

Expansion of Bristol Airport to 12mppa - Planning Appeal

PINS Ref APP/D0121/W/20/3259234

PROOF OF EVIDENCE

Air Traffic Forecasts and Projections

for Bristol XR Elders Group

Johnny Devas AA Dip. MSt (Cantab)

XR/W3/1

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Abbreviations used in the Statement

ACI	Airports Council International
AOA	Airport Operators Association
BAL	Bristol airport Ltd. – the ‘Appellant’
COVID-19	(or COVID) Coronavirus disease 2019
ETS	Emissions Trading Scheme
FT	Financial Times
IATA	International Air Transport Association
Officers Report	Refers to the report of the Application to the 17 th Feb 2019 planning committee.
Mppa	Million passengers per annum
NSC	North Somerset Council
SoC	Statement of Case
YAL	York Aviation LLP
XR	Extinction Rebellion

Summary

I question the assumption behind Bristol Airport’s forecasts that *‘the impact of COVID-19 is ultimately a short term issue covering the next 2 to 4 years, and that, over the period of the planning forecasts, more normal market conditions and drivers for growth will return’*

I consider that COVID will have a deeper and longer lasting effect than BAL’s ‘reasonable worst-case scenario’, and that 2019 passenger levels will not return until 2027.

This extended downturn will hit the headwinds of increasing concern about climate change and higher ticket prices, all set against the increasing availability of attractive alternatives to flying.

In my opinion, BAL have not submitted convincing evidence that the airport needs to expand beyond its 10 mppa limit, and thus the disbenefits of the proposed development are not justified by any real benefits.

1. Introduction

1.1 Personal Details

My name is Johnny Devas and I am a retired architect with 15 years' experience of airport design and design management, including being engaged as a consultant on Lyon St Exupery airport over a ten-year period, and on Chek Lap Kok in Hong Kong and Heathrow Terminal 5.

I trained at the Architectural Association in London, became a registered architect in the UK and France and trained as an expert witness appointed by the French courts for construction disputes. I have a masters degree from the University of Cambridge in Interdisciplinary Design for the Built Environment and have lectured on aviation and climate change.

1.2 Scope of Evidence

This Proof considers the traffic forecasts of BAL in the original planning application for further expansion at the airport, and in the revised forecasts submitted in the autumn of 2020. Both have been overtaken by ongoing events in the pandemic, as demonstrated by comparisons with more recent forecasts prepared by aviation organisations.

I then consider factors that York Aviation's long-term forecasts have not taken into account, including the changing nature of work and the Evidence of Dr Stuart Capstick that attitudes to air travel are changing as people become more aware of its carbon burden.

2. Bristol Airport Forecasts

2.1 The 2018 planning application

This planning application was accompanied by passenger number projections by Mott MacDonald (Planning Statement Appendix F): (mppa = million passengers per annum)

Year	Low forecast (mppa)	Base forecast	High Forecast
2018	8.66	8.66	8.66
2020	9.12	9.53	9.56
2025	10.65	12.01	12.44
2030	12.24	13.36	15.47

The NSC Officer's report to committee felt that these estimates may be too high, and based this assessment on advice from independent consultants (page 16 Officer Report to Committee).

2.2. York Aviation COVID impact forecasts 2020.

2.2.1 Three scenario forecasts

Due to the collapse in passenger numbers caused by COVID-19, BAL were exceptionally allowed to submit further evidence for the appeal. They commissioned York Aviation (YAL) who prepared their forecasts in summer 2020, and submitted their report in November 2020. This report recognises ongoing uncertainty due to COVID, but only in the short-term period of 2-4 years, and anticipates recovery to 2019 passenger levels between 2022 in the Faster Growth Case, and 2023 in the Slower Growth Case (YAL report para 1.9 and Table 3.2 - see summary table below).

- **The Core Case** is presented as a 'balanced view' and a 'reasonable best estimate'.
- **The Slower Growth Case** represents a 'reasonable worse case reflecting slower than expected recovery from COVID-19, lower economic growth in the future/or other adverse market conditions'.
- **The Faster Growth Case** represents 'more rapid bounce back from COVID-19 and/or faster economic growth in the future'.

2.2.2 Excerpts from Table 3.2, page p12 YAL Report November 2020.

Year	Core Case	Slower Growth Case	Faster Growth Case
2019	8.9	8.9	8.9
2020	3.2	3.2	3.2
2021	8.0	6.4	8.4
2022	8.8	8.1	10.3
2023	9.5	9.0	11.1
2024	10.3	9.3	11.4
2025	10.7	9.6	11.7
2026	10.9	9.8	11.9
2027	11.2	10.0	12.0
2028	11.4	10.2	12.0
2029	11.8	10.5	12.0
2030	12.0	10.8	12.0
2031	12.0	11.1	12.0
2032	12.0	11.5	12.0
2033	12.0	11.7	12.0
2034	12.0	12.0	12.0
2035	12.0	12.0	12.0

3 Short-term forecasts.

3.1 YAL Report 2020

3.1.1 The YAL 'Bottom Up' Forecasts

The YAL forecasts were prepared during summer 2020 when infection rates were low and before the emergence of more virulent variants with subsequent spikes and lockdowns. Travel restrictions are now likely to continue at least well into 2022.¹

3.1.2 YAL's Slower 'reasonable worst case' forecast

The Slower 2020 forecast of 3.2 mppa was more than 30% above the actual figure of 2.2 mppa. (BAL report to Airport Consultative Committee). YAL's Slower Growth forecast of 6.4mppa for 2021 remains very optimistic.

3.1.3 The post-pandemic bounce-back

Even though YAL acknowledges that its own forecasts for 2021 are optimistic (para 2.25), it reasons that this will cause a larger bounce back. This optimistic bounce back assumption is based on the aviation recovery from the pandemics of SARS, Avian Flu and MERS. (para 1.7). The Proof of Evidence from Dr. Sally Lawson shows that COVID is of a different order of magnitude compared to these previous pandemics.

3.1.4 YAL forecast comparison with ACI Europe, IATA and Eurocontrol

In its conclusion (page 13 para 3.10), the YAL report states that the airport will reach 10 mppa in 2024 (Core Case Scenario) and adds *'the Core Case Growth is in line with the forecasts produced by a range of commentators'*, citing ACI Europe, IATA and Eurocontrol. However, these reports refer to passenger numbers returning to **pre-COVID levels**, and for BAL that is **8.9 mppa** and not 10 mppa. The YAL Core Case forecasts reaching these 2019 passenger levels nearly two years **earlier** at the start of 2023, and even YAL's Slower Growth Case reaches 2019 levels also in 2023, an optimistic forecast when compared to the cited forecasts by ACI Europe, IATA and Eurocontrol. These comparative forecasts were prepared in 2020, have since been updated, and are even more pessimistic. See para. 3.3 below.

3.2 Airport Operators Association forecasts

3.2.1 For further comparison with YAL's forecasts, the Airport Operators Association (AOA) published *'A UK Airport Recovery Plan'* on the 3rd February 2021. This report forecasts three recovery scenarios to 2025, prepared by Steer consultancy (page 6: AOA report 2021, chart):

¹ Bloomberg: *Brace Yourself: Long-Haul Travel May Not Get Going Until 2023* by Angus Whitley, Jason Gale, Tara Patel and Christopher Jasper 4 February 2021

Scenario 1 – **Successful Vaccine**. Vaccines are rolled out successfully worldwide in 2021. 100% recovery in 2025

Scenario 2 – **Divided World**. Vaccines are rolled out largely successfully in developed countries through 2021, but there are issues in many parts of the world. 90% recovery in 2025

Scenario 3 – **Enduring Virus**. Vaccines are rolled out through 2021 but their effectiveness is limited worldwide. 75% recovery in 2025.

The best-case AOA Scenario 1 of recovery in 2025 is more pessimistic than the Slower Growth forecast of the YAL report that forecasts recovery to 2019 levels two year earlier in 2023.

3.2.2 AOA report insufficiently pessimistic

Furthermore, the AOA report, in a section entitled ‘A Long and Winding Road’ states that:

‘even if global vaccine roll out goes well, it could be 2025 before airports see 2019 levels of passengers again. The renewed lock-down and additional travel restrictions are not yet included here and would produce a significantly more pessimistic outlook for 2021 and medium-term recovery’.

The AOA forecasts were prepared in autumn 2020, before the winter lockdown and the COVID variants. Travel restrictions and additional costs, such as COVID tests, may apply for many years, and would dampen the demand for overseas holidays, particularly for families.

3.2.4 If the AOA’s projections are, by their own admission, too optimistic in predicting a return to 2019 passenger levels, it would be prudent to use their Scenario 3 growth prediction of 75% of 2019 levels by 2025. For BAL this would mean passenger levels would be 6.8 mppa by 2025 (75% of 8.9 mppa), and that a return to 2019 levels would not be before 2027.

3.3 Other Recent Forecasts of Air Travel Recovery

3.3.1 ACI Europe

Since their October forecasts, the ACI Europe bulletins give increasingly pessimistic forecasts of recovery. The April 2021 bulletin has as its title ‘A deepening crisis as air passenger traffic returns to rock bottom levels and recovery forecasts are downgraded’ The bulletin also states:

‘EU/EEA/Swiss and UK airports saw passenger traffic decreasing from -85% in January to -89% in March.....UK airports were especially affected, along with those countries relying exclusively on international traffic. – many of them left with less than 5% of their pre-pandemic passenger traffic levels.’

The bulletin concludes

‘ACI Europe issues downgraded traffic and financial forecasts.Passenger traffic at Europe’s airports is now set to decrease by -64% in 2021, down from -52% forecast in January. A full recovery to the passenger volumes of 2019 has been reforecast from 2024 to 2025’.

3.3.2 IATA and Eurocontrol

IATA's February bulletin is entitled '2020 Worst Year in History for Air Travel Demand' and its forecast for 2021 reads:

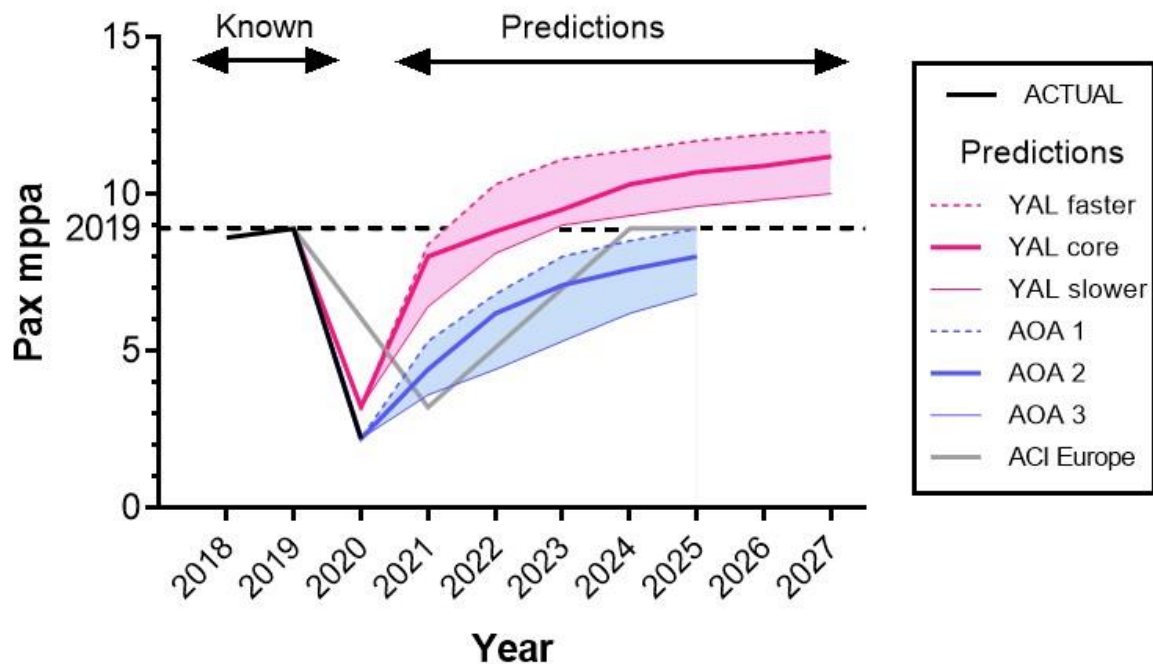
'IATA's baseline forecast for 2021 is for a 50.4% improvement on 2020 demand that would bring the industry to 50.6% of 2019 levels. While this view remains unchanged, there is a severe downside risk if more severe travel restrictions in response to new variants persist. Should such a scenario materialize, demand improvement could be limited to just 13% over 2020 levels, leaving the industry at 38% of 2019 levels'.

This matches the ACI Europe downgraded forecast. In May 2021 Eurocontrol updated their four-year forecast 2021 to 2024 for European flight movements. Their three scenarios forecast a return to 2019 levels in 2024, 2025 and 2029.²

3.3.3 Comparison with YAL's Slower Growth Forecast.

YAL's 'reasonable worse case' is 6.4 mppa for 2021. Taking the ACI forecast of -64% from 2019 levels, this would reduce to 3.2 mppa, half YAL's forecast, and highlighting the ongoing damage COVID is inflicting on aviation, even since YAL prepared its forecasts in the summer of 2020.

3.4 Chart comparing YAL's 2020 forecasts with AOA and ACI 2021 forecasts



² Eurocontrol Four Year Forecast Update 2021 – 2024. Three Scenarios for Recovery from COVID-19 May 2021

4 Medium-term forecasts

4.1 Questionable assumptions in the YAL Report

4.1.1 Recovery from COVID

Despite acknowledging the immediate impact of COVID on passenger numbers, the YAL report remains optimistic about medium and long-term recovery.

'Our forecasts, therefore, assume that the impact of COVID-19 is ultimately a short term issue covering the next 2 to 4 years, and that, over the period of the planning forecasts, more normal market conditions and drivers for growth will return' (para 1.9)

'Nonetheless, ultimately, we expect that more adverse conditions in the short term will result in a faster subsequent 'bounce back' as the air transport market catches up with economic recovery. This means that the medium to long term forecasts are not expected to be significantly affected by ongoing restrictions into 2021' (para 2.25)

4.1.2 ACI March 2021 Bulletin

However, the severely downgraded forecasts for 2021 to 2025 not only delay the recovery to pre-COVID levels, but are very likely to dampen the medium term growth. The ACI International March 2021 bulletin concludes *'In the long run, it is predicted that the global traffic may take up to two decades to return to previously projected levels (pre-Covid-19 forecast). A structural change (traffic will never return to pre-Covid-19 forecast level) is still a possibility.'*

4.1.3 Recovery to 2019 levels not before 2027

Compared to the ACI forecasts, the YAL assumption of a rapid bounce back followed by a growth rate similar to the pre-COVID world appears to be very optimistic, and it is more likely that passenger numbers at BAL may not exceed the 2019 level before 2027.

5 Long Term Forecasts

5.1 The Three Long-term YAL forecasts

These are also presented as Slower or Faster Growth, and a 'Core Case' mid-point, and are contained in the YAL Table 3.2 on p12 of their November 2020 Report.

The forecasts to 2035 for passenger demands to 10 and 12 mppa are as below:

Slower growth:	10 mppa by 2028	12 mppa by 2034
Core case:	10 mppa in 2024	12 mppa by 2030
Faster Growth:	10 mppa by 2022	12 mppa by 2027

5.2 YAL's Monte Carlo drivers and assumptions

YAL's medium and long-term forecasts are based on a 'top-down' approach based on two main drivers: economic growth and modelled air fares. The modelled air fares are dependent on the following core building blocks: fuel price and fuel consumption, air passenger duty, cost of carbon, average sector length in different market segments and average aircraft size and load factor in different market segments. (para 2.8 YAL Final Report Nov 2020 with Assumptions and Probabilities in Appendix A).

5.2.1 Economic Growth

The European aviation industry is a mature market and, unlike the Asian market, has inherently less scope for continued future expansion. GDP growth is therefore a poor indicator of future passenger demand.³

5.2.2 Fuel price

Fuel price has a direct impact on passenger fares and airline profitability. In the YAL Report Appendix A, the forecast oil price for 2021 ranges from a low of \$37 to a high of \$90, with the highest probability rating going to the YAL analysis of \$37. Brent Crude is currently trading above \$60. *'For Big Oil, May 2021 is set to be the month the wind changed. ... The petroleum-based economy is beginning to unravel'* (FT Leader 29.5.21) These 'Black Wednesday' events include: the Dutch court ruling against Shell forcing it to dramatically reduce its climate emissions, the forced changes to Board members of Exxon, shareholder-imposed emission targets at Chevron and the radical report from International Energy Agency stating that oil companies must stop all oil exploration projects from this year if global warming is to be curbed. It also seems unlikely that aviation will benefit for much longer from tax-free fuel. On the 22nd May 2021 the FT carried an article with the headline: *'EU to target aviation in revamp of*

³ *'Europe has the highest LCC (Low Cost Carrier) penetration rate in the world, but growth is slower than in most of the other regions – as would be expected for a mature market.'* CAPA Centre for Aviation. 19.2.19.

fossil-fuel levy. Finance ministers back proposal to help meet ambitious carbon emissions’. In the medium and long term, these factors will tend to raise fuel costs and YAL’s central long-term assumptions of oil price at \$85 with 80% probability are likely to be optimistic.

5.2.3 Air Passenger Duty

YAL’s Monte Carlo model gives 70% probability to ‘no real change’ in Air Passenger Duty from 2020 right through to 2040. Given the significance of the government including aviation in its net zero 2050 target, it is surprising that YAL assumes there will be no increase in Air Passenger Duty even in 2040.

5.2.4 Carbon price.

YAL’s Central Scenario with 75% certainty forecasts a price of £20 per tonne for 2021. The UK exited the EU scheme on 1st January 2021, with the assumption that the UK ETS would not price below the EU allowances in the early months, possibly years. (FT 27.2.21).

‘Carbon prices have soared in recent months as governments have stepped up their targets for cutting emissions, with the EU Emissions Trading Scheme rallying from near €30 a tonne in December to €55 a tonne last week.’ (FT 19.5.21)

On the same day, the UK carbon price was £45.75, again more than double YAL’s Central Scenario and 27% above their High Scenario.

5.2.5 Added costs of decarbonising aviation

From 2035 the likely introduction of lower carbon emitting aircraft for short-haul flights (battery and hydrogen) will add costs of between 0% and 35% to ticket prices to cover the additional expense.⁴

5.2.6 Conclusion on the Monte Carlo base assumptions.

The key assumptions of low fuel and carbon price have proved to be inaccurate in the short term, and are likely to be equally unreliable as the basis for long-term forecasts of passenger demand. I contend that GDP growth is inappropriate as a measure, and the recent oil and carbon prices increases and the likelihood of future increases in Air Passenger Duty would suggest further ticket price rises. This would result in a flattening in passenger demand rather than the pre-COVID growth levels in YAL’s forecasts.

⁴ *‘By 2040, higher energy costs (hydrogen), capital costs (energy storage, propulsion system) and maintenance costs (landing gear, battery replacement) of hydrogen and battery aircraft compared to conventional kerosene aircraft will lead to increased ticket prices.’* Europe’s Future Aviation Landscape. Deloitte April 2021.

5.3 Other key drivers in forecasting demand

5.3.1 Limitations of the Monte Carlo model

The Monte Carlo model is built entirely on financial and economic assumptions and does not include any of the behavioural and societal trends that were fed into YAL's Bottom Up short-term modelling. The narrow scope of inputs may have worked reasonably well in the past for increases in air passenger demand that were led by the growth of the low-cost airline model and the liberalisation of the European aviation market. But this restricted scope omits the long-term effects of the pandemic and the changing attitudes of individuals, business and governments towards future growth in aviation.

5.3.2 Peak business travel

There is evidence that there was a desire for less business travel before the pandemic (see the Evidence by Dr Stuart Capstick), and BAL have acknowledged that business travel will be slower to recover than the leisure sector.⁵

- The pandemic has forced many to work from home and this will remain popular for many workers and their companies, reducing the long-distance commute
- Virtual meetings further reduce the need to travel, and reduce costs and time.
- Climate change is now much higher on the corporate agenda.

All these factors are self-reinforcing, and will only increase over time, and it is probable that European business travel has already peaked and will never return to its pre-COVID level.⁶

5.3.3 Reduction in leisure travel.

Attitudes to flying for short holidays are changing and recent research found that there is a greater proportion of people who plan to fly less post COVID restrictions than those who plan to fly more. See the Evidence by Dr Stuart Capstick.

⁵ YAL Economic Impact Report 2020: para2.17

⁶ *'There is no joy in recognising that business travel has peaked and that our industry will never return to its pre-Covid level. Like it or not there are significant implications for our industry's future'* (Scott Gillespie Business Travel News Europe. 1st February 2021).

6 Conclusion

It is evident that COVID has already forced a reduction in passenger numbers well below BAL's 'reasonable worst-case scenario', and that, far from BAL's 'bounce-back' followed by steady growth, it is more probable that the pandemic will continue to dampen the recovery until at least 2027.

During this extended recovery period and into the post-COVID world, European aviation in particular will be hit by the following headwinds that will dampen or stop future growth:

- Increasing awareness and concern about climate change
- Higher air fares
- Virtual communication reducing the need for travel
- Expanding high speed and sleeper train network providing comfortable alternatives

I consider that BAL have not submitted convincing evidence that the airport needs to expand beyond its 10 mppa limit. The dis-benefits of this Application, detailed in other evidence to this inquiry, are thus not justified by any significant benefits.