affect the amenity offered by the view from the General Wolfe Statue at Greenwich Park (London View Management Framework View 5A.1).
- There are not anticipated to be significant visual effects on any Local Views resulting from the Scheme.

- The Scheme would not result in significant townscape and visual effects within the Thames Policy Area.

- Significant night-time visual effects will be avoided by the use of cut-off, directional lighting to limit contribution to the brightening of the night sky above the city and the spilling of light beyond the area intended to be lit.

- Whilst the Scheme introduces new infrastructure, the proposed built form will not be out of character with that already within the surrounding urban environment and will include elements, such as new buildings and landscape proposals, that will contribute positively to the regeneration of the area as well as landscape proposals, within the Order Limits, which will enhance the local public realm and incorporate new pedestrian areas and cycle links.

- Wider visual amenity would not be notably disrupted by the construction of the Scheme.

- The construction and operation of the Scheme would not be out of character with the developing townscape context of the 2015 Greenwich Peninsula Masterplan. Accordingly, there are not expected to be significant cumulative townscape and visual effects. This would also be the case in respect of Greenwich Peninsula West Masterplan.

102. RBG agrees with the conclusions in Chapter 15 of the ES that the overall construction effect on both townscape and visual significance would be Slight Adverse and Not Significant. Similarly, it is agreed that the overall operational effect on both townscape and visual significance would be Slight Beneficial and Not Significant.

**Discussion of Design Principles**

103. The landscaping principles should make specific reference to the semi-mature trees to replace the existing line of mature trees adjacent to the Boord Street Bridge. It is not clear how this undertaking would be secured and implemented.

104. It is suggested that in accordance with the recognition the applicant has placed on the benefits of green infrastructure provision in other principles, Landscaping Principle LSCP.11 should also include a note as to the contribution to SUDs that trees in a streetscape provide. Also that tree planting and tree pits should be designed with SUDs principles in mind.

105. The Landscaping Principles should also make it clear that appropriate specifications for landscaping must be agreed with the Council for areas of adopted public highway.

106. Table 2.2 should include principles for the proposed noise barriers.

107. The Sustainability and Environment Design (SUEN) Principles (Table 2-6) should include the provision off some wildflower meadow planting on the Greenwich side of the scheme.

108. Suggest a revision to SUEN Principle 01 to remove the word ‘consider’; as we would suggest that where feasible the applicant should be including and installing low zero carbon technology in building design; rather than solely considering it.

109. It is questioned whether it is appropriate to include guidelines for Advertising in the Design Principles as this may require separate advertisement consent outside of the DCO process.
If the Advertising principles are retained, they should include consideration of highways safety issues.
F. MODELLING AND TRAFFIC IMPACTS

110. Before commencing any assessment or reporting of the local highway and environmental impacts of the Silvertown Tunnel scheme, it is necessary to set out RBG’s concerns over the Assessed Case modelling, from which the inputs to the transport and environmental assessment have been derived. These concerns are shared by the Local Authorities on both sides of the river, and prevent any degree of confidence being held regarding the impacts predicted and presented in the DCO documentation.

111. It should be noted that the use of the RXHAM model as a strategic modelling tool has been agreed and the study area that this model covers is also agreed. This modelling tool, however, does not allow the detailed assessment of local impacts.

112. The local impacts reported in relation to the Assessed Case are therefore not agreed and the report is therefore caveated accordingly.

Issues regarding the traffic model

113. The Cross River Model (RXHAM) used to evaluate the proposed scheme is derived from the TfL’s East London Highway Assignment model (ELHAM). This strategic model can evaluate strategic impacts of potential new highways, the application of tolls to bridges, as well as other types of planning and transport plans and interventions.

114. TfL guidance (April 2014) - London’s Highway Assignment Models sets out the process by which this model has been developed and defines the strengths and weaknesses of these types of models. It is noted that this document identifies a key limitation of this model as being its ability to assess impacts on minor streets and turning movements. This is important to note in the context of assessing the local impacts of the proposed scheme. The guidance also states that further model development will be necessary to assess such issues.

115. LINSIG and TRANSIT models have been used by TfL in the assessment of impacts but these models have not been made available to the Host Boroughs for review and validation which makes it difficult to assess the validity of these models and consequently any local impacts that may arise from the introduction of the proposed scheme.

116. National guidance for the construction of strategic models is set out in the Department for Transport’s WebTAG Units (2014). These guidelines have been followed in the construction of the RXHAM model. However, there is no guidance in WebTAG with regards to the setting of a charge for a road scheme. In the absence of such guidance RBG is unable to determine the appropriateness of the methodology for the proposed level of charging and the full extent of the model’s sensitivity to assess the impacts of the proposed charging.

117. Other issues arising during the course of the model development include the appropriate use of Values of Time. The original Assessed Case includes National Values of Time (Traffic Forecasting Report 7.9 para 3.3.1) however, it is not clear which version of WebTAG National Values of Time have been used and why National Values of Time have been applied instead of London Value of Time. A further issue arises regarding the appropriateness of values of times and operating costs in the context of the high level of multiple deprivation and the low car ownership in the Borough.
118. The ability of the model to reflect these matters and to then apportion impacts accordingly is a matter of concern and requires further clarification by TfL.

119. RBG is aware the local model validation reports (LMVR) have been drafted but are not included in the documentation that TfL submitted to PINS. It should be noted that these reports have been reviewed by the Host Boroughs and commented upon during the course of a series of meetings between TfL and the hosts Boroughs. Final versions of these reports have not been issued.

120. A key issue was raised by RBG in the review of the LoRDM validation report in that the income segmentation models were disabled in LoRDM and that these are used in demand segmentation but that these segments are not directly comparable with RXHAM assignments functionality and segmentation. It is not clear how this approach then affects the reporting of the impacts.

121. TfL has commissioned independent audits of the base, reference and assessed case models on behalf of the Host Boroughs, a copy of the brief to the consultants for this work is attached to this report. (Appendix 3). Steer Davis Gleave (SDG) were appointed by TfL with the agreement of the Host Boroughs.

122. The Host Boroughs have commented on each of the draft audit reports and have raised concerns through out the process, for example (but not limited to); the poor quality of modelling of the bus services in the base model, the values of time and the growth assumptions included in the reference case model and the assumptions made for the setting of the user charge in the assessed case model. The Host Boroughs have met with the appointed consultants to try and resolve these issues. TfL has also had sight of the Host Borough comments and have input into the development of these reports.

123. Commentary is provided below regarding the status of these reports and issues which RBG would wish that the Examining Authority takes into account.

**Base Model**

124. The Base Model has been independently audited on behalf of the Host Boroughs by SDG, and has been subsequently agreed as fit for purpose by RBG as a strategic modelling tool.

125. The model replicates observed flows quite well for a large strategic model of this sort under 'normal' conditions, although it was noted that its modelling of the effect of incidents was less representative of reality. However, it is acknowledged that SATURN does not deal with the modelling of short term incidents on the network well, due to the 'proxy' coding required to represent incidents and because it does not assign trips in the way that driver route choice decisions are made in the event of an incident on the network.

**Reference Case**

126. Following the Base Model audit, the Reference Model has also been independently audited on behalf of the host boroughs by SDG and has been subsequently agreed as fit for purpose by RBG. While RBG may have some issues regarding the exact growth assumptions built into the 2021 reference case, sufficient uncertainty exists over the delivery of regeneration schemes over the next five years for the reference case assumptions to be considered adequate for traffic modelling purposes.
Assessed Case

127. The conclusions of the SDG independent audit of the Assessed Case model are agreed, but the Assessed Case model outputs are not agreed by RBG (or it is understood by London Borough of Newham or the London Borough of Tower Hamlets).

128. RBG do not have a sufficient level of confidence in the assumptions underpinning the relationship between the value of the charge and the resulting demand level for the tunnels. The explanation of the validation and calibration of this relationship has not yet been made available to the Host Boroughs and we are therefore unable to agree the model outputs.

129. The Assessed Case is not agreed as:

A. There are limits to the ability of the strategic model to fully predict the effect of the user charge on demand management.

B. There is a large increase in population forecast for London. This is especially seen in the host boroughs and wider Thames Gateway, and evidenced in the agreed cumulative development included as part of the Reference Cases’s future years assumptions. This isn't reflected in lack of additional cross river demand in the Assessed Case.

C. Cross river bus capacity is greatly increased, but the strategic model simply indicates a 0.1% increase across the whole model - it doesn’t clearly indicate the additional number of cross river public transport trips and corresponding modal shift.

D. The strategic model cannot fully demonstrate the complex social economic impacts of the user charge on the local population and businesses and as such fails to meet Project Objective 3 in the Case for the Scheme.

E. The value of time used in the model to determine the traffic assignment according to the generalised cost of available routes is an average figure, and does not reflect the specific socio-economic characteristics of the East London sub-region, where indices of deprivation are well above the national average.

F. The behavioural response of drivers to the toll charge has not been validated; TfL has not previously modelled a toll road situation of this sort so their expertise in this area is unclear. While it is acknowledged that the assessed case model behaves 'as expected' in that an increase in tolls results in a reduction in demand, and vice-versa, we cannot be confident that the elasticity of demand across various user groups has been correctly evaluated, and that the prediction of the actual numbers of vehicles at different levels of toll are accurate. No stated preference or similar surveys have been undertaken by the applicant to calibrate these behavioural responses across user groups to different tolling levels suggested by the model, so the assessed case model cannot be validated in the same way as the base and reference case models.

G. By the applicant’s own admission, predicting the behavioural response of different highway network user groups to the introduction of a road user or toll charge is an inexact science - especially when only a traffic model (ie without a behavioural sub-model) is used.

H. In a statement in the host boroughs issues tracker (a document which tracks the key issues raised by the host boroughs and the TfL response to these) it states "....TfL acknowledges that there remains an inherent challenge in forecasting this kind of response and it remains possible that elasticities (willingness to pay) has (sic) the potential to be
higher or lower than assumed in the assessed case. This is a key argument for the proposed flexible charging power, to ensure that the scheme can respond effectively to circumstances which can never be conclusively modelled......"

I. The Transport Assessment also acknowledges in paragraph 7.2 The complexity and inter related nature of the aforementioned choices and considerations affecting Scheme impacts has meant that it is not possible to isolate the precise impact of any one factor individually on highway demand with any degree of accuracy.

J. In the light of these admissions by the applicant, and in order to demonstrate due diligence on behalf of its residents and businesses who may be affected by the scheme, RBG has no option but to view the highway and environmental impacts as presented in the DCO submission documents with little confidence. In addition, RBG must consider a 'what if' scenario, where the impacts presented are actually worse in reality, and what mitigation measures may be available to address these.

Local Models

130. A Vissim model was constructed by TfL to support the consideration of detailed junction mitigation planning. This model has been supplemented by TRANSYT junction modelling of individual junctions coated outside the defined VISSIM study area. This microsimulation model has not been subject independent verification in comparison to the strategic models that have been used in the assessment process. No model validation report has been made available and RBG is concerned that the data sets that have been used in the VISSIM model, derived from the Assessed Case model have not been validated.

131. TfL guidance on the construction of microsimulation models derived from the use of data from SATURN models does not appear to have been followed.

132. The microsimulation model area has not been agreed with RBG. RBG requested that the local model area to be extended to cover the local junctions that are considered by RBG to be currently under pressure from congestion. This was not carried out by TfL. This additional area includes that part of the Strategic Route Network (SRN) between Greenwich Town Centre and Woolwich Ferry.

133. As discussed RBG identified to TfL the junctions that are currently under stress and set an appropriate study area for local junction assessment. Although included in the document 7.6 Monitoring Strategy TR010021 this was not modelled and reported upon (despite RBGs request to TfL to do so).

134. The junctions that RBG requested should be included in the local model are:

Towards Greenwich Town Centre

- Creek Road / Greenwich Church Street
- Greenwich Church Street / College Approach
- College Approach / King William Walk
- King William Walk / Romney Road
- Nelson Road / Greenwich High Road / Greenwich Church Street
• Romney Road / Park Row
• Romney Road / Maze Hill
• Romney Road / Trafalgar Road
• Trafalgar Road / Woolwich Road / Blackwall Lane
• Woolwich Road / Vanbrugh Hill

Towards Woolwich Ferry
• Woolwich Road / Anchor and Hope Lane / Charlton Church Lane
• Woolwich Church Street / Woolwich High Street / John Wilson Street
• Bugsbys Way / Anchor and Hope Lane

Proposed Additional Junctions
• Creek Road / Deptford Church Street
• Deptford Church Street / Deptford Bridge
• Deptford Bridge / Greenwich High Road / Blackheath Hill
• Blackheath Hill / Greenwich South Street / Lewisham Road
• Blackheath Hill / Shooters Hill Road / Hyde Vale
• Shooters Hill Road / Charlton Way
• Charlton Way / Maze Hill / Prince Charles Road
• Shooters Hill Road / Prince Charles Road

Possible Additional Roads
• Maze Hill
• Charlton Way
• Stockwell Street / Crooms Hill / General Wolfe Road

Data Sets
135. The data sets that have been used in the modelling have some limitations. It is acknowledged that TfL has tried to overcome these limitations, but the use of the 2008 Roadside Interview data causes concern due to both the age and robustness of the data. This issue has been raised with TfL through consultation responses during the Scheme’s development.
The reporting of the baseline borough travel behaviour and outputs from the traffic models also gives rise to concern by RBG. There is inconsistency and confusion with the use of the data sets which makes local impact reporting extremely difficult. An example of this inconsistency and resulting lack of clarity is apparent in the data set examples shown below.

<table>
<thead>
<tr>
<th>Source and date of data</th>
<th>Target surveyed</th>
<th>Cross river trips (RBG Origin)</th>
<th>Cross River Trips (RBG Destination)</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Road side interviews</td>
<td>N/S Lane north bound car drivers (table P8)</td>
<td>c.33% Fig E1 31% (profile of B’wall by users section)</td>
<td>Not clearly available</td>
<td>Summary of Data Collection Fig 1 refers to commercial vehicles, text p11 and p80 confirm cars only</td>
</tr>
<tr>
<td>Personal Behaviour Survey 2012 (TA 3.6.4 says 2013)</td>
<td>‘Roadside recruitment’ of 1,129 in proximity of crossings. Not defined by car / LGV</td>
<td>Different figures reported p14 24%, p42 15% for commute TA 3.6.10 also references 15%</td>
<td>TA 3.6.12 shows17%</td>
<td>788 responses: average length of journey 31 miles Kent most common origin TA - 3.6.7 mean journey is 48km. The London mean c8km Trip characteristics - primarily car travel 84% individuals not businesses</td>
</tr>
<tr>
<td>TA RXHAM Base Case 3.6.13 and following</td>
<td></td>
<td>44% northbound am peak</td>
<td>40% pm Peak southbound</td>
<td></td>
</tr>
<tr>
<td>Freight Travel behaviour Survey 2012</td>
<td>Telephone interviews 101 freight operators</td>
<td>Not available</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Local Residents Survey 2015</td>
<td>Telephone interviews 3,200 ‘local residents’</td>
<td>Not available - attitude survey on River Crossings</td>
<td>60% of those driving to work use their car for work during the day p.66</td>
<td></td>
</tr>
<tr>
<td>Local Business Survey 2015</td>
<td>Telephone interviews 501 ‘local businesses’</td>
<td>Not available - attitude survey on River Crossings</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LTDS</td>
<td>Representative sample of 8,000 households per year from London population</td>
<td>521,600 (c10% of total)</td>
<td>516,100 (c10%)</td>
<td>The LTDS analysis fig 92 quotes origin and destination figures for Greenwich 369,000 out of a total of 5,149,800 total trips in the eastern region which equates to c.7%.</td>
</tr>
</tbody>
</table>
Local Traffic Impacts - Increase in trips on strategic links

137. The Transport Assessment reports that there is an increase in trips in the vicinity of the Blackwall Tunnel in the Reference Case (in RBG roads affected are A102, A2, and A206) in all time periods. The forecast changes are shown the TA network figures 5-7.5-8, 5-9 in actual flows rather than demand flows (as has been requested). Demand flows are only described in this period for the crossings not the network.

138. The demand flows across the network are required in order to determine the full extent of local impacts. It is not clear if figures 5-12, 5-13 are demand or actual flows. Further clarification on this matter is required in order to fully understand the local impacts.

139. The Transport Assessment reports (Para 7.3.18) that a clear indication of the primary effect of the Scheme can be seen when comparing the level of demand for and actual traffic flow across the Blackwall Tunnel in the (2021) Reference Case with the Blackwall and Silvertown tunnels combined in the (2021) Assessed Case. This exercise is undertaken in Figure 7-16.

140. The Transport Assessment continues to note (para 7.3.20) that the total demand for these movements is actually lower in both peaks with the Scheme than it is in the Reference Case, and that this demonstrates the ability of the Scheme to increase the throughput of traffic over the crossing without generating overall increases in traffic demand. This, however, is not the case as the actual flows for the assessed case are artificially restricted by the model. Therefore these flows do not necessarily give a true indication of the demand for traffic both on the local road network and strategic road network.

141. Whilst figure 7-16 shows the proposed user charge managing travel demand on the strategic network, in the PM peak hour, the Transport Assessment states that (para 7.3.52) capacity is reduced on links approaching the northern portal, notably on the A12 and at the A102/A13 junction. The PM peak hour results also indicate that the release of formerly queued southbound traffic leads to an increase in congestion on the A102 and the A2.

142. The full extent of local impact in terms of, for example, queuing at the junctions on the A102 arising from these delays is not documented. Delays are shown in PCUs averaged across the junctions, this is shown in Figure 7-28 from TA appendices. Average speeds for trips originating from RBG are shown to reduce in the PM peak for the Assessed Case in 2021 (Figure 7.31 of the Transport Assessment), which is likely to be as a result of additional queuing on the A102.
143. Appendix 1 reviews local junction impacts as reported in the Transport Assessment (and Appendices), the Traffic Impacts Mitigation Strategy, the Monitoring Strategy, the Assessed Case Report produced by SDG and the Borough Impacts Note produced by TfL.

144. Comparison across the documents indicates that there is a significant junction delay at the Woolwich Ferry in the AM Peak. There is also significant delay in the PM Peak at A206 Plumstead Road / Burrage Road, the Kidbrooke Interchange / Kidbrooke Park Road, and at the A2 Riefled Road.

145. Shooters Hill Road / Academy Road / Well Hall Road, and Deptford Church Street / Deptford Bridge all show significant uplifts in total vehicle hours, but with little impact noted in the Transport Assessment. A similar effect, albeit less significant, is noted at Woolwich Road / Anchor and Hope Lane / Charlton Church Road.

146. RBG notes that no traffic mitigation is currently advocated ahead of the scheme’s introduction. TfL advocates that any required mitigation would be provided as a result of the Monitoring and Mitigation strategy. RBG has no surety that any necessary mitigation could be implemented in a timely manner as there is currently no mechanism within the DCO to secure mitigation. RBG is particularly concerned that junctions in the A2 and A206 corridors experience stress in the PM peak according to the delay plots contained in figure 7.28 of the Transport Assessment and may require mitigation in future years. This includes Woolwich Ferry and its approaches, Pettman Crescent, Greenwich Town Centre and Kidbrooke Interchange (TA PM Junction delay plots Fig 7-28).

**Woolwich Ferry**

147. RBG notes that no traffic mitigation is currently advocated ahead of the scheme’s introduction.

148. Woolwich Ferry’s current capacity is 160 - 210 passenger car units per hour in each direction. (Table 3.1 [pg 70] Transport Assessment document ref 6.5). The Woolwich Ferry carries around 4,600 AADT despite its location between the A406 North Circular and the A205 South Circular routes. The local road network is constrained in this area and is noted in the Transport Assessment as operating at practical reserve capacity in peak times in the base year model 2012 (paragraph 4.2.2 of the Transport Assessment and table 4.1).

149. The composite of traffic using the Woolwich Ferry in the assessed case model is seen in table 7.4 of the TA and it is noticeable that the ferry carries 20% of HGVs in its composite of traffic compared to other crossings’ traffic composition. The TA in paragraph 4.3.18 recognises that there is very limited capacity to accommodate diversion routes in this area should problems occur at Blackwall Tunnel.

150. The Transport Assessment also shows that the Woolwich ferry is at capacity, pre and post Silvertown implementation (figure 7.33 of the TA) and states in paragraph 4.2.40 of the Transport Assessment that there are significant levels of delay evident on the approaches to the Woolwich Ferry. The difference in demand flows 2012 and the Assessed Case in 2021 in the AM peak is 46 PCUs and in the PM peak is 48 PCUS. This demonstrates that there is a demand for the ferry which is not managed.

151. TfL only proposed mitigation is varying the charge at Silvertown/Blackwall. If the charge was reduced this would see additional demand on the Silvertown/Blackwall tunnel with associated detrimental effects on air quality and congestion.
152. RBG requires that this demand is managed and is seeking TfL to be Required by the DCO to commence with the preparation of primary legislation to charge for Woolwich ferry in the event that charging would be required to manage traffic demand.

Maritime Greenwich - World Heritage Site

153. The Maritime Greenwich World Heritage Site (MGWHS) designation is extremely important to the identity of RBG.

154. MGWHS was inscribed on the World Heritage List by UNESCO in 1997. Protection for the site, its setting and buffer zone is enshrined in the spatial planning system operated by local planning authorities and statutory designation. The World Heritage Site (WHS) is administered by a Steering Group assisted by an Executive, working to a Management Plan for the Site. MGWHS is located within the Greater London area and is consequently affected by strategic policies in particular those connected to development and vehicle movement.

155. The MGWHS, one of only 30 such sites in the UK, currently attracts approximately 9 million national and international visitors each year. In line with key goals and objectives set out in the MGWHS Management Plan - Third Revision, 2014, World Heritage partner organisations have been working with RBG to improve and promote the visitor experience and to meet obligations under the 1972 World Heritage Convention for the protection, conservation and presentation of the Site.

156. Typical initiatives in train are concerned with: wayfinding and signage, including the proposed introduction of the Legible London scheme; encouraging walking and improving the public realm and pedestrian experience through pavement widening; strategies for pedestrian and cycling safety; use of alternative methods of transport i.e. driverless vehicles; mobility schemes to access Greenwich Park and the Royal Observatory; and improving access to the World Heritage Site from the southern boundary at Blackheath Gate, a notorious accident black spot.

157. However, The World Heritage Executive (WHE) and RBG are still concerned about the potential displacement of additional traffic through the MGWHS, the heart of which is Greenwich Town Centre, already heavily congested at peak times, to access the uncharged Rotherhithe Tunnel.

158. The Rotherhithe Tunnel has a limited capacity of 1,200 PCUs (both directions) and a limitation on size which means that it can not accommodate HGVs. In the base year 2012 Rotherhithe carries approximately 900 vehicles in AM peak (broadly 73% capacity and 84% southbound in the PM peak). Delay is evident on the approaches to this tunnel (paragraph 4.2.40 Transport Assessment). It is noted that the route to Rotherhithe Tunnel has very little spare capacity to accommodate diverted traffic (paragraph 4.3.18 of the Transport Assessment).

159. In 2021 the Reference Case model demand for Rotherhithe tunnel is 1,201 PCUs (AM peak)which is an increase on the base year 2012 of 2.8% (827 PCUS). In the Assessed case demand scenario the AAWT in 2021 for Rotherhithe tunnel is 36,100 vehicles (both directions). This causes concern for RBG as the routing of these trips will impact upon the local road network (Creek Road, Deptford Church Street and Deptford Bridge in order to access the A2. If traffic wishes to access Charlton, Woolwich areas then these trips would divert through Greenwich Town Centre (Creek Road/A206) which would validate the concern of the WHE and RBG, that of traffic detrimentally impacting upon the world.
heritage site, undermine the measures and schemes being put in place to support the WHS and adversely affect levels of air pollution and the quality of both the visitor experience and that of the local community.

160. Currently there is no mitigation proposed in the DCO to safeguard against this situation arising and RBG would encourage the Planning Inspectorate to press for a review and immediate mitigation for any overall negative impact of the scheme on the World Heritage Site subsequently identified as a result of a ‘knock-on’ effect of traffic approaching or travelling to it as a result of the new arrangements.

161. This should take place earlier than the current 5 year timetable and preferably within the first year. The mitigation should make provision for the GLA to introduce charging for the Rotherhithe Tunnel should a noticeable increase in traffic in Greenwich occurs.

Public transport

162. The future years model assumes a modal shift to cross river bus use to mitigate additional demand that the increases in population would create, and to also address inclusion of those residents who would be disproportionately impacted economically by the charge. Although acknowledged for inclusion in the forthcoming TfL Business Plan in the Mayor’s announcement there is however, currently no commitment in the submission by TfL to fund and introduce the level of service uplift which has been modelled.

Bus network assumptions

163. Whilst access to Woolwich by bus has a good Public Transport Accessibility Level [PTAL] rating (level 4), other areas in the Borough suffer from poor levels of access arising from the physical severance caused by the river.

164. The existing bus route (108) which uses the Blackwall tunnel is subject to major disruption when the Blackwall tunnel is closed, planned and unplanned. Due to the height restrictions, the services running through the Blackwall tunnel are limited to single decker. Such limitations are a significant inconvenience to users. In the AM peak the 108 takes an additional 20 minutes to complete its route.

165. The population and employment increases that are projected in the Mayor’s London Plan will result in additional demand on the available public transport network. Between 2011 and 2041 population is set to raise by 50% and employment by 72%.

166. Table 7-10 of the Transport Assessment sets out the increase in cross river bus network services. The 108 will be increased by 1.5 buses per hour (currently 6 buses to 7.5 buses) with the proposed Silvertown Tunnel in place. The bus service 129 (Greenwich town centre to North Greenwich station) is proposed to be increased from 5 buses to 10 buses per hour.

167. The key issue for RBG is the lack of commitment within the dDCO to the provision of these services. The Transport Assessment states that these improvements and re routings are not part of dDCO (paragraph 7.9.8). Without this commitment RBG has no certainty that the routes will be provided.

168. This then casts doubt over many aspects of the costs and benefits of the claimed benefits of the scheme and the robustness of the public transport assessment, the business case and the
socio economic assessment of the proposed scheme all of which are based fundamental assumptions, the provision of the bus services increases that may not materialise. The Mayor has stated that the proposed bus service improvements will be included in the TfL Business Plan, however this does not provide the level of surety compared to the proposals being committed to through provisions in the DCO.

169. The Transport Assessment states that the public transport patronage demand is uplifted by 6,500 trips and the patronage on the 108 service is projected to increase by 25% as a result of the increase in population. Route 129 patronage is projected to increase fourfold due to the route extension and increase in frequency.

170. In 2021 the Assessed Case public transport modelling outputs (compared to the Reference Case) show that 6,500 daily trips are transferred to public transport. 2,500 of these trips are from private car. 4,000 trips are current walking and cycling trips. RBG is concerned that this transfer of walking and cycling trips will be detrimental to the active travel policy that they continue to implement.

171. The Assessed Case public transport modelling demonstrates a 0.1% increase in public transport demand across all the assessed periods. The review of this demand shows that even with the additional frequencies and routings which are included the public transport model, the additional public transport trips are lower than the capacity provided in the model. It should be noted that the model is dispersing public transport over the whole of the model area.

172. TfL has previously under estimated public transport trips on new services (for example the Woolwich DLR Extension) and RBG seeks surety that this demand assessment is correct. For example the Transport Assessment (7.9.17) shows 19,000 Cross River trips in 12hrs in 2021. RBG would question how this works in relation to accommodating the increases in population and /inducing/managing demand. This compares to the Steer Davis Gleave Audit Reports which identify changes in reference to assessed cases of 7,000 uplift in 2021.

173. RBG would wish to see a Requirement in the DCO for TfL to produce a Bus Strategy to be approved by the Local Authority prior to the Scheme’s implementation.

Impact on non motorised movement (Walking and cycling - Emirates Air Line, Thames Path etc)

174. The current Transport Assessment states that there is an expectation of TfL for Section106 obligations from other developments to contribute to walking and cycling infrastructure in the vicinity of the proposed Silvertown tunnel. There are two issues here, in that the scheme should not rely on other developments to mitigate its potential impacts and existing S106s have been negotiated on pre Silvertown needs.

175. RBG’s movement to CIL sees S106 used for very ‘local’ links from the development to the existing cycling and walking networks (RBG’s July 2015 SPD - Planning Obligations S106 Guidance Annex B)

176. The current Boord Street Bridge that provides pedestrian and cyclists access will require demolition as part of the implementation programme for the proposed scheme. A replacement foot and cycle bridge is proposed to be installed to minimise disruption for users and ramped access to the current footbridge and a replacement footbridge will be made available at all times. RBG accepts this approach as mitigation.
177. The Mayor has also proposed public realm improvements in the vicinity of Boord Street which is welcomed, however, RBG wishes to see this proposed mitigation written into the DCO to provide surety this these measures will be implemented.

**Safety and Hotspots**

178. The A2/A102 corridor accounts for approximately 7% of all collisions in the Borough with an average of 55 per year. However 11% of all Motorcycle collisions and 13% of all Motorcyclist killed or seriously injured (KSI) collisions are mainly clustered close to the Blackwall Tunnel approach and on and near all the major intersections along the corridor.

179. RBG has achieved the 2020 causality reduction figure of a 50% drop from the 2005/9 base by 2020 already (the current reduction being 53%). However, a disproportionate number off KSIIs occur on or at interfaces with the Transport for London Road Network (TLRN). Kidbrooke Junction and A206/A102 roundabout are primary sites (the latter forms part of TfL’s ‘dangerous junctions review’).

180. Riders of powered two wheelers (P2Ws) and cyclists are particularly over represented. Effectively over 16% of RBGs KSIs occur on, or at junctions with, the TLRN. In turn the TLRN comprise of only 5% of the roads in the borough.

181. The analysis below shows the collisions and casualties with particular regard for the Blackwall Tunnel area and the A102/A2 corridor.

**Collision Analysis**

182. The table below shows the Personal Injury Collisions for the latest available 5 years to 30 April 2016 (provisional)

183. Blackwall Tunnel Southern Approach BTSA – A2 Corridor. All Link Collisions including all Nodes/Junctions (within 50m). Total Collisions 280. Total Killed/Serious (KSI) Collisions 17 (6.10%)

<table>
<thead>
<tr>
<th>Severity/Months to</th>
<th>12/04/12</th>
<th>12/04/13</th>
<th>12/04/14</th>
<th>12/04/15</th>
<th>12/04/16</th>
<th>Total</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fatal</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0.4%</td>
</tr>
<tr>
<td>Serious</td>
<td>5</td>
<td>4</td>
<td>0</td>
<td>3</td>
<td>4</td>
<td>16</td>
<td>5.7%</td>
</tr>
<tr>
<td>Slight</td>
<td>57</td>
<td>58</td>
<td>51</td>
<td>48</td>
<td>49</td>
<td>263</td>
<td>93.9%</td>
</tr>
<tr>
<td>Total</td>
<td>62</td>
<td>62</td>
<td>52</td>
<td>51</td>
<td>53</td>
<td>280</td>
<td>100%</td>
</tr>
</tbody>
</table>
Casualties

184. The total amount of casualties that resulted from the 280 Collisions above over the 60 months was 362.

185. Casualties by vehicle type:

<table>
<thead>
<tr>
<th>Category</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Car Driver/Passenger</td>
<td>242</td>
</tr>
<tr>
<td>Car Driver/Passenger Serious</td>
<td>2</td>
</tr>
<tr>
<td>Motorcyclist Slight</td>
<td>66</td>
</tr>
<tr>
<td>Motorcyclist Serious</td>
<td>10</td>
</tr>
<tr>
<td>Motorcyclist Fatal</td>
<td>1</td>
</tr>
<tr>
<td>Goods Driver/Passenger</td>
<td>26</td>
</tr>
<tr>
<td>Goods Serious</td>
<td>1</td>
</tr>
<tr>
<td>Pedal Cyclist</td>
<td>4</td>
</tr>
<tr>
<td>Bus Passenger</td>
<td>6</td>
</tr>
<tr>
<td>Pedestrian</td>
<td>3</td>
</tr>
<tr>
<td>Pedestrian Serious</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>362</td>
</tr>
</tbody>
</table>

186. The single fatal collision was recorded on 17/04/2014 when at Solo 42 Year Old Male Motorcyclist lost control whilst overtaking on the Rochester Way Relief Road 50m South of the junction with Kidbrooke Park Road.
Causal factors

187. There can be a maximum of 6 causal factors attributed per collision. The tables below show the main causal factor for each collision which gives us an initial overview over what factor that particular vehicle driver was doing that mainly led to the collision.

188. Car Driver Main Causal Factor:

<table>
<thead>
<tr>
<th>Causal Factor</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor Turn/Manoeuvre</td>
<td>3</td>
</tr>
<tr>
<td>Failed to Slow/Driving too close</td>
<td>99</td>
</tr>
<tr>
<td>Car Changed Lane into the path of a motorcyclist</td>
<td>34</td>
</tr>
<tr>
<td>Turning Right</td>
<td>3</td>
</tr>
<tr>
<td>Turning Left</td>
<td>6</td>
</tr>
<tr>
<td>Changing Lane</td>
<td>20</td>
</tr>
<tr>
<td>Open Door into path of a Motorcyclist</td>
<td>1</td>
</tr>
<tr>
<td>Loss of control</td>
<td>34</td>
</tr>
<tr>
<td>Alcohol</td>
<td>4</td>
</tr>
<tr>
<td>Fatigue</td>
<td>3</td>
</tr>
<tr>
<td>Vehicle Defect</td>
<td>3</td>
</tr>
<tr>
<td>No other Vehicle Involved</td>
<td>13</td>
</tr>
<tr>
<td>Mobile Phone</td>
<td>2</td>
</tr>
</tbody>
</table>
189. LGV/HGV Main Causal Factor:

| Poorly Loaded                     | 1 |
| Vehicle shunting Motorcyclist     | 7 |
| Failing to Slow/Driving too close | 25|
| Changing Lane                     | 24|
| Opening Door into path of Motorcyclist | 1 |
| Alcohol                           | 1 |

190. Motorcyclist Main Causal Factor:

| Filtering                     | 14 |
| Changing Lane                 | 3  |
| Loss of Control               | 19 |
| No other vehicle Involved     | 19 |
| Shunting Motorcyclist         | 1  |

191. The 4 maps below show plots of all accidents along the corridor, 3 areas are broken down to shown detailed incidents, and the corridor overview is provided by the fourth Collisions are classified as:

1. Green- Slight Collision
2. Blue- Serious
3. Red- Fatal
4. Larger Dots indicate more than on collision at the same location
Kidbrooke Park Road to Borough Boundary

Blackwall Tunnel to Woolwich Road Flyover
Woolwich Road Flyover to Kidbrooke Park Road Intersection
A102/A2 All collisions for the entire length and associated junctions

192. The larger plot on the following page shows collisions for the entire length of the A102/A2 and the junctions affected.

193. The junctions in this corridor are already identified as under stress, and become more so in the assessed case model. Therefore the safety risk increases for users of the A102 and A2 corridor. Mitigation should not be dependent on future Monitoring and Mitigation strategy being proposed by TfL but should be addressed as part of the scheme’s development.
G. CONSTRUCTION IMPACT

Movement of Materials by River

194. TfL has committed the contractor to transport at least 50% (by weight) of all materials by river. However, RBG is concerned that there is no commitment or indication how this 50% is broken-down by borough.

195. In the event that monitoring demonstrates that the 50% target is unlikely to be met, TfL may request the Contractor to put forward Further Remedial Measures for approval and implementation. However, no mention is made of what these remedial measures might comprise (and therefore no assessment has been made on the potential transport impacts of these), and there is no commitment to agree these measures with the local authority before implementation.

196. RBG would wish that TfL are Required through the DCO to commit to a quantum of movement by river from each worksite.

Brewery Wharf

197. As per the relevant rep submitted by RBG, RBG remains concerned with the inclusion of Brewery Wharf as a viable option.

198. RBG previously noted its concern in the original scoping study on working wharfs conducted by TfL.

199. These concerns focused on the location of Brewery Wharf, which is furthest from the Greenwich worksite, and would involve access from the A102 via the A206 Greenwich High Street and A2 Blackheath Hill, along a route which already suffers from delays (see figures 4-21, 4-22 and 4.23 in the Transport Assessment, doc ref 6.5), away from the TfL and Strategic Road Network, and through residential street adjacent to the World Heritage Site.

200. The proposed short haul haulage route shown in Fig 7.1 of the CMS shows the construction site is approximately 10kms from Brewery Wharf. The Code of Construction Practice states that a local wharf should be within a 4km radius of the site. RBG would suggest this should be amended to either a 2.5km radius or 5km by road. Other suitable alternatives to Brewery Wharf exist and so RBG does not consider there to be any reasons to continue to include this site given the potential impact on the World Heritage Site.

201. Further detail of cumulative impacts of any movements of materials to or from the wharf to accommodate the constituent parts of the product supplied should be detailed in the Transport Assessment and Environmental Statement. The sustainability of the whole supply chain needs to be a consideration.

Lorry Routes

202. Notwithstanding the concern above, as per paragraph 8.6 of the Written Representation, RBG would wish to see lorry routes confirmed via the DCO which precludes the subsequent ‘rat running’ where heavy vehicles divert on to local roads. This a particular concern for residential areas adjacent to the MGWHS where lorries divert onto the local network to avoid queueing and congestion on the A102 northbound.
Working Hours

203. The 14:00 finish on Saturdays is an extension of the usual working hours permitted by RBG on Saturdays (a 13:00 finish). In addition to this extension, the Contractor will require one hour before and up to one hour after normal working activities for start-up and close down of activities. RBG does not accept the proposed construction hours. Construction on Saturdays should be limited to 08:00 – 13:00 in common with both RBG policies and other major construction projects.

204. However, the principle of a one-hour start up and shut down time is accepted. RBG would require that noise during these periods should not be audible at the nearest noise sensitive premises.

205. Para 2.3.2 (Page 28 of the Code of Construction Practice, doc ref 6.10) states some activities may be required outside these hours, but no details are provided.

206. RBG accept that the TBM and associated spoil removal shall operate on a 24 hour basis. Spoil removal from the tunnel drive northwards from Greenwich is proposed to be through the tunnel from Silvertown Tunnel which shall be dug first. Spoil removal from the northbound shall be arranged so that any noise from the operation shall be inaudible at the nearest noise sensitive premises outside RBG normal working hours.

Additional Points

207. The document requires the contractor’s drivers to undertake a fuel efficient driver’s course. RBG would want the Contractor to join the EcoStars fleet recognition scheme http://www.ecostars-uk.com/ and to require sub-contractors who use vehicles to supply the site to the scheme to be members.

208. All contractor and sub contractors must be FORS accredited.

- A Construction Traffic Management Plan (CTMP) including a construction workers travel plan, is to be produced by the Contractor for each worksite for approval by the relevant planning authority in consultation with the relevant highway authority. It is acknowledged that there would be limited car parking at the Greenwich site (50 car parking spaces) (para 6.8.2 of the Transport Assessment, doc ref 6.5).
- Para 6.8.1 of the Transport Assessment (doc ref 6.5) refers to the Framework Construction Site Travel Plan (FCSTP) and the principles around discouraging the construction workforce from travelling by car.
- Table 6.14 of the Transport Assessment (doc ref 6.5) sets out that 50 trips for construction workers will be made by car or van, indicating limited capacity for visitors and other parking.
- RBG would not wish to see any provision of commuter parking for construction workers given the high PTAL of the site.
H. ENVIRONMENTAL IMPACT

209. Air pollution caused by vehicle emissions is predicated on the outputs of the Assessed Case, which is nit agreed by RBG for reasons set out in both this document and the Written Representation. All comments should therefore be read in that context.

210. Air pollution is the fourth highest risk factor for death globally and by far the leading environmental risk factor for disease; reducing air pollution is an incredibly efficient way to improve the health of a population. Cardiovascular disease accounts for the majority of deaths from air pollution, with additional impacts from lung cancer, chronic obstructive pulmonary disease (COPD) and respiratory infections. It is estimated that 150 additional deaths annually can be attributed to poor air quality in Greenwich. RBG is ranked 144th of 354 local authorities in the National Atmospheric Emission Inventory air quality score, based on concentrations of NOx, particulate matter, benzene and sulphur dioxide - all of which have potentially negative long and short term health impacts.

211. In Greenwich, latest (2013) data suggests 6.6% of all-cause mortality is attributable to particulate air pollution: this is similar to the London-wide level of 6.7%, and is down from 7.2% in 2010.

212. The National Policy Statement for National Networks requires a developer to take ‘account of the impact of the scheme - any significant air quality effects, their mitigation and any residual effects, distinguishing between the construction and operation stages and taking account of the impact of road traffic generated by the project’. The impact has only been assessed with reference to the case where induced and latent demand has been successfully suppressed by the use of road user charging. No account had been taken of potential environmental impacts should the road user charging mechanism fail to work as designed.

213. The Environmental Statement (ES) states that particulate matter and nitrogen dioxide are harmful to health in high concentrations. It is the case for at least particulate matter and increasingly for nitrogen dioxide that any concentration of these pollutants are harmful to health. Therefore any increase should be seen as significant. Particulates are shown not to be affected by the scheme, though there are instances of where Nitrogen Dioxide levels will be made worse.

214. RBG raised several concerns regarding the methodology used in the PIER for the noise and air quality assessment. Many aspects of the pre-Application methodology have been addressed in the ES but questions over the validity of the traffic forecasts draw attention to the nature of the noise and air quality assessments and the requirements to meet current standards, to fully mitigate adverse effects and to quantify any residual impacts.

215. It is not helpful to refer back to the IEM and IHT guidelines for the assessment of environmental impact that were developed in the early 1990’s, especially when the IEMA updated its guidance in 2006 and beyond.

216. A Design Year of 2036 has been added to the assessment in line with the requirements of DMRB.

217. To undertake the local air quality assessment concentrations of Nitrogen Dioxide (NO2), Particulate Matter less than 10 microns (PM10), and Particulate Matter less than 2.5 microns (PM2.5) have been predicted using the ADMS-(Roads) detailed dispersion model for the following scenarios:
• Base Year (2012) – the base year scenario is modelled to characterise the Baseline air quality environment (identify the areas where there are current exceedances of the AQS objectives) and for the purposes of model verification (the comparison of observed 2012 concentrations with modelled 2012 concentrations), the verification approach is explained in Appendix 6.B - Model Verification (Document Reference: 6.3.6.2).

• Reference Case (2021) – predicted future Baseline air quality environment in Scheme opening year 2021 without the Scheme.

• Assessed Case (2021) – predicted environment in 2021 with the Scheme in operation with user charges.

218. An ADMS model has been used to assess air quality change (as opposed to using the IMMI software air quality submodel).

219. Nitrogen Dioxide Diffusion Tube monitoring has updated the preliminary analyses.

220. The monitoring site WL4 Crooked Billet located in the London Borough of Waltham Forest recorded the highest number of exceedances of the 1 hour mean AQS objective (not to be exceeded more than 18 times per year), with the highest number of exceedances being 116 for the year 2014. The highest annual average NO2 concentration was recorded at the Woolwich Flyover monitoring station located in RBG of Greenwich, with a concentration of 75 μg·m⁻¹ for the year 2014.

221. The traffic change criteria set out in the DMRB have been used to define the ARN for the local air quality assessment. The DMRB traffic change criteria are as follows:

  • road alignment will change by 5m or more; or
  • daily traffic flows will change by 1,000 Annual Average Daily Traffic (AADT) or more; or
  • Heavy Duty Vehicle (HDV) flows will change by 200 AADT or more; or
  • daily average speed will change by 10 km/hr or more; or
  • peak hour speed will change by 20 km/hr or more

222. The following major roads trigger the DMRB criteria (Drawings 6.1 – Study Area (Document Reference: 6.2))

  • A282 Dartford Crossing
  • A102 (Greenwich) to A2/A2213 Junction
  • A1203 Aspen Way and Lower Lea Crossing
  • A1011/A1020 Silvertown Way and Royal Albert Way
  • A12 (from Junction with A102 North to A106 Junction)
  • A13 Alfred’s Way to Canning Town
  • Blackwall Tunnel (both directions)
• Silvertown Tunnel and new supporting infrastructure

223. The results of the Base Year (2012) modelling are presented in Table 6-15 and show that the majority of representative receptors exceed the Annual AQS Objective for NO2. The Annual Mean AQS Objective for NO2 is exceeded at 41 of the 52 representative receptor locations.

224. The highest concentration is predicted at R5, which is a property located immediately east of the A102 flyover that crosses A206 Woolwich Road.

225. The results of the modelling indicate that there are both improvements and deteriorations in air quality at sensitive receptors due to changes in traffic as a result of the Scheme. The modelling also indicates that where conditions are made worse that AQS Objectives could be achieved by second floor height. No mitigation is proposed as it is argued that the modelling is robust and that subsequent to opening, emission factors will reduce the likely exceedances.

226. No air quality mitigation for Nitrogen Dioxide is proposed, therefore questioning the role and application of the London Wide Air Quality Neutral Strategy, irrespective of the questions that have been raised in respect of the quality of traffic forecasts that have been used to inform the air quality dispersion modelling process and the status of major schemes within environmental appraisal.

227. RBG has significant concerns regarding the proposed monitoring approach to air quality and noise issues and would wish to secure monitoring for air quality monitoring at all locations where congestion on local road junctions are expected to increase as a result of higher flows during the reduced duration of the ‘peak flow’ hours forecast by TfL. TfL should also undertake to include the use RGB’s monitoring data on air quality in assessing the environmental impacts of the project.

228. RBG is proposing to set up additional real time air quality monitoring station in the Greenwich Peninsula to assess levels of nitrogen dioxide, fine particulate matter and (possibly) sulphur dioxide. The exact location of the station is yet to be confirmed but is expected to be in the vicinity of Christchurch Way. RBG wishes for this to be integrated into the scheme.

229. In terms of noise and vibration, a methodology has not yet been developed to assign the importance/sensitivity of a resource/receptor. The sensitivity of a resource/receptor is based upon professional judgement and the guidance notes of Noise Policy Statement for England (NPSE).

230. In contrast to the WHO criteria, the Noise Policy Statement for England seeks to avoid ‘significant adverse impacts’ and distinguishes these from the more stringent ‘Lowest Observable Adverse Effect Levels’ used to set the WHO’s ultimate night-time noise target by referring to ‘Significant Observed Adverse Effect Levels’ SOAEL i.e. the levels above which significant adverse effects on health and quality of life occur.

231. It appears that the NPSE does not promote or otherwise sanction the ultimate WHO night noise target of $L_{night}$ externally of 40dB(A) as an overall policy objective. Instead it seeks to promote a more realistic and achievable target in order to avoid significant adverse effects.

232. RBG expects that development will not cause existing noise levels to increase when measured at one metre from the façade of the nearest noise sensitive premises. IAN 125/09 shows that significance based upon professional judgement should not be used, and that the magnitude of change should be presented and assessed in line with DMRB. To that effect
the number of dwellings affected and the number of persons annoyed should be detailed in advance of the need for a mitigation strategy to be drawn up.

233. RBG consider that the use of the 2010 NPSE criteria in preference to the WHO guidelines leads to the level of significant impact being diminished.

234. RBG would like to be reassured that the noise monitoring at the Silvertown Tunnel southern approach road is adequately covered. NML8 is likely to be significantly impacted by noise from the existing approach road. The masterplan for the area includes housing from first floor level on the northern side of the approach road and will also have housing on the south side of the approach road close to the tunnel. RBG would like noise monitoring to reflect the significant changes in noise levels where the new southern approach road will be built. The exact location of any additional monitoring will depend on where the portal is.

235. The delivery of the scheme depends on various plans and strategies mentioned in the document. These include but are not limited to a construction environmental management plan CEMP and Code of Construction Practice CoCP. Where consent is given by a local authority, for a scheme then this is enforced by planning conditions issued under the scheme. It is not clear what, if any powers Greenwich has to enforce compliance with these documents on the builder. The DCO should give powers to the host boroughs to enforce environmental good practice.

236. The CEMP is approved by TfL, the applicant. RBG would require the borough to approve the CEMP as it is borough residents impacted by the construction.

237. RBG accept that the TBM and associated spoil removal shall operate on a 24 hour basis. Spoil removal from the tunnel drive northwards from Greenwich is proposed to be through the tunnel from Silvertown Tunnel which shall be dug first. Spoil removal from the northbound shall be arranged so that any noise from the operation shall be inaudible at the nearest noise sensitive premises outside RBG normal working hours.

238. Noise levels at Siebert Road are discussed in detail in the Written Representation (5.7), and although outside the Scheme Limits of Deviation, RBG would wish to see the mitigation for addressing this (through a separate legal agreement) confirmed by the DCO.
I. PUBLIC HEALTH

239. This section is again caveated in as much as RBG does not accept the outputs of the Assessed Case model for reasons set out earlier in this document and in the Written Representation.

240. The biggest health impacts from the tunnel itself are likely to come from air quality and noise related effects. A summary of evidence is presented below – the relationship between air quality and health is well established. The Health Impact Assessment presented by TfL suggests that there is unlikely to be any negative impacts as a result of the tunnel. As with so much of the potential issues with the tunnel, this is predicated on the traffic model which predicts reduced levels of traffic and congestion when Silvertown is operational. If this is to be the case, then whilst the construction phase health impacts will continue to need to be monitored and mitigated where appropriate; the overall health impacts of the tunnel may be less significant. However, Blackwall tunnel is considered to be a significant cause of air pollution so the area is unlikely to be improved in terms of air quality.

241. If the tunnel was to be used to full capacity it is likely to have much more significant impacts on Air Quality with associated health impacts in an area of the Borough which already has poor Air Quality. There are also concerns that congestion caused elsewhere in Greenwich will lead to additional health issues away from the immediate tunnel velocity. Groups that are particularly vulnerable to health impacts of air pollution include very young children, older people and those with existing respiratory symptoms. Evidence suggests that living close to major roads has potentially detrimental health effects, with the increased numbers of dwellings planned for the Peninsula; the assessment should be mindful of the impact on the incoming residents, especially children. This is equally true to the construction phase where appropriate dust mitigation measures are essential to minimise negative impact on particularly children’s health.

242. RBG is concerned that the reporting in the Health Impact Assessment for the scheme states that “the quantitative assessment has identified that the long-term health impacts resulting from the implementation of the Scheme, in terms of AD and ALY, are expected to show zero change for the population studied for PM2.5 and PM10. For NO2, a zero change is recorded for AD, with a negligible change (-0.123) recorded for ALY. For short-term health impacts (for example hospital admissions as a result of cardiovascular and respiratory diseases), the implementation of the Scheme will not lead to any significant change.” – p271. However this analysis is based on a traffic model that predicts that the levels of traffic passing through Silvertown in operation will be in the same region as the current numbers through Blackwall. If this is not the case, then the impact is likely to be much more significant.

243. In the preceding paragraphs in this local impact report RBG has highlighted the issues associated with traffic being displaced to use the Woolwich Ferry. Additional HGV traffic choosing to use Silvertown as oppose to routes outside London e.g Dartford or choosing to use the Woolwich Ferry as oppose to the charged Silvertown tunnel risks additional congestion in the tunnel areas and surrounding areas of heavily polluting vehicles, with potentially negative impacts on active travel, pedestrians or the low emissions neighbourhoods interventions.

244. TfL’s own requirements for Low Emissions Neighbourhood (LEN) schemes included a requirement for a focus on improving health as part of the measures introduced. The location of the Greenwich LEN (directly to the west of the A102) and the success of the measures it has introduced could be at risk if congestion or traffic displacement as a result of Silvertown.
245. Vulnerable Groups: RBG has taken a vulnerable groups analysis as part of considering the local impacts of the proposed Silvertown tunnel.

<table>
<thead>
<tr>
<th>Vulnerable Groups</th>
<th>Potential impact of Silvertown Tunnel on RBG population</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age related groups</strong></td>
<td>- <em>Potentially Significant</em> - these groups are most effected by air pollution. TfL analysis does not currently breakdown the impact across the life course. If traffic flows are reduced as predicted this may not be the case. Any reduction in physical activity/active travel as a result of residents opting to use cars as oppose to more active means of transport has potentially negative impacts: encouraging activity in childhood is likely to lead to increased activity throughout the life course with positive protective health effects.</td>
</tr>
<tr>
<td>- Children and young people</td>
<td>- <em>Significant</em> - health risks associated with air pollution are higher for older people than the general population. Factors which have been shown to impact on the travel opportunities for older people include: heavy motorized traffic; frequency and access to public transport; inadequate lighting; street conditions; air pollution; and perceived issues of safety due to traffic volume and speed and lack of infrastructure for walking and cycling.</td>
</tr>
<tr>
<td>- older people</td>
<td></td>
</tr>
<tr>
<td><strong>Income related groups</strong></td>
<td>The health impacts of air pollution are more strongly expressed in areas of deprivation due to lower health status. Access routes to the tunnels cut through particularly deprived areas of the Borough with associated health impacts. The populations that will live in the immediate proximity to the tunnel’s entrance are emergent with the new developments on the Peninsula so it will require careful monitoring to ensure any negative impact is minimised. Around the existing Blackhall tunnel approach live highly deprived communities already vulnerable to negative health impacts. Neighbourhood improvements are positively protective towards mental</td>
</tr>
<tr>
<td>- people on low income</td>
<td></td>
</tr>
<tr>
<td>- economically inactive</td>
<td></td>
</tr>
<tr>
<td>- unemployed/workless</td>
<td></td>
</tr>
<tr>
<td>- people who are unable to work due to ill health</td>
<td></td>
</tr>
</tbody>
</table>
246. The health impacts of poor air quality are greatest for those with pre-existing respiratory and cardiovascular conditions and the very young and old. It can lead to reduced activity, hospital admissions and premature mortality. Although exposure is unavoidable, it is currently believed that any level of pollutant in the atmosphere has a potentially negative impact on human health, therefore there is no safe level of exposure and efforts should be made to reduce exposure across the population especially as the relationship is believed to be causal.

247. Road transport is the primary source of emissions responsible for respiratory deaths in England. Research suggests that reducing particulate emissions from motor vehicles could significantly reduce the number of deaths. Increasing use of motorised transport is further a key factor in declining physical activity within the UK. Whilst EU limits are set, it is recognised that there are potential impacts on human health of particulates at any level and means actions to reduce pollutants even when their concentrations are within legal objectives can still have health benefits.

248. Noise: Transport, and significantly road vehicles, is the leading cause of noise pollution. Noise can have a wide range of impacts on health including sleep disturbances, mental wellbeing, cardiovascular (blood pressure), elevated hormone levels, reduced quality of life and cause cognitive impairment, worsened behaviour in children.

249. Inequalities: Air pollution is strongly associated with deprivation. Residents in more deprived areas are more likely to live closer to roads with higher levels of air pollution (in part due to desirability of property away from major roads) meaning that they have higher risks of exposure. Additionally, given the relationship between deprivation and poorer health status, the impact of the same level of exposure to air pollution is more acute than those living in less deprived areas. The Environment Agency estimates that people living in the most deprived quintile experience over five times the exposure to common air pollutants than those living in the least deprived quintile. A focus on improving air quality therefore has a health inequalities benefit as well.
J. SUSTAINABILITY

250. RBG is satisfied that the relevant regulatory and policy frameworks have been applied to terrestrial ecological assessment by TfL and that ecological survey methods and timing of site visits were suitable.

251. Regarding the other TfL submissions noted (Energy and Sustainability statement), and additionally the design principles related to these, RBG would strongly recommend that TfL is required to include and install low zero carbon technology to building design rather than solely ‘consider’ it.

252. Ecological surveys found that the invasive species Japanese Knotweed and Virginia Creeper were identified on site; and that the site contains suitable habitat for nesting birds, including Black Redstarts which is a RBG priority species. 311 invertebrates species were identified in the ecological field surveys, including two species listed in the Red Data Book as at risk of extinction, these being toadflax brocade moth (Calophasia lunula) and ground bug (Stictopleurus punctatonnervosus). Additionally, 17 nationally scarce species were also identified during the surveys. RBG does not have the expertise to comment on the impact of the development on the two species identified as at risk of extinction and the seventeen nationally rare species. It recommends that further details are provided of what habitat these species utilise on site, if these habitats are to be removed during the development, if so, they will be replaced.

253. RBG is of the opinion that ‘slight adverse’ is too vague in its description of the impact on the biodiversity of the area. It recommends that more detailed estimates of what types of plants and animals are to be impacted with the removal of the habitat to ensure that mitigation measures can cater for these species.

254. Figures in the PEIR suggest that there will be a 6,180m² reduction of semi-natural habitat from the site; RBG are unclear on how connected the mitigation measures are, where possible mitigation measures form one larger area rather than several smaller unconnected parcels.

255. If further endeavours to mitigate the shortfall in habitat loss and if mitigation is not feasible on site, RBG would not object to the funding of habitat creation off-site.

256. Further to the above comments on the PEIR, subsequent discussions with TfL have been had regarding a mitigation strategy and offsetting of habitat loss on site through financial contribution meant for creation of habitat off site (for example meeting of 12th September). RBG have the following comments on these discussions:

- While RBG are supportive of using a financial offset for TfL not meeting the required habitat mitigation levels, the calculations associated with the end value are vague or not presented transparently.

- The methodology for determining the constituents and proportion of the ‘brownfield mosaic’ habitat and the value attributed to this is unclear.

- RBG is unclear as to whether the habitat created on the northern side of the tunnel contributes to the mitigation measures for the southern side of the tunnel. We would require the appraisal of habitat and subsequent mitigation to be confined to RBG and not influenced by those measures undertaken outside of the Borough.

- RBG do not agree with the valuation of Japanese knotweed (and other invasive species) as having a negative ecological value (thereby reducing the mitigation levels
required via their removal). RBG believe that i) Japanese knotweed and other invasives provides greater habitat than concrete/asphalted ground; and ii) The removal of Japanese Knotweed is a statutory requirement and not one that is being undertaken for biodiversity reasons.

- In those areas where landscaping is proposed near roadways, a demonstration of the hierarchy of regulatory factors should be produced. i.e. does the landscaping need to be amenity grass for a specified distance from the road to ensure that a clear line of sight can be maintained by drivers and signage? Where measures limit the landscaping to amenity grass, these areas should be classified as having a habitat rating of zero and be mitigated elsewhere.

- RBG notes that in the design principles TfL suggests their provision of offset would be in accordance with ‘Scheme specific BAP in the Environment Statement Appendices’. RBG would require that the design of any offset elsewhere in the Borough should also involve RBG.
K. ECONOMIC IMPACT OF THE SCHEME

257. RBG has some of the highest indices of multiple deprivation in the country. This is recognised in the TfL Report 7.8.4 Distributional impacts of Appraisal figure 2-8 which illustrates the Indices of Deprivation (income) with particular regard for the areas close to the proposed scheme. It can be seen that some of the most deprived LSOAs are in Greenwich in close proximity to the proposed scheme. These low income groups are subject to the poor air quality and noise impacts associated with the Blackwall Tunnel traffic. These households often do not have access to private cars (42% of households in RBG do not have access to a car). The benefits of the scheme for these groups of people are realised only through the provision of enhanced public transport services through the provision of the bus services through the Silvertown Tunnel.

258. The proposed charging scheme will particularly impact on low income groups in RBG as drivers in the Borough will be charged the full charge in both the morning and evening peak. RBG considers that this is a disproportionate impact considering that low income groups have net benefits in time benefits in 2021 (including reliability) of only £1.7m compared to medium to high income groups on the study area whose benefits in time and reliability are £6.5m in 2021. (Table 3.1 in TfL Report 7.8.4 cites the net benefits for car users in the study area that includes RBG.)

259. The review of the Outline Business Case (TfL Report 000238 - 7.8) - the Strategic Case does not present a detailed understanding of the difference in the AM and PM peak flows and operation of the Blackwall Tunnel is considered a significant omission from the Strategic Case report along with the issue that there lacks highway capacity data in relation to
alternative crossings which is considered important when considering the potential for displaced traffic movements resulting from the imposition of user charges.

260. The effects on economy are considered with the focus upon the impact that delays have upon business operations. It is important to note that this analysis is conducted within the context of setting out the potential strategic benefits if delay could be mitigated; however, it is conspicuous in the omission of the application of user charges. There are a series of references to data indicating the benefits to business from reduced travel time and improved journey reliability but this is not set in the context of having to pay for these improvements. This makes it difficult to conclude whether the net impacts are positive for business. This is an important consideration, particularly as the later economic case suggests that LGV and HGV vehicle movements could engender net disbenefits as a result of the user charges that will apply, suggesting the scheme may not be good for all business operations.

261. The report suggests that the proposed scheme will permit business to connect to other businesses on the opposite side of the river more easily. Putting to one side the issue of user charges (which again is not addressed), there remains the question of how businesses respond to this enhanced connectivity.

262. It is unclear whether this relates to lower costs for business (through time saved) or whether it will encourage more trips as they try and connect more frequently to these (or new) businesses. Since a central part of the business case is that vehicle trips are not forecast to increase, this implies a redistribution of road capacity between business and other users.

263. The section on the impact on freight provides relatively limited commentary but is focused on the need for reliability. This is not set within the context of user charges, which are relatively high for freight movements and for which the economic case indicates may result in negative net benefits.

264. The assessment approach for the economic case is based upon the outputs from the RXHAM and Railplan modelling work (Assessed Case), and as has been made clear throughout this document and RBG’s other submissions the model outputs have not been agreed by RBG. The Business Case is however, reliant upon the Assessed Case outputs, including the bus service improvements.

265. There is no flow data or delay data presented as part of the Economic Case. There is also reference to local junction modelling work; however, this is not subsequently presented or referred to throughout the document.

266. The primary outputs for the Economic Case are predicated upon maintaining current traffic flows across the A102 corridor, with minimal displacement of trips to alternative routes. The absence of user charges upon the Woolwich Ferry and Rotherhithe Tunnel represents a risk to the latter assumption, whilst the ability to accurately forecast user charge elasticities in the face of substantial sub-regional growth represents a risk to the former.

267. The documentation infers that the user charges will be applied to optimise journey time-savings. It is worth noting, however, that whilst the business case is predicated on maintaining current traffic it also appears to assume no increase in charges (in real term) across the appraisal period, despite the predicted growth in the East and South East London Sub-region. There is also no reference to social equity in consideration to user charges and limited discussion upon the potential impact across different users groups.

268. It is clear that the outlined enhancement to bus provision is an important element of the business case. Between 50% and 60% of user scheme benefits are forecast to be derived
from bus and coach users. Whilst it is acknowledged that the Scheme will permit substantial revisions to bus service operations, and that such revisions would be welcomed, and clearly beneficial, the bus routes incorporated within the Assessed Case are not, as yet, secured through the DCO. This represents a considerable risk to the business case.

269. In general the structure of Economic Assessment Report appears to follow DfT guidance and has appreciation of the required appraisal procedures.

270. The user benefits are reliant upon the application of values of time. It is understood that standard UK values of time have been applied throughout the appraisal. A separate sensitivity test applies the London-specific values of time. The choice, and influence, of the values of time is not fully considered within the documentation.

271. The estimation of costs sets out the investment costs, costs incurred to collect user charges, and bus operating costs. No optimism bias has been applied to the investment costs. This is considered unusual, even for a well-developed scheme. No detailed analysis of the cost breakdown has been undertaken so it is unclear as to the levels of contingency included; however, it would normally be considered prudent maintain some level of optimism bias at this stage.

272. The costs to collect user charges incorporate both infrastructure and on-going costs. There are also on-going bus operating costs. From the information presented these would appear to be appropriately considered.

273. The estimation of benefits has generally been assessed within TUBA but with some notable adjustments:

- Reduction in weekend benefits
- Addition of bus and coach benefits
- Additional journey time savings from reduced incidents
- Reliability benefits

274. A separate assessment of benefits from bus service improvements has been undertaken, using outputs from Railplan and LoRDM. The document does not indicate why this assessment was not carried out within TUBA, which would be standard practice for a scheme of this scale. Whilst there are no notable issues with the approach adopted it would be preferable to maintain a standard approach. This is particularly the case given the relative importance of these benefits to the overall business case.

275. The calculation of annualisation factors is not stated within the EAR and are not overtly clear, although reference to another document by Arcadis is provided. It is assumed that the peak hour model data has been factored down to represent the overall AM and PM peak periods.

276. Fixed user charges have been applied over time within the Assessed Case. These don’t seem to correlate precisely with the other quoted figures in Table 3-1 in the main Business Case document (ref 7.8), despite the acknowledged change in the price base. Higher user charges are applied for ‘high growth’ scenario, confirming the apparent intention to restrict demand through higher charges.

277. In setting out the underlying calculation for a number of benefits, e.g. accident benefits, there are specific quantified numbers presented but with little discussion of potential causal links that are inferred or any apparent sense-checks of the outputs. For example, a description of
why it would be expected that accident benefits will be positive would help support the quantified case presented. However, this conclusion is also at odds with RBG’s concerns regarding Road Safety, and discussed earlier the document.

278. Journey time reliability benefits are presented separately from the core transport economic efficiency analysis, as required by DfT procedures. They include both standard assessment of reliability that examines the variance, or standard deviation, of journey times, but also more bespoke assessments of the impact of incidents that currently lead to the closure of the Blackwall Tunnel. Whilst the approaches adopted are considered logical, the fact that they include non-standard approaches means it is important that the benefits are clearly isolated form the main output data.

279. The economic assessment results sets out a range of monetised impacts. The majority of these are aggregate in nature, with relatively limited breakdown in costs and benefits. The key overarching results include:

- The highest benefits are forecast for bus users, followed by car (business)
- There are limited net benefits for car (commuter + other)
- There are potentially negative benefits for LGV/HGV
- 39% of benefits are derived from within the 15 PM peak hours
- Only 19% benefits are from within 20 AM peak hours
- 28% benefits in 45 inter/off peak hours

280. The extent of the benefits for bus users provide strong evidence for the need to secure the provision. The high benefits for car business users, reflects their high value of time, which means the journey time savings are worth more to them and so off-set the user charge. This highlights the challenge in establishing user charges by vehicle types that actually encompass a wide range of user groups.

281. The net benefits for non-business car drivers are relatively small and for LGV and HGVs there are potentially negative. Whilst the EAR suggests that standard values of time do not capture all of the benefits for these trips, it none-the-less highlights the impact of user charges and how this can affect both freight trips and non-business trips.

282. The geographic distribution of benefits is relatively limited in scope, only presenting the data at borough level. There is no assessment of impacts on business at a local level and so the analysis does not take into account local characteristics of businesses, such as levels of SME who are likely to be more affected by the user charges than larger corporations.

283. The Transport Economic Efficiency, Public Accounts, and analysis of monetised costs and benefits provide an overarching summary of the monetised outputs. These are presented within a standard format and demonstrate a clear overarching benefit for the scheme, primarily as a result of the user charges negating the costs of the scheme. Whilst the economic case for the overall scheme would appear clear, there remain concerns over some of the distributional impacts that will affect specific socio-economic groups and businesses.

284. A full review of the distributional analysis is presented within the Distributional Impacts Appraisal review section; however, the summary within the ‘Economic Case’ sets out the underlying premise that the Blackwall Tunnel is only used by medium-higher income groups and so the introduction of user charges will have limited impact. This is considered a generic
response and fails to recognise the varying needs of both residents, as well as local businesses. This is particularly the case as it is clear that the user charge will be utilised to maintain current traffic flows that will inevitably require charge increases over time that will affect both lower income groups and SME operations.

285. The user benefits assessment in the distributional impacts appraisal does not apply TAG guidance to assess benefits at LSOA level. The reason stated in the report is that “the size and strategic nature of the model... makes it less relevant”. Benefits have, therefore, only been assessed for two income groups - low income and medium/high income. This approach means that RBG has not been able to determine the full extent of the economic impacts on the residents of RBG.

286. Business trips have been removed from the TUBA analysis of economic user benefits to leave only commuting/ other trips. The split between the defined low income and medium-high income groups has then been applied, although the process by which this was achieved is not provided. The analysis conducted is considered simplistic and not overly informative.

287. The conclusions are strongly influenced by the assumption that low income groups will represent a high proportion of frequent bus users who will utilise the new crossing, whereas higher income groups will form the majority of car users. This provides very little insight into how the accrued user benefits will be more broadly distributed across society and whether any specific groups will be adversely affected. There is also no ability to assess how user groups within individual geographic areas, e.g. within RBG, benefit or otherwise.

288. The ‘Economic Case’ sets out an overview of the social analysis incorporates a range outputs that are reliant upon the modelling assumption that current traffic flows are maintained. This includes the accident analysis and severance, as well as to a lesser degree journey quality. Similarly the assessment of option values / non-use values and accessibility are reliant upon the proposed bus service enhancements, which are not guaranteed.

289. The Noise and Air Quality assessments take outputs from Environmental Statement. These assessments also utilise the outputs from the assessed case model which have not be agreed by RBG. There is insufficient information presented to review the distributional impacts in detail; however, relevant TAG procedures appears to have been consistently applied.

290. The assessment of Accidents considers how the overall benefits identified impact upon a range of user groups:

- Walking
- Cycling
- Motorcyclists
- Children
- Young males,
- Older people

291. The analysis concludes that walking & cycling will have a neutral impacts whereas there will be a slight benefits outcome for motorcyclists, children, young males, older people. For all of these groups the total number of links with adverse impacts is actually higher than beneficial links; however, there are more large/moderate beneficial changes and only slight adverse impacts.
292. As established within the social impact appraisal, the analysis of Severance concludes that it only the Silvertown area within London borough of Newham is affected by the scheme. In particular, the analysis concludes there are no significant changes to flows in RBG that might affect severance. This outcome is fully dependent upon the assumption of zero traffic growth through controlled charges.

293. The analysis of Security concludes that the scheme not is expected to have any impact on security. This would appear to be a reasonable conclusion for a scheme of this nature.

294. The assessment of Public Transport Accessibility considers how the proposed enhancements to bus services impacts upon accessibility to key destinations, including town centres, hospitals, and Universities The assumed bus enhancements include:

- Increase in 108 service frequency
- Extension or re-routing of three further bus routes via tunnel
- Two new route via tunnel: Eltham – Beckton; Grove Park – Canary Wharf

295. An impact area is defined as 400m from these proposed routes and the assessment identifies changes in the opportunity to access bus services and the journey times to key destinations. The key overall results indicates that there is a:

- 4% increase in the population within 15 minutes of a major town centre
- 13% increase in population within 15 minutes of a hospital
- 20% increase in population within 20 minutes of a University campus

296. None of the analysis provides any commentary to validate the findings, such as which residential areas become within a 15 minute catchment of a major town centre as a result of the scheme.

297. The analysis then considers the impacts specifically for older people, with the key findings:

- 2% increase in the old age population within 15 minutes of a major town centre
- 10% increase in the old age population within 15 minutes of a hospital

298. These outputs suggest that older people benefit less than general populous. The analysis also considers the impacts specifically for people with a disability, with the key findings:

- 3% increase in the population of people with a disability within 15 minutes of a major town centre

299. These outputs suggest that people with a disability benefit less than the general populous. The analysis also considers the impacts specifically for households without access to a car, with the key findings:

- 5% increase in the population of people without access to a car within 15 minutes of a major town centre
- 8% increase in the population of people without access to a car within 15 minutes of a hospital

300. These outputs suggest that people without access to a car gain better access to town centre than general populous but benefit less than the general populous in terms of access to a Hospital. The analysis also considers the impacts specifically for Young People, with the key findings:
• 16% increase in the young age population within 20 minutes of a University Campus

301. These outputs suggests that young people benefit more than the general populous.

302. Again there is no commentary that explains, or verifies, how these benefits are derived and for which geographic area. It is therefore not possible to consider the impacts directly for RBG.

303. The assessment of personal affordability considers:

• Car fuel and non-fuel costs
• User charges
• Public transport cost due to mode shift from Underground/Rail to bus

304. The same approach, and categories of analysis, are adopted as for the assessment of user benefits. It is not clear how the split between the defined low income and medium-high income groups has been undertaken.

305. The analysis concludes that for fuel and non-fuel costs in 2021:

• Low income groups = £0.3m net reduction
• Medium-high income group = £0.7m net reduction

306. The medium-high income groups, whilst a smaller proportion of society, gain a higher proportion of the benefit, so the analysis concludes that they have a large benefit in comparison to the low income group.

307. The analysis concludes for user charges in 2021:

• Low income group = -£2.2m net reduction
• Medium-high income group = -£6.2m net reduction

308. The medium-high income groups are a smaller proportion of society and have the greater increase in user charges, so the analysis concludes that they have a large adverse impact. Both the analysis of fuel/non-fuel costs and user charges affordability is considered to be simplistic in nature and uninformative as an overall evaluation of distributional impacts. A more detailed assessment is required, in particular in relation to user charges, to understand the implications of the scheme on different user groups.

309. The analysis states that whilst the enhanced bus package will encourage mode shift from underground/ rail to bus, as well as new demand, it is not deemed feasible to quantify these different elements. The analysis simply concludes that the benefits will be apportioned in the same manner as public transport user benefits.

310. A broad consideration of affordability at borough level is presented. This indicates that bus enhancements will provide affordability benefits to RBG residents wishing to travel north across the Thames. This relates only to those switching from underground/rail to travel by bus instead. The analysis also states that the vast majority of trips will be when user charges are at off-peak levels or when there is no charge; however, there is no evidence to support this assumption.

311. The analysis does recognises that some low income groups will be affected by charges, particularly commuters who are unable to switch to public transport alternatives. Whilst this is definitely considered to be true, it is also considered that much greater analysis could be conducted on the impacts of affordability of low income groups.
L. MONITORING AND MITIGATION - TRAFFIC IMPACT MITIGATION STRATEGY

312. The TfL Report 7.6 Monitoring Strategy and Report 7.7 Traffic Impact Mitigation Strategy set out a proposed approach to monitoring along with an approach to taking forward mitigation once the scheme has implemented. Localised measures are not specified in the dDCO (para 1.1.4 pg 9 Traffic Impacts Mitigation Strategy).

313. RBG has requested TfL to include “triggers” for the proposed traffic monitoring metrics which would be used to provide a transparent evaluation framework for necessary mitigation. This framework would demonstrate the need and provision for mitigation measures both on the TLRN and the local road network.

314. RBG has put forward to TfL a set of metrics, for example queue length, Degrees of Saturation at junctions as well as journey time savings and journey time reliability. This approach is particularly relevant for RBG given the concerns documented in this local impact report regarding the A102/A2. Severance issues should also be monitored with particular regard for pedestrians and cyclists given the lack of proposed mitigation for these users within the dDCO.

315. Mitigation implementation needs to be timely and funding for mitigation should be specifically allocated within the DCO. Any mitigation should be developed and evaluated using local traffic models to overcome the issue of the strategic models (RXHAM and Railplan) not being sensitive enough to evaluate local impacts.

316. The proposed Monitoring Strategy Report 7.6 establishes the parameters for monitoring traffic, air quality and carbon, noise and socio economics. The current arrangements for monitoring each of these topics are discussed in the various sections of this report, but and deemed inadequate by RBG.

317. As discussed above it is essential that triggers are agreed for the assessment of appropriate mitigation. It is noted that the current monitoring strategy contained no fall back position if the scheme objectives are not met.

318. The geographical scope of the proposed monitoring is considered appropriate, however, the extent of the air quality and noise monitoring is not deemed sufficient. RBG would wish that the points contained earlier in the report are fully addressed, and that all junctions currently under stress in the A102/A2 corridor and in the vicinity of Woolwich Ferry and Greenwich town centre are included in the proposed monitoring strategy for air quality.

319. The proposed strategy includes the proposed timing and duration of traffic monitoring. RBG would wish to see the shoulders of the peak as well as the peak hour monitored for changes in traffic behaviour. This approach will be important to ascertain whether the proposed scheme has increased peak spreading and also to evaluate the impact of the consolidation of the peak.

320. As discussed in the preceding section, the monitoring plan for socio economic impacts lacks specificity regarding the income groups and type of businesses that will be surveyed. RBG would wish to ensure that small businesses are well represented in the business survey in order to capture any unintended consequences of the user charge. This group is particularly sensitive to pricing as shown in the TfL Silvertown Crossing: Summary of data collection Travel in London Supplementary Report June 2016.
321. RBG does not support the current arrangements proposed for STIG. There is no surety within the current arrangements that required mitigation can be implemented in a timely manner with appropriate funding. RBG would wish to see an emphasis placed on the host boroughs’ involvement in the determining and implementation of necessary mitigation. This is discussed in detail in Section12 of the Written Representation, and in RBG’s comments on the dDCO (below).
## APPENDIX 1: JUNCTION ANALYSIS

<table>
<thead>
<tr>
<th>Junction Description</th>
<th>Inc Y/N</th>
<th>Commentary (Ref Case v Assessed Case)</th>
<th>Inc Y/N</th>
<th>Commentary</th>
<th>Inc Y/N</th>
<th>Commentary</th>
<th>Inc Y/N</th>
<th>Assessed Case</th>
<th>Ref Case to Assessed Case Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creek Road / Greenwich Church Street (North West Junction)</td>
<td>Y</td>
<td>AM Peak: +1 to +10</td>
<td>Y</td>
<td>Table C1: No additional delay for any users</td>
<td>N</td>
<td>N</td>
<td>Y</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Greenwich Church Street / College Approach (North East Junction)</td>
<td>Y</td>
<td>AM Peak: No effect</td>
<td>Y</td>
<td>Table C1: No additional delay for any users</td>
<td>N</td>
<td>N</td>
<td>Y</td>
<td></td>
<td></td>
</tr>
<tr>
<td>College Approach / King William Walk</td>
<td>Y</td>
<td>AM Peak: No effect</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td></td>
<td></td>
</tr>
<tr>
<td>King William Walk / Romney Road</td>
<td>Y</td>
<td>AM Peak: No effect</td>
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Traffic Impacts Mitigation Strategy (Doc ref 7.7) (refers to Appendix C of Transport Assessment)

Monitoring Strategy (Doc ref 7.6)

SDG Assessed Case Report (v6)

Borough Impacts Note

Transport Assessment and Appendices (Doc ref 6.5) (delays expressed in passenger car unit hours) (Figs 7-26 to 7-28)

Traffic Impacts Mitigation Strategy (Doc ref 7.7) (refers to Appendix C of Transport Assessment)

Monitoring Strategy (Doc ref 7.6)

SDG Assessed Case Report (v6)

Borough Impacts Note

- AM Peak: average delay per user (mins) +0.5; total vehicle (hours) +12
- PM Peak: average delay per user (mins) +0.5; total vehicle (hours) +12
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<tr>
<th>Route Description</th>
<th>AM Peak</th>
<th>IP</th>
<th>PM Peak</th>
<th>Delay Type</th>
<th>Table</th>
<th>Notes</th>
<th>AM Peak - average delay per user (mins)</th>
<th>PM Peak - average delay per user (mins)</th>
<th>Total Vehicle (hours)</th>
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<tr>
<td>Nelson Road / Greenwich High Road / Greenwich Church Street (South East Junction)</td>
<td>AM Peak: No effect; IP: No effect; PM Peak: +1 to +10</td>
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<td>Romney Road / Park Row</td>
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<tr>
<td>Romney Road (Trafalgar Road) / Maze Hill</td>
<td>AM Peak: No effect; IP: -10 to -1; PM Peak: +1 to +10</td>
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<td>Table A-1: AM/PM Peak Junction delay, degree of saturation, journey time</td>
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<td>Table C1: No additional delay for any users</td>
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Table A-1 24 hr traffic flow (inc VCR) monitoring; AM/PM Peak Junction delay, degree of saturation, journey time

AM Peak: average delay per user (mins) +1; total vehicle (hours) +77
PM Peak: average delay per user (mins) +1; total vehicle (hours) +58

AM Peak: average delay per user (mins) 0; total vehicle (hours) +2
PM Peak: average delay per user (mins) 0; total vehicle (hours) -2
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<th>IP Effect</th>
<th>PM Peak</th>
<th>Table A-1</th>
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<th>PM Peak</th>
<th>Table A-1 AM/PM Peak Junction delay, degree of saturation, journey time</th>
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Table C1: PM Peak negligible (<30 seconds) delay increase per user at roundabout for traffic exiting the southbound A102.

Table C2: Mainline A102/A2 suffers from additional merging flow at two locations within close proximity, i.e. at the A207 Sun-in-the-Sands.

Solution: Permanent speed limit alteration to 40mph or Variable Mandatory Speed Limits (VMSL) to smooth traffic flow and improve capacity.

Adding a running lane by using the hard shoulder along the A2 southbound between the A102/A2 Sun-in-the-Sands off-slip and on-slip respectively and A205 Westhorne Avenue.

Table A-1 AM/PM Peak Junction delay, degree of saturation, journey time.

Y AM Peak - average delay per user (mins) 0; total vehicle (hours) 0  Y PM Peak - average delay per user (mins) 0; total vehicle (hours) 0

Y AM Peak - average delay per user (mins) 0; total vehicle (hours) 1  Y PM Peak - average delay per user (mins) 0; total vehicle (hours) 1
| A207 / A2 Sun in the Sands | Y | Table C2 The lane gain layout at the A207 Sun-in-the-Sands on-slip allows traffic unrestricted directly onto the A2 forcing A2 traffic wanting to leave the A2 at the Rochester Way off-slip to merge with the nearside lane. Solution: Permanent speed limit alteration to 40mph or VMSLs to smooth traffic flow and improve capacity. Introducing Ramp Metering on the Sun-in-the-Sands southbound on-slip and possibly other on-slips. Change lane gain layout to a standard merge layout onto the A2. Signalisation of the main roundabout at Sun-in-the-Sands. | Y | Table A-1 AM/PM Peak Junction delay, degree of saturation, journey time | N | Y |

| AM Peak - average delay per user (mins) | 0; total vehicle (hours) | +3
| PM Peak - average delay per user (mins) | 0; total vehicle (hours) | +3
| AM Peak - average delay per user (mins) | 0; total vehicle (hours) | +1
| PM Peak - average delay per user (mins) | 0; total vehicle (hours) | +1
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<td>A205 / A2</td>
<td>Y</td>
<td>AM Peak</td>
<td>No effect</td>
<td>Y</td>
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<td>IP No effect</td>
<td>PM Peak</td>
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<td>Table C2 2012 Base results, supported by on site observations, indicate that with a volume to capacity ratio of 95% on the A2 post merge with the A205 on-slip is likely to be unstable with significant queuing on the A2 in the PM peak period.</td>
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<td>Solution: Permanent speed limit alteration to 40mph or VMSs to smooth traffic flow and improve capacity.</td>
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<td>Introducing Ramp Metering on the A205 southbound on-slip and introducing a running lane using the hard shoulder along the A2 southbound through Eltham Tunnel would improve the performance and reduce delays along the link by providing additional capacity.</td>
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<td>Table A-1 AM/PM Peak Junction delay, degree of saturation, journey time</td>
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<td>Road Name</td>
<td>AM Peak</td>
<td>PM Peak</td>
<td>Y</td>
<td>Table C1 PM Peak negligible (&lt;30 seconds) delay increase for users approaching from westbound A206 or Bur-</td>
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<td>Shooters Hill Road / Academy Road / Well Hall Road</td>
<td>Y</td>
<td>AM Peak: No effect IP -10 to -1 PM Peak +1 to +10</td>
<td>Y</td>
<td>Table C1 No additional delay for any users.</td>
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<td>Kidbrooke Interchange</td>
<td>Y</td>
<td>AM Peak +1 to +10 IP -10 to -1 PM Peak +10 to +100</td>
<td>Y</td>
<td>Table C1 PM Peak negligible (&lt;30 seconds) delay increase per user in the A12 northbound approach - merge with traffic coming from A2213 Kidbrooke Park Road.</td>
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<td>A2 - close to Riefield Road</td>
<td>AM Peak</td>
<td>PM Peak</td>
<td>Y</td>
<td>AM Peak - average delay per user (mins) +0.5; total vehicle (hours) +13</td>
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<tr>
<td>Y</td>
<td>No effect</td>
<td>+10 to +100</td>
<td>N</td>
<td>PM Peak - average delay per user (mins) +1; total vehicle (hours) +59</td>
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<td>Y</td>
<td>Table C1 PM Peak just under one minute of additional delay per user along east-bound A2.</td>
<td>N</td>
<td>AM Peak - average delay per user (mins) 0.5; total vehicle (hours) +1</td>
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<td>Y</td>
<td>AM Peak - average delay per user (mins) 0; total vehicle (hours) +20</td>
<td>N</td>
<td>PM Peak - average delay per user (mins) 0; total vehicle (hours) +20</td>
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### APPENDIX 2: ISSUES MATRIX

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<th>RBG Issue</th>
<th>Action Required by TIL</th>
<th>Action required by RBG</th>
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<tr>
<td>Lack of evidence from the strategic model to validate local traffic, economic, socio and environmental impacts.</td>
<td>Local modelling required in addition to the strategic modelling that has been carried out.</td>
<td>Local models to be agreed with RBG,</td>
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<td>Lack of evidence from the strategic traffic model to reflect the socio economic characteristics in RBG</td>
<td>Further evidence required from TIL.</td>
<td>Evidence to be reviewed by RBG</td>
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<td>Lack of agreed local traffic models and their outputs.</td>
<td>Local modelled outputs required to assess local impacts.</td>
<td>RBG to review and agree local impacts.</td>
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<td>Lack of mitigation for impacts on Rotherhithe tunnel</td>
<td>Preparation of changes required under the GLA Act to allow charging if required.</td>
<td>Brief to be agreed between TIL/ RBG and HE and evaluation reported to the Examining Panel.</td>
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<tr>
<td>Lack of safeguarding for the Maritime Greenwich World Heritage site</td>
<td>Review required of the impacts arising from traffic dispersal in the vicinity of the World Heritage site.</td>
<td>Brief to be agreed between TIL/ RBG and HE and evaluation reported to the Examining Panel.</td>
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<td>A102/A2 corridor mitigation required</td>
<td>Scope of mitigation for road safety to be prepared</td>
<td>Schemes to be agreed with RBG</td>
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<td>Brewery Wharf to be excluded for the scope of wharfs to be used due to impact on World Heritage Site</td>
<td>TIL to amend the scope of wharfs to be available to the contractor. changes to be included in the CoCP.</td>
<td>Wording to be agreed with RBG</td>
</tr>
<tr>
<td>Air quality assessment to be updated to clarify the number of representative receptors which has reduced from the preliminary work to those included in the submitted documents</td>
<td>TIL to clarify.</td>
<td>Wording to be agreed by RBG.</td>
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<td>More detailed estimates of types of plants and animals that are to be impacted upon by the removal of habitat to be provided</td>
<td>TIL to provide additional information</td>
<td>RBG to review information and agree with the conclusions.</td>
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<td>Clarification on the connectivity of the mitigation measures for habitat removal</td>
<td>TIL to provide updated statement on the complementarity of the mitigation measures.</td>
<td>RBG to review and agree.</td>
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<td>Ecological off set fund calculations.</td>
<td>Clarification required by TIL on the calculations associated with the end values for habitat mitigation.</td>
<td>RBG to review TIL clarification and agree values.</td>
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<td>Building design to include and install low zero carbon technology</td>
<td>TIL to revise commitment to low/zero carbon technology from consider to where feasible install.</td>
<td>Revised information to be sent to RBG and agreed.</td>
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<td>Lack of local business impact assessment included in the Business case.</td>
<td>Local business impacts assessment to be carried out and reported upon taking into account a larger sample size of SMEs than previously reported upon. This will reflect the local conditions in RBG.</td>
<td>Revised information to be sent to RBG and agreed.</td>
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<td>A lighting assessment is required to be provided by TIL and submitted as part of the DCO.</td>
<td>TIL to provide lighting assessment.</td>
<td>Document to be reviewed and agreed with RBG.</td>
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<td>Powers to charge (Article 53 onwards should make reference to STIG and the Monitoring and Mitigation Strategy. It should also be confirmed that this authorises a charge and does not oblige TIL to impose a charge.</td>
<td>Revised wording to be provided.</td>
<td>Wording to be agreed by RBG.</td>
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<td>The CEMP and the topics to be covered by the CoCP require clarification and detail. These are required for inclusion in the DCO as a requirement.</td>
<td>TIL to draft revised documentation.</td>
<td>Wording to be agreed with RBG.</td>
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### Additional Requirements

- **Lack of air and noise mitigation measures within the dDCO**: Mitigation strategy required. Wording to be agreed with RBG.
- **Lack of traffic management and junction mitigation within the dDCO**: Initial designs to be prepared for the at risk junctions in RBG. To be agreed with RBG.
- **Introduction of greenwalls and bridges to complement noise mitigation.**: To be included in the DCO. To be discussed and agreed with RBG.
<p>| Lack of mitigation for the Woolwich Ferry impacts | Draft legislation to prepared by TfL to support the introduction of charging at Woolwich Ferry in the event that charging Silvertown and Blackwall tunnel fails to manage traffic demand. | Wording to be agreed with RBG |
| Lack of a comprehensive bus strategy including new and increased frequency for bus services. A Requirement is necessary for inclusion in the DCO. | Bus routes and frequencies to be secured by a requirement to be included in the DCO. | Wording to be agreed with RBG |
| Proposed construction hours not acceptable. A Requirement is necessary within the DCO. | TfL to amend hours of construction in line with RBG policies - 0800-1300 on a Saturday. | Wording to be agreed with RBG |
| Construction Lorry routes to be included in the DCO | Requirement defining the routes and the monitoring of these routes to be defined by TfL. | Routes to be agreed with RBG |
| The proportion of materials used by river to be defined for each Borough and included as a Requirement. | Further clarification required from TfL. | Wording to be agreed with RBG |
| Monitoring strategy to be revised to include triggers and included as a Requirement in the DCO. | Redrafting the strategy by TfL. | Wording to be agreed with RBG |
| Monitoring fund to be secured in the DCO | Revision to the proposed Monitoring strategy. | Wording to be agreed with RBG |
| A Community Fund to be included in the DCO | TfL to draft provisions for the Community Fund. | Wording to be agreed with RBG |
| A piling statement and strategy is required to be included in the DCO. | TfL to provide statement and strategy | Wording to be agreed with RBG |
| Limits of Deviation (horizontal) to be specified and included in the DCO | TfL to provide updated plans | Plans to be agreed with RBG |
| Article 11 Access to Works requires an approval process. This should be included as a Requirement. | Approval process to be drafted. | Wording to be agreed with RBG |
| Provisions for all STIG meeting documentation to be defined and made public documents. This should be a Requirement within the DCO. | Provisions to be drafted by TfL | Wording to be agreed with RBG |
| Construction Method Statement to be a Requirement and included in the DCO. | A Requirement to be drafted by TfL | Wording to be agreed by RBG |
| Plans and Schemes should be approved by the LPA and should be stated as a Requirement in the DCO. Schemes and plans should be agreed with the LPA prior to commencement of construction. | A Requirement to be drafted by TfL | Wording to be agreed by RBG |
| Noise mitigation measures should be retained after implementation of the scheme. This should be included as a Requirement. | A Requirement to be drafted by TfL | Wording to be agreed by RBG |
| The Mayor’s proposal for a new cycle carrying bus services should be included in the DCO as a Requirement. | A Requirement to be drafted by TfL | Wording to be agreed by RBG |
| The Board Street Bridge public realm improvements to Tunnel Avenue to be submitted to the LPA for agreement and for inclusion in the DCO. | TfL to submit detailed designs to the LPA. | RBG to agree plans. |
| A remediation strategy should be submitted for approval prior to the works commencing on site and, on completion of any remediation but before the relevant part of the scheme is operational or occupied or open to the public, whichever the case may be. A verification report demonstrating completion of the works set out in the approved remediation strategy and the effectiveness of the remediation shall be submitted to and approved, in writing, by the local planning authority. | TfL to prepare Remediation strategy. | Wording to be agreed with RBG |
| The Ecology Management Plan should be prepared and approved prior to any works commencing on site. A Requirement for this should be included in the DCO. | TfL to draft Requirement. | Wording to be agreed with RBG |
| The Emergency Plan is required to be submitted to the LPA for approval. This should be included as a Requirement in the DCO. | TfL to draft Requirement. | Wording to be agreed with RBG |</p>
<table>
<thead>
<tr>
<th>Requirement</th>
<th>Description</th>
<th>Action</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>The NVMP will need to be submitted to the LPA for approval prior to any works commencing on site. A Requirement on this matter should be included in the DCO.</td>
<td>TIL to draft a Requirement.</td>
<td>Wording to be agreed with RBG.</td>
<td></td>
</tr>
<tr>
<td>The SWMP will be Required to be submitted to and approved by the relevant planning authority prior to the relevant part of the authorised development commencing. A Requirement on this matter should be included in the DCO.</td>
<td>TIL to draft A Requirement.</td>
<td>Wording to be agreed with RBG.</td>
<td></td>
</tr>
<tr>
<td>The Arboricultural Survey (ES Appendix 9.D) should be secured in the DCO.</td>
<td>TIL to draft a Requirement.</td>
<td>Wording to be agreed with RBG.</td>
<td></td>
</tr>
<tr>
<td>A Sustainability Implementation Strategy is required to secure the implementation of the sustainability measures in the Sustainability Statement. This strategy should be included as a Requirement in the DCO.</td>
<td>Draft Sustainability Strategy to be prepared and submitted to LPA for approval.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Drafting Amendments</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Requirement 15(2) time period to be increased to 28 days to allow for a 21 day consultation period with relevant consultees.</td>
<td>TIL to revise Requirement 15(2)</td>
<td>Wording to be agreed with RBG.</td>
<td></td>
</tr>
<tr>
<td>Requirement 15(3) timeframes need to be amended to include a timeframe for TIL to submit the requested information – 7 working days or such longer period as may be agreed in writing by TIL and the discharging authority. There should be a further 5 day period for any further information to be requested of TIL and a further 5 day period for TIL to submit such further information.</td>
<td>TIL to redraft Requirement 15(e)</td>
<td>Wording to be agreed with RBG.</td>
<td></td>
</tr>
<tr>
<td>Requirement 16(2)(d) the time period for the LPA to submit written representations should be increased to 28 days.</td>
<td>TIL to redraft Requirement 16(2)(d)</td>
<td>Wording to be agreed with RBG.</td>
<td></td>
</tr>
<tr>
<td>Requirements 4(1) and 6(1) should clarify that the details to be submitted are those that are to be designed in accordance with the design principles as required under Requirement 3(1). This should also include specific reference to details of materials.</td>
<td>TIL to draft Requirement.</td>
<td>Wording to be agreed with RBG.</td>
<td></td>
</tr>
<tr>
<td>The correct drawing for Board Street Bridge needs to be referenced in Schedule 1 (Work 11 (d)).</td>
<td>TIL to update the submitted plans.</td>
<td>RBG to agree plans.</td>
<td></td>
</tr>
<tr>
<td>Closing the tunnels Article 43 “Emergency” requires defining</td>
<td>TIL to provide a definition of Emergency in this context.</td>
<td>Wording to be agreed by RBG.</td>
<td></td>
</tr>
<tr>
<td>Bylaws - Article 48 (7) should be changed when the tunnel becomes operational. Article 48(7) to be amended to be on operation rather than commencement of construction.</td>
<td>Revised terms of reference required to be drafted.</td>
<td>Wording to be agreed by RBG.</td>
<td></td>
</tr>
<tr>
<td>Current status and form of the proposed STIG, including frequency of meetings.</td>
<td>Revised terms of reference required to be drafted.</td>
<td>Wording to be agreed with RBG.</td>
<td></td>
</tr>
<tr>
<td>Removal of parking provision for construction workers for construction sites.</td>
<td>TIL to amend construction workers travel plan to include parking provision for workers.</td>
<td>Wording to be agreed with RBG.</td>
<td></td>
</tr>
<tr>
<td>Requirement 4 to be amended to include landscaping, public realm and parking areas.</td>
<td>Redrafting of Requirement by TIL.</td>
<td>Wording to be agreed with RBG.</td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX 3: MODEL REVIEW BRIEF

River Crossings Modelling Review Brief

Statement of Requirements
1 Overview

1. Work is currently under way to investigate the Mayor’s proposals to improve cross river connections in East London. The Mayor’s proposals for river crossings include constructing a new charged tunnel at Silvertown and introducing a user charge at the existing Blackwall Tunnel. Work is also underway to investigate the provision of new crossings at Gallions Reach and Belvedere.

2. The purpose of this review is to provide assurance for the affected boroughs and TfL that the strategic models being used to assess the strategic impact of river crossings options are fit for purpose.

3. The three main models to be reviewed are the London Regional Demand Model (LoRDM), the River Crossings Highway Assignment Model (RXHAM) and Railplan. An earlier version of RXHAM has been previously reviewed by SDG with oversight from TfL and the boroughs of Newham and Bexley, who were representing a wider group of South East and East London Boroughs.

4. It should be noted that the new version of the RXHAM will remain a strategic assessment tool. More detailed VISSIM, or other junction and assessment models have and will be developed to support the more detailed design stages related to the proposed crossings.

5. It is proposed that the overall review shall consist of four stages as outlined below,

1) Base year review;
2) Silvertown reference case review;
3) Silvertown core scenario review;
4) East of Silvertown core scenario review.

However, this brief shall only cover stages 1) and 2), with stages 3) and 4) being covered by a separate brief that shall be developed in agreement between the participating boroughs and TfL.
2 Deliverables and tasks

Stage 1 – Base Year Review

6. The purpose of this review is to seek confirmation that the base year of LoRDM, RXHAM and Railplan represent conditions on the public transport and highway networks in a manner fit for the purpose of assessing the strategic impacts of river crossings proposals in East London.

7. The consultant should note that LoRDM and RXHAM should be reviewed in the context of TfL implementing river crossings at Blackwall/ Silvertown, Gallions Reach and Belvedere. However, Railplan should only be reviewed with regards to being fit for purpose in the context of Blackwall/ Silvertown Tunnel.

8. A separate review of Railplan with regards to crossings at Gallions Reach and Belvedere shall take place once public transport options have been refined. This work will be dealt with by a separate statement of requirements.

9. As a guide the appointed consultant is recommended to perform the following tasks in reviewing the strategic models:

Task 1 Review the data used in the models. This will include a review of the geographical scope of data collected, its statistical reliability and the basis of factors used to take account of daily and seasonal variation. The review should also cover the values of time assumed for potential users.

Task 2 Review the suitability of the models in terms of geographical coverage, the vehicle types and trip purposes modelled, zoning system, the time periods, representation of delays at links and junctions, location of screenlines, basis of the trip matrices and assignment method.

Task 3 The review will consider the calibration of the models, and validation against traffic count, journey time data and other sources.

It should be noted that the appointed consultant will not just be limited to carrying out the above tasks and should set out what topics / areas will be reviewed as part of their proposals.

The consultant shall note that appendix A contains an issues log that contains specific issues that boroughs have identified should be investigated as part of the stage 1 review.
The consultant will be able to seek clarification from Jacobs on any area associated with the three models being reviewed.

The consultant will produce a report setting out the findings of their review for stage 1 and will present these findings to boroughs and TfL.

**Stage 2 – Silvertown Reference Case Review**

Stage 2 relates to reviewing the development of the future year reference case for Blackwall / Silvertown Tunnel. With three future forecast design years being used for the Blackwall/ Silvertown Tunnel workstream (2021, 2031 and 2041).

The consultant shall review the future year networks that have been created. Full access will be granted to the future year reference cases for LoRDM, RXHAM and Railplan. A report detailing the changes made to the base year to create the future year networks will be provided by TfL.

The consultant shall set out the general areas that it intends to review as part of its proposals. An issue log for the future year reference case will be created by the boroughs and TfL. However, it is anticipated that this log will not be available until the stage 1 review is underway.

**3 Stakeholders**

For the purposes of this review, the steering group consists of TfL and the following boroughs:

Greenwich;
Newham;
Bexley;
Tower Hamlets;
Barking & Dagenham;
Havering.

Upon completion of the study (or at the end of each stage) the findings of the review will be released to a wider set of boroughs for information purposes. These boroughs include:
Lewisham;
Southwark;
Redbridge;
Hackney;
Waltham Forest;
City of London.

4 Project timetable

Stage 1
Stage 1 should be completed by the end of October 2015. However, TfL is aware that meeting this date also depends on the number and complexity of issues that may be raised by the review and subsequent discussions between SDG and the boroughs/TfL. Delivery of a final report by the end of October is also dependent on resources at TfL and the boroughs to enable comments to be provided in a timely manner.

Stage 2
The review for stage 2 is anticipated to start at the beginning of November 2015 and be completed by the start of January 2016. However, TfL requests that SDG considers and sets out how this stage could be run partly in parallel with stage 1.

For both stages the consultant will provide with their submission details of individual tasks and when they will be conducted.

5 Procurement Issues

The Client
The contractual client is Transport for London. However, instructions for work will be agreed by the representatives of the boroughs in discussion with TfL. TfL’s contact regarding non-procurement issues shall be Neil Georgeson from TfL Planning. For any further information during the tender stage please contact TfL Procurement.

Submission of quote
Stage 1
The consultant will submit a fixed price to review the base year of LoRDM, RXHAM and Railplan and the following related documentation:

- Application of LoRDM in East London (see appendix B);
- RXHAM Base Year Validation Report (see appendix C);
- Railplan validation report (currently being finalised, approximately 190 pages in length).

The consultant will be paid on a time and costs basis to investigate the borough’s issues log and when dealing with subsequent requests from the boroughs and TfL on points that may emerge during the study. Meetings with TfL, boroughs and Jacobs will also be paid on a time and costs basis.

The consultant should note that once stage 1 is underway, boroughs are free to email SDG with regards to questions, queries and points of clarification. However, emails will be cc’d to TfL, so that we are aware of the scale of any requests and associated financial costs. Given the potential financial impacts of requests from boroughs, TfL reserves the right to decide on whether requests are actioned by SDG.

It should be noted that during or upon completion of stage 1, a decision will be made by TfL/the boroughs as to whether further stages will also be conducted by SDG.

Stage 2
The consultant will provide an estimate of the cost to conduct stage 2 (including assumptions behind the quote). With work for this stage conducted on a time and costs basis.

However, TfL may ask the consultant to refine their estimate upon further discussions with the boroughs during stage 1, and may request that a fixed price for stage 2 (or parts of stage 2) be submitted instead at a later point.

Provision of CV’s
The consultant is required to submit the CV’s of those members of staff who will be working on this project.