

Note to the Inquiry

On behalf of Bristol Airport Limited

Response to NSC Note on the Logit Passenger Allocation Model (INQ058)

1. This note has been produced by York Aviation in response to that submitted by North Somerset Council (NSC) in relation to the logit passenger allocation model (INQ058).
2. In its note, NSC makes a number of points in relation to the information that has been provided to its consultants, Jacobs, in relation to the logit passenger allocation model. I disagree with the characterisation put forward by NSC and would make a number of points in response that are set out below.
3. Jacobs made an initial written request for information in relation to a number of aspects of our work including the logit passenger allocation model on 23 December 2020. The question asked in relation to logit model was very broad, generic and unclear. It appeared to asking about differences in assumptions adopted for different airports. York Aviation provided a general response to that question in good faith, which it believed addressed the question being asked. A second written request for information was received on 11 February 2021. This contained a similar broad question regarding the logit model without any significant additional clarification or explanation as to the specific information being sought. The request also repeated a number of other more specific questions where answers had already been provided. York Aviation again responded, stating explicitly that it was unclear as to information being requested, seeking to clarify the position, and suggesting that a meeting be held between York Aviation and Jacobs to clarify the information being sought. That meeting was held on 16 March 2021. The meeting was not attended by either Mr Folley or Mr Siraut, despite Mr Siraut's position now that the logit model is an area of concern for Jacobs.
4. At the meeting on 16 March 2021, York Aviation discussed the structure of the model, the explanatory variables, the data sources that had been used for calibration of the coefficients within the model, and which had also been used as inputs to the model. For the avoidance of doubt, these are the following:
 - The CAA Passenger Survey data which provided information on passenger demand by market segment, on the geographic distribution of passenger demand by district, and on air fares paid by passengers;
 - Google Maps, which provided information on road surface access times from each district to each of the modelled airports; and
 - OAG, an online airline schedules database, which provided information on frequencies of service and on seat capacities by airline type and market segment.
5. It should be emphasised that all of the information described above is widely available and could have been accessed by Mr Folley at any point.
6. At that meeting, Jacobs did not express concerns as to this approach or ask any further detailed or specific questions about the model or its workings. The only further information requested by Jacobs at that meeting was some information on the frequencies assumed at each airport in the model for different market segments in 2019 and in 2030. York Aviation expressed some concern as this information, for 2030, is not an assumed input to the model or indeed an output from the model, but part of the internal, intermediate calculations in the model used to reach an output in

terms of passenger demand. York Aviation had a real concern that, in isolation, this information could not be properly interpreted. York Aviation agreed to discuss with BAL the provision of this information and, following this discussion, offered to discuss the issue further with Jacobs in a further meeting with the aim of resolving the issue. This offer was not taken up by Jacobs. This frequency information has, however, now been provided as INQ019.

7. Following witness appearances at the Inquiry, NSC reached out to BAL and York Aviation to propose a further meeting to discuss the logit model. BAL and York Aviation agreed to this and a meeting was held on 5 August 2021. Prior to this meeting, Jacobs provided a list of questions that it wished to discuss. This was the first time that specific written questions as regards the logit model and its functioning had been provided to York Aviation. These questions were as follows:

“Questions regarding logit model frequencies by Airport sent on 28th July 2021.

- 1) Is this data for the 2018 baseline, or 2030 baseline or 2030 with expansion?*
- 2) What are the units for this data? i.e. are these frequencies for the day, per week or year?*
- 3) Following question (2), please confirm if this is a representation of a peak or off peak or average? i.e. summer or an off season or an average of the year?*

Technical questions

- 4) Which year does the logit model’s assumptions / dependent variables correlate to? Often a logit model is a snapshot in time but is the case with York Aviation Limited’s model?*
- 5) Is this a one-to-one relationship or one-to-many? i.e. does the model look at Bristol to Heathrow, Bristol to Cardiff or Bristol to all other airports?*
- 6) What is the constant estimate for the logit regressions? i.e. the lambda estimate for this passenger allocation model?*

Assumptions

- 7) What are the underlying value of time assumptions and cost measurements? What are the push and pull factors i.e. air fares, values of time etc? And how have these been grown over time and what factor has been used to growth these?*
- 8) What are the assumptions on how passenger would travel to the airports i.e. just car or multi-modal?*
- 9) Is the logit model only applied to the passengers that would fly from elsewhere if Bristol did not expand? i.e. the 62% of 2 million that would fly? Is there a split between domestic, international and long haul on these?*
- 10) How are the 38% of 2 million passengers that would not fly at all if Bristol Airport did not expand estimated? Is there a split between domestic, international and long haul on these passengers?*
- 11) Does the model take into account airline strategies, if so what are the strategies that have been considered? What constraints have been applied on other airports into account airline strategy?”*

8. At the meeting, York Aviation answered all of these questions and provided additional information in relation to a number of other oral questions. It should be noted that these written questions include a number where information had already been provided to Jacobs at the first meeting on 16 March 2021. York Aviation’s responses included an explanation as to why it would not provide detailed information on the coefficients in the model as these are commercially confidential and comprise the core of the model; in other words, these coefficients are central to York Aviation’s intellectual property in relation to the model. For the avoidance of doubt, this is the subject of question 6 above.

9. The validity of York Aviation's position was expressly acknowledged and agreed by Mr Folley and the rest of Jacobs team, although I note Mr Siraut did not himself express a view. This position was reiterated in my response to Mr Siraut's follow up email of 11 August 2021. Ultimately, Jacobs and York Aviation are competitors. On this basis, it is reasonable for York Aviation to protect its commercial position in relation to the logit allocation model. The level of disclosure being requested by Jacobs about such a model goes substantially beyond what has been required at other airport planning inquiries. It is also worth noting that this level of detail goes substantially beyond that which is provided by the Department for Transport, a public body, in relation to its passenger demand allocation model.
10. I would also note that the provision of the coefficients from the allocation model is the only remaining area of disagreement in relation to the logit model between York Aviation and Jacobs, as confirmed by Mr Siraut in his email of 11 August 2021, who wrote:

"Thank you for the helpful discussion last week.

You were going to check and if necessary provide an explanation of the London Gatwick 2030 frequency number being lower than that for 2019.

Subject to that issue being resolved, we are satisfied on all the matters raised apart from the lambda constant."

11. The explanation for Gatwick has since been provided.
12. In relation to NSC's contention at paragraph 7 of its note that it has been unable to scrutinise the logit allocation model, I would simply disagree with that contention for the following reasons:
- a. Information on the logit model's form and functioning has been provided in two meetings with Jacobs;
 - b. Detailed outputs from the model, in terms of the way it has allocated passengers to other airports, have been provided and, indeed, have been used by Jacobs in its analysis;
 - c. The input data used for the logit allocation model is data that is available to Jacobs, as described above. There is no reason that Jacobs could not have undertaken a similar analysis from which to draw its own conclusions and scrutinise the York Aviation logit model. Jacobs has chosen not to do this;
 - d. Similarly, the CAA Passenger Survey provides detailed data on airport catchment areas and demand patterns between airports. It would have been perfectly possible for Jacobs to use this data to consider the validity of the outputs from the York Aviation logit allocation model;
 - e. Furthermore, I note that Jacobs has already developed a model to consider how passengers might be displaced from Bristol Airport in relation to the original application, which used CAA Passenger Survey data. The results of this previous analysis by Jacobs are discussed in the March Officers Report (CD4.13, pages 59-60) and the report itself is also referred to as follows: '*Bristol Airport Traffic Displacement Estimation*' prepared by Jacobs – January 2020' (CD4.13, pages 46). Again, there is no reason why this previous work could not have been updated and / or extended to enable scrutiny of the outputs from the York Aviation logit allocation model.
13. It is clear that Jacobs could have scrutinised the logit allocation model, but it has simply not done so. It could have used any number of possible approaches. NSC has produced no evidence to suggest that the patterns in passenger demand allocation provided by the logit allocation model

are not reasonable and, indeed, rational. The inference of this is that Jacobs is unable to demonstrate any fault in the York Aviation allocation model. This is not because of a lack of information from York Aviation, but because the essential analysis of Bristol Airport's competitive relationships with other airports derived from the logit model is reasonable. Indeed, both NSC and Jacobs have previously acknowledged that Bristol Airport's primary competitive relationship is with airports outside of the South West and South Wales. NSC's own officers reported (CD4.11, pdf p.27) that:

"In response, BAL say airports are not homogenous and the four other airports in the South West / Wales offer a substantially different range of services in terms of destination and flight frequency compared to BAL. They suggest these airports will continue to serve their own smaller markets even if BAL expand, but this is unlikely to directly compete with the much broader range of routes at Bristol Airport. A point accepted by officers. Objectors disagree and say that the increased passenger growth from South Wales would be reduced if Cardiff Airport was expanded. BAL say the proposed development will have at most, a minimal impact on passenger displacement within the South-West and South Wales due to the different offers from the two airports. They do however consider that the growth of services at Bristol Airport could reduce the level of longer distance displacement to airports beyond the South West / Wales e.g. Birmingham or Heathrow. Officers, for the reasons set out above in relation to determining benefits, agree with BAL's position."

14. In conclusion, I completely reject the criticism of York Aviation in INQ058. We have at all times tried to assist NSC and Jacobs understand our modelling and believe that we have supplied all the information that it is reasonable for us to disclose.