

Report  
November 2023

# Technical Note on Transport Modelling and Traffic and Movement Environmental Assessment

Appeal by London City Airport  
Ltd  
(PINS ref:  
APP/G5750/W/23/3326646)

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# 1 Introduction

- 1.1 This note has been prepared in light of guidance published since the preparation and submission of the Transport Assessment (TA) (CD1.61) and Environmental Statement (ES) which were submitted alongside the planning application (“S73 Application”) which the subject of this Appeal. Specifically this covers two areas: it sets out how transport modelling has taken account of COVID-19 and any implications of the revised Department for Transport (DfT) guidance on TAG Unit M4: Forecasting and Uncertainty (CD3.2.5) and also provides commentary regarding updated guidance on environmental assessment of traffic and movement.
- 1.2 The note does not provide any new analysis and confirms that previous reports submitted to London Borough of Newham (LBN) and Transport for London (TfL) remain valid.

## 2 Accounting for COVID 19 in Transport Modelling

### Context

- 2.1 The Department for Transport (DfT) published guidance in May 2023 which provides advice on transport modelling (TAG Unit M4: Forecasting and Uncertainty) (CD3.2.5) (the “TAG Guidance”). The guidance advises that the validity of models for future forecasting with base years established prior to COVID-19 should be assessed using present day observations.
- 2.2 The TAG Guidance provides practical guidance for forecasting the impact of transport projects including option testing and appraisal. The TAG Guidance is particularly aimed at the assessment of transport interventions within the public sector, where a business case is developed that considers the benefits of new or changed infrastructure against potential costs. Such cost/benefit analysis is not required as part of private sector promoted planning applications.
- 2.3 The transport modelling for the S73 Application was not prepared as a DfT TAG (Transport Advisory Guidance) compliant exercise, though many of the principles set out within TAG Guidance have been considered. The approach to modelling was agreed through scoping discussions with Transport for London (TfL) and London Borough of Newham (LBN) and followed established best practice guidance for transport assessments informed by the specific surface access issues associated with airports.
- 2.4 The appropriate use of alternatives to TAG modelling methods is acknowledged at Para. 1.1.1 of the TAG Guidance, which states:

*“...For major transport schemes, it is expected that these models will have been developed in line with TAG Unit M2.1 – Variable Demand Modelling, TAG Unit M2.2 – Base Year Matrix Development, TAG Unit M3.1 – Highway Assignment Modelling and TAG Unit M3.2 – Public Transport Assignment Modelling, with exceptions where other modelling methods have been demonstrated to be more effective (for example, the use of uni-modal models for rail and aviation modes). Simpler “light touch” approaches, typically used for traffic impact assessments are also discussed.” (Underlining for emphasis)*

### Guidance on COVID-19 within TAG Unit M4

- 2.5 The COVID-19 pandemic has had a significant impact on the pattern and volume of travel, with overall volumes for most modes still below pre-pandemic levels.

2.6 At Para B.1.1 the TAG Guidance states:

*“It is the Department’s view and recommendation that this evident suppression of travel demand relative to a pre-pandemic projection of demand at this time should be appropriately represented in transport analysis. This is important particularly in appraisal and analysis supporting transport investment decisions.”*

2.7 Other TAG guidance sets out the need to assess the validity of the trip matrices developed in the past against present day observations. Where there are significant changes from when the matrix was developed and the present day, the model should ideally be rebased. More proportionate approaches may be acceptable if sufficient evidence is provided that these appropriately cover most of the risks of not rebasing.

2.8 The TAG Guidance recommends that to account for COVID-19 related changes, trip matrices based before the beginning of the pandemic should ideally be rebased, or if this is not possible, an appropriate adjustment applied to model inputs or outputs in a proportionate way.

2.9 It is noted that at Para B.2.5 the TAG Guidance states:

*“analysts should continue to use the growth factors from the National Trip End Model data set (NTEM) to grow demand from their base year”*

2.10 The summary recommendation is, where model rebasing is judged not to be practical, for analysts to assess the extent of the divergence of travel patterns and volumes from pre-pandemic projections, using the best available data and evidence. If it is clear COVID-19 has had an impact on travel, this should be represented using an appropriate change in travel demand across the trip matrix, considering trip purpose and patterns as appropriate, and apply this to produce an updated core forecast.

### Consideration of COVID-19 in Transport Assessment

2.11 It is important to note that the modelling in the TA was undertaken in a post COVID-19 period but when post COVID-19 levels of travel demand were yet to be established with great reliance. The TA acknowledged the disruptive effect of COVID-19 on travel patterns. In terms of passenger numbers it was explained that COVID-19 had created an approximate 5-year hiatus but numbers were expected to return to pre-Covid levels rapidly and thereafter the annual total passenger numbers were predicted to grow up to the maximum allowed, with passenger numbers predicted to grow faster after 2024 with the Proposed Development.

2.12 The projected passenger demand in the Do Minimum and Development Case scenarios (as set out in detail in Chapter 4 of the ES (CD1.11)) is summarised in Table 1.1.

**Table 1.1: Past and Predicted Future Annual Passenger Numbers (millions)**

	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Do Minimum (Without Development)	5.1	0.9	0.7	3.0	3.6	4.9	5.0	5.3	5.4	6	6.4	6.5	6.5

Development Case (with Development)	-	-	-	-	-	4.9	5.4	6.3	7.0	7.6	7.9	8.6	9.0
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- 2.13 For the purposes of the TA, the surface access travel modes for air passengers at the Airport were derived from the most recent validated pre-COVID-19 CAA passenger survey data (2019).
- 2.14 The Future year mode shares adopted for the transport modelling were set out in the TA and were developed in 2022, once the impact of COVID had started to be understood. In particular it was understood that mode choice in London had not significantly changed possibly reflecting the lower car ownership patterns in London that means choice of travel mode between car and public transport are limited.
- 2.15 The detailed transport models used for the surface access transport modelling was the Steer developed airport surface access spreadsheet demand model (as reported in the TA) and the TfL provided 2031 LOHAH and TfL’s 2031 Railplan model, used for highway impact and for public transport impact assessments respectively.

## Post Covid Validation

### Passenger Growth

- 2.16 3.0 million passengers passed through the airport in 2022, in line with the figures reported in the TA. The predicted future growth of passenger numbers remains as per the figures assumed for the surface access transport modelling, as set out in Table 1.1 above. Employee number assumptions also remain valid.

### CAA Data

- 2.17 Since the preparation of the TA and ES, the independently prepared CAA departing passenger survey report for 2022 has been published. The mode of travel for City Airport is reported as 51.5% public/48.5% private. This compares with the 2019 figure of 51.9% public/48.9% private. The very close match of post COVID-19 to pre COVID-19 mode share is notable.

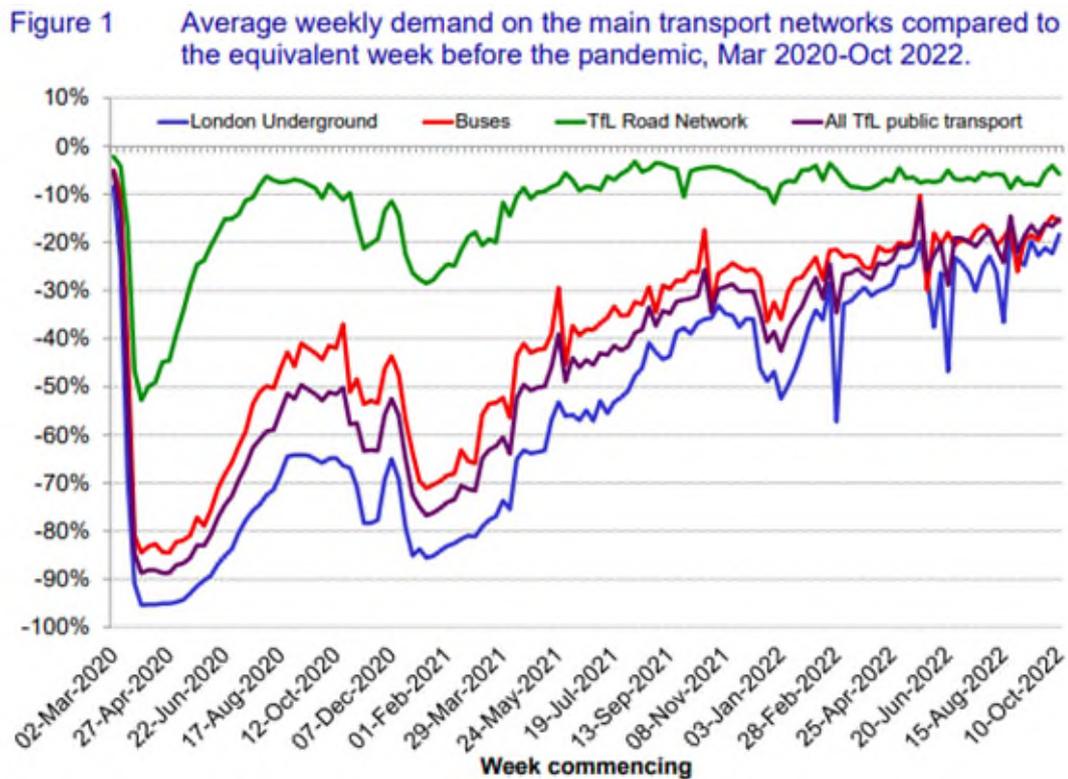
### Travel in London report 15

- 2.18 Travel in London<sup>1</sup> is Transport for London’s (TfL’s) annual publication that summarises trends and developments relating to travel and transport in London. Its principal function is to describe how travel is changing and to provide an interpretative overview of progress towards implementing the Mayor’s Transport Strategy. It also provides an evidence and analysis base for the general use of stakeholders and policymakers. This fifteenth report covers trends and developments up to 2021 and into 2022, including the disruption brought about by the COVID-19 pandemic from early 2020 and London’s recovery since then. It describes overall travel trends, such as patterns of travel demand and mode shares.
- 2.19 As of October 2022, representative average daily demand on the London Underground was about 82 per cent of the pre-pandemic levels. Bus demand was around 84 per cent of the pre-pandemic levels. Traffic on the TfL Road Network was about 94 per cent of the pre-pandemic levels, although it had been close to this level since early 2021. The broad relativities between the modes established during the pandemic appear to have persisted into the recovery,

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<sup>1</sup> Travel in London report 15, Transport for London, 2022

although recent values for the London Underground are suggestive of a stronger recovery into autumn 2022, as shown in Figure 1 from the report below:



2.20 The report also provides insight on the impact of COVID-19, the most significant in terms of planning for the next phases of the recovery are:

- An uneven pace of recovery among different modes.
- Changes in travel demand by day of the week.
- No persisting changes in the distribution of road traffic and bus demand throughout the week either side of the pandemic.
- For rail (particularly London Underground), recovery has been noticeably faster on weekends than on weekdays.
- Central days (Tuesday to Thursday) now showing a relatively higher difference to Mondays and Fridays than before the pandemic.
- Reduction of, in particular, medium- and long-distance commuting into central London due to flexible, hybrid and remote working practices is still noticeable during the working week, and there continues to be relatively more travel in local areas than before the pandemic.

The report states that other features of pandemic travel demand have largely dissipated:

- Changes in travel demand by time of day; the distribution of demand throughout the day now follows again the traditional two peaks for most modes.
- Changes in the spatial patterns of travel demand; there has been a slow return to the previous pattern.

- 2.21 As a whole the report provides a picture that post COVID-19 travel demand is returning to pre Covid levels but remains lower than pre COVID-19. Road traffic is closest to pre COVID-19 levels.
- 2.22 As stated in the report, the extent to which the features of demand identified above, catalysed by the pandemic, will persist into the longer term is not yet clear. It seems likely that London's recovery has some way yet to run before the pandemic effects are fully eliminated and any post-pandemic legacy impacts fully embedded.

## Conclusion

- 2.23 From the review of available data post COVID-19 there are three key elements that can be utilised to validate previously provided analysis and reporting:
- There is clear guidance that the National Trip End Model data set remains a reasonable assumption, so growth assumptions relied upon in the TA and ES remain valid.
  - The evidence of no mode share change between CAA data pre and post COVID provides comfort that the 2019 baseline utilised for understanding existing travel behaviour remains valid.
  - The evidence from the 2022 TfL report on London Travel patterns suggests that travel volumes are returning to pre COVID-19 levels and mode share shift is apparent.
- 2.24 When considered together, it provides assurance that the reported surface access modelling remains valid post COVID-19.
- 2.25 In particular there can be confidence that the 2031 LOHAM and Railplan models remain a reasonable basis for assessment of impact from the proposed additional passengers associated with the S73 Application. If anything, the most recent evidence suggests background demand may be slightly lower than modelled and hence the cumulative demands with the proposed increase in passenger numbers at the airport may be slightly lower than reported and hence reporting is robust.

# 3 Implications of the Revised IEMA Guidance on Environmental Assessment of Traffic and Movement.

## Context

- 3.1 Guidelines for the Environmental Assessment of Road Traffic (Guidance Note No. 1) were published in 1993 by the Institute of Environmental Assessment (IEA) (now the Institute of Environmental Management and Assessment IEMA).
- 3.2 The scope of the assessment set out in Chapter 10 of the ES (CD1.17) focussed on the impact of additional highway traffic on the surrounding highway network and road users, and the impact of increased demand on the public transport network from additional airport passengers. The scope of the assessment accorded with the IEMA Guidelines for investigating highway impact. Otherwise, the methodology adopted was clearly identified.
- 3.3 In July 2023 the IEMA issued 'Environmental Assessment of Traffic and Movement' (EATM 2023) as a replacement for the IEMA 1993 guidelines.

## Review of revised guidelines

- 3.4 The new guidance usefully states that the 1993 guidelines have been used continuously in projects across the UK and internationally to help provide guidance on this area of impact assessment. The core tenets of the methodology provided in the 1993 Guidelines have been validated by cross-examination of expert witnesses in contested cases over the years.
- 3.5 It is also noted that the revised guidance set out that the guidelines are intended to complement professional judgement and the experience of trained and competent assessors. As the environmental impact of traffic and movement will vary on a case-by-case basis, the experience and expertise of the assessor will remain of primary importance, along with adequate consultation.

### **Items of new guidance and consideration of ES Chapter 10**

- 3.6 Set out below are specific areas of guidance that have been introduced in the revised guidelines and a commentary on how such areas have been covered in the Chapter 10 of the ES (CD1.17).

### *Scope and modelling*

- 3.7 The new guidelines now notes that the scope and approach to a transport assessment and environmental statements may vary, with transport assessments focusing on peak demand and environmental assessments looking at daily traffic flows. With a few exceptions, the nature and depth of assessment undertaken within a transport assessment is incompatible for the purposes of an assessment under the Town and Country Planning (Environmental Impact Regulations) 2017 (as amended) (the “EIA Regulations”) or non-statutory environmental assessment. It is therefore important to ensure that the content of traffic and movement input to environmental assessment fully accords with the requirement of the relevant EIA Regulations.
- 3.8 The scope for the TA and ES were submitted and agreed separately with both LBN and TfL providing comments that were taken on board in the submitted reports. The TA transport modelling was focussed on peak hour periods whilst the ES highway assessment was based around daily flows (which were also used for separately reported air quality and noise assessments).

### *Rochdale Envelope*

- 3.9 The new guidelines set out the principle of ‘Rochdale Envelope’ and the need for environmental assessment practitioners to consider the forecast changes to baseline (magnitude of change/ impact), the relative value/sensitivity/importance of the affected asset/receptor and the scale, nature and significance of the effect (consequence).
- 3.10 The ES Chapter 10 conforms with this requirement, with the nature of the proposed increase in passengers leading to a long-term negative effect offset by suitable mitigation that has been duly assessed in the ES.

### *Affected Parties*

- 3.11 The new guidance sets out a list of special interests that should be considered when defining the list of receptors to be included in the environmental assessment, i.e. those which may be sensitive to changes in traffic conditions, and should be informed by consultation with the local planning and highway authorities as part of the Environmental Impact Assessment (“EIA”) scoping process, as follows:
- People at home
  - People at work
  - Sensitive and/or vulnerable groups (including young age; older age; income; health status; social disadvantage; and access and geographic factors)
  - Locations with concentrations of vulnerable users (e.g. hospitals, places of worship, schools)
  - Retail areas
  - Recreational areas
  - Tourist attractions
  - Collision clusters and routes with road safety concerns
  - Junctions and highway links at (or over) capacity
- 3.12 Though this specific list was not defined at the time of scoping of the ES, such potential receptors were considered at the time of scoping and subsequent undertaking of the detailed

assessment. The list provided in the new guidance has been reviewed for the defined study area and does not introduce any new receptors that have not previously been considered.

*Mitigation hierarchy, mitigation and monitoring*

- 3.13 The new guidance states that for the purpose of traffic and movement, it is critically important that EIA Screening Reports, EIA Scoping Reports and the final EIA Report (with accompanying Non-Technical Summary (NTS)) provide the necessary details of any primary, secondary and/or tertiary mitigation relied upon in the assessment of significant environmental effects at each stage of the EIA process.
- 3.14 The ES Chapter 10 clearly sets out the assumed assumptions for mitigation including the suggested secondary mitigation associated with the proposed planning obligations associated with travel planning.

*Use of Competent Experts*

- 3.15 The new guidelines now set out specific guidance on the competent traffic and movement expert's level of understanding which should include (but not be limited to):
- A relevant degree, other professional qualifications, or relevant experience relating to the transport sector, traffic, and traffic management.
  - A working knowledge and appreciation of UK traffic and transport modes, their properties and characteristics, and understanding of their management in accordance with the highest tiers of the mitigation hierarchy and sustainable transport hierarchy.
  - Knowledge of the concepts, theories and application of traffic and movement assessment, as well as key links to other related assessments such as air quality, noise and human health.
- 3.16 It also states that as well as a sound knowledge of the key principles concerning traffic and movement, the competent traffic and movement expert must have a good understanding of EIA principles, including the ability to:
- Define the scope of an environmental assessment, including its temporal and spatial boundaries (to ensure a proportional approach).
  - Determine potential environmental impacts and effects (whether positive or negative).
  - Actively seek beneficial effects, enhancement and adverse effect minimisation as far as reasonably practicable.
  - Understand the mechanisms established by legislation, policy and accepted practice, to adequately reduce potential impacts.
  - Define significant environmental effects for consideration within EIA.
- 3.17 Chapter 10 of the ES was prepared by Steer, a leading transport focussed consultancy established for over 40 years. Steer advise a wide range of clients within the public and private sector on all aspects of transport and associated issues. In the UK, our clients include the Department for Transport; Network Rail ; regional and local transport authorities; private developers; and transport operators. Steer have prepared numerous Environmental Statements in support of developments and a wide range of transport infrastructure projects.
- 3.18 The Chapter 10 Assessment was led by Philip Jonathan Rust, a Director of Steer. He has a BSC(Hons) in Civil Engineering, is a Chartered Engineer, a Member of the Institution of Civil Engineers and a Member of the Chartered Institution of Highways and Transportation. He has

over 40 years of experience within the field of transport planning, involving 8 years employment in a local authority and over 30 years in private consultancy.

- 3.19 He has undertaken Environmental Assessments for highway schemes and development proposals since their first introduction in the 1990s and is fully familiar with EIA principles set out above.

*Screening and scoping*

- 3.20 The new guidelines set out best practice for scoping and screening that reflect the approach adopted for this application and process of preparing Chapter 10 of the ES as submitted.

- 3.21 The new guidelines set out the principle of Rule 1 and Rule 2 “criteria” as follows:

**Rule 1 Include highway links where traffic flows will increase by more than 30% (or the number of heavy goods vehicles will increase by more than 30%)**

**Rule 2 Include highway links of high sensitivity where traffic flows have increased by 10% or more**

- 3.22 The assessment set out in Chapter 10 of the ES followed the 30%/10% principle, but for robustness, a more conservative approach was adopted in the assessment whereby consideration was given to the potential environmental impact on all roads that experience a 10% or greater rise in traffic flows (irrespective of sensitivity) when comparing the Do Minimum Scenario with the Development Case Scenario in the principal assessment year (2031).

- 3.23 The guidance states:

*“The Rule 1 and Rule 2 ‘criteria’ process may not be appropriate for some impacts, and it is generally accepted by regulators and practitioners that it should not be applied to assessments of air quality, noise, road safety and driver delay. For these impacts, a separate study area and assessment criteria should be agreed with the relevant stakeholders. “*

- 3.24 For the ES the detailed air quality and noise assessments have not been undertaken in the transport chapter as they have been reported in separate chapters and the scope and approach to assessment was agreed between the parties and stakeholders by relevant experts.

*Assessment Methodology*

- Specific traffic and movement related impacts that should be covered in an environmental statement have been stated in the revised guidance as:
- Severance of communities
- Road vehicle driver and passenger delay
- Non-motorised user delay
- Non-motorised amenity
- Fear and intimidation on and by road users
- Road user and pedestrian safety
- Hazardous/large loads
- With the exception of Hazardous/large loads these replicate the 1993 guidance and Chapter 10 of the ES considers these were assessed as set out in the table below:

Effect	Description
Changes in Traffic Flows	Increase or decrease in road traffic flows resulting from the development, compared to baseline conditions.
Severance	The perceived division that can occur within a community when it becomes separated by a major traffic artery.
Driver Delay	Valuation of the delay (or benefit) to drivers resulting from a new development.
Pedestrian Delay (cyclists also considered)	The change in the ability of pedestrians to cross a given highway link due to changes in traffic flow, speed, composition, highway design.
Pedestrian Amenity	Influenced by traffic flow but also including consideration of the overall relationship between pedestrian and traffic (e.g., air quality and noise).
Fear and Intimidation	Linked to pedestrian amenity and influenced by factors including traffic flow, composition and pavement conditions.
Accidents and Safety	Increase or decrease in risk of road traffic collisions resulting from changes in traffic flows and highway layout.

3.25 The new guidance does provide some additional best practice compared with the 1993 guidance however, the approach adopted for Chapter 10 of the ES has been reviewed against the new guidance. No new criteria or approach is introduced by the guidance and no change to the detailed assessment as reported arises from the revised guidelines.

3.26 No hazardous or large loads arise as a result of the S73 Application hence no additional assessment is required for the ES.

*Links to other Assessments*

3.27 The new guidance sets out the relationship between traffic and movement assessment and other assessments within a transport assessment. The approach suggested (including separate scoping and extent) has been followed for this application and separate best practice guidance followed as appropriate.

**Conclusions**

3.28 The new guidelines provide a useful update that captures significant change in the statutory requirements and best practice for the preparation of a Transport and Movement assessment forming part of an environmental statement. However, the guidance does not introduce any fundamental changes to the approach or suggest that environmental statements prepared following previous guidelines are inappropriate.

- 3.29 Chapter 10 of the ES was prepared by Steer who have kept abreast of best practice in the preparation of a transport and movement assessment.
- 3.30 A detailed review of the new guidance has been undertaken as set out in this note. No issues have been identified that require any modifications to Chapter 10 of the ES.

## Control Information

### Prepared by

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Steer  
14-21 Rushworth Street  
London SE1 0RB  
+44 20 7910 5000  
www.steergroup.com

### Prepared for

---

London City Airport  
Hartmann Rd,  
London  
E16 2PX

### Steer project/proposal number

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23669202

### Client contract/project number

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### Author/originator

---

Phil Rust

### Reviewer/approver

---

Lisa Martin

### Other contributors

---

### Distribution

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Client:

Steer:

### Version control/issue number V1.1

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### Date 1/11/2023

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