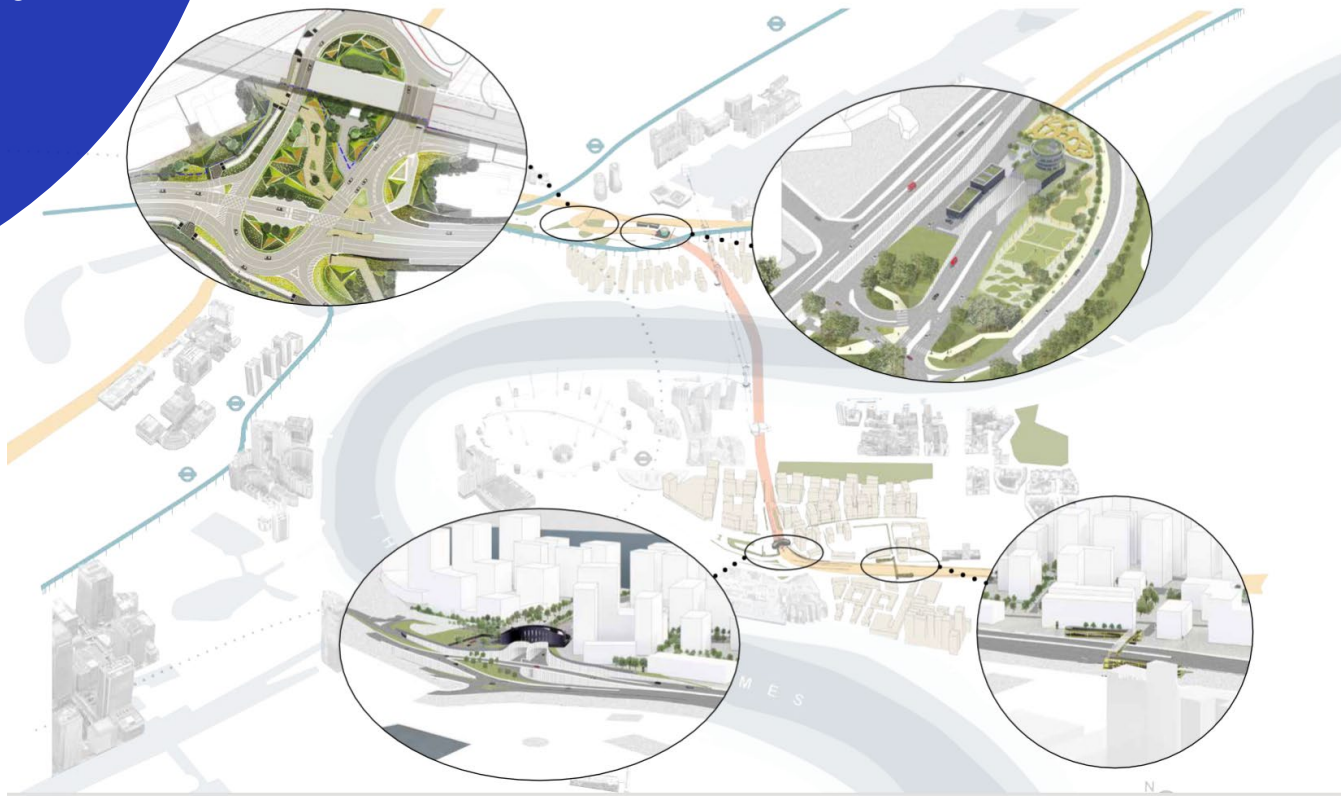
Silvertown Tunnel Implementation Group

Meeting no. 05

27 January 2022 – 09:30-11:30



EVERY JOURNEY MATTERS

Agenda

1. Introductions and welcome (All)
2. Review of actions from previous meeting 30 September 2021 (TfL)
3. Safety, Health and Environment (All)
4. Project update (TfL)
5. Emerging modelling outcomes (Lot A - TfL / Jacobs & SWECO)
6. Update on initial bus proposals (TfL)
7. User charging assessment framework (Lot A – TfL / Jacobs)
8. Approach to identifying mitigation measures (TfL)
9. Other relevant updates (All)
10. Obligations and forward meeting planner (All)
11. Next steps and AOB (All)

1. Introductions and welcome

Terms of Reference update

Silvertown Tunnel Implementation Group – Terms of Reference

Article 66 DCO (Silvertown Tunnel Order 2018): available here (page 50-52)

Purpose of STIG:

STIG is a consultative group which will inform TfL's approach to the discharge of the DCO requirements in respect of the scheme's Monitoring & Mitigation Strategy (MMS), Charging Policies and Procedures and Bus Strategy.

Specifically TfL is required to consult with STIG members on the following:

(a) the extent, nature and duration of monitoring to be implemented in accordance with the MMS;
(b) the proposals for the initial bus services that will operate through the tunnels when the Silvertown Tunnel opens for public use;
(c) the monitoring reports produced in accordance with the MMS;
(d) any proposed revisions to the Charging Policy under article 53; and
(e) the level of charges required to be paid for use of the tunnels under article 54 and any exemptions and discounts.

It may also provide an opportunity for updating members on general project progress including the discharge of other DCO requirements, if STIG members consider this will be useful. Engagement on construction activity will be undertaken in accordance with the scheme's Code of Construction Practice.

Meeting frequency: meetings will be held at least twice annually. Additional meetings may be arranged if deemed necessary by STIG members. TfL will endeavour to confirm meeting dates at least four weeks in advance.

Meeting duration: meetings will typically be 1.5 hours in length.

Meeting location: meetings will be held virtually via MS Teams. If physical meetings are held these will take place at TfL's Endeavour Square offices (Stratford) and the option to join the meeting virtually will also be provided.

Chair: STIG members will nominate a representative to chair meetings, with nomination to be confirmed by means of a vote if necessary. If the Chair is not a representative of TfL, TfL will engage with the Chair on the proposed agenda in advance of each meeting. Andrew Lunt (TfL) was elected as Chair on 28/01/21.

Secretariat: TfL will provide the secretariat for STIG including the provision of agendas, meeting notes and reports as may be necessary. Meeting notes will be circulated within ten working days of the meetings and members will be invited to comment within ten working days of the notes being circulated. Papers relating to STIG will be made available on TfL's website here.

Recording of representations made by STIG members:

When STIG members are consulted on relevant matters set out in DCO Article 66(5), whether it be at meetings or via electronic means, TfL will summarise the representations received and provide an accompanying commentary which seeks to explain how the representations have been taken into account in its decision making.

Terms of Reference update

Silvertown Tunnel Implementation Group – Terms of Reference

Membership

Each body is entitled to nominate a designated STIG representative. In the event that the designated representative is unable to attend a meeting a substitute for that body may be nominated. The nominated STIG representatives are (**changes provided in bold since last release – June 2021**):

Transport for London	Andrew Lunt (Chair)
Greater London Authority	**Sam Barnard** / Stephen Inch
LB Barking & Dagenham	**John Hunter** (Nick Davies)
LB Bexley	David Freestone (**Tom Middleton**)
LB Bromley	Angus Culverwell (no deputy)
City of London Corporation	Bruce McVean (no deputy)
RB Greenwich	Ryan Bunce (**Ryan Nibbs**)
LB Hackney	Andy Cunningham (Tyler Linton)
LB Lewisham	Louise McBride (Daniel Hanshaw)
LB Newham	Murray Woodburn (Jade Scott-W)
LB Redbridge	Rogan Keown (Donald Chalker)
LB Southwark	Sally Crew (no deputy)
LB Tower Hamlets	Jack Ettinger (Robert Morton)
LB Waltham Forest	**Jack Owen** (**Louise Gold**)
Highways England	Amelia Yeodal / John Nicholas

Subject to logistics additional representatives from each body will be able to attend STIG meetings as non-STIG members.

Meeting agendas:

TfL will maintain a forward meeting planner of items for discussion at future STIG meetings and will consult STIG members on this forward planner at each meeting. STIG members are entitled to suggest additional items for discussion as they deem appropriate. Standing agenda items shall include:

- Introductions
- Safety, Health and Environment matters (all)
- General project update (TfL)
- Forward meeting planner (all)
- AOB (all)

For the avoidance of doubt STIG business may be administered via electronic means outside of meetings as may be necessary.

Review: these Terms of Reference including the nominated STIG Chair will be kept under review and updated from time to time as may be necessary.

2. Review of actions from previous meeting

Actions – 30 September 2021

ACTION: STIG members to provide comments on the environmental compliance assessment scoping note by 15 October 2021.	✓
ACTION: TfL to provide information on SHE incidents and processes for managing health and safety on site at the next STIG meeting.	✓
ACTION: TfL to provide update on how specific requirements for the project will be incorporated in the user charging system.	✓
ACTION: Notes of bus planning workshop to be circulated to all STIG members when complete.	✓
ACTION: Further information on DLR validation within Railplan and why this is not as good as other public transport modes to be provided to RB Greenwich.	✓
ACTION: STIG members to provide observations on the approach to dealing with uncertainty within the Refreshed Assessment.	✓
ACTION: Final socio-economic surveys to be circulated to STIG members.	✓
ACTION: STIG members to provide comments on the traffic monitoring plan by 30 October 2021.	✓
ACTION: TfL to engage with STIG members on opportunities for including borough owned data in the traffic monitoring plan.	✓
ACTION: TfL to produce a list of highway network changes not included in the strategic highway model, together with a brief explanation for each entry.	✓

3. Safety, Health and Environment

4. Project update (TfL)

5. Emerging modelling outcomes (Lot A - TfL / Jacobs & SWECO)

Silvertown MMS Lot A – Transport Modelling Update

Jacobs/Sweco Summary Progress Update

Lot A Transport Modelling – Strategic Modelling Progress

- ✓ Re-based Public Transport Model (Railplan) and Highway Model (LoHAM) to 2019. Completed Calibration/Validation
- ✓ Linked 2019 Assignment Models to the demand model (MoTiON). Undertook TAG Realism tests
- ✓ Produced model development reports – these are being reviewed internally and by TfL
- ✓ Developed Planning Data and Assumptions for 2025, 2041 (Standard and Hybrid Scenarios)
- ✓ Implemented income segmentation and Residents Discount in LoHAM and MoTiON
- ✓ Prepared the revised Reference Cases - analysis is underway
- ✓ Reference Case - completed 2025 and 2041 runs for Refreshed Assessment (RA RC) - analysis is underway
- ✓ DCO scheme - re-tested in refreshed models (Refreshed Assessment Assessed Case - RA AC) - analysis is underway
- ✓ Started testing of bus service options
- ✓ Undertaking the analysis to support the appraisal

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Lot A Transport Modelling – Income segmentation of out-of-work travel

- TAG states that:

  "It is a requirement for the assessment of road tolling and charging that demand in the highway assignment model is segmented to reflect the variation in values of time "

- Income segmentation has been applied to out-of-work travel (includes all non-business trips including commute) for purposes of this work
  - ➢ Income segmentation influences trip frequency, mode, destination and route choices
- Household income bands were determined through the estimation:
  - low < 25
  - medium 25k-50k
  - high > 50k
- Income splits are derived from MoTiON data based on CICA data which varies by geographical areas with low-income distribution corresponding well to the Index of Multiple Deprivation map
- MoTiON outputs were used to split the car out-of-work assignment matrices into 3 income groups using categories consistent with demand model
- An additional user-class was introduced to represent the Host Borough residents to allow residents' discount modelling

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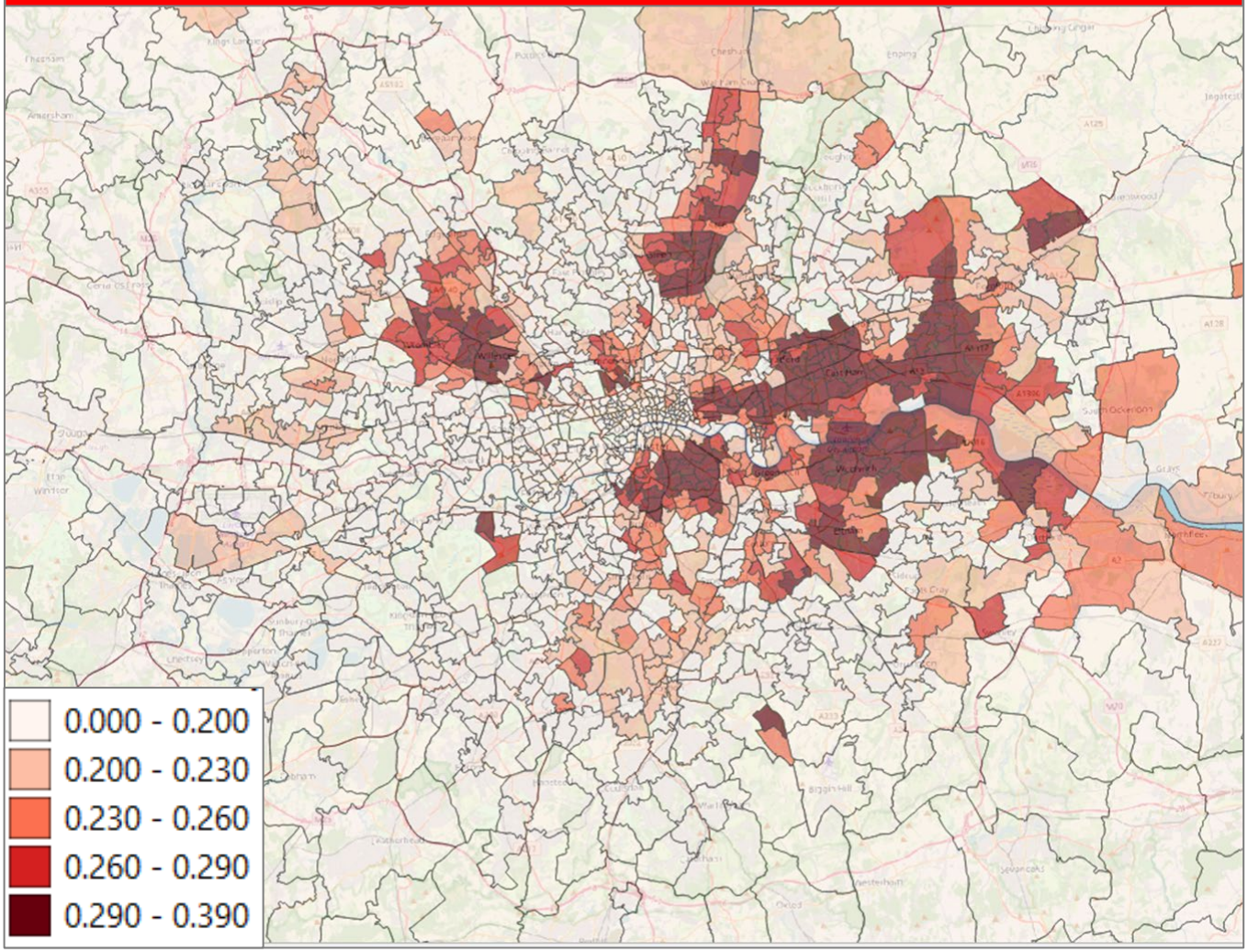
Lot A Transport Modelling – Income segmentation of out-of-work travel

- Approximately 40% of trips made by the Host Borough residents fall into the low-income category (< 25k)
- 12% of these travel by car (i.e. car drivers)
- Residents on low income constitute around 5% of the Blackwall Tunnel traffic in the morning peak
- Low-income category is defined to allow consistency with the demand model
- Eligibility criteria for discount may differ from the above. Hence the value of discount will have to be adjusted to reflect this

Ratio of low-income car users in the AM peak hour – by origin



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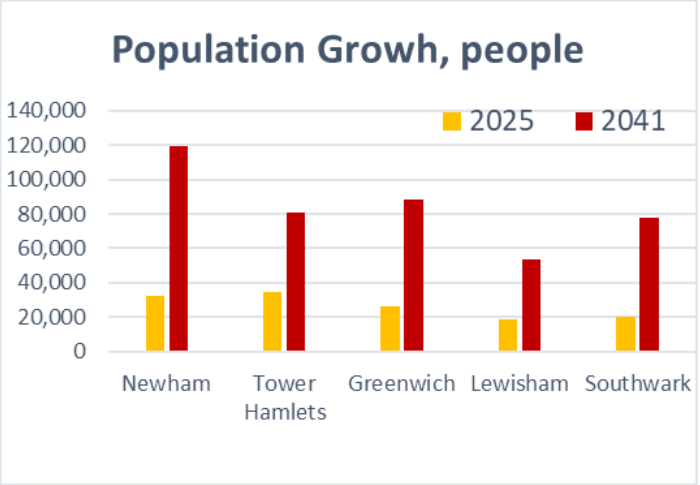
Refreshed Assessment - Reference Case Demand

Lot A Transport Modelling – 2025/2041 Population Forecast

	Population, million people			Growth From 2019		2025 vs 2021 DCO run (incl. growth)	2041 vs 2041 DCO run
	2019	2025	2041	2025	2041		
GLA	**9.0**	**9.7**	**10.8**	**7%**	**20%**	**5%**	**4%**
Newham	0.35	0.38	0.47	9%	34%	0%	2%
Tower Hamlets	0.33	0.36	0.41	11%	25%	7%	1%
Greenwich	0.29	0.31	0.38	9%	31%	-2%	2%
Lewisham	0.31	0.33	0.36	6%	17%	5%	4%
Southwark	0.32	0.34	0.40	6%	24%	-3%	-2%

- GLA population is based on latest GLA forecast figures and is assumed to grow from 9ml to:
  - 9.7ml in 2025 (growth of **7%**);
  - 10.8ml in 2041 (growth of **20%).**
- Host Boroughs show strongest growth (25%- 34%)
- 2025 population is 5% higher compared to the DCO 2021 Reference Case figures.
- 2041 population is also higher however, the figures for the Host Boroughs are similar



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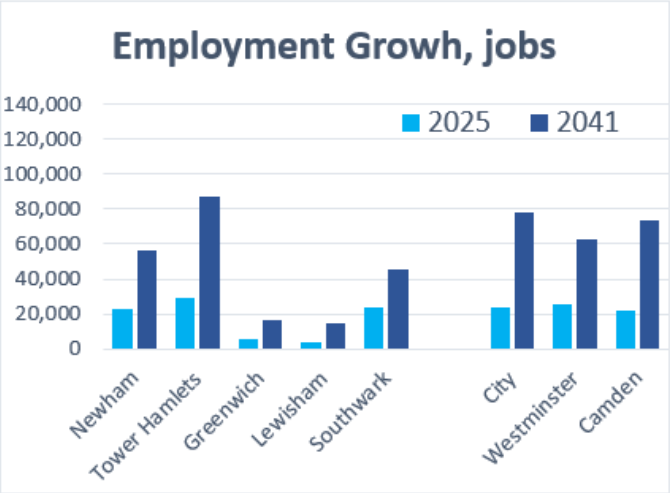
Lot A Transport Modelling – 2025/2041 Employment Forecast

	Employment, million jobs			Growth From 2019		2025 vs 2021 DCO run (incl. growth)	2041 vs 2041 DCO run
	2019	2025	2041	2025	2041		
GLA	**5.5**	**5.8**	**6.4**	**6%**	**16%**	**10%**	**7%**
Newham	0.14	0.16	0.20	16%	41%	48%	11%
Tower Hamlets	0.31	0.34	0.40	9%	28%	8%	-3%
Greenwich	0.10	0.11	0.12	5%	16%	12%	-4%
Lewisham	0.09	0.09	0.10	5%	17%	14%	9%
Southwark	0.25	0.27	0.29	10%	18%	2%	-3%
City	0.50	0.53	0.58	5%	16%	20%	20%
Westminster	0.71	0.74	0.77	4%	9%	11%	11%
Camden	0.34	0.36	0.41	7%	22%	6%	6%

- GLA Employment is assumed to grow from 5.5ml to:
  - 5.8ml in 2025 (**6**% growth)
  - 6.4ml in 2041 (**16%** growth)
- 2025 employment is 10% higher compared to the previous (DCO) estimate for 2021 Ref Case (with large differences in Newham)
- 2041 difference is around 7%



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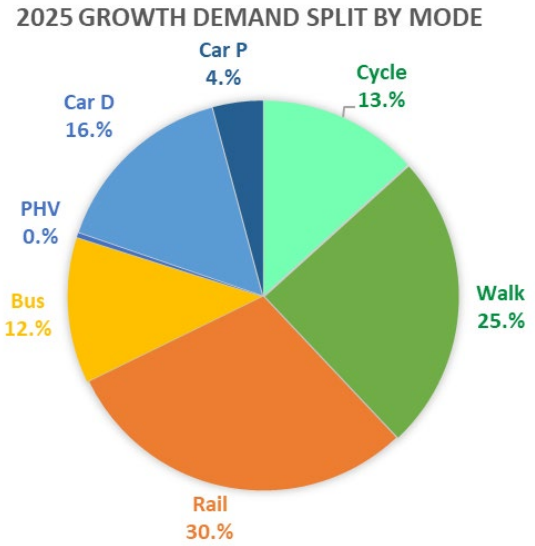
Lot A Transport Modelling – 2025/2041 Growth in Travel Demand

- Personal travel to/ from and within London will increase from 28.3ml daily trips in 2019 to:
  - 30.2ml in 2025 (**6%** growth)
  - 33ml in 2041 (**16%** growth)
- Improvements to cycling infrastructure and increased propensity to cycle will support further growth in cycle demand - which will represent 13% of all additional trips in 2025
- Majority of new trips (80%) will be made by sustainable modes
- Only 20% of new journeys will be undertaken by car (4% of which as a car passenger)

	2019 Base Year		2025 Ref Case		2041 Ref Case	
Mode	Demand	Mode shares	Growth in Demand	Change in Mode Share	Growth in Demand	Change in Mode Share
Cycle	737,000	3%	34%	1%	63%	1%
Walk	7,640,000	27%	6%	0%	14%	-1%
Rail	5,231,000	18%	10%	1%	25%	1%
Bus	4,342,000	15%	5%	0%	18%	0%
PHV	493,000	2%	0%	0%	-1%	0%
Car D	7,199,000	25%	4%	0%	11%	-1%
Car P	2,712,000	10%	3%	0%	4%	-1%
total	28,353,000	100%	6%	0%	16%	0%



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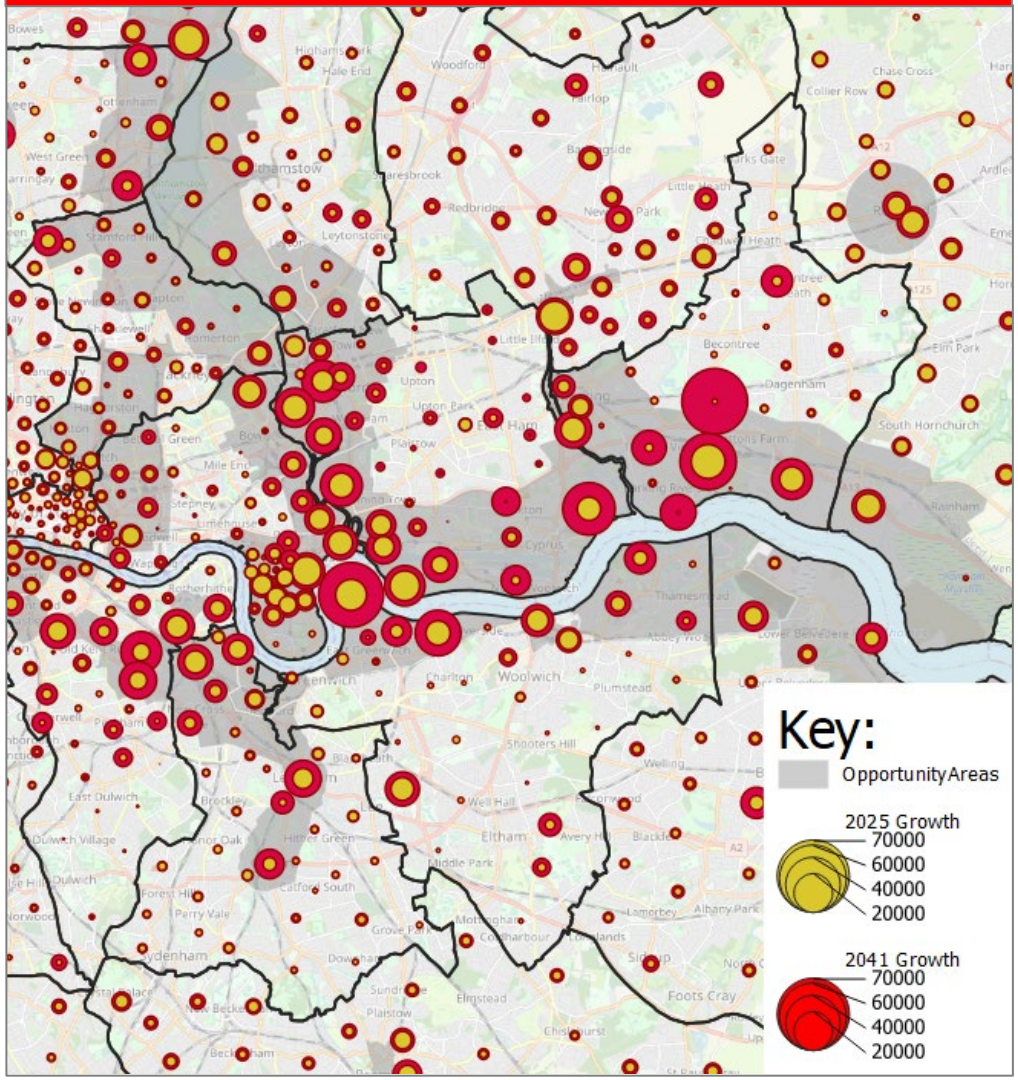
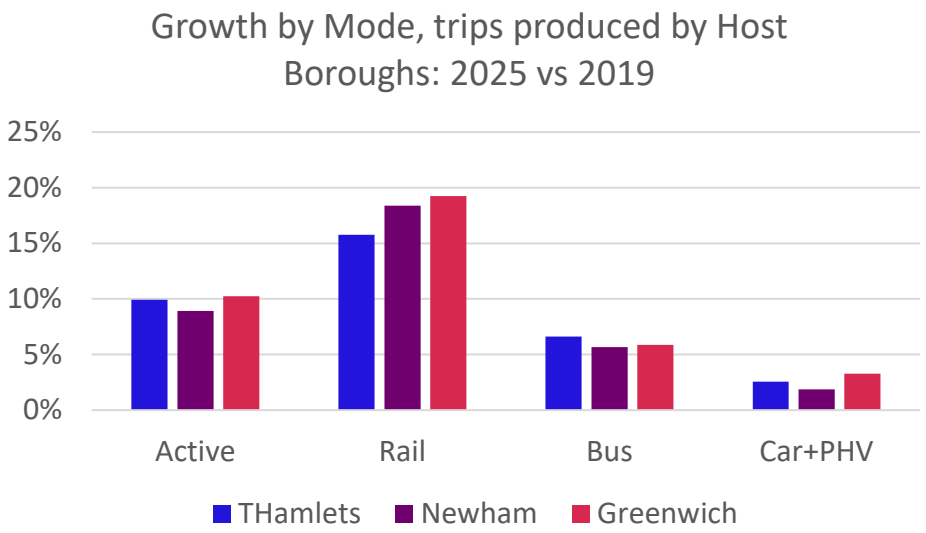
Lot A Transport Modelling – 2025/2041 Growth in Trip Productions

Daily Demand Growth by Production, 2025/ 41 vs 2019



	Base Year Mode Shares			
	Active	Rail	Bus	Car+PHV
THamlets	41%	22%	18%	19%
Newham	30%	25%	19%	26%
Greenwich	27%	23%	16%	34%



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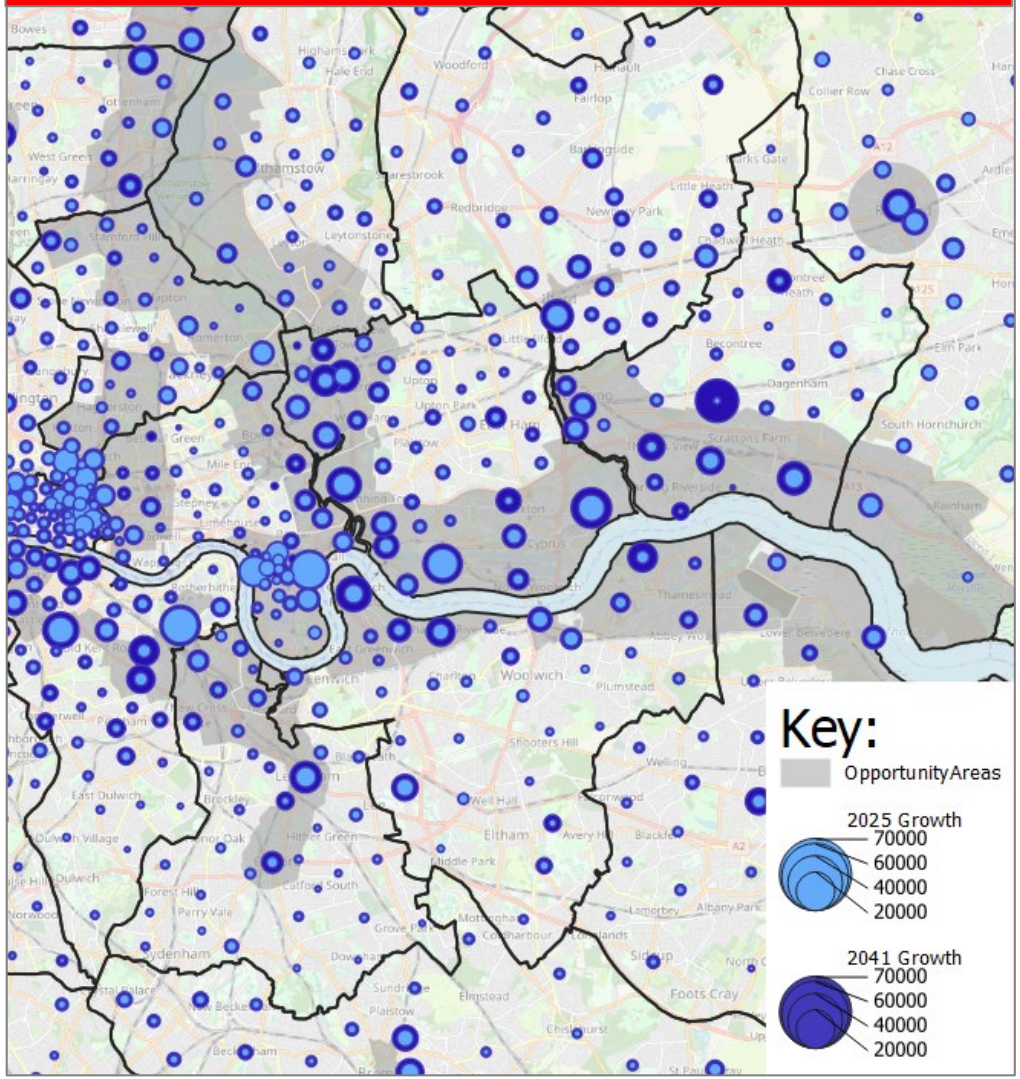
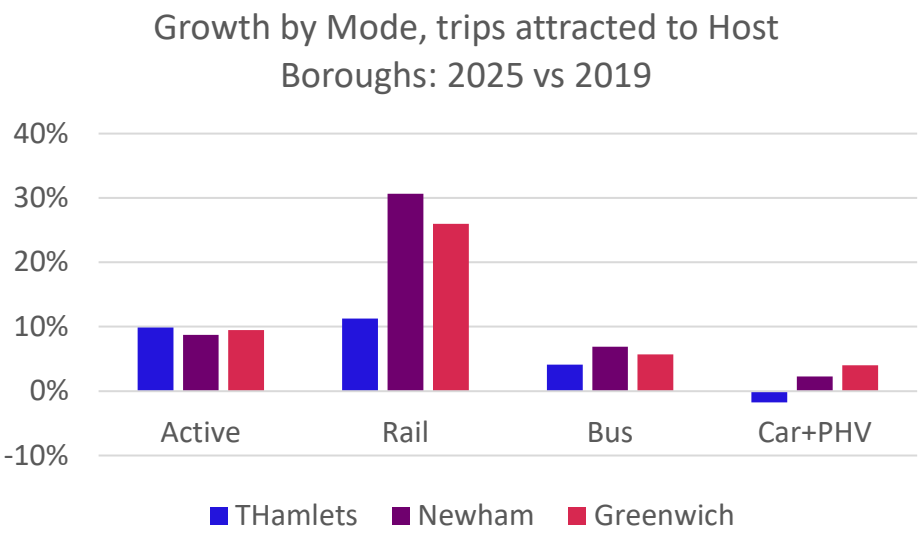
Lot A Transport Modelling – 2025/2041 Growth in Trip Attractions

Daily Demand Growth by Attractions, 2025/41 vs 2019



Area	Base Year Mode Shares			
	Active	Rail	Bus	Car+PHV
THamlets	35%	35%	11%	18%
Newham	34%	15%	21%	29%
Greenwich	33%	8%	18%	41%



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Refreshed Assessed Case - Reference Case Traffic (early results)

Lot A Transport Modelling – 2025/2041 Reference Case Assumptions

- ✓ Committed Schemes - list has been reviewed and agreed with Boroughs
- ✓ Assignment models - have been updated with latest TAG parameters (Value of Time and Vehicle Operating cost) - Business VOT is lower, which will influence route choice when charge is in place
- ✓ Road user charges reflected in Reference Case include Dartford toll and Central London Congestion Charge (ULEZ is not modelled explicitly due to high rate of compliance)
- ✓ Assignment includes out-of-work income segmentation and a separate user-class representing trips by residents on low income
- ✓ Demand growth has been predicted by MoTiON and is in equilibrium with the network supply
- ✓ MoTiON also generates cycle flows that are preloaded onto the highway network to reflect impacts on the highway capacity
- ✓ LoHAM simulation area (i.e. detailed modelling of delays) covers entire area inside M25 (as opposed to East London study area used in DCO version of the models):
    - Advantages: better reflects the overall growth, mode shares and travel patterns
    - Disadvantages: longer run times and convergence challenges

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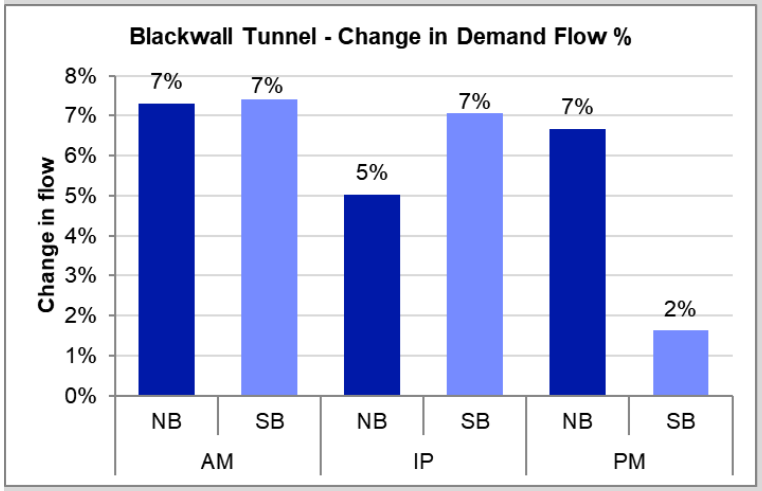
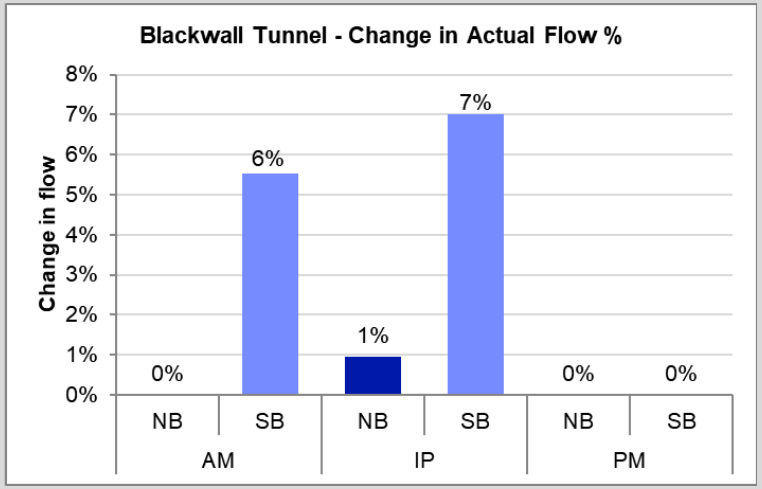
Lot A Transport Modelling – Local Network Flows (2025 vs 2019)

- Demand growth leads to a relatively small increase (up to 5%) in total vehicle kilometres
- There is a stronger increase in the total hours due to the build-up of congestion
- This is also reflected in reduction of average speeds

Time Period	Borough	Chages in Travel Dist, %	Chages in Travel Time, %	Change in Average Speed (km/h)
AM Peak	Greenwich	3%	8%	-1
	Newham	3%	7%	-1
	Tower Hamlets	0%	4%	-1
Inter Peak	Greenwich	3%	5%	0
	Newham	5%	6%	0
	Tower Hamlets	1%	3%	0
PM Peak	Greenwich	2%	6%	-1
	Newham	2%	6%	-1
	Tower Hamlets	0%	-1%	0





- The demand for the Blackwall Tunnel use increases by around 7% in peak directions.
- However due to capacity constraints the actual flows only increase in the AM and IP SB directions.

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Lot A Transport Modelling – Strategic Network Flows (vs DCO RC)

(Annual Average Daily Traffic – AADT)

TRANSPORT FOR LONDON
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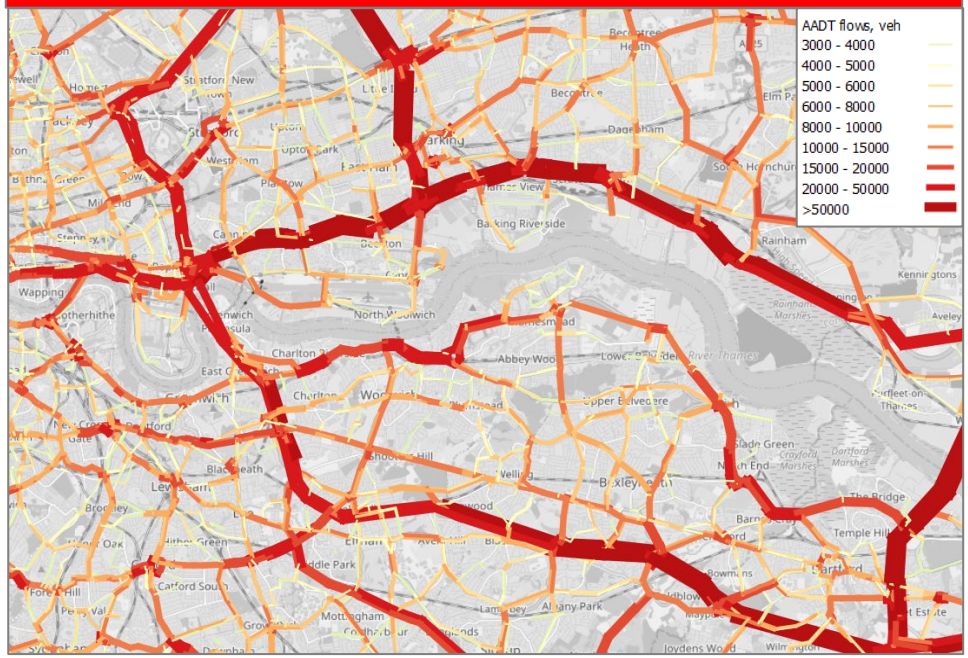
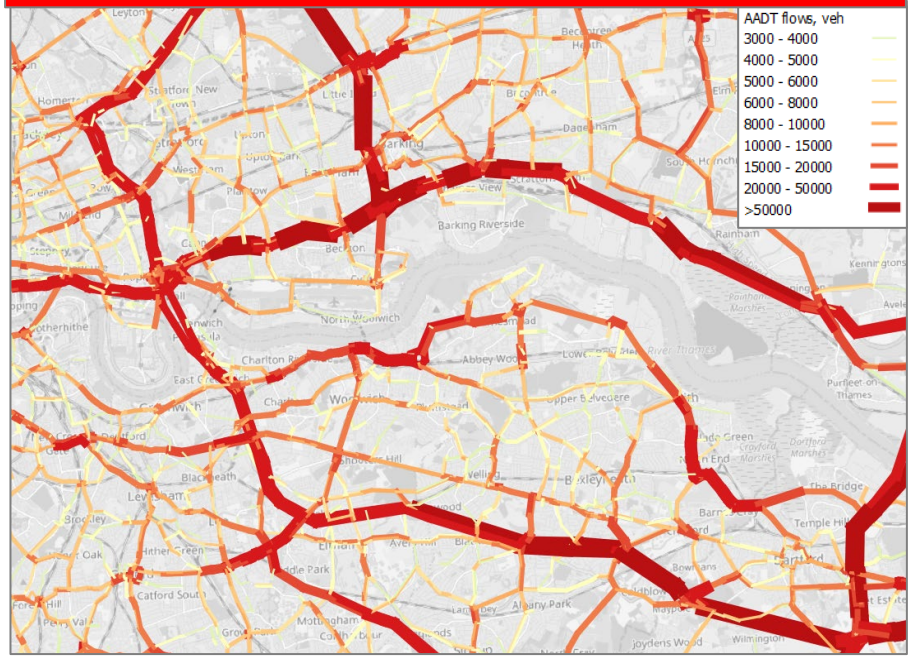
AADT DCO Reference Case 2021



AADT RA Reference Case 2025



Time Period	Borough	Chages in Travel Dist, %	Chages in Travel Time, %	Change in Average Speed (km/h)
AM Peak	Greenwich	-14%	4%	-4
	Newham	-6%	10%	-4
	Tower Hamlets	-11%	5%	-3
Inter Peak	Greenwich	-17%	-10%	-2
	Newham	-7%	2%	-3
	Tower Hamlets	-12%	-4%	-2
PM Peak	Greenwich	-17%	-1%	-4
	Newham	-5%	28%	-7
	Tower Hamlets	-10%	-4%	-1

- 2025 RA RC flows show similar patterns and magnitudes to those in the 2021 DCO RC run
- 2025 highway travel in Central London and on network in Host boroughs has reduced due to more road space taken by cyclists
- Speeds are lower in 2015 RA RC

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Refreshed Assessment – Reference Case Public Transport (early results)

Lot A Transport Modelling – 2025/2041 Reference Case Assumptions

✓Committed Schemes – list has been provided by TfL's Strategic Analysis (Railplan) team

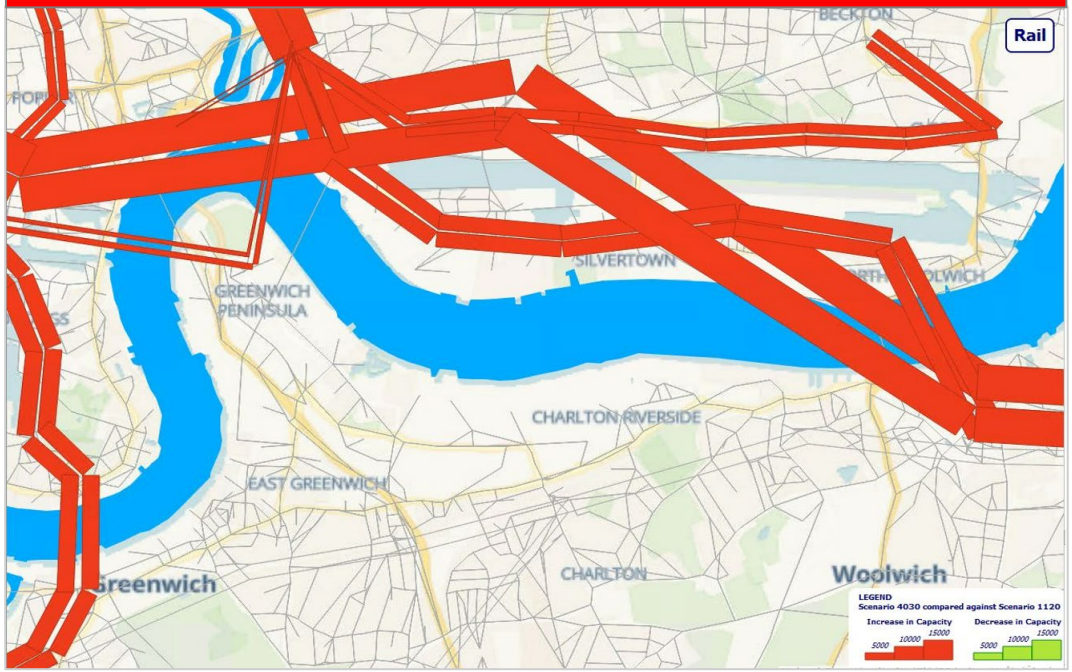
✓Demand growth has been predicted by MoTiON and is in equilibrium with network supply

✓MoTiON generates bus speed changes based on highway network and updates Railplan speeds

Committed PT schemes:

- Elizabeth Line
- C2C additional capacity (franchise agreement)
- Jubilee Line enhancements (32tph with 1 in 5 reversing at North Greenwich)
- Four Lines Modernisation (4LM), (increase in frequency and speeds on District and Hammersmith and City Line services)
- DLR Rolling Stock Replacement Programme
- DLR HIF Award (Lewisham branch 30tph and Woolwich Branch 22.5)
- Various Bus Changes brought in between 2019 and 2024, including Royal Docks and Elizabeth Line changes

AM peak Rail Network Capacity Changes vs Base Year



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Lot A Transport Modelling – 2025/2041 Reference Case Assumptions

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DLR Frequency Changes by Branch

	Frequency				Capacity per Link					
	2016 DCO		2022 DCO		2016 DCO		2022 DCO		% Change	
	AM/PM	IP	AM/PM	IP	AM/PM	IP	AM/PM	IP	AM/PM	IP
Stratford Int	7.5tph	6tph	22.5tph	18tph	4,598	3,678	22,868	18,294	397%	397%
Woolwich Arsenal	15tph	12tph	22.5tph	18tph	11,498	9,198	23,535	18,828	105%	105%
Beckton	7.5tph	12tph	15tph	12tph	6,900	9,198	14,355	11,484	108%	25%
Lewisham	22.5tph	12tph	30tph	24tph	18,398	11,040	31,380	25,104	71%	127%
Bank/Tower Gateway	30tph	24tph	30tph	24tph	27,600	22,080	30,713	24,570	11%	11%
Stratford	15tph	12tph	15tph	12tph	9,195	7,956	15,690	12,552	71%	58%

DLR V/C for Do Minimum

		V/C					
		Previous DM			Refreshed DM		
		AM	IP	PM	AM	IP	PM
Canning Town	Royal Victoria	0.86	1.20	0.91	0.38	0.43	0.48
Royal Victoria	Canning Town	0.80	1.11	0.90	0.51	0.57	0.42
Canning Town	West Silvertown	0.41	0.99	0.65	0.36	0.36	0.42
West Silvertown	Canning Town	0.67	0.83	0.39	0.49	0.44	0.35

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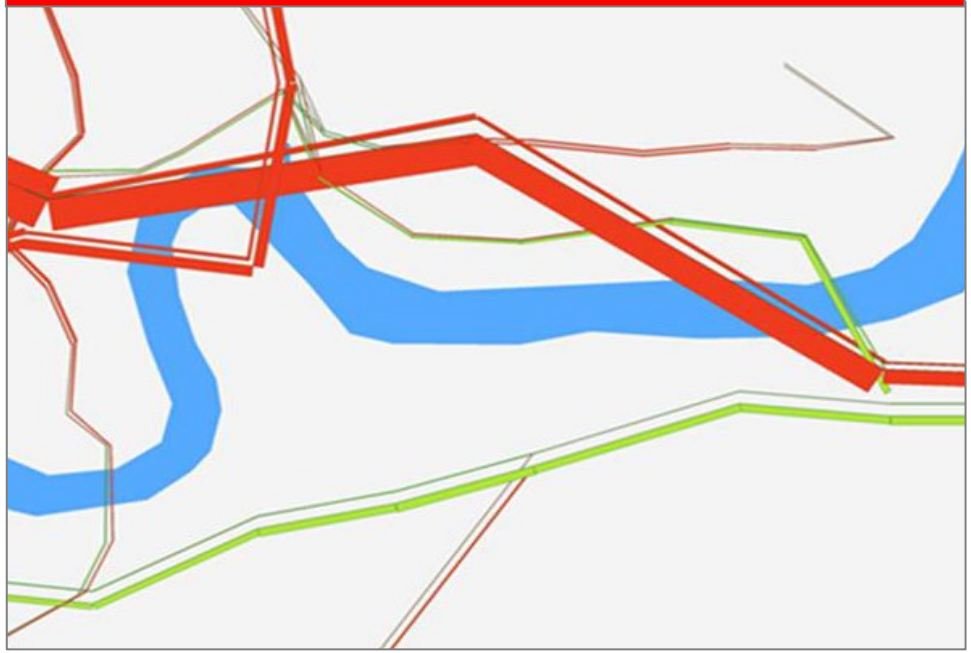
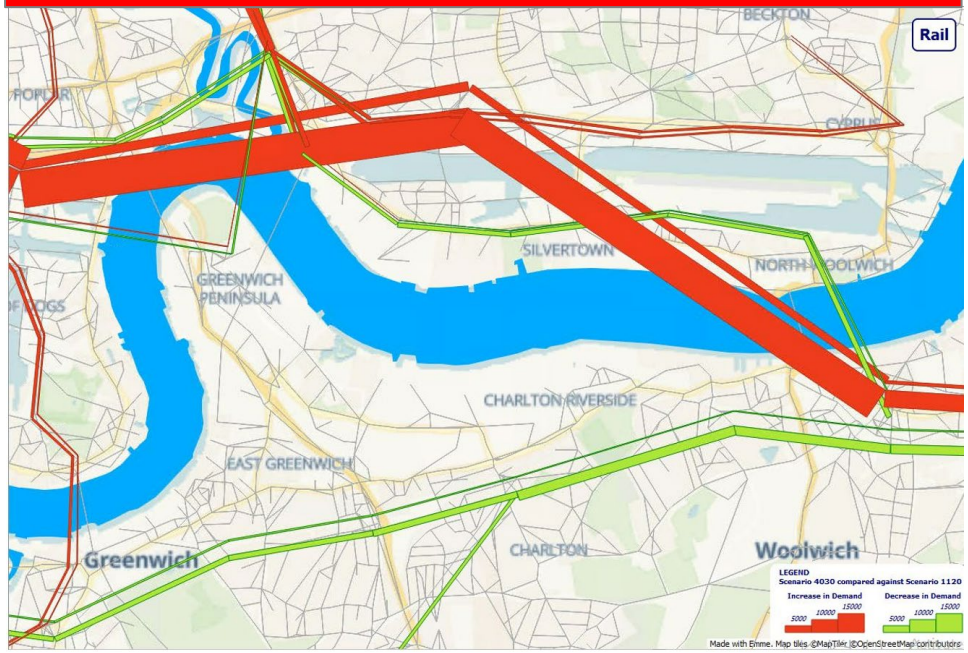
Lot A Transport Modelling – 2025 Reference Case vs 2021 DCO Ref Case

- Overall patterns of Rail + LUL + DLR changes between the RA RC (2025 vs 2019) and DCO RC (2021 vs 2011) look similar and mostly show the impact of the Elizabeth Line
- A comparison of DLR passenger kilometres/hours and borders suggest a higher DLR usage in 2025 (due to the capacity increase)
- DLR crowding reduces compared to the DCO RC

Change in Rail Flows - DCO 2021 RC vs 2011 BY



Change in Rail Flows – RA 2025 RC vs 2019 BY



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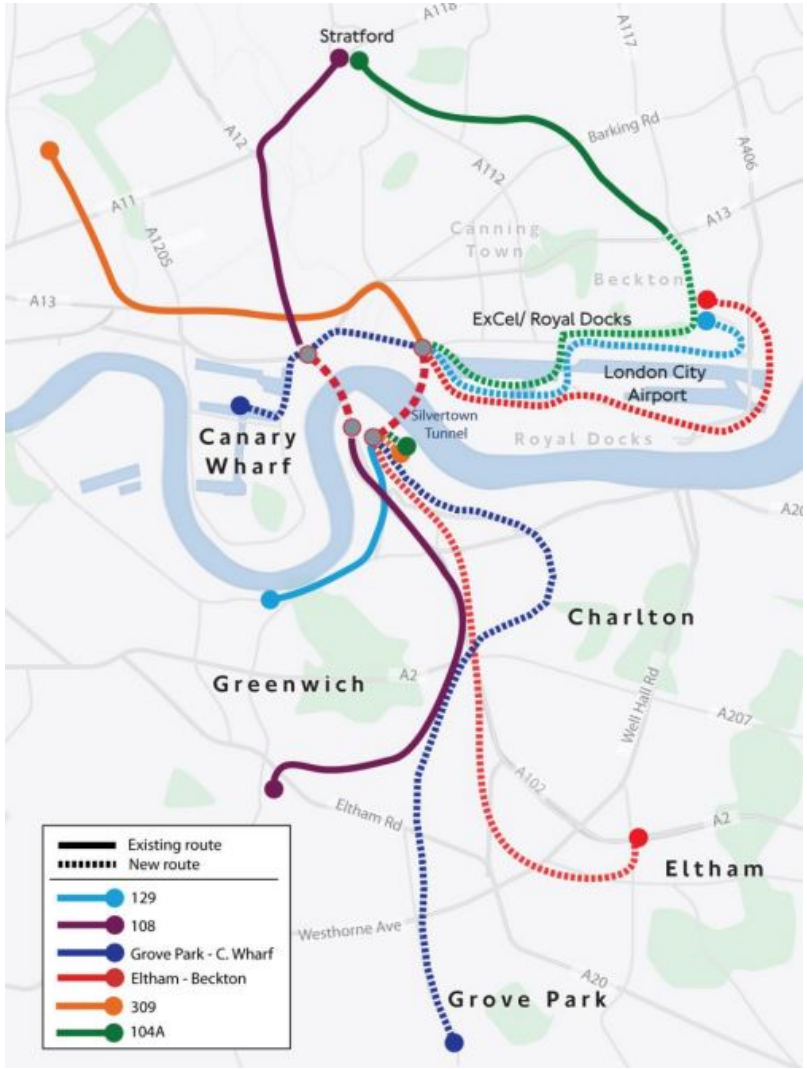
Refreshed Assessment – Refreshed Assessed Case (early results)

Lot A Transport Modelling – Refreshed Assessed Case Assumptions

- RA Assessed Case (RA AC) uses the same scheme specification as the DCO Assessed Case
- It is expected to provide a starting point for the revised forecast
- First the benchmark against the DCO AS will be undertaken and any differences in travel behaviour and scheme impacts will be examined
- Following the initial analysis, any necessary refinements to bus networks and charges will be considered
- Sensitivity tests will be undertaken to assess the impact of uncertainty



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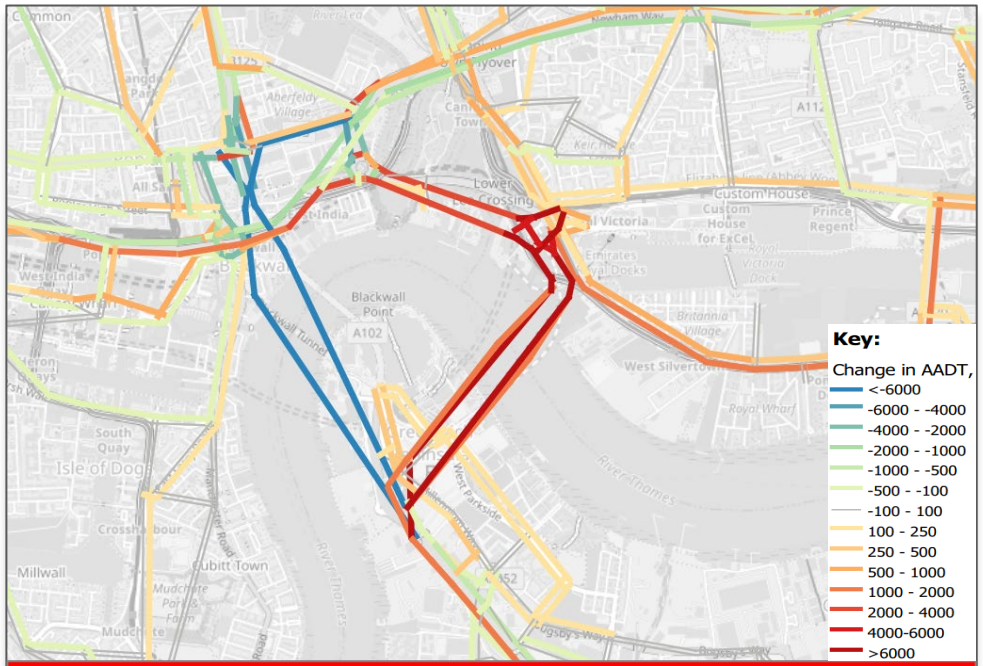
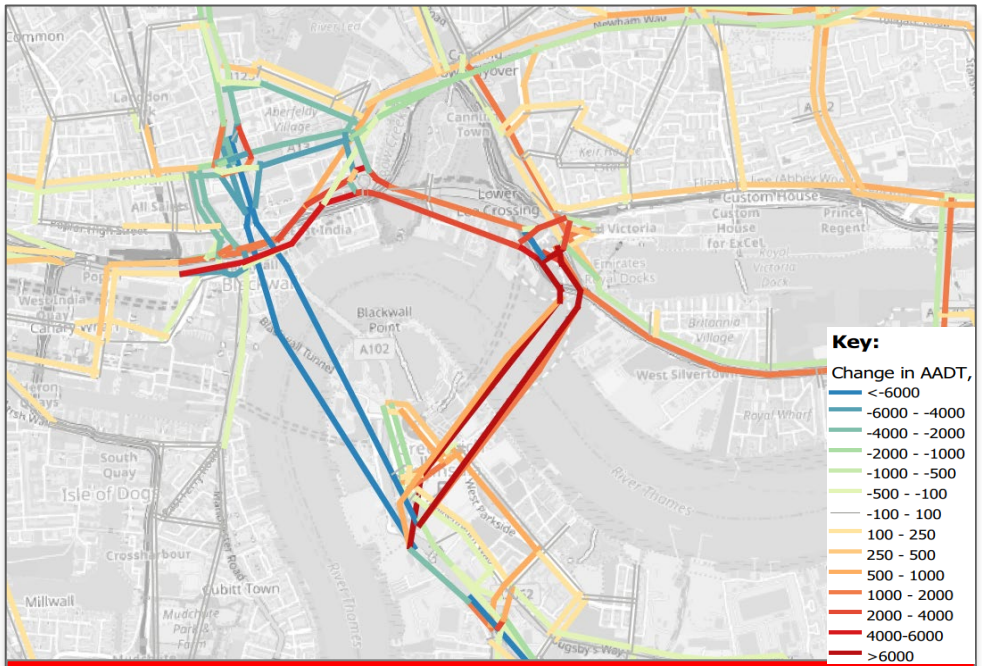
Lot A Transport Modelling – Assessed Case - Local Area Flow Changes
(Annual Average Daily Traffic – AADT)

- AADT flow changes following scheme introduction are not dissimilar between DCO AC and RA AC
- As the network is at capacity the flow differences may not tell the full story
- Therefore changes in delays and queues are being carefully examined in each time period



AADT Changes - DCO AC vs RC, 2021



AADT Changes - RA AC vs RC, 2025

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Hybrid Reference Case (early results)

Lot A Transport Modelling – 2025/2041 Growth in Hybrid

- Reference Case and Hybrid forecasts provide two points within a range of uncertainty to inform assessments
- Hybrid reflects slower growth, higher unemployment, more working from home in office jobs, more online shopping, lower trip rates. Higher car ownership due to some hesitancy to return to PT
- In Hybrid scenario personal travel to/ from and within London will reduce from 28.3ml daily trips in 2019 to:
  - 26.2ml in 2025 (**7% reduction vs Base and 13% reduction vs RA RC**)
  - 27.5ml in 2041 (**3% reduction vs Base and 16% reduction vs RA RC**)

	2025 Hybrid			2041 Hybrid		
	2025 Hybrid Mode shares	Change in Demand vs RA RC 2025	Change in Mode Share vs RA RC 2025	2041 Hybrid Mode shares	Change in Demand vs RA RC 2041	Change in Mode Share vs RA RC 2041
Cycle	3%	-13%	0%	3%	-23%	0%
Walk	27%	-11%	1%	26%	-16%	0%
Rail	17%	-25%	-3%	20%	-21%	-1%
Bus	15%	-14%	0%	15%	-17%	0%
PHV	2%	-7%	0%	2%	-12%	0%
Car D	26%	-9%	1%	25%	-14%	1%
Car P	10%	-6%	1%	9%	-11%	1%
total	100%	-13%	0%	100%	-16%	0%

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Lot A Transport Modelling – Next Steps

a) Finalise the Refreshed AC – to provide starting point for scheme assessment

b) Understand responses to User Charges and Residents Discount

c) Consideration of alternative bus specifications

d) Understand potential junction impacts

e) Understand potential environmental impacts

f) Pass data to Lot B

g) Continue with scheme appraisal

h) Refine the scheme specification

i) Document the forecast

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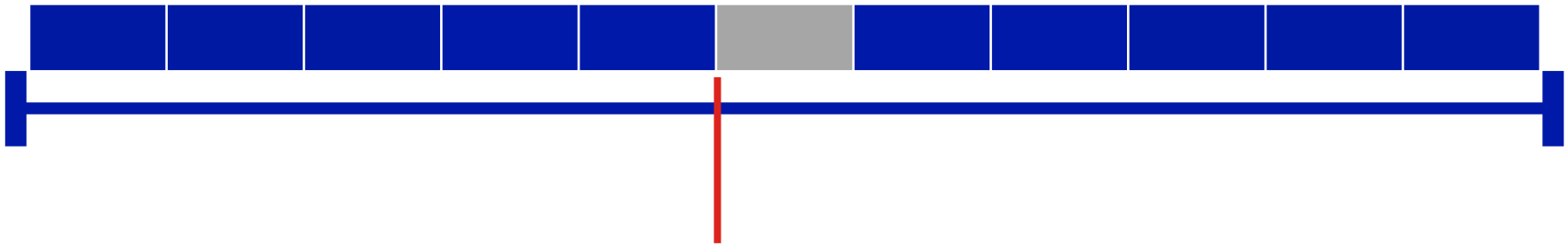


6. Update on initial bus proposals (TfL)

Update on initial bus proposals

Two key questions need to be answered through Refreshed Assessment work:

- What STT bus network should be implemented on opening (routes and service frequency)?
- How are STT bus network benefits appraised in accordance with Bus Strategy and DCO Requirement 14?

Work is underway to answer both questions

Initial thinking on opening bus proposals

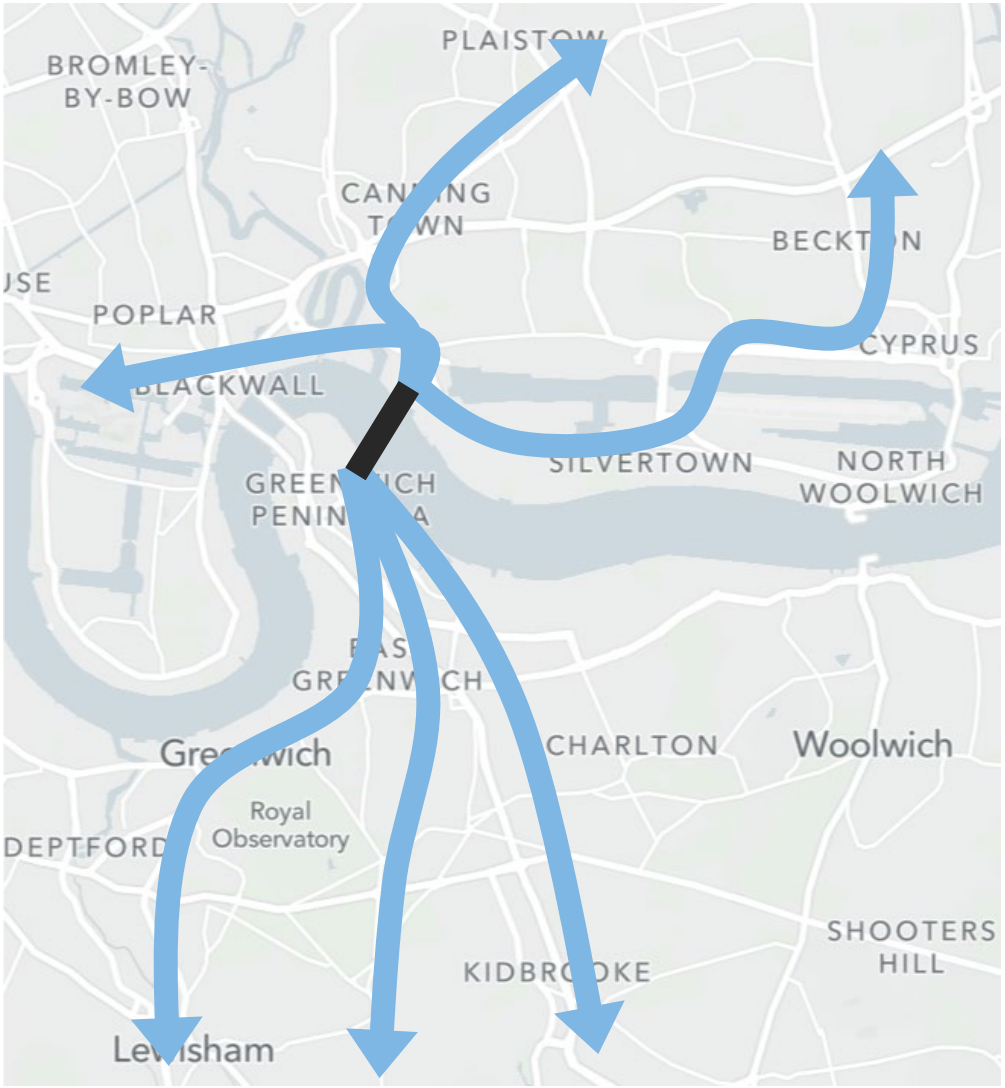
STIG members working group was convened (20 October 2021) to review TfL's initial thinking on how to plan STT bus network

Notional 'long-list' of bus routes was introduced that served a 'bus opportunity zone'

Based on typical bus trip distances, and serving areas where current public transport accessibility was relatively poor

Following the working group these bus routes were assessed

Enabled TfL to identify three 'bus corridors' north and south of the river to inform future STT bus network planning - see image to right:-



Initial thinking on opening bus proposals – next steps

Bus corridors north and south of the river can be served by different bus routes:

- Many different networks can therefore be formed by joining these different corridors
- These shall be assessed as part of Refreshed Assessment this spring

More direct/ faster bus services that avoid certain bus stops that are well served by other existing routes shall also be assessed

Initial 20bph bus network has been used for new Refreshed Assessment – however by running further sensitivities it is expected this initial bus network will evolve

Further working group shall be organised (date to be confirmed) to discuss the outputs from the Refreshed Assessed Case:

- To gain further feedback from STIG members on emerging STT bus network
- To discuss how TfL approaches demonstrating compliance with DCO Requirement 14 Bus Strategy…

Bus Strategy and Requirement 14

Certified document within Silvertown Tunnel Order 2018 (the DCO)

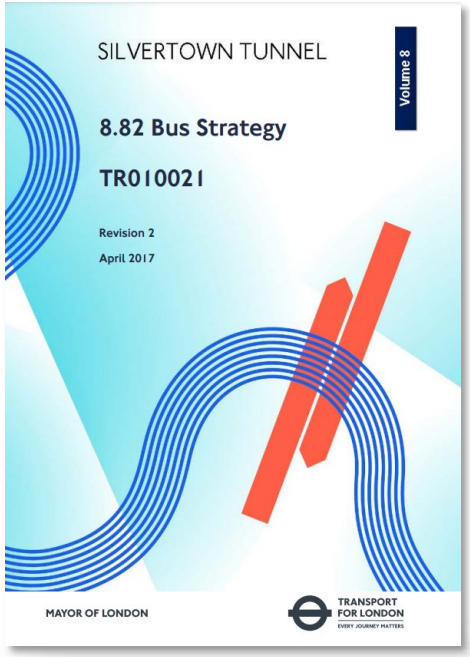
Sets out broad approach to planning the bus network, including:

- Commitments TfL has entered into to implement measures to support and enhance provision of cross-river bus services
- Objectives TfL will adopt in developing cross-river bus services
- How TfL will involve STIG members in planning and delivering improved bus services
- Application of TfL Bus Service Planning Guidelines to ensure value for money

Bus Strategy provides further detail on how TfL should approach meeting Requirement 14 (from Schedule 2, of the DCO):

*"TfL must secure a cross-river bus service provision using the tunnels which delivers **the same or greater levels of public transport benefits** (as quantified in the pre-Scheme Refreshed Case modelling) as those identified in the Assessed Case, as set out in the environmental statement, without any reduction in any other user benefits generated by the scheme and in any event the provision **of not less than 20 buses per hour during peak periods in each direction** through the tunnels for the duration of the monitoring period"*

Note: Assessed Case used a 37.5bph STT bus network


SILVERTOWN TUNNEL

Volume 8

8.82 Bus Strategy

TR010021

Revision 2

April 2017

MAYOR OF LONDON

TRANSPORT FOR LONDON

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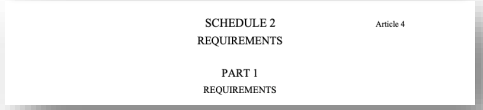
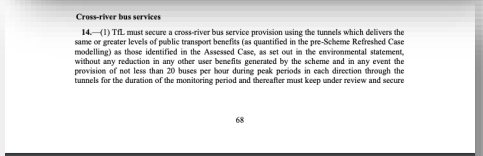

SCHEDULE 2 Article 4

REQUIREMENTS

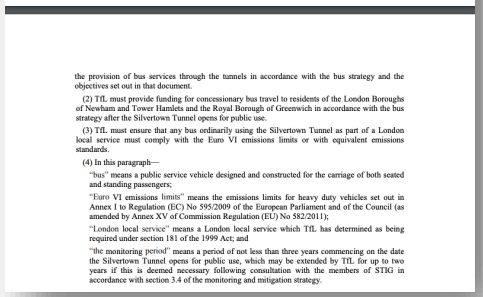
PART 1

REQUIREMENTS


Cross-river bus services

14.—(1) TfL must secure a cross-river bus service provision using the tunnels which delivers the same or greater levels of public transport benefits (as quantified in the pre-Scheme Refreshed Case modelling) as those identified in the Assessed Case, as set out in the environmental statement, without any reduction in any other user benefits generated by the scheme and in any event the provision of not less than 20 buses per hour during peak periods in each direction through the tunnels for the duration of the monitoring period and thereafter must keep under review and secure

68


the provision of bus services through the tunnels in accordance with the bus strategy and the objectives set out in that document.

(2) TfL must provide funding for concessionary bus travel to residents of the London Boroughs of Newham and Tower Hamlets and the Royal Borough of Greenwich in accordance with the bus strategy after the Silvertown Tunnel opens for public use.

(3) TfL must ensure that any bus ordinarily using the Silvertown Tunnel as part of a London local service must comply with the Euro VI emissions limits or with equivalent emissions standards.

(4) In this paragraph—

"bus" means a public service vehicle designed and constructed for the carriage of both seated and standing passengers;

"Euro VI emissions limits" means the emissions limits for heavy duty vehicles set out in Annex I to Regulation (EC) No 595/2009 of the European Parliament and of the Council (as amended by Annex XV of Commission Regulation (EU) No 582/2011);

"London local service" means a London local service which TfL has determined as being required under section 181 of the 1999 Act; and

"the monitoring period" means a period of not less than three years commencing on the date the Silvertown Tunnel opens for public use, which may be extended by TfL for up to two years if this is deemed necessary following consultation with the members of STIG in accordance with section 3.4 of the monitoring and mitigation strategy.

‘Public transport benefits’

During the DCO examination TfL undertook sensitivity tests for several 20bph networks – the following categories for assessment were identified:

- Economic outcomes (public transport user benefits)
- Modal shift
- Changes in Annual Average Daily Traffic (AADT) along key highway links
- Distributional impact, particularly on low-income users

The above assessment should enable TfL to meet Objective 2 of the Bus Strategy:

> *TfL will bring forward a network of bus services which seeks to optimise opportunities for residents of the Growth Boroughs to access employment, including increased service frequencies, capacity and connectivity. In planning services, TfL will seek to improve access in areas of deprivation.*

TfL will develop analyses through Refreshed Assessment to forecast how planned STT bus network performs against above categories relative to 37.5bph bus network (DCO Assessed Case)

Objective to demonstrate ‘the same or greater levels of public transport benefits’ (Requirement 14)

Refreshed Assessment and economic outcomes

Economic outcomes for public transport users were forecast for DCO Assessed Case (37.5bph)

These were monetised forecast journey time savings over sixty years for STT bus service users

Through the Refreshed Assessment these benefits are being re-forecast using new strategic highway and public transport models (to produce a Refreshed Assessed Case)

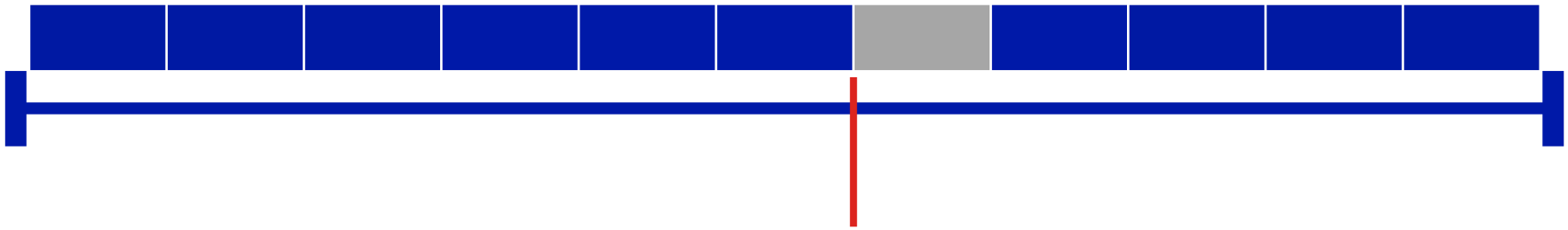
This will ensure STT bus network planning is based on an up to date understanding of likely future bus demand and benefits

A number of inputs to the models have changed since DCO:

- DfT Transport Assessment Guidance (TAG) input parameters (value of time for some users has fallen by 43%)
- Delayed opening year (from 2021 to 2025) reducing level of benefits due to discounting
- Updated assumptions on other public transport enhancements (e.g. DLR upgrades)

Early indications suggest this will result in lower public transport user benefits from the Assessed Case 37.5bph bus network - the quantified forecast benefits (journey time savings) will be different

Refreshed Assessed Case outputs will be available soon to TfL and discussed at future STIG meeting



7. User charging assessment framework (TfL)

User charging assessment framework (UCAF)

- UCAF – assessment tool that allows project to test variations in user charge – both before tunnel opens as part of Refreshed Assessment and post-opening
- Developed during DCO as a template in Charging Policies and Procedures (CPAP) certified document
- Use of UCAF set out in several policies and procedures in CPAP
- UCAF is an important tool for checking user charge rates are set at a level that delivers on the project's objectives
- UCAF structure is based around project's objectives

CPAP Policy 9

The extent to which the user charges will assist in **achieving the Project Objectives is the primary consideration** which TfL will have regard to when setting the initial user charges.

CPAP Policy 10

TfL will set the initial charges at a level and subject to conditions so that the Scheme in operation is **not likely to give rise to materially new or materially different environmental effects** to those reported in the ES.

CPAP Policy 12

The extent to which the user charges will assist in the **continued achievement of the Project Objectives is the primary consideration** which TfL will have regard to when reviewing and varying the user charges

User charging assessment framework

Policy & Procedures

Procedure 1: TfL will propose the initial user charges for the Scheme, having regard to the factors set out in section 3.2 above. TfL will follow the process set out below:

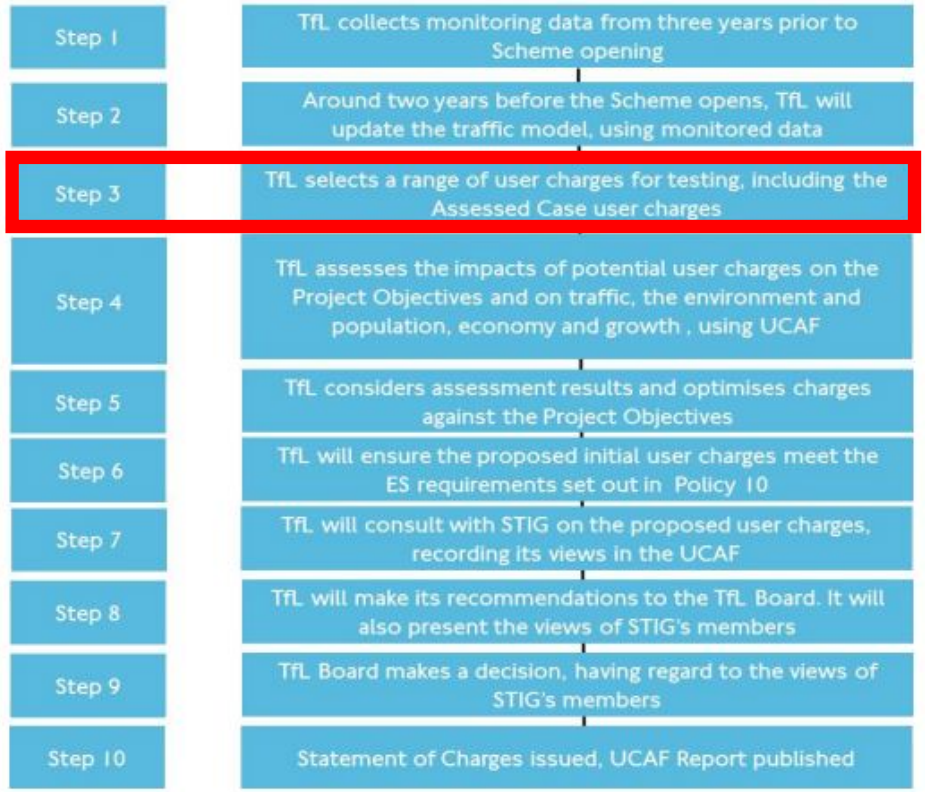
- TfL will re-run the strategic traffic model (using up-to-date data)
- TfL will use the outputs of this model run to undertake a re-assessment of the significant likely effects of the proposed initial user charges on air quality, noise, socio-economic effects, in accordance with the approach adopted in the Environmental Statement (Document Reference: 6.1)
- TfL will populate the UCAF with its impact assessment

TfL will consult with members of STIG on the proposed charges for the opening year, and present the completed UCAF. STIG members may make recommendations or representations to TfL in response to these, and the views of STIG's members will be recorded under PO6 of the UCAF.

TfL will then submit the proposed charges, including setting out the recommendations and representations of STIG members, to the TfL Board for approval. When deciding whether or not to approve the proposed charges the TfL Board must:

- in accordance with article 65 of the DCO have regard to any recommendations or representations made by members of STIG; and
- only approve the charges if it is satisfied that Policies 9 and 10 are met.

Figure 4-2: Process for setting the initial user charges



Project Objective 1: To improve the resilience of the river crossings in the highway network in east and southeast London to cope with planned and unplanned events and incidents AND Project Objective 2: To improve the road network performance of the Blackwall Tunnel and its approach roads	
Impact on traffic flow and composition at the Blackwall & Silvertown Tunnels	
Impact on delay at the Blackwall & Silvertown Tunnels	
Impact on journey time and journey time reliability on strategic routes	
Impact on traffic flow at nearby crossings incl. Tower Bridge, Rotherhithe Tunnel, Woolwich Ferry, Dartford Crossing	
Impact on traffic composition at nearby crossings incl. Tower Bridge, Rotherhithe Tunnel, Woolwich Ferry, Dartford Crossing	
Impact on traffic on diversion routes and local roads	
Overall impact against Project Objective(s)	*State summary outcome*
Project Objective 3: To support economic and population growth, in particular in east and southeast London by providing improved cross-river transport links	
Impact on user benefits	
Impact on business	
Impact on the ability of residents to access employment opportunities	
Impact on public transport	
Overall impact against Project Objective(s)	*State summary outcome*
Project Objective 4: To integrate with local and strategic land use policies	
Summary of assessment in relation to integration with relevant policies	
Overall impact against Project Objective(s)	*State summary outcome*
Project Objective 5: To minimise any adverse impacts of any proposals on communities, health, safety and the environment	
Impact on emission levels (air quality) on the Blackwall & Silvertown Tunnel approaches	
Impact on emission levels (air quality) on the approaches to nearby crossings incl. Tower Bridge, Rotherhithe Tunnel & Woolwich Ferry	
Impact on noise levels on the Blackwall & Silvertown Tunnel approaches	
Impact on noise levels on the approaches to nearby crossings incl. Tower Bridge, Rotherhithe Tunnel & Woolwich Ferry	
Impact on emission (air quality) levels on diversion routes and local roads	
Impact on noise levels on diversion routes and local roads	
Impact on different socio-economic groups	
Impact on safety	
Overall impact against Project Objective(s)	*State summary outcome*
Project Objective 6: To ensure where possible that any proposals are acceptable in principle to key stakeholders, including affected boroughs	
Summary of STIG's and relevant stakeholders' views	
Overall impact against Project Objective(s)	*State summary outcome*
Project Objective 7: To achieve value for money and, through road user charging, to manage congestion	
Impact on the ability to fund the Scheme and other transport improvements without significantly impacting on other funds	
Overall impact against Project Objective(s)	*State summary outcome*
Other TfL duties	
Impact on TfL's network management duty under the Traffic Management Act 2004	
Impact on compliance with relevant legislation relating to TfL's functions	
Overall impact against other TfL duties	*State summary outcome*
Compliance with AQ mitigation	
Consistency with approved air quality mitigations	
	State summary outcome

User charging assessment framework

Project objectives 1 & 2 – example metrics

Measure	Metric
Impact on traffic flow and composition at the Blackwall and Silvertown Tunnels	NB actual traffic flow through Blackwall/Silvertown combined – composition reported as % of Heavy Duty Vehicles (HDVs)
	SB actual traffic flow through Blackwall/Silvertown combined – composition reported as % of HDVs
Impact on delay at the Blackwall and Silvertown Tunnels.	Change in excess delay (mins/km) on NB approach to Blackwall/Silvertown (A102).
	Change in excess delay (mins/km) on SB approach to Blackwall (A102).
	Change in excess delay (mins/km) on SB approach to Silvertown.
Impact on journey time and journey time reliability on strategic routes.	Route 1: Sun-in-the-Sands to Bow Roundabout NB (mins)
	Route 1: Bow Roundabout to Sun-in-the-Sands SB (mins)
	Route 2: Sun-in-the-Sands to A112/A13 Newham Way – NB/EB (mins)
	Route 2: A112/A13 Newham Way to Sun-in-the-Sands – WB/SB (mins)
	Route 3: Sun-in-the-Sands to A1261/A13 – NB/WB (mins)
	Route 3: A1261/A13 to Sun-in-the-Sands – EB/SB (mins)
	Reliability metric to be confirmed
Impact on traffic flow at nearby crossings incl. Tower Bridge, Rotherhithe Tunnel, Woolwich Ferry, Dartford Crossing.	NB actual traffic flow across each crossing
	NB actual traffic flow across each crossing

Measure	Metric
Impact on traffic composition at nearby crossings incl. Tower Bridge, Rotherhithe Tunnel, Woolwich Ferry, Dartford Crossing	NB composition reported as % of actual flow that is HDVs at each crossing
	NB composition reported as % of actual flow that is HDVs at each crossing
Impact on traffic on local roads.	Borough-level stats summarising cumulative change in traffic volumes on roads in host boroughs (Greenwich, Tower Hamlets and Newham).
	Borough-level stats summarising cumulative change in delay on roads in host boroughs (Greenwich, Tower Hamlets and Newham).
Impact on traffic on diversion routes (***NB. Reported data to include traffic flow, composition, and journey times by direction, consistent with information presented for river crossings***)	Routes and locations reported to be confirmed, but proposal to include following: *South of river* • A2 either side of Sun-in-the-Sands (Tower Bridge Road to M25). • A205 either side of A2 (Woolwich to Forest Hill) • A20 either side of A205 (New Cross to M25) *North of river* • A13 either side of A12 (Aldgate to M25) • A11 (Aldgate to Bow Roundabout) • A118 (Bow Roundabout to Stratford) • A1020 (North Circular to Woolwich Ferry) • A406 (A13 to A12)

Each metric derived from MoTiON (LoHAM) and presented for each modelled time period in opening year: AM peak hour (0800 – 0900), PM peak hour (1700 – 1800), Inter-peak average hour (1000-1600)

8. Approach to identifying mitigation measures (TfL)

Process for identifying mitigation set out in MMS

Approach for identifying the need for and form of localised traffic-related mitigation required will be as set-out in the Monitoring & Mitigation Strategy (see process right)

To provide a consistent and transparent approach to developing mitigation measures, TfL will draw on recent experience from other projects (e.g. ULEX)

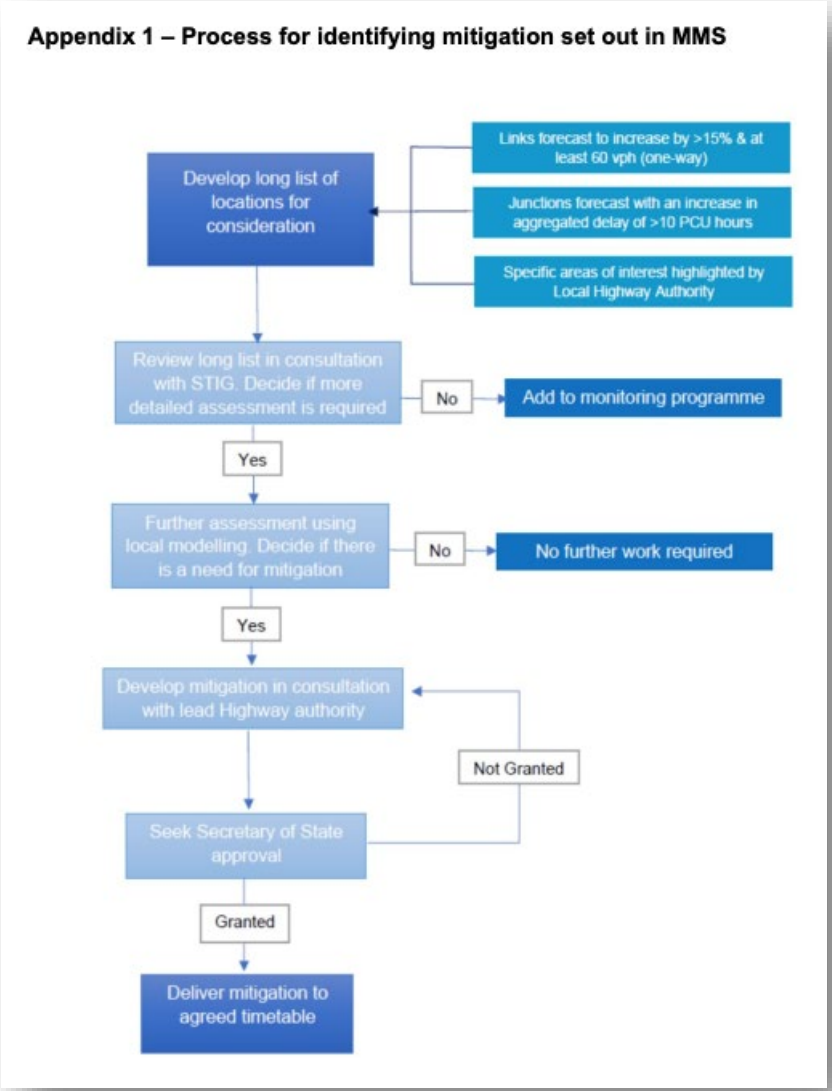
This will supplement and enhance the Silvertown Tunnel scheme approach

Mitigations to be adopted will be considered on a case-by-case basis, with the aim being to ensure the:

- measures are tailored to the cause, locality, and extent of expected impacts

STIG will be consulted throughout process of identifying the locations

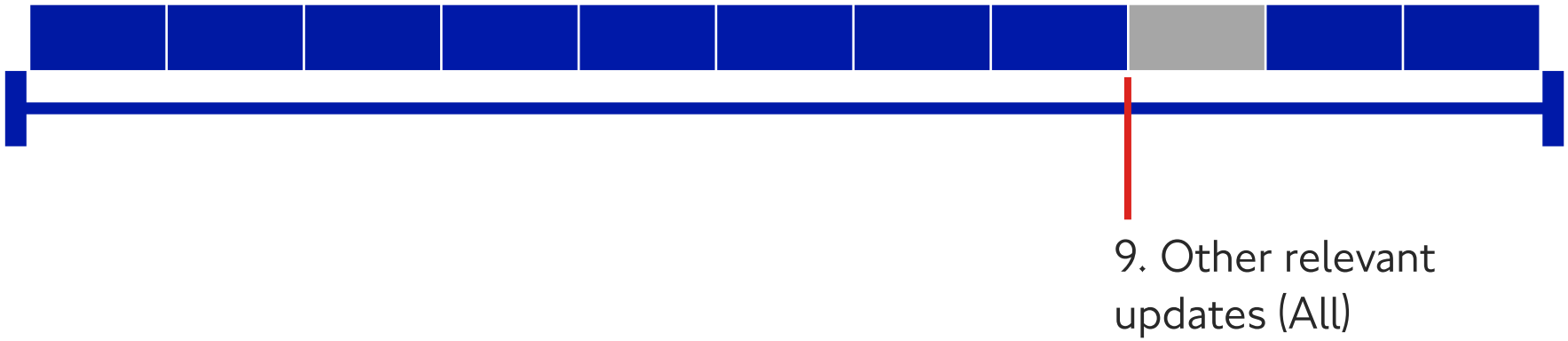
Engagement will be undertaken with affected highway authorities on detail of mitigation measures in each borough

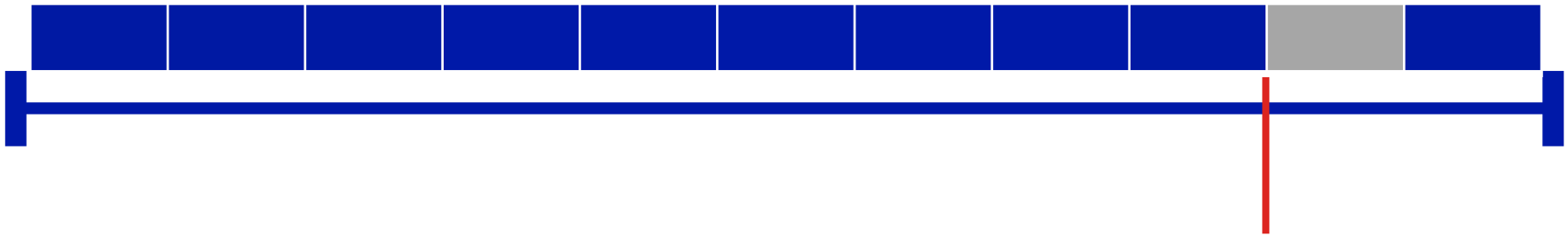


Thresholds

MMS	Impact?
All links where one-way traffic flows are forecast to increase by more than 15% and by at least 60 vehicles per hour	Yes / no
All junctions that are forecast to experience an increase in aggregated delay of greater than 10 passenger car unit (PCU) hours	

ULEX	Magnitude of impact
Change in actual flows: % change in the vehicular flow on a link	No change Negligible Minor Moderate Significant
Change in volume over capacity: a measure of traffic demand at a link or junction relative to its capacity, both in terms of a threshold banding and the absolute % change	
Total vehicle hours delay: delay per vehicle (converted to PCU hours) multiplied by the number of vehicles per hour	


9. Other relevant updates (All)



10. Obligations and forward meeting planner

Forward Meeting Planner

Silvertown Tunnel Implementation Group – forward meeting planner

19.02.2022

Meeting 1 – 24 September 2020

- Terms of Reference
- Update on MMS procurement
- High-level milestones and engagement
- Air quality monitoring proposals

✓

Meeting 2 – 28 January 2021

- Election of chairperson
- Recording of decisions made
- Approach to strategic transport modelling
- Lot B, C and D – general update

✓

Meeting 3 – 27 May 2021

- Scope of environmental compliance assessment
- Approach to socio-economic monitoring
- Traffic monitoring proposals

✓

Meeting 4 – 30 September 2021

- Update on refreshed assessment, including core modelling scenarios
- Socio-economic monitoring – primary surveys
- Final traffic monitoring plan

✓

Meeting 5 – 27 January 2022

- Emerging modelling outcomes (Lot A)
- Update on initial bus proposals
- User charging assessment framework
- Approach to identifying mitigation measures

Meeting 6 – 26 May 2022 (tbc)

- Update on modelling outcomes (Lot A)
- Bus network planning progress
- Air quality monitoring data
- Early air quality modelling outputs

Meeting 7 – September 2022

- Opportunities for bus priority measures
- Environmental compliance assessment
- Reporting of monitoring data
- Proposed scheme of mitigation

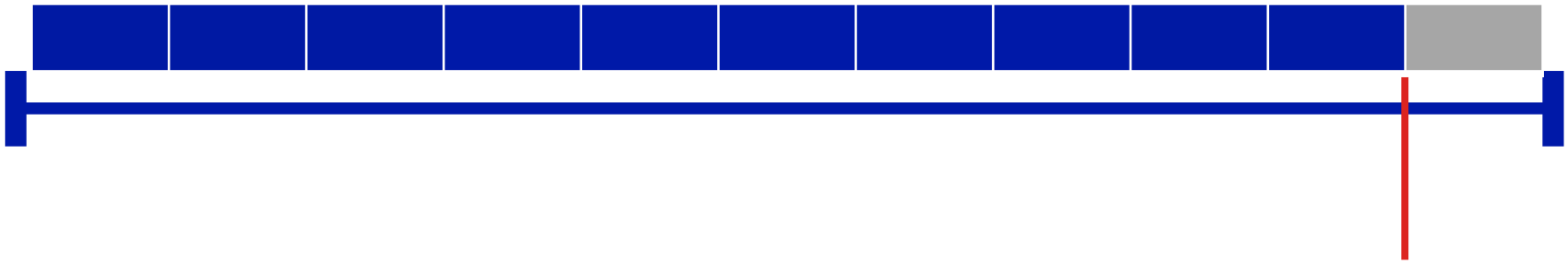
Meeting 8 – January 2023

- Submission to Secretary of State

TfL Key Milestones

Indicative Milestone Description/ Date	Mile-stone Date	2021		2022		2023		2024		2025
		H1	H2	H1	H2	H1	H2	H1	H2	H1
A&B: Commence Refreshed Assessment (A)	Sept 2021		X							
C: Commence socio-economic monitoring (primary surveys)	Sep 2021		X							
D: Commence traffic monitoring	Dec 2021		X							
Conclusion of Refreshed Assessment (modelling and identification of mitigation)	Q4 2022				X					
Submission to Secretary of State	**Q2 2023**					X				
SoS decision	Q4 2023						X			
Scheme of Mitigation delivery	Q4 2024									
Scheme opening	Q1 2025								PTU:	X

KEY: H1 = JAN to JUN/ H2 = JUL to DEC



11. Next steps and AOB