Technical Note

Annex B

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| TITLE: | REVIEW OF TRIMMA AND POST-COVID MODELLING SUBMITTED AT DEADLINE 4 |
| ON BEHALF Of: | NATIONAL HIGHWAYS LIMITED |
| PURPOSE: | DEADLINE 5 SUBMISSIONFOR THE LUTON AIRPORT EXPANSION DEVELOPMENT CONSENT ORDER |
| DATE: | 14 NOVEMBER 2023 |

# 1. Introduction

National Highways and its technical consultant, Jacobs, have reviewed the Outline Transport Related Impacts Monitoring and Mitigation Approach (TRIMMA) and the Covid 19 Additional Modelling Technical Note 2 Risk Assessment submitted by the Applicant at Deadline 4. This Technical Note summarises our comments and is supplemental to the South Facing Slips Interventions Summary Technical Note.

These documents are prepared to explain National Highways Position in respect of the Applicant's deadline 4 submissions and are important because of the direct impact on National Highways ability to manage its network safely. The submitted TRIMMA is in outline form only and set out the Applicants proposed traffic monitoring regime and is a stand-alone document which will be secured by the DCO. However, a more detailed TRIMMA with specific thresholds triggering the implementation and mitigation works is intended to be developed following approval of the DCO. The Covid 19 Additional Modelling Technical Note 2 Risk Assessment has been provided by the Applicant to summarise the findings of the initial traffic trend analysis. This document will be supplemented by further submission by the Applicant when the modelling is complete. It is important because it forms the basis of the future assessment for the road network.

# 2. Outline Transport Related Impacts Monitoring and Mitigation Approach (TRIMMA)

## 2.1 Summary Position

The TRIMMA is the principal tool proposed in relation to the London Luton Airport Expansion Development Consent Order to manage impacts of the proposed development on the highway network, including, the Strategic Road Network (SRN). The DCO will incorporate an outline TRIMMA only with further details to be resolved following the approval of the DCO.

Overall, National Highways is concerned that there is not enough detail provided within the TRIMMA to enable the Applicant and key stakeholders such as National Highways and the Local Highway Authorities to accurately monitor and determine when the thresholds for mitigation are triggered at the M1 junction 10 and the local road network.

This is particularly important for M1 junction 10 as the impacts on the SRN have so far been associated with the delivery of particular phases of the proposed development. At present, the working hypothesis is that mitigation should be provided in phases, when particular levels of Airport demand are reached, but this is not necessarily associated with the years modelled which are deemed to be indicative.

It is noted that there are plans to produce a more detailed TRIMMA following approval of the DCO. However, this does not provide National Highways with sufficient assurance that the monitoring regime will be sufficiently robust and that the thresholds to trigger each intervention will be at a satisfactory level.

## 2.2 Monitoring Proposals

There are a number of concerns in relation to the proposed content of the TRIMMA.

National Highways considers that for the Applicant pausing monitoring if the airport is not growing (Section 3.2) is a flawed approach. Even if the mppathroughput at the airport does not increase, there is still a requirement to monitor the impact of the airport in case there is a modal shift over time which would trigger the need for additional mitigation despite the airport throughput not increasing. Similarly, the change in the traffic on the SRN may result in a need for mitigation so that even a constant level of airport throughput needed to be managed in terms of its impact with traffic.

There are three levels of monitoring proposed. ML0 is the baseline monitoring and will establish the updated baseline against which traffic volumes will be compared. Total trips starting and/or ending at airport sites will be counted yearly, using data collected from existing data sources within the airport (ML1 and ML2). When the thresholds are met, ML3 will be triggered at which point further detailed monitoring and mitigation will be put into place.

M1 junction 10 is congested in the baseline and will be sensitive to any future additional traffic, which is likely to result in significant congestion issues at this key location on the SRN. The TRIMMA indicates that annual monitoring (ML1 and ML2) will take place at specific locations only if it exceeds ML0 thresholds. Given National Highway's concerns about capacity at this junction and its lack of resilience, it is expected that monitoring should take place annually whether or not ML0 (any difference from the baseline) is triggered.

Figure 3.4 in the TRIMMA shows the locations that the traffic monitoring is proposed to be undertaken. For M1 junction 10, one location is proposed on the A1081. Based on this location it is unclear how the Applicant will monitor the capacity constraints and consequences of traffic growth at junction 10 as it will not be possible to determine the movements using each slip/the circulatory carriageway etc to determine when capacity has been reached at the junction. National Highways view is that more detail concerning the junction performance for example turning flows are required given the complexity of movements and potential patterns of congestion at the junction.

The TRIMMA provides that a spreadsheet tool (Section 3.3.8) will assign the airport traffic to the public highway network, based on the distribution derived from the ANPR (or similar) survey located on the A1081. It is unclear how the Applicant will be able to obtain distributional data for M1 junction 10 based on the location of on camera on the A1081. This severely constrains the ability to understand the impacts on junction 10 and the SRN and hence to deploy mitigation.

A two-week survey conducted during a neutral month is currently proposed. The survey is proposed to be repeated every five years, so that the distribution of airport-related trips can be updated. Carrying out surveys for two weeks in a neutral month poses a significant risk to the usefulness of data collection. In practice, much richer data are required if survey data is to be relied upon. There can be significant fluctuations in traffic levels week by week (train strikes, broken ATC loops/ANPR cameras/weather conditions/road closures etc). Therefore, several weeks of surveying should be undertaken as a minimum and at more frequent intervals for such a large-scale development, to ensure that the surveys represent a neutral, average time period and provide an accurate picture of traffic movements related to airport demand.

Given the congested nature of junction 10, it is not clear to National Highways how the applicant will use the ANPR data to determine when each phase of the mitigation for the M1 has been triggered. Traffic volumes alone will be insufficient to confirm whether the capacity has been exceeded and whether the junction performance has deteriorated. National Highways consider that further data on queue lengths and the capacity of each lane on each arm of the junction will be required to determine when each phase of mitigation will be required.

## 2.3 Data Analysis

National Highways has considered the data already available and supporting the application as well as justifying the use of the TRIMMA.

It is indicated in the outline TRIMMA (paragraph 3.3.9) that any difference between the current (2016) 'baseline data and the non-airport traffic' will be analysed. However, National Highways considers that a justification is needed as to why the latest survey data available post covid should be used as the comparison as opposed to the 2016 data. This is because this is the most recently available data.

Airport sites do not include third party off-site car parking facilities because the traffic associated with these (aside from any vehicles travelling between these facilities and the airport terminal, such as shuttle buses) are outside the airport's control (Section 3.4). Whilst it is noted that it is outside of the Applicant's control, this mode share has the potential to materially affect the overall mode shares that have been forecast and could have significant impact on the highway network. National Highways therefore considers that such movements should be included in the monitoring to verify that the forecasts are accurate in terms of the mode shares to the airport.

## 2.4 Residual Impact Fund (RIF)

The Residual Impact Fund proposed in the outline TRIMMA is a finite fund for the mitigation of residual airport-related traffic impacts. This fund will be secured in the section 106 agreement. National Highways concern in relation to the RIF is in relation to the process of allocating the fund.

National Highways requires further clarification about how the RIF will operate in practice and be allocated (Section 4.1). The RIF will be a finite fund for the mitigation of residual airport-related traffic impacts, but it is unclear how this fund will be allocated. As the fund is finite, it is not clear what would happen: if further mitigation was required for any additional link or junction that had not previously been identified; what would occur if the anticipated cost of any mitigation exceeded the budgeted expenditure under or residue of the fund or if a cost overrun occurred in relation to any element and this required even a little more than anticipated in terms of a financial contribution. It is not clear how this would be managed if mitigation used up a higher proportion of the fund and left limited funding available for mitigation at other times or locations. Particularly where funding decisions are made on a voting basis, each stakeholder will have their own priorities and such that the RIF could result in an unbalanced allocation of funding, with insufficient available to meet all needs and in particular the need for mitigation on the SRN.

## 2.5 Conclusion

National Highways remains concerned about the robustness of the outline TRIMMA in respect of monitoring and measuring critical airport-related traffic flows at M1 junction 10. It is also noted that the planning authority responsible for implementation of the TRIMMA, is also the Applicant. National Highways requires further details concerning the way in which traffic and performance of the junction will be monitored and measured at M1 junction 10 and seeks agreement to the triggers for mitigations to be implemented.

# 3. Covid 19 Additional Modelling Technical Note 2 Risk Assessment

## 3.1 Introduction

As a part of the London Luton Airport DCO application, the Examining Authority (ExA) issued a Rule 9 Letter dated 13th June 2023 to the Applicant indicating that they should consider the potential impacts of Covid-19 on the traffic modelling that underpins their assessment of impacts of the proposed development as well as the necessary mitigation to address those impacts. As part of its response to the Rule 9 letter, the Applicant has submitted a Technical Note setting out the trends analysis and updating the forecasting assumptions.

National Highways and Jacobs have undertaken a review of this Technical Note and a number of concerns are set out below.

Overall, it is noted that the analysis presented shows considerably higher modelled flows than observed flows for the LRN. The majority of the SRN modelled and observed flows indicate that DfT Transport and Appraisal Guidance (TAG) criteria are achieved, the modelled and observed flows being broadly comparative.

## 3.2 Principal Concerns

### 3.2.1 LRN Flow differences

From the data presented in paragraph 3.2.3, it appears that the traffic flow changes in 2027 on the LRN seem to be larger than those shown in 2039 and 2043 in all peak periods. Similarly, in Table 4.8 and Table 4.9, it is shown that there are large percentage differences in 2043 for Eaton Green Road, east of Wigmore EB in Inter Peak (IP), PM and daily. National Highways is concerned about why these flow changes exist in the modelling, as this could have a sequential effect on predicted traffic flows on the SRN as a result of congestion in this area.

With the exception of two links in the AM peak (Table 6.2) and five links in the PM peak (Table 6.6), almost all LRN links fail the TAG criteria and it is not clear whether this is due to a re-assignment issue. The failure of TAG criteria on these links would probably result in the wrong level of traffic flow being allocated to these links by the model which could have a consequential effect on SRN flows.

In paragraph 7.1.8 of its Rule 9 response, the applicant asserts that the highways modelling (and therefore the proposed mitigation) is robust. However, having more modelled flows than observed flows could be the result of traffic re-assignment and this will depend on the level of congestion on the LRN, potentially suggesting otherwise. However, this information is not available in the Technical Note. National Highways is concerned that without knowing the level of congestion on different sections of LRN, it is difficult to identify the impact of traffic re-assignment on the SRN and whether the mitigation proposed is appropriate.

It is suggested that downward adjustment could be applied to the LRN (paragraph 6.1.5), but in the conclusion it states that no adjustments will be made. Based on the information presented in Table 6.2 and Table 6.6, there seems to be a strong case that adjustments to LRN links are needed, as changes in LRN flows are bound to have a knock-on effect on traffic assignment and hence traffic flows on the SRN could be different to those presented.

### 3.2.2 SRN Flow differences

There appear to be large percentage differences in 2039 and 2043 in the PM peak for M1 mainline carriageway between J9 and10 in the southbound direction. As this stretch of motorway is owned and managed by National Highways, the authority is concerned that large flow changes could be the result of traffic congestion at this location. The Applicant should confirm whether there are any specific reasons for these large changes happening in the PM peak (paragraph 4.2.4).

In Table 4.6, for M1 J10 southbound on-slip (original runs), in the PM peak, the percentage difference is -1% but in 2039 and 2043 these percentages go up to 53% and 46% respectively. This seems to be due to large delays for these forecast years. National Highways is concerned that the performance of the on/off-slips for M1 M10 have not been assessed. This should be confirmed by including link volume over capacity (V/C) metrics to understand the performance of this junction.

### 3.2.3 Queues and delays

Comparisons of the level of queues and delays for all approaches on the M1 junctions and for different scenarios are not shown in this Technical Note. Although the microsimulation model will show the M1 junction 10 performance in detail, excessive junction delays in the strategic model could result in traffic re-assignment and hence the traffic flow information that is fed from the strategic model into the microsimulation model could be questionable. For different scenarios, information on queues and delays for approaches to the M1 junctions should be provided in a tabular form to enable the Examining Authority and National Highways to better understand the performance of SRN.

### 3.2.4 Uncertainty

Based on the uncertainty log, there seem to be some large developments that are likely to generate a significant amount of traffic in future. Using this information, the forecast matrices have been derived by constraining the traffic growth at local authority district level from NTEM8. However, it is not clear as to whether this constraint has resulted in reducing traffic from non-development zones (paragraph 2.6.1). Also, has traffic from development zones been kept fixed in the process of matrix building (paragraph 3.2.3)? National Highways is raising these queries to ensure the appropriate level of traffic is allocated on SRN in model forecast years.

### 3.2.5 Other areas of concern

In creating the 2023 matrices, it is not clear as to whether matrix estimation has been undertaken, as part of creating updated matrices and whether this entailed updating SATURN SATPIJA files with the 2023 data and re-visiting model calibration/validation. This would give National Highways more confidence in the model outputs.

The Applicant should provide confirmation of where the additional highway capacity on the network is, as this could have an impact on traffic assignment and therefore on the assignment of traffic on the SRN (paragraph 3.2.4).

## 3.3 Presentation of data to enable analysis and comparison

National Highways requires additional information to help inform its position on the post-covid modelling work that has been carried out and considers that this would assist the ExA. This section sets out the additional information that it needs to review fully the modelling work undertaken to date.

Plots of link percentage over capacity should be displayed from the highway model to demonstrate how congested the network is. These plots should be provided for original and updated runs and how these change between different scenarios and for different peak periods (paragraph 3.2.3). This would enable National Highways to have a better understanding of network performance and in particular delays and queues on M1 junctions.

Tables 4.1 to 4.4 contain traffic flow data for original and updated scenarios. Information in these tables should be presented in terms of actual flows for these scenarios with and without expansion, together with percentage flow differences and GEH statistics, and finally a pass or fail rate. It is also necessary for Tables 4.5 and 4.7 to be structured in a similar way. This would provide a complete picture on traffic flow changes between different scenarios rather than showing a single number and percentage differences. A figure showing the location of sites should also be provided (paragraph 4.1.2).

Information on link percentage V/C is a good indication as to how congested the network is. It is necessary to include link V/C percentage changes in Table 4.6 to Table 4.9 to show link performance alongside link flows, to enable National Highways to have a full understanding of how the SRN is expected to operate.

As well as graphical form, the applicant should present the results of Figure 5.1 and Figure 5.2 in tabular form, to see the actual figures. When viewing the figures alone they do not enable National Highways to understand the magnitude/numerical representation of each line on the plot.

### 3.4 Summary

Overall, the analysis shows considerably higher modelled than observed flows for the Local Road Network (LRN). A comparison between 2023 modelled and observed flows shows that, for most links on SRN, the TAG criteria is achieved (with the modelled and observed flows being broadly comparative). However, no comparison has been made for turning flows at the approaches to the M1 junction 10 and without this information it is not possible to understand the performance of this junction. In addition, in the Technical Note no information has been provided on queues and delays for the original and updated models at wider network level and this information is important to understand the impact of traffic re-assignment on SRN.

Although the microsimulation model will be used to test the performance of the M1 junction 10, it is equally important to understand the impacts on the approaches to the M1 junction (i.e. V/C%) to identify over-capacity links which could impact traffic routing on SRN.

The analysis shows considerably higher modelled than observed flows for the LRN. In particular, with the exception of two links in the AM peak and five links in PM peak, almost all links fail the TAG criteria and could result in a re-assignment issue and hence an adverse impact on SRN. It is also suggested that downward adjustment could be applied to the LRN, but in the summary, it states that no adjustments will be made. The mismatch between the observed and modelled flows on LRN is likely to have an impact on SRN flows due to traffic re-assignment and this issue has not been addressed in the Technical Note.