Gatwick North Runway Project
Needs Case Review for Local Impact Reports

1. York Aviation (YAL) has been appointed by the Host and Neighbouring Authorities, collectively known as the Joint Local Authorities (LAs), to provide advice in relation to aviation capacity, need and forecasting, and aspects of the socio-economic case for Gatwick Airport Ltd's (GAL) North Runway Project (NRP). These are embodied in the Needs Case (**APP-250**) for the proposed development.

2. It is important for the LAs to understand the implications of the NRP in order to ensure that appropriate mitigations are in place to address the adverse effects having regard to the extent of benefits that can be realised.

3. Ultimately, the assessment of the effects of the NRP, both positive and negative, rely on the projections of future passenger demand and aircraft movements at Gatwick, which in turn rely on the assessment of the increase in capacity that can be delivered by the NRP compared to the Base Case capacity.

4. This paper has been prepared to inform the LAs Local Impact Reports (LIRs), drawing on submitted application documents, the Relevant Representations, PADSS and GAL's Issues Tracker [**AS-060**]. The paper addresses:

   - Need
   - Base Case and NRP Capacity
   - Demand Forecasts
   - The Wider Economic Case

Need

5. It is not disputed that aviation policy provides in principle support for airports to make best use of their existing runways[1], as set out in the 2018 policy document *Beyond the horizon: making best use of existing runways*[2] (MBU), or that having a second runway available for use by departing aircraft at peak times would improve the resilience of the Gatwick operation in terms of minimising and mitigating the current substantial levels of delay experienced by aircraft at the high levels of single runway usage experienced pre-pandemic as set out in Section 7.2 of the Needs Case (**APP-250**). Concerns regarding the extent of congestion currently at Gatwick have been expressed in Relevant Representations by its main airline customer, easyJet (**RR-1256**), and the Gatwick Airline Consultative Committee (**RR-1493**). This is relevant as the current levels of congestion are material to assessing the extent to which the

[1] It is noted that further information is to be provided by the Applicant to the Examination about the construction/engineering works involved in repositioning and resurfacing the emergency runway to enable dual runway operations and this information will be relevant to an assessment of whether the NRP is properly to be regarded as making best use of an existing runway or the establishment of a new runway. Pending the provision of that further information, this review proceeds on an assumption that the MBU policy is applicable.
[2] Department of Transport, Beyond the Horizon, making best use of existing runways, June 2018.

baseline throughput of the Airport can be materially increased above the peaks of demand handled pre-pandemic and this is considered further later in this note under the heading Demand Forecasts.

6. As GAL notes in the Needs Case (**APP-250**) at paragraph 5.2.9, the Secretary of State is clear in the decision on the Manston DCO[3] that policy does not require potential capacity at other airports to be taken into account in determining whether a specific proposal for development at an airport can be approved. Each case falls to be determined on its own merits having regard the benefits and environmental impacts of the development.

7. However, noting that the *Airports National Policy Statement* (ANPS) at paragraph 1.42 refers to other airports being able to *"demonstrate sufficient need for their proposals additional to (or different from) the need which is met by the provision of a Northwest Runway at Heathrow"*[4], a helpful interpretation of how need should be construed is provided at paragraph 37 of the Manston decision:

"The Secretary of State agrees with the Applicant that the ANPS does not provide an explanation of 'sufficient need'. He also agrees that the MBU policy, which is relevant to this Application, does not require making best use developments to demonstrate a need for their proposals to intensify use of an existing runway or for any associated Air Traffic Movements ("ATMs"). The Secretary of State notes, however, that the MBU policy states that a decision-maker, in taking a decision on an application, must take careful account of all relevant considerations, particularly economic and environmental impacts and proposed mitigations (MBU paragraph 1.29). The Secretary of State considers that the benefits expected from a proposed development would materialise if there is a need for that development. Therefore, in order to assess whether the expected economic benefits will outweigh the expected environmental and other impacts from this Development, the Secretary of State has considered need in the context of identifying the likely usage of the Development from the evidence submitted in the Examining Authority's Report, the Independent Assessor's Report and the representations submitted by Interested Parties during the redetermination process."

8. Hence, it is essential that applications for making best use of an existing runway must be accompanied by robust forecasts of the likely usage of the additional capacity so as to ensure that the assessment of benefits, impacts and their required mitigation is reasonable and forms a sound basis for decision making.

9. It is notable, however, that part of the rationale for the Secretary of State dismissing consideration of the potential for other airports to meet all or part of the need in the case of Manston was that the alternative development proposals might not be brought forward by other airports. Since that time, an application for development consent has been brought forward for the expansion of London Luton Airport to 32 mppa and there is a proposal for London City Airport to expand to 9 mppa. It also remains the case that the ANPS is still in force and expressly supports the provision of the Northwest Runway at Heathrow as a matter of policy and applicants need to demonstrate a specific need (likely usage) for their development that differentiates the expected usage from that which could be met at Heathrow. We address later in this paper, the extent to which GAL has demonstrated a need distinct from that which could be met at Heathrow.

10. In this context, we note, nonetheless, that the Planning Inspectorate's Scoping Opinion on the Environmental Statement (**APP-095**), at paragraph 3.3.13, is clear that the timing of the provision of an additional runway at Heathrow is a matter that it expected to be fully considered as part of the sensitivity testing, i.e. the possibility of another runway coming forward cannot be ignored and the implications should be assessed both individually and cumulatively. We address the adequacy of GAL's approach to this issue further later in this note.

[3] Department for Transport, Application for the Proposed Manston Airport Development Consent Order, Decision, 18th August 2022.

[4] Department for Transport, Airports National Policy Statement, June 2018.

Capacity

Base Case

11. The Base Case capacity of the existing runway to handle up to 55 aircraft movements per hour is accepted as the maximum hourly runway capacity with a single runway in use for the purpose of baseline capacity assessment. This is the peak hourly runway movement rate used for scheduling purposes in busy hours currently, although, as noted in paragraph 5 above, GAL's airline customers have expressed concern about the acceptability of the levels of congestion and delay at that throughput:

    "GAL's performance is below the performance of other large airports in Europe. GAL is consistently ranked in the lower half of punctuality rating in relation to average arrival and departures of the 33 airports reported by Eurocontrol (see sources). GAL has provided sub-standard Air Traffic Control services in 2022 and 2023 demonstrating a clear inability to cope with the current levels of traffic, let alone an increase in capacity with a second runway." (**RR-1256**)

12. We understand that easyJet has removed some of its based aircraft from Gatwick in summer 2024 in part to improve resilience and plans to reduce its fleet at the Airport still further[5]. We believe that the level of delays seen at the Airport are a factor in the slower recovery of demand at Gatwick than at the other major airports. Gatwick was the poorest performing of the UK's top 10 airports in 2023 with traffic recovered to only 88% of 2019 volumes in the previous 12 months compared to 98% at Heathrow, 99% at Stansted and 90% at Luton, with the latter impacted by measures put in place to protect the noise contour and passenger limits pending the more recent approval for these to be raised[6].

13. Ultimately, the extent of delays impacts on airlines' willingness to base or schedule more aircraft into the Airport, and this has implications for the Base Case passenger and aircraft movement forecasts that have informed the baseline assessment of environmental impacts. This issue is addressed further later in this note in terms of the annual passenger throughput that the current airport capacity can support.

NRP

14. The assessment of the impacts of the NRP relies on the difference between the baseline capacity and that attainable with the two runways in operation.

15. In terms of the capacity uplift attainable with the NRP, GAL claims that it can attain an hourly runway movement of up to 69 movements per hour with both runways in use. Whilst this may be theoretically correct in hours when there is a close to even split of arriving and departing traffic, it is not likely to be the case when there is a predominance of either arriving or departing aircraft movements within any given hour as arriving and departing movements cannot be interleaved with each other and minimum separation standards apply between consecutive arriving or departing aircraft according to weight or the departure route used.

16. Given the predominance of activity by based aircraft, including the large easyJet fleet based at the Airport, coupled with based aircraft of British Airways, TUI and Wizz Air UK, this means that between 55% and 60% of all aircraft movements in Summer 2023 involved based aircraft. Based airlines are critically dependent on making maximum use of their aircraft over the day, particularly to sustain low and competitive air fares in order to attract passengers to use them. Hence the first hours in the

[5] https://aviationweek.com/air-transport/airports-networks/easyjet-return-3000-gatwick-slots-british-airways

[6] Department for Levelling Up, Housing and Communities and Department for Transport, Town and Country Planning Act 1990 – Section 77 Application made by London Luton Airport Operations Ltd (LLAOL) London Luton Airport, Airport Way, Luton, LU2 9LY, Application Ref: 21/00031/VARCON, Decision Letter, October 2023.

morning are critical in terms of capacity for departing aircraft and this, in large part, determines the overall throughput attainable at the Airport. It seems likely that concerns regarding levels of congestion and delay in this critical period for based airlines underpins the concerns about GAL's ability to successfully deliver the project as expressed by easyJet in its Relevant Representation (**RR-1256**):

"easyJet therefore questions whether GAL would be in a position to manage the increased aircraft movements that the Northern Runway would bring.

Current infrastructure plans set out by GAL do not sufficiently account for increased capacity.

easyJet is aware that GAL has initiated some conversations on improvements to terminal infrastructure needed for the Northern Runway Project, however these are at a concept / pre-planning stage."

17. Hence, a critical time of day in terms of available runway capacity is the early morning period dominated by departing aircraft movements. GAL's own data (ES Appendix 4.3.1 (**APP-075**), Annex 7, page 6) shows a requirement for 48 aircraft departures in the first hour of the morning from 2032 onwards, with a total number of departures over the first 4 hours of the morning of 163 (an average of over 40 departing aircraft movements an hour when such based aircraft need to depart). This requires no more than 90 seconds on average between each pair of departing aircraft.

18. Although the NRP will enable both runways to be used for departures, meaning that aircraft can be lining up for take-off on both runways simultaneously, the separation between the two runways, even after modification, will be such that they are treated as a single runway in terms of the airspace as confirmed at paragraph 4.5.9 of the Planning Statement (**APP-245**):

"Because of the minimum 210m separation distance between the centrelines of the two runways, they would be treated for the purposes of air traffic control as a single runway for departure departure separation purposes".[7]

19. In general, this means that aircraft following the same departure route for any distance beyond the end of the runway must be separated by 2 minutes between successive departing aircraft regardless of which runway they depart from. Only where departure routes diverge by 45° or more immediately at the end of the runway is it possible, under current rules, to reduce the separation between two departures to 1 minute, subject to wake vortex considerations[8]. GAL's original runway capacity modelling as reported in the Needs Case (**APP-250**) had assumed that 1 minute separation would be achievable between all departing aircraft.

20. The most critical direction for assessing the capacity of Gatwick's runway configuration is the westerly Runway 26 direction, used for 70% of the time on average. The departure route structure for this runway direction is shown in **Figure 1** (provided at the Technical Working Group [TWG] on 22nd June 2023) along with the proportionate usage anticipated for the first few hours in the morning that are critical for overall departure capacity and the ability of the Airport to grow operations by based aircraft. Although Gatwick has recently initiated consultation on potential changes to its departure routes to the south, the implications of these changes in terms of capacity are not clear, nor is the timescale for further information becoming available. It is understood that GAL has not modelled the capacity

[7] This is confirmed by the CAA in its Relevant Representation (**RR-0831**), where it states at paragraph 4.6 that the proposed use of the North Runway would not alter existing traffic patterns. Whilst the CAA has also confirmed that there is no impediment foreseen to the ability to certificate the use of the North Runway on the layout proposed, this cannot be taken to imply that the CAA has validated the capacity attainable through the NRP having regard to the fact that no change to airspace is directly proposed.

[8] Where lighter aircraft follow heavier aircraft, greater separations distances apply due to wake turbulence effects from the leading aircraft.

implications of these potential changes to the departure routes, which adds further doubt to whether the capacity increase claimed can be relied on.

Figure 1: Structure of Gatwick Departure Routes and assumed usage 2038 with NRP

Characteristics of the 2038 Busy Day Forecast Schedule

NRP - 2038

Hour UTC		5	6	7	8
Total	NB	47	49	62	46
	WB	17	14	7	13
	Total	**64**	**63**	**69**	**59**
Arr	NB	2	12	26	14
	WB	14	12	7	5
	Total	**16**	**24**	**33**	**19**
Dep	NB	45	37	36	32
	WB	3	2	0	8
	Total	**48**	**39**	**36**	**40**

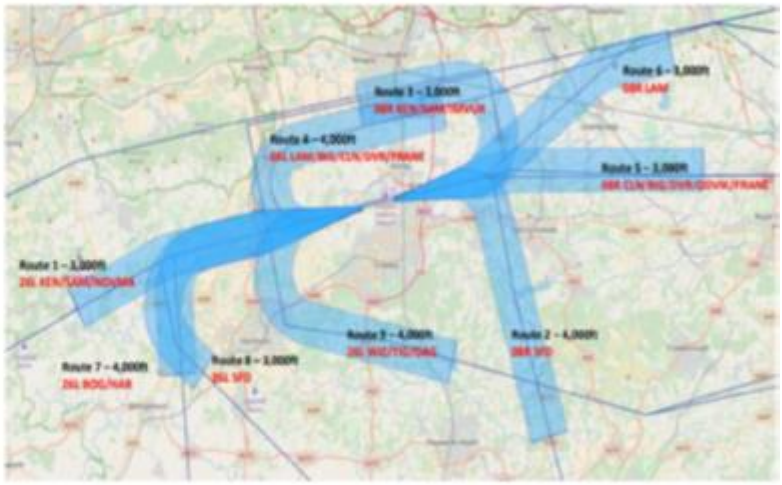
SID usage by hour of day

2038 Modelled

Hour (UTC)	Route 4/9	Route 7 or 8	Route 1
4	44%	31%	25%
5	48%	35%	17%
6	51%	28%	21%
7	36%	42%	22%
8	39%	26%	36%

Westerly SIDs = Routes 1, 7 & 8.

LONDON GATWICK



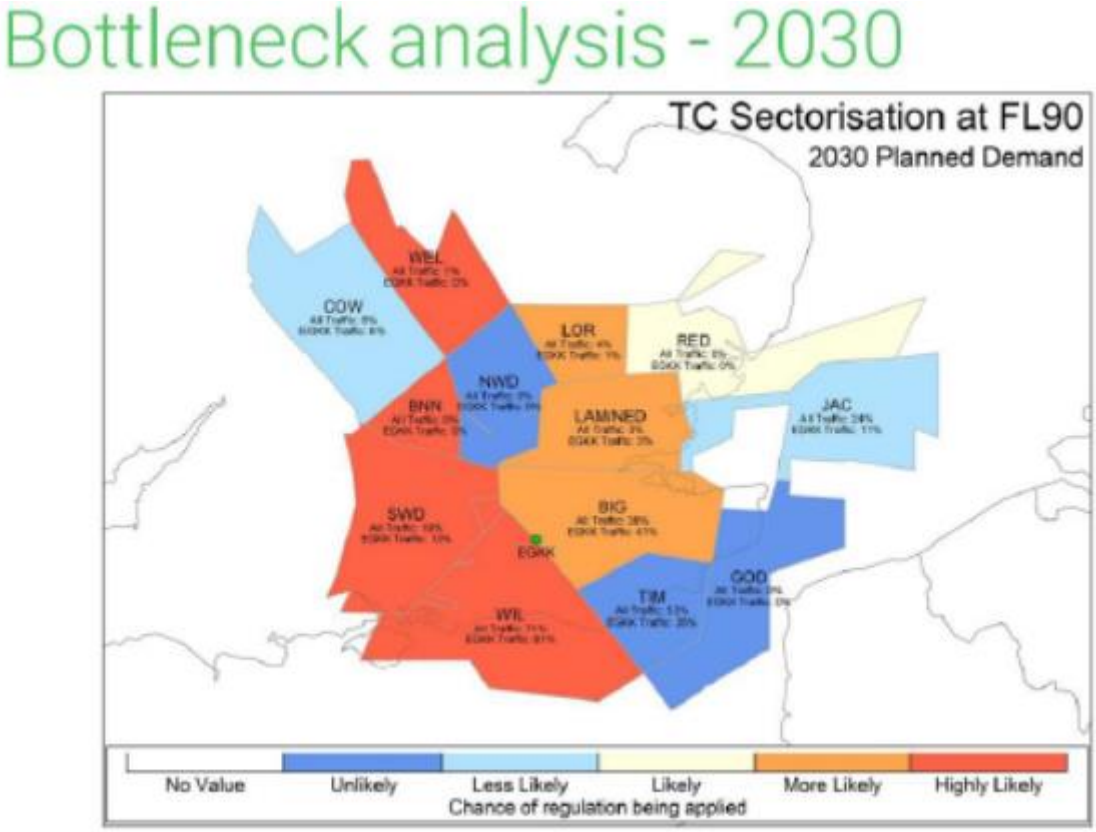
21. On the basis of the departure routes as currently operational, it is evident from **Figure 2** that Departure Routes 1, 7 and 8 do not diverge and require 2 minute separations between all aircraft. Only Routes 4 and 9 provide the requisite divergence from the other three routes. However, Route 9 – WIZAD – is precluded from use before 07:00 local time (06:00 UTC in summer), which is the busiest hour (05:00-06:00 UTC) for departures and, in any event, is only permitted to be used on a tactical basis by air traffic control when Route 4 is subject to congestion en route. Hence, it is not clear how 1 minute separations could be attained for a greater proportion of departures in future during the critical early morning departure peak than can be achieved currently given that:

- the existing structure of departures routes; and
- constraints on the use of WIZAD in terms of pre-07:00 departures and in terms of the expectation that its use will be limited (as assumed for noise assessment purposes).

In other words, it is not clear the extent to which an uplift in capacity of the order put forward by GAL can be achieved through, effectively, just the time saved from being able to have two aircraft lined up simultaneously. We understand that GAL assumes that the runway utilisation can be optimised by through holding and sequencing aircraft onto the runway to minimise the occurrence of departing aircraft following the same route. This is discussed further below in the context of the simulation modelling results.

22. Whilst it is anticipated that the Airspace Modernisation Programme (FASI-S) underway for the South East of England may overcome congestion problems, for example impacting Route 4, over the longer term, the timescale for implementation remains unknown. GAL itself presents evidence of the likelihood of departures from Gatwick being impacted by airspace bottlenecks (i.e. subject to delays) in the sectors surrounding the Airport, as shown in Figure 2 (ES Appendix 4.3.1 [**APP-075**], Annex 7, page 12).

Figure 2: Prospective Airspace Congestion



23. Although GAL has asserted that it is not dependent on airspace change to deliver the NRP, this is only true in the narrow sense of GAL not expressly requiring a change to its departure routes to bring the north runway into simultaneous operation as these remain the same with one runway or two. Given the prospective congestion impacting airspace through which these routes pass, it cannot reasonably be assumed that greater use will not be required of Route 9 – WIZAD to deliver an increase in hourly aircraft movements. In particular, this is material to the achievability of 48 departures in the first hour of the day when, under current rules, no use of WIZAD is permitted. GAL provided information in June 2023 to suggest that, in the critical first hour for departures, 48% of aircraft would be using Route 4 (Route 9 not being available) and 52% using Routes 1, 7 and 8. Given the potential for broader airspace congestion, particularly to the north of the Airport on Route 4, where there is interaction with movements to and from Heathrow and the other airports north of London, it does not seem realistic to assume that 48% of an increasing number of departures in peak periods as the Airport grows could use Route 4 without being subject to broader airspace flow management delays as air traffic demand grows more generally.

24. There are possible two consequences of this airspace congestion:

- either a relaxation on the use of the WIZAD route to facilitate increased early morning departures will be required, which has implications for the assessment of noise in areas south of the Airport, as only limited use of the WIZAD route has been assumed over the day; or

- the projected increase in aircraft movements and passengers will not be capable of delivery until into the later 2030s, pending the roll out of airspace change across the whole London system and having regard to the target end date for implementation of airspace modernisation being 2040.

25. Although GAL has recently clarified (TWG 9th February 2024) why the use of Route 9 does not directly of itself lead to an increase in capacity as it converges with Route 4 to the east of the Airport and the same separation between aircraft would be required at that point regardless of whether Route 4 or 9 was used, this does not address the potential need for Route 9 to be used more extensively in periods of airspace congestion.

26. We do not consider it reasonable to rely on the limited use of the WIZAD route or no use before 07:00 if GAL is to attain the throughput claimed in the early morning period, particularly in the circumstances of FASI-S not being implemented in time to deliver a material uplift in the throughput of the Airport by 2032, as put forward by GAL (ES Appendix 4.3.1 [**APP-075**], Table 10.1-1). We do not believe that it can be realistically assumed that broader airspace constraints would not limit potential throughput at least in the short to medium term. This position has, in essence, been confirmed by the CAA in its Relevant Representation (**RR-0831**) where it states, at paragraph 4.7 that:

"It is the case that it is too early in the Airspace Modernisation programme to say what trade-offs will be required to resolve any conflict between the sponsors of separate airspace changes, or between different objectives. Therefore, it is also too early to say what benefits individual airports might achieve from airspace modernisation, whilst recognising that one of the goals for the AMS is to provide greater capacity overall."

This suggests that some caution needs to be applied to the ability to sustain a material uplift to capacity before the mid-2030s at the earliest on airspace grounds alone.

27. Over and above considerations of airspace congestion, we challenged the assumption that 1 minute separations would be attainable between a majority of departures sufficient to sustain a peak morning aircraft departure rate of 48, as required to support the forecast throughput. Although a 51:49 split of departures by track in the 07:00 local hour might imply that 1 minute separations might be achievable between most departures, this would require perfect sequencing of departures so that Route 4 (or 9) and Routes 1,7 or 8 would be used alternately[9]. Although departure management tools could be used to help achieve this, there would be consequential delays to aircraft either on stand or at the holding point to enable this optimised flow to be achieved.

28. In practice, the probability of aircraft demanding to use the runway in precisely the optimum sequence of departure is extremely low. Meaning that air traffic control will need to carefully sequence aircraft from pushback from stand to lining up on the runway to ensure the optimum sequence of departing aircraft. This is why the large area of 'Charlie Box' is being provided (Design and Access Statement [**APP-253**], paragraph 4.4.16) to allow space for aircraft holding and sequencing close to the two runways.

29. GAL reported its original fast-time simulation modelling of the NRP configuration (Needs Case [**APP-250**], paragraph 7.3.12). This includes some analysis of the Base Case, the results for which had not previously been shared by GAL. Our understanding, based on discussions at TWG meetings, is that this initial simulation modelling did not expressly take into account the departure route required by each departing aircraft but had instead assumed that 1 minute separations would be achievable between all departing aircraft. This is simply not valid. Either the modelling should expressly have considered the separation required between each pair of departing aircraft using a random distribution by departure route relative to the proportion of departures on each route expected in each hour according to the expected destinations of flights in future, or GAL should have modelled the process of sequencing such departures on the ground in order to optimise the sequence to achieve close to the 1 minute average. This is necessary to reflect real world variation in the time that aircraft actually demand to use the runway, including the need to adhere to broader en route air traffic flow

[9] The tracks used by aircraft depend on their ultimate destination.

management slots[10] in peak periods. Either way, there will be additional delay incurred by departing aircraft over and above that modelled by GAL.

30. This is material as it is the average and maximum levels of delay over a busy period that determine the acceptability to the airlines of declaring a runway movement rate as achievable. Delays cost airlines substantial sums of money and can result in lost aircraft utilisation if there are knock-on consequential delays over the day. Gatwick is already an airport with substantial levels of delay as evidenced by the representations from easyJet and the Gatwick Airline Consultative Committee. Ultimately, the existence of a high level of delay is a significant deterrent to airlines increasing their use of the Airport.

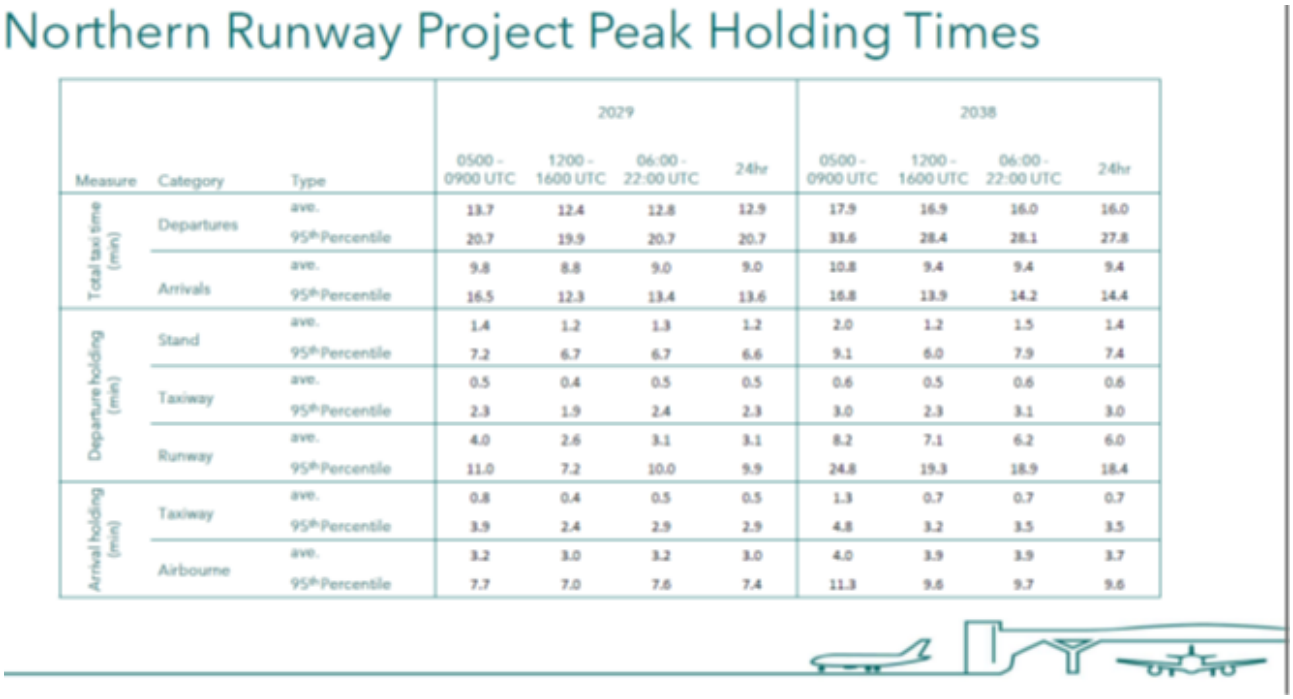
31. It is notable that Tables 7.3-1 and 7.3-2 of the Needs Case [**APP-250**] do not report the level of delay for the Base and NRP Cases but only report overall taxi-times. This is somewhat disingenuous. Some information for runway holding delays is provided in Appendix 4.3.1 to the ES [**APP-075**], Annex 8, page 8 but this only shows the runway holding delay and not the other delay components of holding on stand when an aircraft's pushback is delayed for sequencing or congestion reasons or delays on the taxiway due to congestion. All of these are normally included within the delay component considered in relation to declaring runway capacity for scheduling purposes. Furthermore, information is only provided averaged over the day as a whole rather than the critical busy period as would be normal practice in validating the capacity of any runway. It is important to understand the components of delay and how these impact individually on the critical busy hours. Until this material has been shared and discussed, we do not consider it is prudent to place reliance on these outputs.

32. We note the very high departure taxi-time recorded in Tables 7.3-1 and 7.3-2 for the Base Case, no development, Case. This implies excessive levels of delay at the baseline throughput modelled, which casts some doubt on the robustness of the assumptions underpinning the growth projected in the Base Case and the likelihood of airlines being willing to increase services at Gatwick at such levels of delay, reinforcing the view expressed earlier in this section. If the Base Case capacity and throughput has been overstated, this means that the difference in effects with and without development will have been understated in the ES.

33. **Figure 3** shows more detailed information on the delays predicted through GAL's simulation modelling as provided to the Planning B TWG on 10th January 2023. We are unclear whether this now relates to the same scenarios as presented in the Needs Case but assume it still to be valid. However, this information did not provide sufficient breakdown for the critical busy hours individually.

[10] These are allocated on the day by Eurocontrol to manage broader airspace congestion and determine the time window in which any aircraft is allowed to take-off.

Figure 3: Modelled Delay as provided by GAL



Northern Runway Project Peak Holding Times

Measure	Category	Type	2029 0500 - 0900 UTC	2029 1200 - 1600 UTC	2029 06:00 - 22:00 UTC	2029 24hr	2038 0500 - 0900 UTC	2038 1200 - 1600 UTC	2038 06:00 - 22:00 UTC	2038 24hr
Total taxi time (min)	Departures	ave.	13.7	12.4	12.8	12.9	17.9	16.9	16.0	16.0
		95th Percentile	20.7	19.9	20.7	20.7	33.6	28.4	28.1	27.8
	Arrivals	ave.	9.8	8.8	9.0	9.0	10.8	9.4	9.4	9.4
		95th Percentile	16.5	12.3	13.4	13.6	16.8	13.9	14.2	14.4
Departure holding (min)	Stand	ave.	1.4	1.2	1.3	1.2	2.0	1.2	1.5	1.4
		95th Percentile	7.2	6.7	6.7	6.6	9.1	6.0	7.9	7.4
	Taxiway	ave.	0.5	0.4	0.5	0.5	0.6	0.5	0.6	0.6
		95th Percentile	2.3	1.9	2.4	2.3	3.0	2.3	3.1	3.0
	Runway	ave.	4.0	2.6	3.1	3.1	8.2	7.1	6.2	6.0
		95th Percentile	11.0	7.2	10.0	9.9	24.8	19.3	18.9	18.4
Arrival holding (min)	Taxiway	ave.	0.8	0.4	0.5	0.5	1.3	0.7	0.7	0.7
		95th Percentile	3.9	2.4	2.9	2.9	4.8	3.2	3.5	3.5
	Airbourne	ave.	3.2	3.0	3.2	3.0	4.0	3.9	3.9	3.7
		95th Percentile	7.7	7.0	7.6	7.4	11.3	9.6	9.7	9.6

34. From the above data, it is evident that, over the key 4 hour period in the early morning for departures, average departure delay with the NRP was projected, on the basis of GAL's original simulation modelling, to be 10.8 minutes. This is more than the normally accepted 10 minutes average delay over such a peak period. Peak delays (95th percentile) would be materially greater and could be in the range 25-36 minutes. Significantly, as discussed above, this delay is before accounting for the additional delays caused by either a greater proportion of departures requiring a separation of 2 minutes from the preceding departing aircraft and/or the holding and sequencing delays incurred on the ground to deliver an optimum sequence to achieve 1 minute separations between successive departing aircraft on average.

35. It was made clear at TWG meetings from mid-2022 onwards that this was considered to be a flaw in the simulation modelling and we understand that GAL has now revised its modelling taking the average separation currently achieved between departing aircraft following the same route of 106 seconds rather than 1 minute previously assumed. This assumes that ATC can tactically achieve less than 2 minutes separation in such circumstances. Some results were shared in February 2024 (TWG 9th February 2024) including some results from the Base Case modelling. However, the information was not presented in sufficient detail to enable robust comparison with previous results. Further information has been requested in sufficient detail to enable the implications for peak period delay to be properly understood. Although some information has been provided informally ahead of Deadline 1, further clarification is still required in relation to the reasons for differences to the previous modelling as reported at TWGs and in the Needs Case [**APP-250**].

36. Currently, we do not consider, based on the information so far presented, that GAL has robustly demonstrated that the assumed increase in capacity with the NRP can be attained in practice at acceptable levels of delay to the airlines. Of particular concern is the level of delay likely to be incurred by based aircraft at the movement rates claimed by GAL in both the NRP and Base Cases. In both cases, it seems likely that the attainable throughput may be less than claimed by GAL having regard to the capacity of the runway(s) and when realistic patterns of demand by airlines are taken into account. Whilst it is recognised that air traffic control procedures may evolve and allow more relaxed separations between aircraft following the same departure route, consideration of the capacity deliverable with and without the NRP should be judged, in the first instance, based on current procedures as it cannot be guaranteed that higher capacity could be delivered in practice.

37. If the capacity deliverable by the NRP is lower than projected by GAL, this has implications for the level of demand that can be accommodated and the assessment of the effects, both positive and negative of the proposed development.

Demand Forecasts

Bottom Up Forecasts

38. Understanding the capacity attainable with the NRP is particularly important in this case as GAL has not adopted a conventional approach for forecasting the demand that could be attracted to the Airport if it had additional capacity available with the NRP. Rather than modelling the level of future demand within the wider catchment area served by the Airport then assessing the share that Gatwick might attain of the overall market demand using top down econometric modelling, GAL built its demand projections for the NRP entirely bottom up. This is evident from Section 2 of Annex 6 to Appendix 4.3.1 to the ES [**APP-075**]. This report contains no analysis of market demand at the individual world region level and no justification for the assumed share of that growth that might be taken up at Gatwick. It simply states assumptions as to the additional services in each market that the Airport might be able to attract on the basis that there is *"limited growth opportunity at other London airports"*[11].

39. Whilst bottom up forecasts are commonly used for short term planning at airports, typically for up to 5 years, as these are able to reflect known discussions with the airlines, they are too dependent on judgement and assumptions to be reliable over the longer term not least given the short term nature of airlines' planning horizons at the individual route level. We would also note that the report only covers in detail the period to 2032 and there is no evidence that justifies the forecast growth to 80 mppa in 2047.

40. Best practice for long term demand forecasting is to use econometric modelling and, in the circumstances where there are step changes in airport capacity expected, it would be best practice to use a systematic allocation model that assesses the share of each airport in different competitive circumstances. We do not accept GAL's contention that top down modelling is less applicable to capacity constrained situations (Issues Tracker [**AS-060**], 16.2) as, properly specified, a model can replicate the effect of constraint and its release. Such an approach has traditionally been adopted by the Department for Transport and has been used for the London Luton Airport DCO application as well as for other airport applications, such as at Bristol in 2021. GAL relies in its Issues Tracker [**AS-060**] on the Secretary of State's decision in respect of Manston Airport[12], stating:

"At Manston, for example, the SoS preferred the applicant's bottom-up approach. In GAL's view a bottom-up approach to forecasting, particularly is more appropriate in a constrained market where demand exceeds supply. In those circumstances, GAL is well placed to forecast how airlines would react to the release of capacity at the airport, particularly as many of them have known, unmet requirements for slots.

This is a practical, market based approach which is likely to be more meaningful than a theoretical, modelled top-down approach.

The long term risk referred to by the authorities is less of a concern here than it might be at other airports because the forecasts show that the new capacity would be quickly filled."

41. It is important to note the context in which the Secretary of State preferred a qualitative approach in preparing forecasts for Manston to conventional modelled approaches to demand forecasts. This was because:

[11] ES Appendix 4.3.1 [**APP-075**] Annex 6, page 12.
[12] Application for the Proposed Manston Airport Development Consent Order, Decision Letter 18th August 2022.

"The Secretary of State has considered the reasons given by the Applicant for taking a qualitative bottom-up approach to forecasting in it's [sic] *Azimuth Report which are: 1) data to extrapolate is only available until 2014; and 2) the history of underinvestment when it previously operated as an airport before it closed in 2014 [ER 5.6.53]."*[13]

"the qualitative approach taken in the Azimuth Report is preferable to the other forecasts considered by the Examining Authority. Given the dynamic changes that are currently taking place in the aviation sector as a result of the challenges and opportunities from the COVID-19 pandemic, the opportunities from the UK's emergence as a sovereign trading nation and the age of the available data allied with historic under investment, the Secretary of State, contrary to the Examining Authority [ER 5.7.4] and the Independent Assessor, places little weight on forecasts that rely on historic data and performance to determine what share of the market the Development might capture."[14]

42. The same conditions cannot be said to be true at Gatwick:

- passenger forecasting methodologies are well tried and tested;
- to the extent that capacity constraints at Heathrow are a factor in traffic development, these have been evident for many years and the effects capable of modelling;
- Gatwick Airport has not suffered from under-investment such that it has not been attractive to airlines; and
- unlike the cargo sector, there is no shortage of data regarding the origins and destinations of passenger demand to and from the Airport's catchment area.

43. We consider that, even if the capacity achievable with the NRP was correct, little reliance could be placed on the 'markets and pipeline' report as a robust justification of the demand that Gatwick might attract. The report simply asserts the number of additional flights that GAL hopes to attract in each market without any underpinning analysis of the likelihood of such flights being attracted by reference to the size of the market and the other airports competing for services in that market. This is purely aspirational and does not provide sufficient evidence to support the claimed increase in throughput or its composition in terms of routes and the future airline fleet of aircraft. It is an exercise in demonstrating how the capacity provided by the NRP might be used but it does not provide evidence that there is a realistic prospect of it being so used. This applies to both the Base and NRP Cases.

44. In relation to the claimed increases in flights in each geographic market in the Base Case, it is unclear why, given constraint in capacity at Heathrow, some additional services have not yet been attracted. The extent to which this is linked to current congestion issues is not clear. Consequently, it is not clear what is planned to improve the attractiveness of the Airport sufficient to justify the assumption that additional flights in each market could be attracted with the existing infrastructure sufficient to deliver a forecast throughput in the Base Case of up to 67 mppa. For this reason, we consider that the assumption that the Airport can attain 67 mppa, up from 46.6 mppa in 2019, is not realistic and that a Base Case capacity in the range 50-55 mppa is more likely.

45. The same applies to the NRP Case but, fundamentally, GAL provides no analysis that would enable the claimed increases in air services in each market to be validated having regard to demand that could be better accommodated at other airports including Heathrow. On this basis, we do not believe that the demand forecasts in their present form can be relied on.

[13] Department for Transport, Planning Act 2008 Application for the Proposed Manston Airport Development Consent Order, Decision Letter 18 August 2022, paragraph 81.
[14] Ibid, paragraph 89.

46. The forecasts also assert a substantial spreading of demand outside of peak periods at Gatwick in order to reach the total passenger and aircraft movement throughputs assumed in both Base Case and NRP Case. Prima facie, it does not seem plausible to assume the same degree of spreading of the peak would be possible in the Base Case due to the limited scope for new less seasonal services to be accommodated compared to the extent to which growth might enable somewhat less seasonal operations to be attracted with the NRP.

47. Overall, the consequence of this, given the capacity constraints at peak periods, is most likely to be that the total number of passengers and commercial air traffic movements has been further overstated. The projections in both cases assume that growth will be focussed towards winter months, with a typical winter day increasing from 78% of a typical summer day's traffic volume to 88% in 2038 and 90% in 2047. This compares to the ratio at Heathrow in 2019 of 92-93%. Given that the low seasonality at Heathrow is largely driven by its substantial component of long haul demand and its hub role, it seems unlikely that such spreading of the peak would be attainable at Gatwick, which is forecast to remain dominantly a short haul airport (67% in 2047 compared to 73% in 2019) whereby patterns of demand are much more seasonally peaked, particularly given the substantial low fare airline presence at the Airport, with or without the NRP, operating a large number of leisure routes.

48. Even if the hourly aircraft movement capacity asserted by GAL was correct, it seems likely that the annual passenger and aircraft movement projections are overstated in both cases. The consequence of this is that the environmental effects of the NRP compared to 2019 may have been overestimated, i.e. represent a reasonable worst case, but the assessment of economic benefits will have been similarly overstated. Furthermore, to the extent that this risk of overstatement in terms of additional services that can be attracted may affect the Base Case to a greater extent than the NRP Case, it is equally possible that the difference with and without development may have been understated. It will be important to clarify this during the Examination.

<u>Top down benchmarking</u>

49. GAL has sought to validate its long term bottom up demand forecasts by top down benchmarking against the Department for Transport's UK Aviation Forecasts. Initially, this was undertaken based on the 2017 forecasts[15] then updated to the Jet Zero Forecasts[16] as set out in Section 5 of the Needs Case [**APP-250**]. Further top down benchmarking was discussed at a TWG on 16th February 2024 and we understand will be submitted at Deadline 1. This included a comparison with the more recent Department for Transport projections of March 2023 referred to in the *Jet Zero: One Year On* report of July 2023[17] and set out some work undertaken by GAL on assessing what Gatwick's share of the market would be based on these latest demand projections. However, various aspects of the approach adopted and the presentation of the results is unclear and further clarification is needed. We will comment further on the information when submitted.

50. As originally presented, the benchmarking is based on considering what the London airports' share of the total UK demand forecast might be and then considering the extent to which other London airports have capacity to meet that demand. This starts from an assumption, illustrated in Figure 5.2-1 of the Needs Case [**APP-250**], that the London airports' share of the overall UK air passenger market remains the same as in 2019.

51. The more substantive issue is that the overarching UK demand forecasts, from which GAL asserts a total pool of demand for the London airports, includes an assumption that Heathrow grows. In the case of the DfT 2017 forecasts[18], the forecasts shown in the Needs Case [**APP-250**], Figure 5.1-1, are

[15] Department for Transport, UK Aviation Forecasts, 2017.
[16] Department for Transport, Jet Zero Dataset, 2022.
[17] Department for Transport, Jet Zero: one year on, July 2023.
[18] Department for Transport, UK Aviation Forecasts 2017.

wholly unconstrained and reflect underlying demand to fly unconstrained by any consideration of available airport capacity. The Jet Zero forecasts adopted for the London Airport share in Figure 5.2-1 are forecasts constrained by the maximum capacity assumed to be deliverable across all airports, i.e. consistent with the making best use of airport runways and assuming a third runway at Heathrow[19].

52. In other words, if the provision of a third runway was not assumed and other airports were not assumed to have additional capacity available, the constrained demand would be lower. In a constrained market, some element of demand is priced off from flying due to the inconvenience of having to use an alternative airport that may be further away from the passengers' origin or destination. Not all demand simply moves from one airport to another.

53. By way of corroboration, the ANPS at paragraphs 3.20 and 3.21 compares the incremental passenger throughput deliverable by a third runway at Heathrow at an additional 28 million passengers in 2040 compared to no expansion at any airport, whereas a full second runway at Gatwick would have delivered an additional 10 million passengers in the same year. This was, of course, on the basis of a fully independent second runway at Gatwick, which is a different proposition in terms of an uplift in capacity compared to the NRP. In other words, the total level of passenger demand is not independent of which airport is assumed to expand and the extent of that expansion.

54. In the context that the overall UK passenger forecasts, as used in GAL's benchmarking, allow for growth at Heathrow, they include an assumption of continued growth of the Heathrow hub, including growth in the number and proportion of transfer passengers expected to use the hub, which currently account for a third of all passengers at Heathrow. The effect of assumed capacity constraint on transfer passenger volumes is illustrated in Table 60 of the DfT's UK Aviation Forecasts 2017 where international to international transfer passengers are assumed to be impacted by the effect of constrained capacity being assumed at Heathrow to a greater extent than point to point passengers – declining from 23.9mppa in 2016 to 4.9 mppa in the 2050 central forecast case. There would also be an expected reduction in domestic to international transfer passengers.

55. As Gatwick is not expected to replicate the Heathrow hub role, with a decline in its proportion of transfer passengers expected (Needs Case [**APP-250**], Table 6.4-10), at the very least some downwards adjustment needs to be made to the projections of London airport passengers before considering the adequacy of capacity to meet demand if no additional runway is assumed at Heathrow, which is the core of GAL's case for the NRP. Although we understand that GAL has made some adjustments for the transfer passenger element in its latest modelling as discussed at the TWG, the basis for this is not clear and further information is sought. Taking into account these factors, demand across the London system in 2037, from which Gatwick could draw, would be materially less than the 247 mppa suggested at Figure A5.3.1 of Annex 5 to Appendix 4.3.1 to the ES [**APP-075**], leaving less residual demand to be met at Gatwick even with the NRP and without a third runway at Heathrow.

56. Although GAL presents a Heathrow R3 Sensitivity Test in Annex 4 of Appendix 4.3.1 to the ES [**APP-075**], the basis of this has not been adequately explained. The effects are merely asserted without any explanation as to how they have been derived. Furthermore, whilst doubts remain regarding the timetable over which a third runway at Heathrow might come forward, its provision remains policy, and it now seems more likely that Heathrow will initially seek some form of capacity increase through adjustment to its existing annual aircraft movement limit and potential use of both of its existing runways in mixed mode[20].

57. Similarly, a slower growth sensitivity test has been presented but this is not, as would be normal practice, referenced to assumptions about slower economic growth or higher carbon costs, for

[19] Department for Transport, Jet Zero Dataset, 2022, Airport Capacity tab.

[20] Both runways used simultaneously for both arriving and departing aircraft, compared to the current operating mode with arrivals on one runway and departures on the other.

example. It is not possible to judge whether this slower growth sensitivity test properly reflects downside economic risks or the longer term cost of carbon and its abatement.

58. Overall, we have doubts that Gatwick would achieve the forecast growth with the NRP over the timescale claimed GAL. This applies regardless of whether a third runway is constructed at Heathrow or not. GAL has not demonstrated that its bottom up forecasts are robust either in terms of their derivation or by reference to subsequent benchmarking, despite more recent analysis.

Implications for the Noise Envelope

59. At the outset, it is important to note that the parameters for the Noise Envelope have been set by referenced to a conservative fleet transition case. Such an approach is not entirely unreasonable as it represents a worst case but we consider that the long run fleet transition is probably overly conservative in the light of more recent information on aircraft orders by airlines such as easyJet, which is the largest airline user at Gatwick. The fleet transition assumptions were originally presented in Appendix 4.3.1 to the PEIR and have not subsequently been updated. Since the date of the PEIR, easyJet UK has ordered 224 new (next) generation quieter aircraft, which compares to their pre-existing orders for such aircraft at the time of the PEIR of 133. A similar pattern of new orders will apply to most airlines. Whilst it is reasonable to assume that GAL anticipated future aircraft orders in determining its fleet mix assumptions, this is not clearly stated in the Forecast Data Book (Appendix 4.3.1 to the ES [**APP-075**]. The Slower Fleet Transition Case used to define the Noise Envelope [Table 3.1, Appendix 14.9.5 to the ES [**APP-175**]) is simply no longer plausible.

60. Furthermore, to the extent that the ceiling Limit for the noise contour area is set by reference to the forecast noise at 2029 and this is a long term ceiling (ES Appendix 14.9.7 – The Noise Envelope [**APP-177**], paragraph 6.3.1), there is a significant risk that this has been set too high if the demand forecasts for that early year are overstated, as would appear to be the case, particularly when coupled with the more limited fleet transition assumed for the early years. This provides headroom for noise to increase in circumstances where the benefits of growth do not materialise to the extent projected by GAL. This risk of asymmetry of effects needs to be taken into account in the planning balance.

The Economic Case

61. We do not challenge the initial assessment of the operational impact of the growth projected with the NRP. However, it is important to note that if the forecasts were lower, the benefits would be lower for any given year or scenario. It seems strange however, that two different views of the operational economic impacts in terms of local employment and gross value added (GVA) have been presented – one by Oxford Economics (OE) at Appendix 2 of the Needs Case [**APP-252**] and one by Lichfields in the ES Chapter 17 [**APP-042**]. The LAs have an overarching concern to understand the impacts from the operational and construction phases at individual authority level.

62. In terms of the wider societal welfare and catalytic and impacts of the NRP, these are presented in gross terms and, significantly, in the work of Oxera on the National Economic Impact (Needs Case, Appendix 1 [**APP-251]**) and the OE Report [**APP-251**], which both assume that all passenger growth at Gatwick is entirely incremental at the national level. Given our comments above about the likelihood of the forecasts being overstated and the lack of account taken of the potential for at least some of the growth to be displaced from other airports, this substantially overstates the net benefits of expansion in both cases.

63. This is especially the case in the work of Oxera as it not only takes no account of the potential for other airports, including Heathrow, to develop additional capacity over the period, it values the benefits to users starting from average London system air fares in 2019 (Needs Case, Appendix 1 [**APP-251**], Table 5.4.1) that include the higher fares attained at Heathrow compared to Gatwick. In terms of the benefits to users at Gatwick, the appropriate start point would have been average Gatwick fares,

reflecting the low cost nature of much of the operation, the lower proportion of long haul flights and predominance of leisure travel at the Airport. Hence, the start point for air fares in the assessment of wider economic benefits is overstated undermining the reliance that can be placed on the results.

64. Having started from too high a point, the potential benefits to users, in terms of air fare savings, are then calculated on the assumption that all passengers projected to use the NRP are incremental at the London system level and Oxera effectively reverse engineers an assumed air fare saving using an elasticity between air fares and incremental demand, i.e. what would the air fare saving have had to be to stimulate that additional growth in demand on the basis that passengers would not otherwise have travelled absent the NRP. This is not a robust methodology for assessing the value of air fare savings not least as, to the extent that all passengers are not genuinely incremental, this approach will have resulted in too great an air fare saving being calculated and, hence, overstated the benefits to users. On this basis, the economic societal-welfare benefits are likely to have been materially overstated on two counts – the starting level of average air fare and an overstatement of the demand that would be genuinely incremental.

65. It is also unclear the extent to which the WebTAG cost benefit analysis has followed the best practice guidance[21] in terms of the treatment of displacement or in using the required carbon appraisal values. Whilst there is no requirement for such an appraisal in connection with a planning application (paragraph 1.1.4 of the Guidance), the errors in the analysis undertaken would diminish any weight that could be attached to the national level benefits claimed.

66. The OE report (The Economic Impact of Gatwick Airport [**APP-252]**) uses an approach of considering tourism (Figure 4.3) and trade (Figure 4.5) implications individually. This is a more usual approach. However, it is important to note that the benefits calculated represent the gross impact of the NRP, assuming that all passengers using the NRP are incremental at the UK level, which is highly unlikely to be the case to the extent claimed by GAL in the light of our comments above. So, whilst this approach avoids the methodological difficulties of the Oxera approach, it nonetheless overstates the benefits when displacement from other airports is taken properly into account or if, more likely, the level of demand is overstated in the first place.

67. A further issue in the assessment of wider economic benefits relates to the asserted local catalytic impact of the area in terms of the role of expansion in attracting other economic activity to the local area. Oxera, in Appendix 17.9.2 of the ES [**APP-200**] sets out a methodology for estimating the catalytic footprint of the Airport in the local area. The methodology relies on estimating total employment in the area around each airport and relating that to the scale of activity to estimate how employment might grow as an airport moves up the size scale in terms of an elasticity which is them applied to the traffic growth at Gatwick.

68. This methodology was discussed at TWGs in November 2022 and August 2023 and the concerns expressed about this methodology in November are not captured in the record of engagement at Table 17.3.3 of the ES Chapter 17 [**APP-042**], nor has any attempt been made to address these concerns, albeit further discussions were held in February 2024. The concerns derive from three causes:

- the process for estimating levels of demand arising in the catchment area of each of the cross section of airports used (ES Appendix 17.9.2 [**APP-200**], Annex 5, Figure A5.1) uses a theoretical relationship, derived in Italy, which takes no account of actual levels of demand nor which airport the passengers actually used. It was recommended to GAL that Civil Aviation Authority (CAA) passenger survey data was used instead to ensure that the levels of demand in each catchment area were representative of actual demand in the catchment area of airports in the

[21] WebTAG Unit A5.2 Aviation Appraisal November 2023.

UK[22] and to calibrate how much of the local demand was related to the level of air services at the relevant local airport;

- the scale of catchment areas used for each of the airports in the sample varied significantly such that the relationship between the estimated volume of passengers and the total employment in the area could be skewed by the scale of the area being considered and also by the scale of overall activity at an airport, meaning that larger airports would generally provide a greater level of service to local passengers than a smaller airport, with different consequential effects at all scales. The model appears to have ascribed all passenger demand estimated for an area as being related to an individual airport. So, for example, no account was taken of the fact that much of the demand arising in Cornwall uses Bristol Airport and much of the demand from South Yorkshire uses Manchester, East Midlands or Leeds Bradford Airports etc.. Hence, employment in any of these locations cannot be safely ascribed simply to the local airport and account would need to be taken of the specific contribution of each airport in order to isolate the true effects;

- No account was taken of other factors that could boost or diminish total employment in a locality, e.g. Enterprise Zones, regeneration initiatives or other local economic factors.

69. The methodology was applied by Oxera to estimate the effect of a change in the total air passengers locally due to the project by applying the growth rate (ES Appendix 17.9.2 [**APP-200**], paragraph 6.2.2) in total passengers then taking the elasticity of total employment to total passengers and using this to generate an estimate of the proportionate growth in total employment in each of the study areas around Gatwick (e.g. the Gatwick Diamond) so as to identify the uplift in other employment that could be ascribed to the NRP. The direct, indirect and induced employment estimates arising from growth are then deducted to produce an estimate of catalytic employment and GVA as set out in Table 6.4 (ES Appendix 17.9.2 [**APP-200**]).

70. Whilst the methodology might be a reasonable basis for assessing the effect of airport growth on overall employment in an area, this is only robust to the extent that the number of air passengers deriving from any given area is robust and they are properly related to the airport concerned, i.e. to the extent that air passenger demand in the vicinity of Gatwick uses Heathrow Airport, it would be wrong to ascribe the uplift in catalytic employment in the area solely to growth at Gatwick. Given the availability of robust CAA data on passenger origins and destinations in the UK, particularly across the South East of England, we consider this data should have been used as the basis for deriving the relationship. This has been discussed at a TWG on 16th February 2024 and further feedback from GAL is awaited. As things stand, we have little confidence that the estimates of the catalytic impact of the NRP at a local level are robust.

71. Ultimately, for the reasons explained above, the wider economic benefits of the NRP are almost certainly substantially overstated and this is material to assessing the balance between such benefits and any environmental impacts.

Conclusion

72. Our overall conclusion is that the level of increase in capacity attainable from the NRP has been overstated by GAL and that, as a consequence, levels of usage – the demand forecasts – have been overstated. It is likely that achieving the claimed throughput in peak periods may require different use of the departure routes resulting in potentially greater environmental effects.

[22] We note that the methodology adopted for estimating levels of demand in the academic paper was applied in the circumstances where there is no actual data on the surface origins and destinations of passengers and how these relate to the catchment areas of individual airports. This is not the case in the UK.

73. The methodology by which the demand forecasts have been derived is not robust, even if the underpinning assumptions as to the capacity attainable with two runways in use was correct.

74. For similar reasons, the demand projections for the Base Case with the existing runway are likely to have been overstated, possibly even more so than those with the NRP given current levels of airfield congestion and the views of airlines. This may mean that the differences in the environmental impacts with and without development may have been understated.

75. The consequence of this overstatement of demand is that the limit size of the noise contour in the Noise Envelope will have been set too large and so provide no effective control or incentive to reduce noise levels at the Airport.

76. The wider economic benefits of the proposed development have been overstated due to the failure to adequately distinguish the demand that could be met at Gatwick from the demand which could only be met at Heathrow and the economic value that is specific to operations at Heathrow. The methodology by which the wider catalytic impacts in the local area has been assessed is not robust and little reliance can be placed on this assessment.

77. Overall, this means that there can be little confidence that the decision maker can rely on the assessment of effects to judge whether the benefits outweigh the harms.

YAL/5.3.24