Bristol Airport Public Inquiry

Errata to Economic Impact Assessment Proof

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North Somerset Council

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1. The Update

1.1.1 Paragraph 4.3.1 of my Proof had a typographical error (NSC/W5/1 Siraut, 2021). The penultimate sentence of that paragraph presently reads

"Asked how restrictions on flying had impacted on productivity, 19% reported that it had improved, 60% that it had no impact and 28% stated that it had made it worse"

It should read

"Asked how restrictions on flying had impacted on productivity, 12% reported that it had improved, 60% that it had no impact and 28% stated that it had made it worse"

The correction has no impact on my conclusions.

1.1.2 My assessment of direct employment impacts estimated that the net impact was 21 fewer jobs at the North Somerset level, 22 fewer jobs at the West of England level and 43 fewer jobs at the South West & South Wales regional level (Table 1-1) compared to the appellant's position.

Table 1-1: My estimated impacts of job efficiency gains compared to the appellant's using 8.9 million passengers in 2018

Economic Impacts - accounting for job efficiency gains	North Somerset			West of England			South West & South Wales		
	GVA	Jobs	FTEs	GVA	Jobs	FTEs	GVA	Jobs	FTEs
Appellant's Proposed Development – 12 MPPA (2030)	£280m	1,640	1,440	£370m	3,620	3,180	£430m	4,900	4,300
Jacobs Revised Proposed Development – 12 MPPA (2030)	£267m	1,554	1,374	£355m	3,466	3,048	£409m	4,661	4,093
Difference (Jacobs – The Appellant)	-£13m	-86	-66	-£15m	-154	-132	-£21m	-239	-207
Difference in marginal net impact results between The Appellant and Jacobs Estimates	**-£2m**	**-21**	**-11**	**-£2m**	**-22**	**-22**	**-£4m**	**-43**	**-38**

Source: Jacobs analysis; Development of Bristol Airport to accommodate 12 million passengers per annum: economic impact assessment addendum, York Aviation 2020; CD2.22

1.1.3 In my economic impact assessment proof (NSC/W5/1 Siraut, 2021), I used 2019 passenger figures (8.9m passengers) with 2018 employment figures (3,900 direct employment at South West & South Wales level) for Bristol Airport (CD2.22; page 10).

1.1.4 In this erratum I have amended my analysis using 8.7 million rather than the 8.9 million passenger figure. The 8.7 million passengers is set out both in the appellant's economic impact addendum (CD2.22; page 10) and as per Civil Aviation Authorities (CAA) passenger survey data (see Appendix A).

2. Corrected Position

2.1.1 Using the 2018 passenger figure of 8.7m shows that in 2018 there are 448 jobs per million passengers. Thus, the appellant's appraisal reveals an airport and its ancillary services improving efficiency by 9% between 2018 and 2030 (Table 2-1). This efficiency improvement with 8.9 million passengers was estimated at 7%, therefore a 2 percentage-point difference.

2.1.2 I have followed the same methodology as set out in my proof of evidence (NSC/W5/1 Siraut, 2021) and estimated the efficiency improvement if there was an annual 1% increase in efficiency from 2018 to 2030, and its resulting impacts on direct employment. If this was to occur, jobs per one million passengers should fall from 448 jobs per million in 2018 to 397 jobs per million passengers (equivalent to a 11% reduction). This would result in 3,973 jobs directly supported on-site by Bristol Airport at the South West and South Wales level in 2030 with 10mppa, therefore reducing jobs by 107 compared to the 4,080 estimated in the 2030 baseline by the appellant (Table 2-1).

Table 2-1: Updated job intensity (direct employment per million passengers) comparison of appellant's estimates and my estimates

	Appellant's estimates			
	Direct employment - South West & South Wales	**MPPA**	**Direct jobs per million passengers**	**% change from 2018**
2018	3,900	8.7	448	-

2030	4,080	10.0	408	-9%
2030	4,900	12.0	408	-9%
	My direct employment estimates			
	Direct employment - South West & South Wales	**MPPA**	**Direct jobs per million passengers**	**% change from 2018**
2018	3,900	8.7	448	-
2030	3,973	10.0	397	-11%
2030	4,768	12.0	397	-11%

Source: Jacobs Analysis

2.1.3 A 11% efficiency improvement between 2018 and 2030 would result in 51 fewer jobs at the North Somerset level, 74 fewer at the West of England level and 132 fewer jobs at the South West & South Wales level when comparing the Appellant's Appeal Proposal versus my estimates (Table 2-2). Again, as concluded in my proof of evidence (NSC/W5/1 Siraut, 2021), this does not translate into a large difference between the marginal net GVA impacts estimated by the appellant and my approach. Furthermore the difference in estimated marginal net impact is marginal between my previous estimate set out in Table 1-1 versus the updated estimates in Table 2-2.

Table 2-2: My updated estimated impacts of job efficiency gains compared to the appellant's with 8.7 million passengers in 2018

Economic Impacts - accounting for job efficiency gains	**North Somerset**			**West of England**			**South West & South Wales**		
	GVA	**Jobs**	**FTEs**	**GVA**	**Jobs**	**FTEs**	**GVA**	**Jobs**	**FTEs**
Appellant's Proposed Development – 12 MPPA (2030)	£280m	1,640	1,440	£370m	3,620	3,180	£430m	4,900	4,300
Jacobs Revised Proposed Development – 12 MPPA (2030)	£273m	1,589	1,406	£363m	3,546	3,118	£419m	4,768	4,187
Difference (Jacobs – The Appellant)	-£9m	-51	-34	-£8m	-74	-62	-£12m	-132	-113
Difference in marginal net impact results between The Appellant and Jacobs Estimates	-£1m	-15	-6	-£1m	-9	-10	-£2m	-25	-22

Source: Jacobs analysis; Development of Bristol Airport to accommodate 12 million passengers per annum: economic impact assessment addendum, York Aviation 2020; CD2.22

3. Consequences

3.1.1 Updating the direct employment estimates as the above changes the following tables in my proof of evidence (NSC/W5/1 Siraut, 2021):

- Table 5-3 on page 30
- Table 6-3 on page 36
- Table 6-4 on page 37
- Table 6-5 on page 40
- Table 9-1 on page 58

3.1.2 The corrected tables are set out below but have no impact on my conclusions set out in my proof (NSC/W5/1 Siraut, 2021). The corrected figures are set out in blue text.

Table 5-3: My Revised Net Impacts of Bristol Airport Expansion with Business Productivity and Job Intensity Estimates

Net Economic Impacts	North Somerset			West of England			South West & South Wales		
	GVA	Jobs	FTEs	GVA	Jobs	FTEs	GVA	Jobs	FTEs
Appellant Net Impacts	**£70m**	**710**	**570**	**£220m**	**2,460**	**2,040**	**£430m**	**5,560**	**4,470**
(-) Productivity Impacts	£10m - £20m	65-130	50 - 100	£45m - £90m	310 - 620	250 - 500	£100m - £200m	960 - 1,920	760 - 1,520
(-) Job Intensity	£1m	15	6	£1m	9	10	£2m	25	22
Jacobs Revised Net Impacts	**£59m - £49m**	**630-565**	**514-464**	**£174m-£129m**	**2,141-1,831**	**1,780-1,530**	**£328m - £228m**	**4,575-3,615**	**3,688 - 2,928**
% Change vs appellant	16%-30%	11%-20%	10%-19%	21%-41%	13%-25%	13%-25%	24%-47%	18%-35%	17%-34%

Source: Jacobs analysis; Development of Bristol Airport to accommodate 12 million passengers per annum: economic impact assessment addendum, York Aviation 2020; CD2.22

Table 6.3 My updated estimated amount of displacement by geographical region if 62% of passengers are displaced to other airports1

		South West & South Wales				Outside Study Area					Aggregation	
	Net additional impact from expansion[2]	Cardiff Airport	Newquay Airport	Exeter Airport	Bournemouth Airport	Heathrow Airport	Gatwick Airport	Birmingham Airport	Luton Airport	Stansted Airport	Study areas	Outside Study Area
North Somerset												
% of passengers that would fly to other airports from the area		12%	0%	0%	0%	35%	16%	26%	11%	0%	12%	88%
GVA (£m)	59-49	4-4	-	-	-	13-11	6-5	10-8	4-3	0-0	4-4	32-27
Jobs (#)	630-565	47-42	-	-	-	137-123	61-55	102-92	44-40	0-0	47-42	345-309
FTEs (#)	514-464	39-35	-	-	-	112-101	50-45	83-75	36-32	0-0	39-35	282-254
West of England												
% of passengers that would fly to other airports from the area		13%	0%	0%	1%	27%	18%	19%	14%	9%	13%	87%
GVA (£m)	174-129	14-10	-	-	1-0	29-22	20-15	20-15	15-11	9-7	14-11	94-70
Jobs (#)	2141-1831	168-144	-	-	8-7	359-307	245-210	250-214	187-160	116-100	176-150	1157-990
FTEs (#)	1780-1530	140-120	-	-	7-6	298-256	204-175	208-178	156-134	97-83	146-126	962-827
South West & South Wales												
% of passengers that would fly to other airports from the area		28%	4%	17%	3%	15%	10%	13%	6%	4%	52%	48%
GVA (£m)	328-228	57-40	8-6	35-24	5-4	31-21	21-15	26-18	13-9	7-5	106-74	98-68
Jobs (#)	4575-3615	798-631	117-92	491-388	73-58	428-338	297-235	370-292	176-139	100-79	1478-1168	1370-1083
FTEs (#)	3688-2928	643-511	94-75	395-314	59-47	345-274	240-190	298-237	142-112	80-64	1192-946	1105-877

Source: Jacobs analysis of appellant's data

[1].The reason why figures are shown from high to low to is due to the method of calculation. For example, for North Somerset, I estimate business productivity and job intensity impacts together should be £12m-£22m less than the GVA impact estimated by the appellant. Therefore, subtracting this range from the £70m estimated by the appellant gives £58m-£48m, hence the table illustrating figures from high to low.

[2] Net additional impact from expansion is my estimate of the impact taking account of revisions to the business productivity and job intensity impacts

Table 6-4: My updated estimated amount of displacement by geographical region if account is taken of those who do not fly

		Outside Study Area					Aggregation	
	Net additional impact from expansion	Heathrow Airport	Gatwick Airport	Birmingham Airport	Luton Airport	Stansted Airport	Study areas	Outside Study Area
North Somerset								
% of passengers that would fly to other airports from the area		35%	16%	26%	11%	0%		
GVA (£m)	60-50	13-11	6-5	10-8	4-3	0-0	23-19	32-27
Jobs (#)	645-580	137-123	61-55	102-92	44-40	0-0	243-218	345-309
FTEs (#)	520-470	112-101	50-45	83-75	36-32	0-0	199-179	282-254
West of England								
% of passengers that would fly to other airports from the area		27%	18%	19%	14%	9%		
GVA (£m)	175-130	29-22	20-15	20-15	15-11	9-7	68-51	94-70
Jobs (#)	2150-1840	359-307	245-210	250-214	187-160	116-100	840-718	1157-990
FTEs (#)	1790-1540	298-256	204-175	208-178	156-134	97-83	698-600	962-827
South West & South Wales								
% of passengers that would fly to other airports from the area		15%	10%	13%	6%	4%		
GVA (£m)	330-230	31-21	21-15	26-18	13-9	7-5	196-136	98-68
Jobs (#)	4600-3640	428-338	297-235	370-292	176-139	100-79	2737-2162	1370-1083
FTEs (#)	3710-2950	345-274	240-190	298-237	142-112	80-64	2206-1751	1105-877

Source: Jacobs analysis of appellant's data

Table 6-5: Comparison of appellant's impacts estimates with displacement versus mine

		Appellant's estimates		My estimates				
Variable	**Region**	**Additional impact without displacement**	**Net additional impact ie with displacement**	**Net of Business Productivity & Job Intensity**	**Balanced Level of Displacement**	**Optimistic Level of Displacement**	**My estimate of net additional impact ie with displacement, business productivity and direct job impacts**	**Difference between Appellant's estimate and my estimate**
GVA (£m)	North Somerset	70	70	59-49	23-19	4-4	55-30	15-40
	West of England	220	220	174-129	68-51	14-11	163-78	57-142
	South West & South Wales	430	310	328-228	196-136	106-74	254-92	56-218
Jobs (#)	North Somerset	710	710	630-565	243-218	47-42	588-347	122-363
	West of England	2,460	2,460	2141-1831	840-718	176-150	1990-1112	470-1348
	South West & South Wales	5,560	4,000	4575-3615	2737-2162	1478-1168	3407-1452	593-2548
FTEs (#)	North Somerset	570	570	514-464	199-179	39-35	480-285	90-285
	West of England	2,040	2,040	2141-1831	698-600	146-126	1654-929	386-1111
	South West & South Wales	4,470	3,210	3688-2928	2206-1751	1192-946	2742-1176	468-2034

Source: Jacobs analysis, York Aviation Addendum 2020 (CD2.22), *Wood Group UK Limited, Appendix 10A, Carbon and Other Greenhouse Gas Emissions Supporting Data (CD2.20.6)*

Table 9-1: My Revised Estimates of the Appellant's Net Impacts of Bristol Airport Expansion

Net Economic Impacts	North Somerset			West of England			South West & South Wales		
	GVA	Jobs	FTEs	GVA	Jobs	FTEs	GVA	Jobs	FTEs
Appellant Net Impacts	**£70m**	**710**	**570**	**£220m**	**2,460**	**2,040**	**£430m**	**5,560**	**4,470**
(-) Productivity Impacts	£10m - £20m	65-130	50 - 100	£45m - £90m	310 - 620	250 - 500	£100m - £200m	960 - 1,920	760 - 1,520
(-) Job Intensity	£1m	15	6	£1m	9	10	£2m	25	22
Jacobs Revised Net Impacts	**£59m - £49m**	**630-565**	**514-464**	**£174m-£129m**	**2,141-1,831**	**1,780-1,530**	**£328m - £228m**	**4,575-3,615**	**3,688 - 2,928**
(-) Optimistic Displacement Estimate	£4m-£4m	47-42	39-35	£14m-£11m	176-150	146-126	£106m-£74m	1478-1168	1192-946
(-) Balanced Displacement Estimate	£23m-£19m	243-218	199-179	£68m-£51m	840-718	698-600	£196m-£136m	2737-2162	2206-1751
Jacobs Revised Net Impacts	**£55m-£30m**	**588-347**	**480-285**	**£163m-£78m**	**1990-1112**	**1654-929**	**£254m-£92m**	**3407-1452**	**2742-1176**
% Change vs appellant	21%-57%	17%-51%	16%-50%	26%-65%	19%-55%	19%-54%	41%-79%	39%-74%	39%-74%

Source: Jacobs analysis of Development of Bristol Airport to accommodate 12 million passengers per annum: economic impact assessment addendum, York Aviation 2020; (CD2.22)

Appendix A.

Source: Civil Aviation Authority Survey Data

Size of Reporting Airports 2018
Comparison with 2013

Table 1

	<---------- 2018 ---------->		<---------- 2013 ---------->		
	Terminal passengers (000)	**Percentage of Passengers at all airports**	**Terminal passengers (000)**	**Percentage of passengers at all airports**	**Percentage Change (2018/2013)**
HEATHROW	80,100	27.4	72,332	31.7	10.7
GATWICK	46,081	15.8	35,429	15.5	30.1
MANCHESTER	28,255	9.7	20,680	9.1	36.6
STANSTED	27,995	9.6	17,849	7.8	56.8
LUTON	16,767	5.7	9,693	4.2	73.0
EDINBURGH	14,292	4.9	9,775	4.3	46.2
BIRMINGHAM	12,455	4.3	9,114	4.0	36.7
GLASGOW	9,653	3.3	7,358	3.2	31.2
BRISTOL	8,697	3.0	6,125	2.7	42.0
BELFAST INTERNATIONAL	6,269	2.1	4,022	1.8	55.8
NEWCASTLE	5,332	1.8	4,415	1.9	20.8
LIVERPOOL (JOHN LENNON)	5,042	1.7	4,186	1.8	20.5
EAST MIDLANDS INTERNATIONAL	4,874	1.7	4,328	1.9	12.6
LONDON CITY	4,820	1.6	3,380	1.5	42.6
LEEDS BRADFORD	4,038	1.4	3,314	1.5	21.8

Source: Development of Bristol Airport to accommodate 12million passengers per annum: economic impact assessment addendum, November 2020, York Aviation

- Wider, or catalytic impacts reflect the benefits that accrue to the region around the airport through the provision of connectivity to businesses and to inbound travellers:
  - Business productivity – employment and GVA supported by the role that the airport plays in enabling business travel and the movement of air freight, which in turn supports increased trade, increased inward investment, greater competition and better access to supply chains and knowledge sources. This is ultimately reflected in higher productivity in the surrounding economy;
  - Inbound tourism – employment and GVA supported by the airport's role in helping to bring new and additional visitors to the region. Expenditure by these visitors boosts economic activity and supports jobs and prosperity. The initial injection is in the sectors that make up the tourism industry, notably hospitality and catering, leisure activities and transport. However, indirect and induced effects stemming from this injection will spread the impact across the economy.

3.8. The methodologies used to estimate Bristol Airport's economic footprint are well established and accepted. The quantification of the wider impacts of airports is a more recent development and a number of innovative approaches have been developed. Many of the airport economic assessments have included a quantitative assessment of wider impacts. Given that quantification of these benefits is an area where best practice is still evolving, the estimates of these particular effects should be considered from a broader perspective than those associated with the economic footprint of the airport. This should not be taken as suggesting that the wider impacts associated with airport growth are open to question. Their existence and the evidence base to support their existence and potential scale has been established for some time. It is simply that the techniques available for estimating them are not yet subject to the same level of precision. This approach was reviewed by NSC's advisors and accepted with only minor comments.

3.9. For the avoidance of doubt, the quantified assessment considers:

- A 2018 baseline position for the economic impact of the airport when the airport was handling around 8.7 mppa;
- A future baseline where the airport is handling 10 mppa in 2030;
- A Proposed Development scenario where the airport is handling 12 mppa in 2030.

3.10. This reflects the Core Case from the updated traffic forecasts.

2018 Baseline GVA and Employment Impacts

3.11. The baseline assessment of GVA and employment impact associated with Bristol Airport in 2018 remains a valid and appropriate assessment and, consequently, has not been updated since the original assessment. The GVA and employment impacts associated with Bristol Airport in 2018 are repeated in Table 3.1.

Table 3.1: The GVA and Employment Impact of Bristol Airport in 2018

	North Somerset			*West of England*			*South West & South Wales*		
	GVA (£m)	*Jobs*	*FTEs*	*GVA (£m)*	*Jobs*	*FTEs*	*GVA (£m)*	*Jobs*	*FTEs*
Direct	£200	1,300	1,150	£260	2,900	2,550	£300	3,900	3,425
Indirect & Induced	£60	1,100	875	£170	2,900	2,350	£310	6,050	4,775
Economic Footprint	*£260*	*2,400*	*2,025*	*£430*	*5,800*	*4,900*	*£610*	*9,950*	*8,200*
Productivity	£90	600	450	£290	2,250	1,850	£780	8,400	6,625
Tourism	£5	75	50	£90	1,475	1,200	£260	5,125	4,050
Wider Impacts	*£95*	*675*	*500*	*£380*	*3,725*	*3,050*	*£1,040*	*13,525*	*10,675*
Grand Total	**£355**	**3,075**	**2,525**	**£810**	**9,525**	**7,950**	**£1,650**	**23,475**	**18,875**

Source: York Aviation.