Written Representations On Manston DCO Application

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Firstly, by way of background on myself. I am a Chartered Accountant with over 20 years of direct Corporate Finance experience in transactional funding, negotiation, structuring and assessment – executing over £6bn of transactions in the real estate and infrastructure space over this time.

Through the DCO process RSP appear to be seeking to secure rights they have no entitlement to, to compulsorily buy land they don't own, to build an airport the nation doesn't need with money they don't have.

The Azimuth Associates reports that form the sole foundation of RSP's aviation need case are deeply flawed, partial and misleading. As presented these reports do not provide sufficient information or evidence for the Examining Authority to come to a proper understanding of the factors driving air freight in the UK. Nor do they make any attempt to explain the long-term decline of air freighter use in the UK. This is in contrast to multiple experienced aviation advisors who have assessed the specific UK position.

- There is absolutely no need case. The 2017 DfT aviation forecast now projects no growth in UK freighter ATM's in the next 30 years. This is a reduction from their previous 2013 projection of ATM growth of 0.4% a year over the same period.
- Actual freighter ATM's recorded by the CAA in the UK have fallen from c110,000 in 2000 to c52,000 in 2017. This has been driven by long term market trends as air freight migrates onto cheaper and more flexible belly hold routes; of which there is ever increasing capacity.
- Of these ATM's there were c42,000 cargo ATMs in England and Wales of which c13,000 were internal flights in which Manston will not participate.
- This leaves a potential market of 29,000 international/EU cargo ATMs for a reopened Manston to attack - of which 84% are tied to existing infrastructure and distribution investments at Heathrow, Stansted or East Midlands and only 18,000 are daytime flights.
- There is absolutely no plausible argument, and none has been advanced by RSP that supports a migration of freighter ATM's away from existing centres of operation and investment to a re-opened Manston which has material and insoluble competitive disadvantages in both geography and infrastructure.

This representation aims to provide the Panel with information and argument that will allow it to properly test, question and challenge the assertions that have been made and repeated by RSP and their advisors and where relevant provides evidence to support the questions that need to be asked.

For completeness I have also appended the various aviation reports that have been prepared in relation to Manston over the years. All these reports have been carried out by firms with vastly more experience than Azimuth and none of which reach a conclusion that in any way supports RSP's analysis of the potential of the location. It will be essential that the Panel fully appraises itself with the range of expert analysis of Manston and the air freight market within the UK, so that it can properly question RSP's proposals .

In order for RSP's DCO to be successful, based on the current suite of information provided by RSP, the Panel would have to conclude (i) that every aviation expert other than Azimuth that has looked at Manston has been wrong, (ii) the repeated commercial failure of the airport over 15 years and multiple operators can be wholly ignored and that (iii) all long term market trends for air freight in the UK can be considered to be entirely irrelevant in relation to the performance of Manston.

This does not seem a tenable position given the available evidence .

Over the last 18 years Manston Airport has had an unfortunate but consistent history of sustained commercial failure under a number of ownerships and through pursuing a number of strategies. Throughout this period various reports have been commissioned by a variety of parties from Aviation consultants regarding the potential viability of Manston. The only party who has reached a conclusion that Manston represents a great opportunity for commercial aviation was Azimuth, whose principle, and seemingly only, consultant worked at Manston under one of RSP's directors.

The other consultancy teams who all have significantly more experience and expertise to draw on from within their firms, both within the UK and globally have all reached very different conclusions as summarised below.

"AviaSolutions concludes that airport operations at Manston are very unlikely to be financially viable in the longer term, and ***almost certainly*** *not possible in the period to 2031."*
AviaSolutions report on Manston viability for TDC Sept 2016

"AviaSolutions' view is that the Azimuth and Northpoint forecasts both represent a highly ambitious outlook for air freight volume at Manston Airport and the likelihood of the forecasts being realised is very low. ***Neither report puts forward a sufficiently credible case****, nor provides the evidence, for AviaSolutions to change its views on the financial viability of Manston Airport."*
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It is highly unlikely that a re-opened Manston could play any significant role in serving the needs of the UK air cargo industry. There is currently no shortage of overall capacity, and future demand growth into the long term can be met with planned expansion from the leading cargo airports in the UK."
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4. Critique Of RSP's Submitted DCO Documentation

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A. Seasonality Data/Charts
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C. York Report commissioned by Stone Hill Park from 2017
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Introduction

It seems clear to me, from my detailed review of RSP's submissions, that there can be no credible case for viable commercial aviation at the site given both its long and repeated history of failure and the unavoidable competitive disadvantage that is conferred on it by its geography.

Furthermore, it is not, in any way, clear why a DCO would be necessary or lawful to re-open the airport given its extant planning status and the owner's ability to refurbish existing infrastructure, that already has planning without any further consents. There seems to be little dispute that the sites current owners could reopen Manston without pursuing a DCO and if the demand was actually there they could implement analogous aviation proposals over time without any requirement for a DCO.

If the demand for commercial aviation at the site was in any way real it would seem that Manston's existing operational and planning consents, which allow for unlimited daytime aircraft movements, would have real value to any incoming aviation operator. Thus, if delivering aviation was actually RSP's objective in acquiring Manston, it is inexplicable why they should choose to pursue a highly speculative and expensive DCO process with an uncertain outcome when they could have accelerated their plans by making the current owner a fair offer.

There is absolutely no commercial logic in RSP's stated position where they claim to have expended more money in advisory fees and costs in pursuing a highly speculative and contested DCO than they are prepared to pay for the land – particularly when they do not have the resources to deliver on their proposals. Simply put there is not enough apparent upside in RSP's aviation case to cover the risks that their current investors (whoever they are) are taking. The Planning Act was not designed or intended to provide commercial entities with a negotiation tool to acquire land they do not own.

Absent the presentation of a compelling and evidenced commercial case for a viable Manston and a detailed business plan that can be properly tested and assessed no credibility can be given to the ability or intention of RSP to deliver their plans.

Without enough detailed evidence on viability to demonstrate that Manston could deliver acceptable economic returns for investors it would be impossible to reasonably conclude that there is any prospect of the necessary £300m+ funding ever being raised in future to deliver on their project. Given that RSP must understand this and have chosen to submit their DCO application with no financial information and no projections the only logical conclusion absent this vital information is that RSP are attempting to use the DCO process as a "trojan horse" to unlawfully secure 730 acres of Kent for long term commercial development.

By accepting RSP's proposals for examination a precedent has been set that, if applied consistently, would allow any existing airport in the UK to be compulsorily acquired through the DCO process through minimal variations to their existing infrastructure. This cannot have been the intent of the Planning Act.

Nothwithstanding the enormous volumes of paperwork that have, to date, been produced by RSP it is very telling that RSP have produced no business plan nor any financial projections that either support or justify their project or its ability to attract sufficient investment capital to fund its delivery. Given, that by their own admission, they have insufficient resources to implement even the early stages of their proposals it is inconceivable that any DCO could be granted without the submission to the Examiners of a detailed Business Plan that can be robustly challenged and assessed by the Panel and objectors to the scheme.

It is equally telling that while the environmental and technical advisors that have been used to support RSP's application are of an appropriately "institutional" quality RSP have chosen to build their entire aviation case on a report that has been prepared by Azimuth Associates. Azimuth Associates are a sole practitioner firm whose consultant (Sally Dixon), has very limited relevant experience, has no apparent other aviation clients and is entirely conflicted due to their previous employment at Manston Airport alongside one of RSP's directors. In contrast, all other aviation advisors who have expressed a view on Manston, are larger firms with an international outlook and who have an extensive track record in advising governments, airports and investors.

While I will outline the weaknesses and inconsistencies of the Azimuth report separately below; in any normal financial/transactional due diligence process these factors alone would be sufficient for RSP to fail any objective

due diligence process. RSP's proposals are wholly unevidenced and by their own admission (as explained within the Azimuth reports) have no empirical backing. As things stand this would be unacceptable to investors and it would prove impossible for RSP to raise any money for their project on this basis.

All RSP's other advisors have heavily and explicitly relied on Azimuth's report in preparing their own assessments in their design of the putative airport and the assumption that its projections can be relied on as "fact". Hence, RSP's DCO application is fundamentally balanced on the Panel's assessment on the credibility, and experience of Azimuth and the ability of the research it has provided to RSP to successfully support an investor fundraising process.

How Many Freighter Flights Are There in the UK ?

The glib answer is not as many as you might think.

So, firstly some context for the reader regarding the air freight market in the UK; data extracted from published CAA Tables 6,13.2 and 15 for 2007 and 2017.

In 2007 there were 2,325,772 tonnes of air freight flown into and out of the U.K. This was split between 1,520,416 tonnes of belly hold freight and 805,356 tonnes of freight carried on 61,832 dedicated freighters.

Roll forward 10 years and the level of air freight in the UK has grown to 2,622,495 tonnes split between 1,861,759 tonnes of belly hold freight and 760,737 tonnes of freight carried on 52,330 dedicated freighters (a reduction of 9,502 ATMs). Total growth in the UK air freight market in the 10 years to 2017 was 296,723 tonnes. Of this growth 237,233 tonnes of occurred between 2016 and 2017.

However, the overall UK figures disguise the fact that over the same period belly hold freight at Heathrow alone grew by 365,000 tonnes - i.e. more than the whole market. Hence, the clear implication is that over that 10-year period the volumes of air freight in the U.K. (other than belly hold at Heathrow) declined. What is not clear from these statistics is how much of Heathrow's growth is flattered by growth in the trans-shipment of goods that flow through Heathrow (given its hub status) but don't actually ever enter the U.K. – and is wholly irrelevant to any discussion of Manston.

Taking the "London System" as a subset of the market, which is the focus of Azimuth/RSP, the following emerges.

In 2007 the London System of airports carried 1,724,040 tonnes of freight: split between 1,408,596 tonnes of belly hold and 315,444 tonnes in 16,303 freighter ATMs. By 2017 air freight in the London system had grown to 2,053,427 tonnes split between 1,698,802 tonnes of belly hold and 354,624 tonnes on 14,588 freighter ATMs (a reduction in freighter ATM's of 1,715). Thus, the overall growth in air freight going through London was 329,387 tonnes. Again, this is less than the growth in the levels of belly hold freight at Heathrow alone indicating a sustained decline in freight volumes (and freighter numbers) across the London system over these 10 years.

Azimuth/RSP may seek to argue that that this is not a true picture as "freighters are being squeezed out by increased passenger flights". Unfortunately, for this argument the CAA stats (Table 3.2) again do not bear out this assertion.

In 2007 the "London System" facilitated 1,208,000 ATM's (both cargo and passenger) by 2017 this had reduced to 1,193,000 (although this was the highest since 2007). An overall reduction of 15,000 ATM's. Some of this reduction is accounted for by the fall in cargo ATMs in the London system outlined above but the rest is a reduction in passenger flights. Given that cargo ATMs reduced at every airport in the London system other than Heathrow it is impossible to conclude that capacity constraints have limited growth potential of dedicated freighters.

Taking a wider view from the UK as a whole there has been an overall reduction in the flights accords the UK network of airports of 509,000. Implying a significant availability of slots across the UK, with no increase in aviation infrastructure should they ever be required.

The above high-level analysis indicates why it is essential that the Examining Panel gains a full understanding of the number, distribution and evolution of freighter ATM's across the UK's airport network and trends impacting

on their use. RSP/Azimuth try to portray a picture where there is so little capacity in the UK airport systems that air freight is creaking at the seams. This is not reflective of the published statistics (by the CAA) or the wider market trends.

The table below from Avia's 2016 report (based on 2015 CAA stats) shows just how few international freighter flights there actually were in the UK. These show that the international ATM market that RSP needs to attract to deliver their plan is both very small, very concentrated and very invested; with 77% of the total market being focussed around existing freight infrastructure and distribution networks at Heathrow, Stansted, Luton and East Midlands. RSP's business plan for Manston envisages them securing over 17,000 cargo ATMs in a UK market that is at best flat and seems to have been in long term decline.

In what way is it realistic for a peripheral airport such as Manston to re-open on the assumption that it can secure 57% of the UK's total air freighter market (in 2015 numbers) against what are existing, strong and better located competitors.

In 2015, there were around 60,000 ATMs by all-freight aircraft across UK airports. These were split almost equally between international and domestic operations. Freight movements are relatively concentrated on a small number of airports, with East Midlands and Stansted accounting for 64% of movements in 2015.

Airport	Freighter ATMs Domestic	International	Total	Int. as % of 2015 Total
Heathrow	3	2,385	2,388	8%
East Midlands	9,603	12,516	22,119	42%
Stansted	3,445	6,511	9,956	22%
Gatwick	0	3	3	0%
Manchester	205	830	1,035	3%
Belfast International	4,091	17	4,108	0%
Luton	183	1,519	1,702	5%
Birmingham	0	0	0	0%
Edinburgh	3,883	1,088	4,971	4%
Other	10,136	5,032	15,168	17%
Total	31,549	29,901	61,450	100%

Source: Analysis of CAA Statistics

Since Avia reported these statistics cargo ATMs in the UK have continued their downward trend as shown in the table below. These numbers are abstracted from Table 6 in the CAA statistics and refer to All UK reporting airports (i.e. excluding Alderney, Guernsey , Isle Of Man and Jersey- Aviva's numbers above include these). Belfast International has been extracted from the numbers for consistency as they had a recognised reporting error in 2016/2017 – in any event it is unlikely that cargo ATM's in Belfast is in any way relevant to RSP's objectives for Manston.

	2014	2015	2016	2017	2018
Cargo ATM's UK Reporting Airports	56,356	56,550	51,863	52,330	53,431
Cargo ATMs Befast International	4,063	4,108	1,000	1,545	3,368
UK Ex Belfast International	**52,293**	**52,442**	**50,863**	**50,785**	**50,063**
Change		*0.3%*	*-3.0%*	*-0.2%*	*-1.4%*

Table 6 CAA Statistics, 2018 totalled from monthly reports.

It can be seen from these numbers alone that cargo ATM's in the UK are a declining niche market that, even with the growth in integrator traffic at Stansted and East Midlands, is in an ongoing decline.

Seasonal Variability

Much has been asserted by RSP/Azimuth in their submissions regarding (i) the perceived limited capacity within the UK's aviation infrastructure, (ii) that there is the huge unmet demand for cargo slots in the South East as

cargo flights are pushed out by passenger planes , (iii) a strong performance of the cargo sector in 2017 and (iv) the fact that the system was "full" in November 2018 all being "push" factors that could support the need for Manston. Notwithstanding that the actual press stories that surrounding the peak freight demand in Nov 17 were to do with the availability of aircraft not landing slots at airports. The truth of the matter is better illustrated by an analysis of the seasonality of airport usage in the UK.

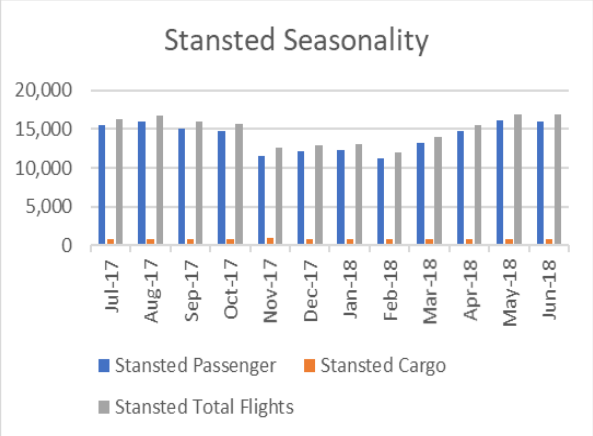
To provide this analysis I have compared the seasonality of passenger and cargo flights in the 12 months from the CAA statistics July 2017 to June 2018 for Heathrow, Stansted and East Midlands (the full analysis is appended to this letter). It is clear from this analysis the demand for slots for passenger flights has a very different seasonal pattern than the demand for cargo slots. In short peak demand for passenger slots occurs in the summer months whereas peak cargo slot demand occurs in the run up to Christmas. Hence, the demand pattern from these two market segments are complimentary rather than competing.

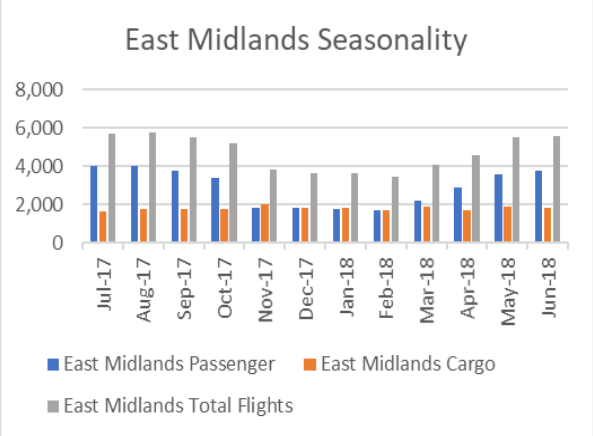
Taking Heathrow first. It has a peak daily Passenger ATM of 1,354 in September and a low of 1,220 in January (a variance of 134 flights per day). It's corresponding peak Cargo ATMs per day was 9.4 (November) with a low of 7.6 (August); a variance of 1.8 ATMs per day. If there was the massive un-met demand that is posited by RSP/Azimuth it would be logical for freighters to fill some of the seasonal slack at Heathrow and for there to be more variability in the freighter ATM's. At the point of peak cargo demand Heathrow is operating at 72 ATMs per day below its peak ATM levels.

The position at Stansted is more extreme with a variance of 148 passenger ATMs day and 7 Cargo ATMs over the year. During November, the busiest month in the year for cargo ATM's, at Stanstead there were 143 available slots per day that could be used by cargo flights. They were not.

Lastly, at East Midlands, on a runway that is acknowledged not to be even close to its capacity, daily Cargo ATM's vary between 54 (July) and 67 (Nov) per day across the year – a maximum variance of 13 ATMs per day. Whereas passenger flights vary between 57 (Jan) and 130 (July) a variance of 74 ATM's a day. Again, in the peak month for cargo (November) the airport is operating with 59 less aircraft movements per day that it does at peak usage. The variability of usage for Stansted and East Midlands is shown in the charts below.

The lack of material variability in the level of cargo ATMs at each of these airports across a 12-month period is in no way supportive of the argument that there is untapped demand that is restricted by capacity. The proportional consistency of the seasonal variability between maximum and minimum cargo ATM's per day at Heathrow, Stanstead and East Midlands (ratios of 1.24, 1.29 and 1.24 respectively) does not support Azimuths argument that the London airports are constrained – if that were true you would expect to see more variability at East Midlands at peak season, which has huge untapped capacity, as flights are displaced from London.





The facts actually show that each of the 3 key freighter hubs in the UK have the same seasonality across the year and all have available capacity at the point of peak cargo ATM's. Thus, their usage by freighters is not restricted by capacity it is restricted by demand. This is wholly consistent with the declining freighter numbers recorded by the CAA.

Manston's Viability

As has been outlined above and subsequently, in the detailed critique of Azimuths report, there is no evidence to support the growth assumptions presented by RSP for Manston. RSP's plan envisages that in the 1st year of operation it will become the 3rd biggest freighter airport in the UK. Time after time aviation advisors have found RSP's projections as being simply not credible.

However, ignoring for the moment the volumes of market fact, expert evidence and advice that firmly and consistently indicates that there is no real demand or a need for an additional airport at Manston we should consider the potential viability (or otherwise) of RSP's plans if they did ever come to fruition.

As detailed elsewhere RSP's DCO submission provides absolutely no financial information on their plans for Manston its revenues, its operational costs or its potential future profitability. So, as presented, it is impossible for either the public or the Examining Authority to properly interrogate and assess their proposals. The following analysis is intended to highlight to the Panel the questions that need to be asked.

Thus, the only option available is to is to derive a performance comparison with other airports based on RSP's projected volumes of flights, freight and passengers by looking at the reported financial metrics of comparable airports across the UK. This is a reasonable approach given the commoditised and highly competitive nature of the aviation sector and what would have to be very competitive (and comparative) cost structures at Manston to ensure it won any business from existing operators.

To assess the maximum potential financial performance of RSP's hypothetical, fully invested, Manston Airport I have considered the position when it reaches its maximum operational capacity in its 20th year of operations. This is when it is fully invested after RSP have raised and committed their quoted £300m of capex necessary to deliver the airport envisaged in the DCO (investment of up to £479m has also been quoted by RSP -but it is not clear what this includes).

It is essential to bear in mind that in their submissions RSP clearly state that they do not consider there is any real likelihood of ever exceeding the 20-year cargo ATM and passenger numbers set out in their plans - so these figures act as a ceiling on revenue and in effect would be an investment "best case".

In order to derive a meaningful comparison for a theoretical "Peak Manston" as envisaged by RSP I have used the 2017 financial performance of East Midlands Airport (as published on Companies House) and its gross profit margin of 17.5% to drive an illustrative profit and loss analysis for the airport down to the Operating Profit line. While this comparison will not be exact I believe it is both reasonable and very fair to Manston.

As outlined below the assumptions that have been used are heavily weighted towards the ability of Manston to generate a profit from their projections (and they ignore the impact of any accumulated losses until the peak capacity is reached). While East Midlands is doubtlessly the most comparative of the airports in the UK to RSP's stated plans I have also illustrated the impact of overlaying the significantly higher profitability levels of both Stansted and Edinburgh airports onto RSP's projections to illustrate just how speculative their scheme actually is.

Assumptions/Methodology:

Capital Costs Capital costs of £300m have been assumed for Manston. This is the low bound of the capex costs quoted by RSP and makes no allowance for accumulated trading losses or funding costs incurred before the airport reaches breakeven point.

Operational Costs: In arriving at the assumed profit margin it assumed that an airports costs are always 100% variable. This is clearly an over estimation as an operational airport has a core level of operational costs that are fixed and must be absorbed whatever the usage levels. For example, in 2017 Prestwick Airport had a cost of sales of £4.46m against a turnover of £2.21m driving a Gross Loss of £2.25m. This would not be the case if costs

were 100% variable. This was also why Manston was consistently loss making in the past. This assumption is again favourable to Manston as it will act to inflate the projected profit margin.

Aviation Income: East Midlands aviation revenues in 2017 were £355 per ATM. This level of turnover has been assumed for a reopened Manston. It is unlikely that aviation fees per flight could be higher than this as Manston would need to be very competitive in relation other airports in the UK to acquire and maintain any business in competition with the existing cargo airports – particularly given the weakness of its location.

Retail Income: This has been pro-rated down based on the number of forecast passengers - so the same level for income per passenger is assumed. This is likely to be optimistic as it is probable that an airport that carries less than a 1/3 of the passengers of East Midlands could not support either the same diversity of retail offer or strength of retail rents.

Car Park Income: This has been pro-rated in line with expected passenger numbers at Manston. Again, optimistic as there is unlikely to be the same parking pressure/demand.

Other income: Pro-rated on the basis of aircraft ATM's rather than passengers as this is more flattering to Manston.

Profit Margins: A uniform gross profit margin of 17.5% is applied across all revenue streams (in 2016 the equivalent Gross Margin at East Midlands was 15.1%). It is likely that this approach again flatters any Manston forecasts as the Gross Margin generated from Aviation Income activities will likely be lower than that generated from either retail rents or car parking income (which accounted for 21% and 31% of turnover respectively).

For the avoidance of doubt the only numbers within this analysis that have been provided by RSP in their DCO submissions are the estimated capital cost of the development and the forecast ATM numbers. All other numbers are derived from the profitability of airport comparators.

	East Midlands Airport Comparison	RSP's Manston In 2040 ?	Stansted Comparison	RSP's Manston In 2040 ?	Edinburgh Comparison	RSP's Manston In 2040 ?
	2017 Stats	*RSP Estimate*	2017 Stats	*RSP Estimate*	2017 Stats	*RSP Estimate*
Aviation Revenue	20,115 38%	9,398 48%	130,131 44%	*20,008 61%*	97,644.00 53%	*20,236 65%*
Car Parking Revenue	16,303 31%	4,705 24%	65,099 22%	*3,538 11%*	- 0%	*- 0%*
Retail Concessions Revenue	11,128 21%	3,211 16%	61,480 21%	*3,341 10%*	68,562 37%	*7,198 23%*
Other Revenue	5,119 10%	2,392 12%	37,432 13%	*5,755 18%*	18,671 10%	*3,869 12%*
Turnover	52,665	19,706	294,142	32,642	184,877	31,303
Operating Costs	(43,442)	(16,255)	(197,066)	(21,869)	(105,698)	(17,896)
Profit Margin	*17.5%*	*17.5%*	*33.0%*	*33.0%*	*42.8%*	*42.8%*
Operating Profit	**9,223**	**3,451**	**97,076**	**10,773**	**79,179**	**13,406**
Estimated Pre Tax Return On Investment Of £300m		**1.15%**		**3.59%**		**4.47%**
Cargo Flight ATM's (CAA Data & RSP Forecast)	21,286	17,171	10,126	17,171	5,013	17,171
Passeger Flight ATM's (CAA Data & RSP Forecast)	35,369	9,298	162,027	9,298	122,710	9,298
Total	**56,655**	**26,469**	**172,153**	**26,469**	**127,723**	**26,469**
Cargo Flights ATM %	38%	65%	6%	65%	4%	65%
Passeger Flight ATM %	62%	35%	94%	35%	96%	35%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
Passenger Numbers (CAA Data & RSP Forecast)	4,878,000	1,407,753	25,903,000	1,407,753	13,409,000	1,407,753
Profit Margin Analysis	17.5%	17.5%	33.0%	33.0%	42.8%	42.8%

Conclusions

The implications of these assumptions for RSP's hypothetical, fully invested, Manston Airport in 2040 would be that, if it delivered its forecasts in full and was as profitable as East Midlands currently is, it would generate an implied Operating Profit of £3.45m (from a turnover of £19.7m). This represents a return of only 1.15% per

annum on the £300m of proposed capital investment after 20 years of operation and takes no account of the accumulated losses that would have to have been funded as the airport clawed its way past its breakeven point.

This is not a commercially viable position and is not one that funding could be raised against.

Even if Stansted's 2017 financial performance was used to derive the potential revenues at Manston the outcome does not indicate a commercially viable airport. Using Stansted as a baseline for Manston would, in fact, be unrealistically flattering for Manston, as its economies of scale (it is 6.5x bigger than Manston is forecast to be) , its reduced reliance on cargo ATMs (6% vs 65%) and its much higher passenger numbers (25.5m vs 1.4m) allowed it to generate a 33% profit margin in 2017 which was significantly ahead of that achieved at East Midlands. However, even, with this higher profit margin Manston could only expect to generate £10.7m of Operating Profit in 2040 (from a turnover of £32.6m) a return of only 3.5% on the capital invested. Again, this is not an economic proposition.

Even by taking a much more profitable airport such as Edinburgh where the equivalent profit margin is 42% (due to a mix of full-service scheduled airlines, Heathrow links, long haul routes and less dependence on low cost carriers) a level that is unattainable at Manston RSP's projections would indicate a return on the £300m of investment capital of 4.47% in the 20th year of operations.

This comparative analysis, while relatively simplistic, is highly compelling and its implications have to be addressed by RSP and explored by the Examiners. The UK's commercial aviation sector operates in a highly competitive market with well understood and predictable costs and revenues – as such it is deeply improbable that Manston, given its small size and remote location, could ever hope to better the cost or revenue performance of other larger and more established airports.

Given the weakness of these projections and the lack of any apparent commercial viability for Manston at full maturity – even when using what are very favourable economic assumptions it is not surprising that RSP have chosen to remain wholly silent on their financial projections and business plan. It is this lack of any realistic prospect of achieving commercial viability that highlights why the Examining Authority must demand a detailed business plan that is costed and shows a full breakdown of all projected revenues and profits. Without this it will be impossible to come to any conclusion on the ability of RSP to secure the necessary £300m of investment to deliver their plan.

To allow the Panel to come to an informed view of the proposals and their deliverability RSP must be required to address the following questions .

- What revenues are assumed from cargo flights on an ATM basis ?
- What revenues are assumed from passenger flights on an ATM basis ?
- What revenues are assumed from retail rents within the passenger terminal ?
- What revenues are assumed from aircraft recycling ?
- What revenues are assumed from business aviation/training ?
- What revenues are assumed from car parking?
- How do these compare with established airports in the UK?
- What revenues (and rental levels) are expected to be generated from the development on the Northern Grass? and is this only necessary to subsidise airport operations?
- What is the cost base of the airport, how is it broken down and how does it compare to other airports?

Without answers to these questions it is impossible for the Panel to reach a conclusion on the viability of the proposal and the level of financial cross subsidy between the various elements of the application. RSP have not provided the necessary information in their submissions to even make a start on this type of analysis.

Commentary/Critique OF RSP's DCO Application

The key documents that I will focus on in my analysis of RSP's submissions are

(i) The Statement of Reasons
(ii) The NSIP Justification
(iii) Azimuth Associates Aviation Reports
(iv) Funding Statement

Throughout each document I will identify questions that should be explored by the Examiners and areas where RSP's assertions and arguments are unevidenced or are simply wrong.

Statement of Reasons

In my comments on the statement of reasons I have used the same paragraph numbering as used in RSP's DCO submissions

1.3.2 None of the various elements of RSP's project that detailed in this para are actually relevant to the NSIP. They seem to have been included solely to increase the area of land that they are seeking to justify in any CPO. As a minimum it highlights the complexity of RSP's proposed business model and the importance of the Panel fully understanding what revenue streams are produced by which business element, so the level of cross subsidy and viability are clear. Furthermore, from a CPO valuation perspective it would be critical for RSP to highlight the forecast profitability of each of these business segments so that fair value for each element can be properly established. After all SHP would have the ability to pursue each of these elements within the current aviation status.

1.4 I do not believe that RSP have evidenced that their project is a NSIP. I have set out my thoughts on the NSIP justification Paper below

1.5 Given the sites planning status the current owners could reopen the airport without seeking additional planning permissions. In reality there is nothing in the sites current infrastructure or planning status that meaningfully limits the runway's ATM capacity.

2.3 RSP's documents do not demonstrate a compelling case in the public interest as they do not provide sufficient information to make any comparisons between their proposals and the current planning application on the site nor do they make any assessment of the environmental and social implications of forcing more housebuilding onto greenfield sites. Without submitting a robust and detailed business plan that shows the assumptions that are required to deliver long term viability, and details what contributions the scheme will make to improving local infrastructure it will be impossible to demonstrate a compelling case.

3.2.2 This element seems to be as close as RSP comes to detailing which part of their development they consider to be a NSIP. It is not clear, nor has it been justified, why this limited amount of development, which takes up a minimal amount of the extant land, should provide them with an ability to obtain CPO powers over the entirety of the site.

4.7.1 The airports NPS is quoted to set out some planning justification for air freight. The quote is focussed on improving UK manufacturing competitiveness driving the need for quicker air freight by manufacturers. It is a statement of fact that Manston is not located at the heart of a dense area of high value manufacturing that could require air freight. So, there could be very little benefit to UK plc's competitiveness in providing an air cargo hub that is very geographically remote from the markets its serves; as it would add to transport costs and time eroding margins and pushing up prices. Manston has been proven to be too remote for freight operators which is why it continually failed to attract a critical mass of air freight in its years of private operation.

Post Brexit Manston's geographical location is likely to be even less attractive to air freight operators due to the increasing risk of road and traffic disruption stemming from delays in processing freight entering and leaving the channel ports. It is inconceivable that a market that is based on speed cost and efficiency should favour a remote airport with poor and unreliable transport links to the rest of the country.

4.7.2 Again a quote from the Airports NPS is used to highlight the economic benefits of increased air freight to the UK's economy by lowering costs and increasing frequency of services. There is no evidence that a re-opened Manston would aid in either of these aspects. There is massive existing unused capacity for dedicated air freight at more centrally located airports. Together East Midlands and Doncaster alone have the potential to cope with any conceivable increase in freighter demand within the UK and are materially better located than Manston being tied into the existing investments in distribution networks. This is before any consideration is given to the capacity available at other operating airports and the untapped potential capacity in mothballed RAF runways. To illustrate the point in practical

terms if the freighter numbers into the UK were to double – i.e. an increase of 50,000 this would equate to 137 ATM's per day across the UK. East Midlands Airport alone has the potential to accommodate this.

4.7.3 This again seeks to make the point that the speed of air freight is essential in keeping "production lines rolling". Any benefit from this speed is presumably lost if users have to pay to fly components 3,000 miles only for them to then take the same time again being trucked to their final destination from Manston. Again, Manston in no way helps make UK plc more efficient.

4.7.4 Any investment in UK's infrastructure should bolster our competitive advantage not erode it – hence any investment in air freight infrastructure would be best positioned in the Midlands where they have immediate proximity to the UKs manufacturing base and ready access to the motorway network allowing goods to be shipped all across the UK. Manston does not have this.

4.7.7 A further quote from the Airports NPS is made urging that existing runways should be more "intensively utilised". Given that of the 52 runways detailed in the CAA UK aviation statistics only 20 of them have above 15,000 overall ATMs (2017 CAA figures) and only 5 have over 2,000 cargo ATMs a year there is clearly a great deal of scope for the UK's existing aviation infrastructure to be better used before any additional capacity is required.

4.9.1 No evidence is provided in support of this assertion. What is this unmet demand? What production is being imported and export end and by whom? Where is its ultimate destination? and why historically did they not use Manston Airport?

4.9.3 This statement entirely ignores Stansted which is a cargo hub in the South of England for dedicated cargo flights with 10,126 cargo ATMs in 2017 (down from 11,246 in 2016). Stansted's planning permission explicitly reserves 20,500 cargo ATMs and they have plenty of scope to move into that cap if demand is there. Stansted's development plan makes that point.

The point made regarding Heathrow is highly misleading. The reason that Heathrow carried 65% of all air freight in the UK in 2017 is due to its unmatched connectivity with the rest of the world. The depth and frequency of its long-haul routes creates a highly efficient belly hold freight network that is unmatched anywhere else in the UK for cost and efficiency. Indeed, the recent Steer report on UK air freight for Airlines UK (Appended) identifies that huge volumes frequency and flexibility of low-cost belly hold capacity available at Heathrow attracts substantial trucking from Europe. The fact that shippers are prepared to go to the expense and time of a Channel crossing in order to benefit from the cost advantages of belly hold freight at Heathrow clearly illustrates the compelling commercial advantage it has over dedicated freighters.

A pure freighter model does not and cannot provide this flexibility (or cost efficiency) as they can only operate on a point to point basis and require predictable flows of goods to maintain viability. There has been no assessment by RSP on (i) which routes they consider both meet these criteria and are inadequately served by belly hold capacity (ii) why Manston could better serve them than any of the other available airports in the UK that currently offer freight services.

The point being made about belly hold freight restricting shippers to the timetables and destinations of passengers seems to entirely ignore the fact that they were c2,208,000 passenger flights in 2017 compared to only c52,000 cargo flights. While not all of these passenger flights currently carry cargo and many flights will be travelling to locations where there is little cargo demand it seems clear that the full potential of the belly hold market has not yet been fully exploited.

4.10.1 The potential availability of an additional long runway at Manston is irrelevant in any analysis of its viability. A long runway does not drive usage. For example, Doncaster airport has a longer runway than Manston but only managed to attract 10,042 flights in 2017 of which only 340 were cargo flights. If there was sufficient untapped demand for large freighters to land in the UK to support a re-opened Manston Airport surely this number of cargo flights should be higher?

Furthermore, if Her Majesty's Government was sufficiently concerned that an imminent shortfall in the provision of provision of long runways in the UK could impact the national economic interest it would

be well within their gift to resolve this from within their own resources. The RAF bases at Wethersfield, Woodbridge, Mildenhall and Scampton have all be deemed surplus to the nation's requirements, all have longer runways than Manston and are all in public ownership. Indeed, if there was an actual strategic need they are all located much more centrally than Manston and would be better able to link into existing distribution infrastructure. Of particular interest is RAF Wethersfield in Essex which is only 20km from Stansted and could, on the assumption that it was needed, relatively simply and cheaply be brought into use to bolster the capacity at Stansted.

4.10.3 This assertion is made without any supporting evidence. This is also true of every airport in the UK with existing underutilised runway capacity; of which there are many.

4.10.4 It is an undeniable fact that from a pure logistics purpose Manston was always one of the most poorly located airports in the country. It is on a peninsula far from centres of population and industry and could only ever realistically hope to serve a small catchment of both the population and the economy. This is why it failed to make a profit during its years of operation.

These factors are fundamental, have not changed and RSP has provided no explanation to PINS or the public as to what competitive advantage a reopened Manston would confer on its users why logistics and air freight users, from anywhere other than the immediate vicinity would be ever be willing to drive past other operational airports simply to use Manston.

Also, there is no apparent logic whatsoever in the assertion that being located next to the English Channel is beneficial for Manston's viability. There is no overlap between the sea freight and the air freight sectors. The factors that support the high cost/high speed models of air freight are entire absent from sea freight. Simply put shippers will not pay for the speed of a fast plane just to put the shipment on a slow boat.

If the argument that is actually being made is that Manston, due to its proximity to the Channel ports is a uniquely convenient location for long haul air freight operators to freight cargo to and then break the consignment to ship it back across the Channel for delivery to its ultimate destination by truck this analysis is again deeply flawed. In the current circumstance where the UK is in the EU the idea that shippers would choose to fly to the UK rather than continental Europe only to then ship 90% of the consignment back across the Channel onto the continent is at best questionable. The end to end shipping process would always be cheaper and simpler, the key drivers of any delivery process, if the shipment was made to mainland Europe and only the 10% of product that was destined for the UK has to be trucked across the Channel. In the future where the UK is no longer in the EU it is inconceivable that any shipper would voluntarily choose to embed the cost, time and risk of an unnecessary border crossing in their shipping strategy for 90% of their load rather than freighting into the EU directly – where no such border controls exist.

4.12 This statement is misleading at best. The airport capacity issue within the UK, as fully established by the Airport Commission's examination of the issue, is primary one of the available hub capacity at Heathrow. Simply put the size and diversity of the UK's economy would support a larger primary airport hub that is currently offered by Heathrow, but it is not sufficiently large enough to support a second hub. The decision to pursue a 3rd runway at Heathrow was found to deliver the largest increase in the UK's overall connectivity. A re-opened cargo hub at Manston would have no impact on the UK's capacity question. The quote below from the Airports Commission Final Report highlights that even Gatwick is seen as being a poorer location for air freight. Where does that leave Manston ?

"It is not only passengers, however, that would benefit from expansion at Heathrow. Air freight is also an important contributor to the UK economy, with a particularly important role in supporting trade with countries outside the EU. Heathrow is by some distance the most important freight airport in the country, and its freight operations are very significantly bigger than those at Gatwick: around 17 times larger in terms of tonnage and more than 170 times larger in terms of value. Heathrow's motorway links are also important; Gatwick's position to the south of London limits its effectiveness as a national freight hub.

Overall, the analysis suggests that the strongest benefits for the UK economy are likely to come from focusing capacity where demand is strongest: be that from freight users, leisure passengers, business travellers or the international transfer passengers needed to support a dense long-haul network. In each case, the highest levels of demand are seen at Heathrow."

The prospect for Manston as a location for a freight hub are further undermined by the direct feedback the Airports Commission reported from fright operators at para 6.69 in the final report.

"The Commission received a number of responses in consultation from freight operators emphasising their requirement and appetite to expand at Heathrow, whereas the degree to which freight operators would invest in additional capacity at Gatwick is more uncertain. The airport's position to the south of London and limited connection to the strategic road network may dampen demand, as would the slower growth predicted in long-haul services"

4.15 RSP make the statement that "Globally 56% of air freight is carried by dedicated freighters. However, in the UK it is between 22% and 28%" without providing any context. Ignoring for the moment the fact the RSP's quoted numbers appear to be wrong (the CAA statistics actually detail that in 2015 freighters took 29.9% of the freight market, in 2016 it was 29.7% and in 2017 it was 29.0% - note a market share that is falling with time) it is fundamentally wrong to compare the UK's aviation market with the rest of the world.

The UK is one of the most developed aviation markets in the world with huge, sustainable and increasing flows of passenger planes flowing in and out of the country. These flights support a belly hold freight capacity that simply does not exist in much of the rest of the world. No industry body expects these circumstances to change in the future as belly hold freight has cost advantages that dedicated freighters simply cannot compete with. Indeed, as more and more long-haul routes are brought into operation and the size of the planes serving them increase it is likely that the available belly hold capacity will increase much more quickly than the available freighter capacity.

RSP's use of Boeings 2016 World Air Cargo forecasts to support its arguments is illuminating. Both for what is says and what it omits.

In 2018 Boeing published their updated growth forecast for the global commercial airliner fleet (*https://www.boeing.com/commercial/market/commercial-market-outlook/*) covering the period the period from 2017 through to 2037. Although this forecasts an increase of 1,390 in the global freighter fleet over that period (from 1,870 in 2017 to 3,260 in 2037) its highlights that they expect that freighters will play a reduced role in overall global aviation as the freighter share of the global fleet is expected to fall from 8% to 7%. It is also telling that Boeing expects (from their 2016 cargo forecast) that the lion's share of the growth in freighter numbers will come from smaller standard body jets which are expected to increase their share of the freighter fleet from 36% to 42%. However, over that same period within the global fleet the growth in the number of wide body passenger planes, which are the primary carriers of belly hold freight, is forecast to be 4,890 (from 4,290 in 2017 to 9,180 in 2037) an increase of 114%. These forecasts are not consistent with RSP's argument that there will be an increasing role for dedicated freighters in the future at the expense of belly hold freight.

Where things become even more interesting is in the more relevant regional breakdown of that global fleet. Boeing are forecasting an increase in European based freighters of only 130 planes in the period up to 2037 (from a current 290 to 420 in 2037). An increase of 45%. Over the same timeframe, they are forecasting an increase of 770 planes (from 900 to 1,670) in the European widebody passenger fleet which provides the primary belly hold capacity to the market. This represents an increase of 85% in the European fleet's belly hold capacity from their current levels.

Consistent with their global forecasts Boeing are forecasting a reduced importance of freighters in the European fleet with their share falling from 6% to 5%. Again, these European specific forecasts from Boeing do not, in any way, support RSP's argument that the UK will inevitably see an increasing reliance in its use of dedicated freighters as it reverts to market norms – as the market norm is forecast to be rapidly increasing belly hold capacity.

If, for the moment we ignore the very inconvenient fact the Department for Transport's own projections do not anticipate any increase in the UK freighter flights over the next 30 years the question then becomes what would Boeing's forecasts actually mean if applied to the UK? – and by implication for the potential future viability for Manston.

If Boeing's Global Fleet Growth Projections are applied to the UK directly (i.e. UK freighter ATM's was to grow in proportion to Boeings fleet forecast) there will be an increase of 38,881 in the annual freighter flights in the UK (c53 additional planes landing in the UK every day) and if the lower European Fleet Growth Projections are applied there would be an increase of freighter flights 23,549 flights (c33 new planes landing in the UK every day).

Taking the set of circumstances from Boeing's freighter projections that would be most favourable to RSP's vison for Manston i.e. where for reasons unknown Heathrow does not increase its number of freighter flights from current levels (even with the opening of a third runway) and assuming Stansted only has access to the volume of cargo flights that are currently within its planning cap the table below shows that how that the potential increase in cargo flights (driven by a straight line application of Boeings projection) could comfortably be accommodated at only 6 of the UKs airports at volumes and rates that are well with current airport capacity. This is illustrative as runway capacity and East Midlands alone would be more than sufficient to accommodate these levels. While this is can only be an illustration of what could be done it does show that Boeings freight projections could be comfortably accommodated within the UK's aviation infrastructure.

	Global Growth Applied		**European Growth Levels Applied**	
	ATMs	ATM's Per Day	ATMs	ATM's Per Day
UK Cargo Flights In 2017	52,330	143	52,330	143
Maximum Potential Cargo Flights in 2037	91,211	250	75,879	208
Implied ATM Growth To Accommodate	**38,881**	**107**	**23,549**	**65**
Stansted Using Its Planning Cap	(10,000)	(27.4)	(10,000)	(27.4)
Growth Potential Of East Midlands	(16,881)	(46.2)	(10,000)	(27.4)
Growth in Birmingham	(3,000)	(8.2)	(887)	(2.4)
Growth in Doncaster	(3,000)	(8.2)	(887)	(2.4)
Growth in Manchester	(3,000)	(8.2)	(887)	(2.4)
Growth in Prestwick	(3,000)	(8.2)	(887)	(2.4)

Hence, even if Boeing is were wholly right in their fleet projections and the DfT's UK specific projections were totally wrong there simply wouldn't be the number of freighters existing in the world to support a viable freight operation at Manston given the capability of existing airport infrastructure in the UK.

4.16 It is now clear there will be capacity expansion in the South East through the development of the 3rd runway at Heathrow. There are also material expansion plans now in place at Luton and Stansted and Gatwick has not yet given up on the aspirations to develop a second runway or make better use of its existing second runway. None of these factors has been adequately dealt with by RSP.

York Aviation have totally and repeatedly disputed RSP/Azimuth's interpretation of their historic work on freight in the UK and have strongly objected to the selective, misleading and incomplete quotes that have been used within Azimuth's research. No attempt has been made by RSP to provide alternative sources of data or analysis to support their statements. Hence, there can be no other conclusion than that RSP's interpretation of the market is deeply and irretrievably flawed. This must be the fundamental area of examination by the Planning Inspectorate.

4.18 This statement is made with no real back up or context. The airport issue in Europe is largely the same as the UK. Simply put there is more demand for multi runway hub capacity next to big cities than there are hubs available. Aviation prefers multi runways hubs as it allows for greatly increased connectivity and profitability. In reality there is no shortage of runway capacity in Europe.

4.19 The point being made about placing additional pressures on the road network around the channel crossing is surely a negative to Manston as, were RSP to be successful in creating a freight hub a

Manston it would only increase the congestion on the roads, through increased numbers of HGV's and fuel tankers, at the point at the point of greatest pressure on the network.

This would make Manston much less attractive as a logistics hub as it would threaten companies' ability to ship rapidly throughout the UK – and is a risk that does not exist at other air transport locations.

4.21 I will deal with the Azimuth report separately but will comment on relevant points contained within the Statement of reasons.

4.22.6 RSP's statement here seem to directly conflict with their argument that the airport has no current capacity. Without reaching this conclusion there is no possibility that RSP's application to re-open Manston would qualify as a NSIP. This point needs to be fully examined as it would seem that PINS could have made an error in law and fact by wholly relying on RSP's statements.

4.23 Heathrow are planning to invest heavily in their freight infrastructure to double their capacity and improve their turnaround times. The impact of this on the market is not addressed by RSP in their submissions.

4.24 There is simply no evidence that supports any need for a freight-based airport at Manston.

4.25 As outlined above RAF Wethersfield, with its long runway and proximity to Stansted and the motorway network north of London would surely be a much better bet if there was ever a national need for a freight hub.

The relevant aspects of the quote from the 2003 White Paper are "could" and "local". There was not enough local demand to make Manston viable then. There is not enough now.

5.6.1 The DCO application is unique as RSP are seeking to use the DCO legislation to obtain consent to vary somebody else's property and leverage that consent for a small variation to give them compulsorily acquisition rights over the whole property.

In point of fact very little of the land at Manston would actually be necessary to support RSP's project. Taking aside for a moment the legal point, that its hard to see how RSP can lawfully obtain CPO powers over the whole site without any evidence of funding or demonstrating a need case, RSP have developed a wide mix of potential aviation businesses within their proposals that are wholly ancillary to the proposed fright hub (including >1m scqf of speculative commercial development outside the airport boundary) but are very useful to them in increasing their potential land take. Their approach here is totally inconsistent with that which has been accepted under every other DCO application under which the definition of Associated Development has been drawn very tightly.

These are projects that the lawful owner of the land should have the ability to pursue under their own auspices – due to the extant planning arrangements.

Thus, if any CPO powers are eventually granted they should be restricted to the bare minimum that RSP would require to deliver their NSIP and it should be made clear that a permanent restriction will be placed on the land such that no residential or non-aviation development will take place on the site without the vendors consent. This would eliminate the risk of this being a longer term "land grab" by RSP.

5.6.3 The proposed 5-year time limit for RSP to acquire the site cannot in any way be justified given the lack of any evidenced funding from RSP that they can actually fund the scheme for which they are making a DCO application.

6.7.2 This directly conflicts with RSP's NSIP justification document which state that the fire station does not have a roof. How much verification and "fact checking"" has actually been done in relation to RSP's submissions?

9.1.5 (a) What other sites have been considered by RSP and what negotiations have they had with the Government regarding surplus MoD airfields.

What discussions have there been with the landowner to discussion alternative acquisition arrangements?

9.1.5 (c) This is the key point. There can be no ability for the Planning Inspectorate to reach any conclusion on whether or not there is a reasonable (or indeed any) prospect of funds becoming available to deliver the scheme without there being a robust and detailed business plan (and financial model) presented for public examination. This model should detail the expected cash flows from the various components of the scheme and demonstrate a sufficiently attractive investor IRR.

9.12 As detailed elsewhere in this letter the MoD own a number of surplus long runway airfields throughout the UK that would be eminently suitable for re-development into a freighter hub and would doubtlessly welcome the opportunity of the investment promised by RSP. What discussions, if any have there been with the MoD?

9.38 No compelling case in the public interest has been demonstrated. The arguments put forward for a viable Manston are deeply flawed and have repeatedly been found deeply wanting by respected aviation advisors acting for Kent County Council, Thanet District Council and the current landowners. The breadth of evidence against Manston being viable is in no way overturned (or has even been addressed) by Azimuth's analysis for RSP.

9.53.1 The housing need is driven by both the Department for Housing figures and Thanet District Council. The need has been well established and is unarguable.

9.53.2 SHP's submitted planning application will deliver and fund significant increases in local infrastructure (schools roads etc), both on and off site to support the increased housing numbers. Alternative sites to Manston will not be able deliver the same improvement in local infrastructure as they are not as viable and lack critical mass. This would be a real impact on the local community and should be investigated fully by the Examining Authority.

9.53.4 A new Local Plan is now out for consultation which removes any aviation protection for the site at Manston as there is no evidence base to support it.

9.53.6 There is no evidence presented to support this assertion. The need case for housing is established and viability would have to be demonstrated through the planning process. I note that SHP already have named housebuilders publicly engaged on the site. No such end user has been identified by RSP aviation proposals. Nor do they have the resources to deliver them.

9.55 SHP's latest planning submission is materially enhanced in scope and scale from its initial submission following further public consultation and now includes an active runway within the scheme. The impact of this has not been considered by RSP within their submissions. This is a key benchmark against which RSP and the compelling case for a new freight hub should be assessed.

9.56 The Government is in the process of selling a number of airfields that both have longer runways and are better located than Manston. If there is a national need for a freight hub it is already in the nations gift to deliver on it.

9.57 Trucking to/from Europe is primarily driven by cost not airport capacity. Given the necessity to truck shipments to and from airports to get consignment from where they are to where they need to be there can be no meaningful speed advantage for air freight at distances of less than one days trucking (9hrs at an average of 80kph = 720km). Manston's location on the periphery of the UK exacerbates this position as trucks would need to drive much further to get there for onward shipment.

RSP NSIP Justification Paper

The DCO legislation was devised to facilitate the delivery of planning consents for Nationally Significant Infrastructure/ Projects at a national rather than local level, thus removing local barriers to delivery. To ensure this integrity was maintained very stringent tests for each category of infrastructure were applied

RSP's justification of seeking to use of the DCO process to secure compulsory purchase powers over the lands at Manston Airport is predicated on their scheme being an alteration of an existing airport that will deliver an increase in the capability of at least 10,000 cargo ATM's a year. However, in order to make this case RSP have to run a peculiar and conflicting argument that Manston is both still an airport for planning purposes but one that has no actual capacity. Surely it is or it isn't ?

Evidentially, the only part of RSP's proposal that could be considered to have an impact on increasing capability are the construction of new cargo stands. New sheds on their own add nothing to the capability of the site as they have no impact on the number of ATM's the airport can handle - and existing buildings on site could easily serve as warehouses to process incoming and outgoing freight. Given that RSP acknowledge that the DCO test is only ATM's , not volumes of cargo, the only real limiting factors in capability at an airport can only ever be (i) places to land a plane and (ii) places to park them when they are on the ground.

It has to be true the that from a planning perspective the capability of Manston airport was the same the day after it closed as it was the day before. In the same way that the capacity of a generator remains the same whether or not it is actually switched on. Hence, the capacity of existing infrastructure has to be an intrinsic quality of the consented infrastructure against which future changes have to be measured.

From a planning perspective there is currently no limitation on ATM's at Manston. So its owners could seek to reopen under the existing arrangements - albeit they would still be limited by the existing section 106 in relation to night time activities.

Manston's current owners, as advised by York Aviation, believe that the existing airport infrastructure (which has planning permission and operated for many years) has a capability of over 20,000 cargo ATMs (by RSP's own arguments in Para 23 of their NSIP justification doc the 4 cargo stands that already exist at Manston would be sufficient to provide 17,520 cargo ATMs).

Conversely, RSP are seeking to argue that it is zero. The basis of this argument is that they claim that Manston's owners would need some form of planning permission to reinstate/repair existing and essential infrastructure so that it was usable.

They balance their argument on 4 items (i) the absence of a fuel farm on the site, (ii) the condition of the air traffic control tower, (iii) the condition of the fire station and (iv) the lack of active radar at the site.

If their arguments on this points can be proven to be either wrong or false, by their own arguments they can have no justification for the DCO process they are seeking to pursue.

Taking each point in turn:

Fuel Farm

Logically an onsite fuel farm cannot ever be an essential component of an airfield capacity in terms of assessing cargo ATMs as not all planes refuel at every stop and a pilot's choice of where to refuel is driven primarily by cost. Not something that Manston will ever be competitive on due to that fact that all fuel used would have to be delivered by road as it is not on the national aviation fuel pipeline network.

Thus planes could comfortably land and take off at Manston generating ATMs without there being any requirement to refuel. The practical necessity to refuel before take-off will be driven by factors such as (i) where the plane is coming from, (ii) what it is carrying and (iii) where its onward destination actually is. Manston's historic mode of operation where freighters generally left holding no cargo would directly facilitate there being minimal need for onsite fuelling facilities.

Nothwithstanding the above it is also eminently possible that planes can be fuelled directly from tankers if necessary, given suitable operational procedures and environmental protections. In such circumstances fuel

would be delivered to the site on an as needed basis from a remote 3rd party fuel farm – as per Lydd Airport. It may not be as practical or as operationally efficient as having and onsite fuel farm but it is possible and it would not need any Planning Permission.

Indeed, this possibility is reflected RSP's own consultations with the Environment Agency who had proposed an offsite fuel farm as an alternative operational model.

In any event RSP's updated NSIP justification now asserts that the fuel farm is Associated Development and this would not have any impact on capacity in relation to their DCO application. Hence, by their own arguments the absence of a functioning fuel farm will have no impact on the intrinsic capacity on the site.

Air Traffic Control Tower

RSP claim the existing Air Traffic Control Tower needs to be demolished and rebuilt which would require new planning permission. This seems unlikely as the existing building is more than capable of being refurbished and redecorated.

Notwithstanding that RSP seem to have made an error in fact on this point - at several points during their own consultation process RSP indicated that they were investigating the potential deploying for remote air traffic control provision at the site as is used at London City (see https://www.bbc.co.uk/news/uk-39960993). Such an approach would seem to be possible given that it is already used throughout the world and would fundamentally negate any planning issues attaching to the existing air traffic control tower at Manston as it would then be redundant.

Fire Station

RSP claim that the existing on-site fire station would need to be demolished and rebuilt as it does not have a roof and that such a process would require a Planning Permission. This argument is simply wrong, as from inspection the building does have a roof and it would not require any further planning permission to refurbish it and bring it back into use.

Notwithstanding these facts there are also a number of hangers on site that would also be more than capable of serving as a base for fire engines should that actually be required.

Radar Tower

RSP argue that the lack of a radar tower means that ATM capacity is zero. While clearly planes can and do land throughout the world without radar the proper provision of radar at an airport is essential for both safety and traffic management at any volume.

From observation the existing radar tower and infrastructure remains in its position on Manston Airfield albeit the rotating element of the radar, that sat on top of the tower, has been removed. It is not clear to me why the replacement/re-instatement of the removed element, with an identical rotating element, would require a new Planning Permission. This would be a like for like replacement for what was previously consented infrastructure.

The logical extension of RSP's argument would be that the radar had been taken down at any time for maintenance/repair a Planning Permission would be required to replace it.

However , notwithstanding the status of actual provision of radar infrastructure on the site is also more than possible to secure the necessary radar coverage through remote provision. Manston previously provided this service for Southend Airport which ceased when Southend developed its own radar infrastructure. The cabling remains intact and could be reused to deliver a remote radar feed to Manston. Hence, from a planning perspective radar is wholly irrelevant for any capability assessment as there is no planning reason why a radar feed could not be procured from Southend or elsewhere.

Were RSP's arguments to be held true on these points and the Examiner's considered that Manston's existing cargo ATM capability was indeed zero the owners of Manston Airport would then find themselves in the wholly illogical position where if market circumstances changed and they then wanted to reopen the airport they would need to pursue a full DCO application on order to put a roof back on a Fire Station and crystallise the airports inherent capability of over 20,000 cargo ATM's.

This is simply illogical and cannot have been the intent of the DCO legislation.

The implications of adopting such an approach is potentially very significant for other UK airports who are seeking to expand- as any airport that has added (or plans to add) 3 or more stands to their airport will have increased their cargo capability by over 10,000 ATM's and should have pursued a DCO to do so. To the extent that they have not, they would have been committing a criminal act.

Review Of Azimuth Aviation Reports

Each volume of the Azimuth reports are filled with assertion as fact (as confirmed by Avia, Altitude and York), are deeply partial and highly selective in the information they quote and contain no empirical analysis of the performance of the freight market in the UK. The following sections outlines the many inconsistencies within each volume of reports and directs the Panel to areas where further questioning and testing of Azimuths forecasts, assumptions and evidence are required.

Properly testing the Azimuth reports are critical to the assessment of RSP's proposals as they provide the only evidence in relation to need.

Volume I – Demand In The South East Of The UK.

The 3-page Exec Summary provided at the start of Azimuth's report gives an overview of the wider content of the report. Within it Manston is positioned as being in the South East of England, which is "where aviation industry demand is highest". It is important to understand that the position of aviation in the South East is more about airport supply than user demand/preference – this is particularly true with regard to freight.

The location of the UK's only hub airport at Heathrow and the massive connectivity it supports is what drives freight and passengers to the South East, not user or shipper preference. To get to Manston to ship freight most exporter's would have to drive past Heathrow, Luton, Stansted and Gatwick to get to Manston. If you are located north of London, Birmingham, East Midlands and Manchester would be equally attractive options. As has been proven by Manston's sequential failures as a commercial operation its location in the South East has never proven to be enough to build a viable business around.

In 2013, its last full year of operations Manston supported only 511 cargo ATMs. It was the 17th busiest freighter airport in the UK. The 16th busiest airport was Prestwick with 598 cargo flights and the 18th was Glasgow at 433. In 2017 Prestwick did 670 freighter flights and Glasgow did 603. Conversely Bournemouth Airport which should, if Azimuth are to be believed, benefit from the huge advantage of being in the South saw its freighter ATM's fall from 2,087 in 2013 to nil in 2017. Manston was not nationally significant in 2013 and nothing in the market suggests that it can ever become so in the future.

Ironically, Prestwick which was sold by Infratil to the Scottish Government for £1, is with its two long runways and direct proximity to the motorway network is a much more compelling story as a freight hub if the demand was actually there. The UK, as far as London is within one days trucking and its highly probable that the Scottish Government, which has been funding Prestwick's ongoing losses for the last 5 years (£40m and rising), would welcome any external funding with open arms.

In term of the questions posed by Azimuth at the start of their reports the answers are clearly as follows

1. The UK does need more hub capacity so that it can increase connectivity. It does not need more capacity in the regions where – away from large concentrations of population aviation is a very marginal business and in many cases is subsidised to maintain viability.
2. The question of whether or not this additional capacity should be located in the South East has now been settled. Heathrow Runway 3 is moving forward. Luton and Stansted are pressing on with materially enhanced expansion plans and Gatwick has ambitions to grow via a new second runway or through or making better operational used of its existing reserve runway.
3. It is my view that Manston's peripheral location precludes it from having any impact on the aviation debate in the South East. This was the conclusion of the Airports Commission when they dismissed it from their considerations, it was the conclusion of the airlines who chose not to use it and it was the conclusion of the global airport/aviation sector when they all passed on the opportunity to acquire either Manston or Prestwick during Infratil's 2-year sales process.

Azimuth's repeated use of global growth figures and freight tonnage is wholly misleading to the reader and neither of these is relevant to the case at hand which should be focused on the UK market and the number of aircraft movements.

Global growth figures for air freight should, over any multi-year timeframe, always be higher than the UK as the UK is already one of the best served aviation markets in the world and the rest of the globe is growing at a faster rate from a comparatively lower base as it becomes more economically developed.

Given the need for RSP to raise material funding on the back of the Azimuth research the lack of any real numerical analysis of the market and how it could evolve is a very startling omission from these reports. While the 2017 growth in dedicated freighter tonnage in London is mentioned (it was actually 6.9% rather than the 6.3% stated by Azimuth) this happened on 888 less aircraft movements. In the first 6-months of 2018 there were 358 less cargo ATM's in the London airports than there were in 2017. A trend that continued for the remainder of the year.

While I'm sure Azimuth would claim this supports their argument that cargo planes are being squeezed out of London this does not comport with the facts where small increases in freighter flights have been recorded at Heathrow which has very limited slot availability whereas significant reductions of freighter ATMs have been observed at both Luton and Stansted where there is material available capacity for additional flights. This repeats the trend in 2017 where an increase of 519 in the freighter flights at Heathrow was materially offset by a reduction of 1,407 freighter ATMs at Stansted and Luton. Cargo planes are getting larger and more niche – and increasingly shippers are choosing the significant cost savings and flexibility available to them through belly hold capacity.

Throughout the Azimuth reports there are repeated statements about the levels of "air freight" that is trucked to and from Europe which are made in support of promoting an argument that suggests that this is an inefficient operational mode where freight that should actually be flown is being transported by truck.

At best this suggests Azimuth have a fundamental misunderstanding of how the end to end freight/shipment process works. At both the start and the end of every journey all air freight will have to be transported to and from airports by truck. The choice of both departure airport and destination airport will be made on the basis of the mode efficient outcome for the exporter. For example, an exporter (or aggregator) who has 90% of their customers in Europe and 10% in the UK would be logical to fly to Europe and the truck to onward destinations. Similar if the converse were true an exporter has 90% of their customers in the UK and 10% in Europe they would choose a UK airport and then ship the 10% back across the channel. At least they would have been likely to before Brexit. As stated before, the fact that freight is trucked from Europe to Heathrow to benefit from low cost belly hold just shows how compelling the cost advantage is.

The paragraph where Azimuth cites a story from Air Cargo World around air freight in Europe reaching capacity is highly misleading as it was a booking/aircraft issue not an airport/infrastructure issue. As per the analysis of the seasonality in freighter numbers above - it certainly wasn't reflected in the Freighter ATMs in the UK in November 2017 (www.caa.co.uk stats), as while that was the busiest month of the year there was very material available runway and airport capacity that was not used. In Nov 2017 freighter numbers in at Heathrow were indeed up 34 on Nov 2016 numbers but numbers at Luton and Stansted were down 150. This is in no way reflective of the freighter market that is creaking at the seams that Azimuth are trying to portray.

The paragraph stating that airport capacity is also a problem in Europe again seeks to conflate a number of issues together to garner and project supportive arguments for Manston. In short there are plenty of airports and runways in Europe - but many of them are in the wrong place to attract passengers. Any forecast airport issues in Europe are the same as they are in the UK where increasing demand at "hub airports" are driven by passenger demand not freight. There may indeed be a projected shortfall in runway capacity at the "hub airports", but as discussed elsewhere drivers of a successful "hub airport" are entirely distinct from regional airports and are wholly irrelevant for any of the considerations of the potential of Manston Airport.

Azimuth's repeated use of RTK 's (Revenue Tonne Kilometre) throughout their report to indicate trends in the air freight market is highly misleading in the context of airport and runway infrastructure and again is irrelevant in any assessment of the air freight market at Manston (it is used primarily by aircraft manufacturers as it broadly corresponds with usage of aircraft) .

A RTK is defined as follow**s:** 1 **Revenue Tonne**-**Kilometre** is generated when a metric **tonne** of **revenue** load is carried one **kilometre**. Therefore, an increase of 1,000 RTKs could either be (i) 1,000 flights each carrying 1 tonne for 1 kilometre, or (ii) 1 flight carrying 10 tonnes for 100 kilometres, or (iii) 1 flight carrying 1 tonne for 1,000km. On this basis its very easy to see how increases in RTK have absolutely no relevance in freighter ATMs and with increasing average sizes of aircraft and longer route lengths becoming more common as the more remote parts of the world's open up to aviation increases in RTKs can actually translate into a reduction of ATM's. Similarly, their repeated use of Freight Tonne Kilometre (FTKs) is equally misleading as it does not translate into ATMs.

The argument that Azimuth repeatedly advance that a lack of available freighter slots as the reason that the UK has lower % of cargo carried on freighters than the global average bears no real scrutiny. The UK has among the highest volumes of long haul, wide body flights in the world and hence has a plentiful available capacity of cheap belly hold space along all the major trade routes (particularly to North America). Much of the rest of the world does not have this and has no choice but to use freighters to move cargo. The trend globally is for freighter use to reduce over time as passenger services become more established and belly hold capacity increases.

If Azimuth's arguments were correct you would expect to see year on year increases in freighter numbers at both Luton and Stansted (which there is not) and you would expect there to be greater seasonal increases in ad hoc freighter flights at Heathrow using available capacity outside the peak passenger flight seasons. Which again there is not.

In the 12 months to June 2018 the Total ATMs per day at Heathrow had a variance of 135 between the busiest month and the quietest month. In comparison the freighter ATM's had a variance of only 1.8 between the busiest month and the quietest month. Passenger traffic peaks in the summer while freight peaks in November when passenger flights are around their lowest. If there was the hypothetical fleet of air freighters which were desperate to fly into Heathrow as is envisaged by Azimuth you would have expected more seasonal variance in the freighter ATMs in the UK – i.e. they would use capacity when it was available. Similarly, Stansted had seasonal passenger variability of 148 passenger ATM's a day and 7 cargo ATMs a day and East Midlands had seasonal variability of 72 passenger ATMs and 12 cargo ATMs.

As has been demonstrated elsewhere in this document and in the reports written for SHP by Altitude and York Aviation there is massive available runway and infrastructure capacity in the UK for freighters should that be required. There is just no need for them. Simply building another 80,000 ATM capacity airport at Manston will not change this.

The following table provides detailed comments and questions around the Azimuth report against specific clause refences that should be considered.

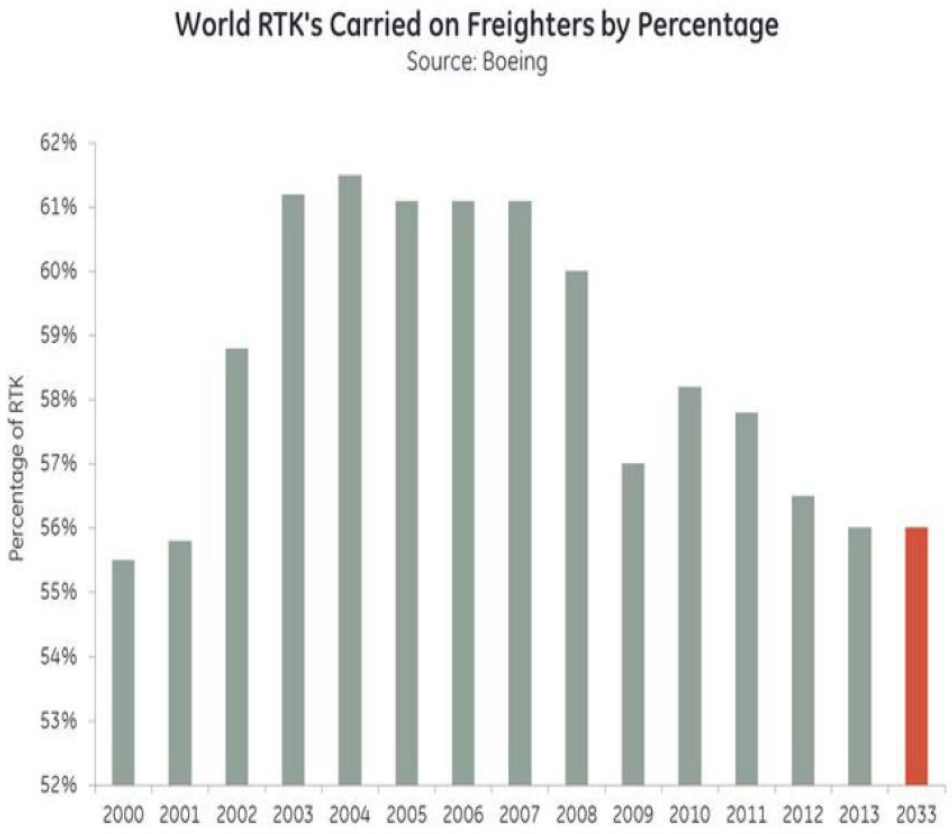
Clause	**Comment/Questions**
1.1.2	Azimuth makes the point that that the UK's infrastructure should be "fit for purpose". This is clearly correct, but in order to give UK plc the best chance of future success appropriate infrastructure investments should be made where they provide a clear and sustainable competitive advantage to users. Manston does not do this. It would be the equivalent of building a cross channel ferry port in Bristol.
1.1.3	Azimuth's projections are based on York Aviation's historic work who have confirmed that Azimuth have mis-interpreted their work and have drawn erroneous conclusions. Azimuth have neither addressed this criticism nor provided alternative evidence.
1.1.4	How can the DCO process hope to be objective if the Secretary of State has already expressed his support for the scheme. On what evidence was his support provided ?
1.1.4	Azimuth's history of Manston missed out the step whereby the site was sold to SHP to be developed out by the regeneration specialists who turned round Discovery Park.

1.2.1	None of RSP's directors have a successful track record in airport development that can be pointed at. Indeed it is a matter of record that Tony Freudmann has a track record of repeated failure in airport development and operations.
1.2.1	Azimuth miss the point that Heathrow is a cargo hub. The largest in the UK and has plans to double its freight capacity.
1.3.2	The report is actually very selective in its use of data and is designed to give the reader a skewed and misleading view of the market. Repeatedly conflating global issues with the UK market.
2.1.1	On the one hand Azimuth rely on the aviation forecast from the DfT and on the other they dismiss the DfT's freighter forecasts out of hand which suggest no growth in freighter numbers during the next 30 years. No explanation has been provided on this point.
2.1.6	If the UK is as strapped for aviation capacity as is suggested by Azimuth why are HMG selling off various surplus long runway airfields for housing. On what evidence base has HMG relied to conclude that these sites are not viable for aviation ? These surplus sites include RAF Wethersfield which has 3 runways and could provide a 2.7km long dedicated freight runway only 25km from Stansted's existing infrastructure. With its central location would this not be a better location for a new UK cargo hub ? Has RSP had any discussion with the MoD about investing here ?
2.2.2	Azimuth's point regarding cost pressures on the logistics chain does not support their thesis of an impending migration of air freight from belly hold back to dedicated freighters. Cost is all in logistics and if anything, increasing cost pressure will cause greater migration onto belly hold.
2.3.2	Indeed, the local MP's have long campaigned for RSP and have sought to provide vocal support where necessary. One of the local MP's is on record stating that a primary concern behind for the local conservative councillors voting down Thanet's Local Plan (which was evidence based and recommended by officers), which recommend a mixed-use development on Manston was to keep the value of the site low to favour RSP's proposals. In effect making one commercial entity more profitable at the expense of another.
2.3.3	The point stated about capacity constraints/free market was made with reference to the analysis of the UK's hub capacity and passenger traffic and is hence not relevant here.
2.3.8	Pure conjecture from Azimuth. To make this statement they need to identify which routes might be consider unprofitable, and how much freight traffic there currently are on these routes. They fail to do so.
3.0.1	It is worth pointing out that almost all air freight is aggregated before shipping as there is a negligible proportion of flights that fly a single product to a single destination.
3.1.2	Azimuth acknowledge that 50% of express freight flights occur at night. As this suits daytime delivery cycles. Why would Manston be able to buck this trend given that is what the shippers (who are paying and have choice) actually want ?
3.3.1	Table 3 is largely meaningless in the context of Manston as the use of FTK's provides no insight into changes in the number and location of ATMs.
3.3.2	It would seem that Azimuth is attempting to overstate the position with regard to the impact of air freighters at Manchester – as is illustrated in the relevant total tonnages for cargo at Manchester in 2016 and 2017 shown below (www.caa.co.uk). This is primarily belly hold as shown below. This is actually a direct example of how new long-haul passenger routes act as a catalyst to increased freight by providing low cost belly hold capacity. | | 2016 | 2017 | | Bellyhold | 98,718 | 113,113 | | Freighter | 10,058 | 7,068 |

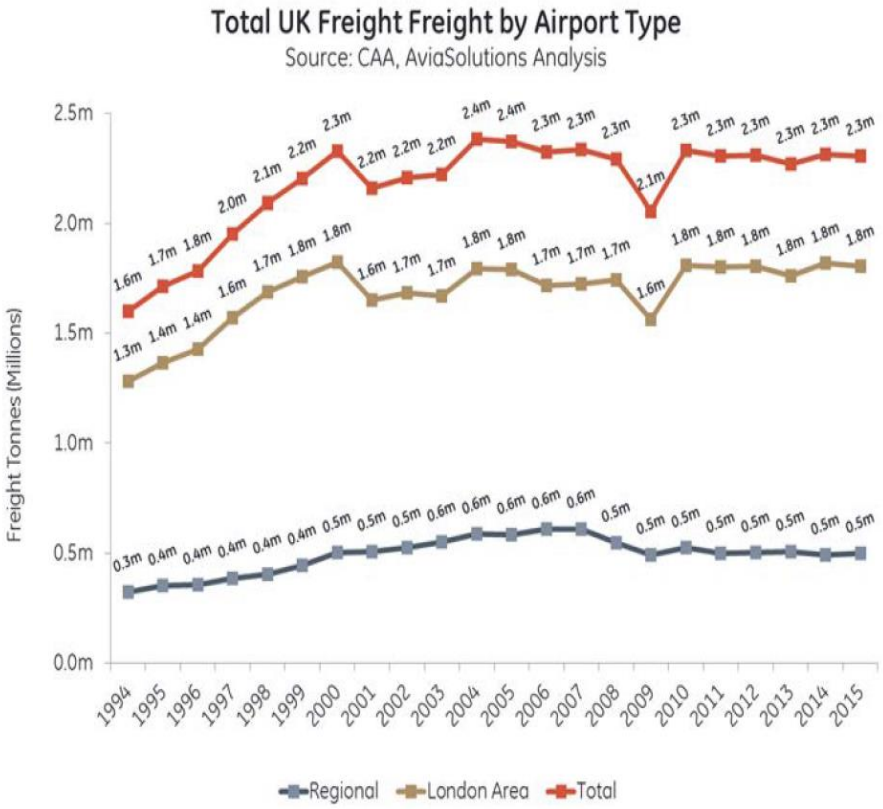
4.1.3	As part of Heathrow's expansion, they are planning on expanding their cargo capabilities so that it can handle double its current capacity and half the current freight throughput times. This impact of this huge increase in capacity and efficiency in the UK (to 3,000,000 tonnes) has not been explored in Azimuth's report. This alone would allow for a 50% growth in UK air freight from 2017 levels. No attempt has been made to assess how this could impact Manston's viability – and freight would have an innate preference to use available hub capacity.
4.1.4	Azimuth's comment that Stansted's reduction in cargo flights might be consequence of the "capacity constraints" seems to ignore that fact Stansted has a dedicated cap for cargo flights, which it is not close to using, and it also runs contrary to Stansted's stated aspiration within their business plan of doubling the volumes of cargo handled.
4.2.2	The use of 1 quarter's performance is meaningless without context. The other quarters provide much less favourable metrics for Azimuth. Historic trends must be analysed in any forecast of future growth. The quote below from Boeing 2018 Cargo Outlook makes the point quite eloquently. One freight swallow does not make a summer. *"International freight yields rebounded more than 5 percent in 2017 after declining approximately 3 percent annually for the past 20 years. Both volumes and prices increased across the board in 2017, a market dynamic that has not been seen for over a decade. "* This positive trend did not continue into 2018.
4.2.3	Boeing's 2017 Fleet Forecast predicts that Europe Based freighters will increase from 290 to 420 (45% increase) between 2017 and 2037 and the North American Fleet will expand from 850 to 1,100 (29% increase). Globally they are forecasting growth from 1,870 freighters to 3,200 freighters in 2037 (growth of 74%)
4.2.4	Again, selective quotation from sources by Azimuth. It is clear from IATA's 2018 cargo review that the future for dedicated freighters will continue to be pressured by the ever-expanding availability of belly hold capacity. IATA' 2018 Cargo Review *"Over-capacity, the structural challenge: Over-capacity is coming mainly from an expansion of the passenger business as well as an increase in the freighter fleet. Additional cargo capacity from widebody belly passenger aircraft has continued to exceed that from freighter only fleet. "* Azimuth make no attempt to address this point in any of their reporting. Why ?
4.2.5	As before the use of FTK's are misleading in terms of airport need. They are relevant for aircraft need as they are a broad measure of aircraft utilisation but not for runway capacity.
4.2.6	One year's worth of forecast performance is irrelevant. Any analysis of freight volumes and cargo trends must be considered over a 15-20 year economic cycles as that is the time period envisaged by any investor.
4.2.7	Despite the massive increases in air freight that are claimed by Azimuth in 2017 – and the pressures the system was under. The freighter numbers into Stansted and Luton actually fell by 1,408 between 2016 and 2017. In 2018 they continued to fall.
4.3.4	Azimuth is right to state the UK airport operates in a global market place. What they do not do is explain or justify why Manston would succeed in such a market given the weakness of its location and the remoteness from any real distribution network. What competitive advantage would allow Manston to successfully compete ?
4.3.5	Table 6: This table needs to be updated to show 2017 figures – also needs to be clear whether these numbers are total freight or purely freighter only. But on the face of it they undermine the argument that the UK is out of step with Europe with regard to belly hold freight. Dedicated freighter numbers fell at Paris, Liege, Frankfurt, Luxembourg, Copenhagen, and Helsinki – and were flat at Brussels, Milan, Madrid, Vienna, Munich, Dublin and Rome.
4.4.1	These figures quoted are meaningless from an economic perspective.

	The value of freight is irrelevant as is the cost of getting it from A to B which has the impact on consumers and the economy. Even if there was no increase in capacity in the South East – (noting now that Heathrow, Gatwick, Luton and Stansted all have significant expansion plans) there is massive untapped runway capacity in the North of the country that all lies within 8 hrs trucking of the south of the UK.
4.4.5/4.4.7	York Aviation have publicly and clearly disputed Azimuths interpretation of their work. This challenge to Azimuth's work has not been addressed.
4.4.8	If the resilience of the road networks are really a "key issue" how will locating a freight hub to the southern tip of the UK which is already heavily congested by HGV's heading towards and away from the channel ports help to reduce this risk. It will simply put even more pressure on existing road infrastructure. How would a putative Manston freight hub operate if Kent was gridlocked by a future implementation of Operation Stack.
5.1.2	The planning cap on Cargo as Stansted has never been met and hence there remains significant unutilised capacity at the airport. Also Stansted's stated aspiration in their long term plan is to grow its freight volumes and expand in belly hold as they gain more long haul business have been entirely ignored by Azimuth. Freighter numbers at Stansted fell by 10% in 2017 from 2016. This is not an indicator of a freighter market that has overwhelming unmet demand.
5.1.8	The representations that are made about Schiphol Airport choosing passenger flights over freight are misleading as stated by Azimuth. Freight airlines at Schiphol lost their right to slots as they were not using the ones they had reserved. This is not indicative of unfettered demand in the sector. The extract from Schiphol's website below better summarises the position. Freighter slots were forfeited if they were not used. This is not the picture of a sector where there is continuous predictable and sustained demand. ***"Effect on full freighter operations at AMS*** *Some full freighter operations are difficult to fit into slots. The major issue for full freighter operations is the difficulty to fly according to a fixed on time schedule. According to IATA and EU regulations, in order to retain their historical rights to slots, airlines need to fly 80 per cent of their slots according to the requested flight schedule. This requirement proves to be challenging for some full freighter operators. The nature of the air cargo industry is – compared to the passenger industry-based on different needs, for example as the launch of new high-tech products, flower seasons and the recent rise and seasonality of e-commerce), and unlike the passenger market -which is a highly regular market dominated by return flights- cargo carriers connect cargo flows, which are one-way flights."*
5.1.8	Manston was available for MAG to buy. They chose not to.
5.2.2	It is highly speculative and unlikely that Low Cost Carriers will flock to Heathrow and take up disproportionate number of new slots as it will have amongst the most expensive operational charges and will undermine their profitability at other airports. Heathrow, due to its hub status will most likely increase the breadth and depth of long-haul operations further increasing the belly hold capacity provided to the market. Also as outlined above, Heathrow are seeking to increase their freight handling capacity to 3,000,000 tonnes a year. The market impact of this is not dealt with by Azimuth.
5.3.1	The conclusion that Gatwick would not be not a serious competitor in the freight market is laughable. It shipped 96,000 tonnes in 2017 and is likely to do in excess of 110,000 tonnes in 2018. Far more than Manston ever did in the past. They have the capability and appetite to grow their cargo operations.
5.4.2	Luton is arbitrarily dismissed as a potential freighter hub by Azimuth but ignores the fact that Luton has massive untapped runway capacity and could open up new stands cheaply to

	expand their existing freighter operations if that was considered profitable. The 16% fall in Luton's cargo ATM's in 2017 is not reflective of a dedicated freighter market that is desperate to find additional capacity within the London System. If that were the case why are freighter numbers falling?
5.8.2	It is telling that the 2003 White Paper talks about Manston in terms of meeting "local" demand and potentially contributing to the "regional" economy. It makes no attempt to conflate Manston's status with any national importance. Since 2003 it has been repeatedly shown to be unviable under various management teams – never once turning a profit.
Table 7	Arguably, because Manston is a closed airport with existing aviation infrastructure the list of airports in this table is incomplete as it omits all the surplus airfields that are in the process of being sold by the MoD. Many of which are in a better location and have higher quality existing infrastructure than Manston has. Hence, it is likely they could be acquired and brought to operational status more quickly and with less investment than Manston. An analysis of cargo flights at Bournemouth is instructive. In 2000 Bournemouth handled 2,884 cargo flights at a time when Manston handled 920. By 2017 Manston was closed and Bournemouth handled zero cargo flights. With only 4,251 passenger flights at Bournemouth there can be no argument that cargo flight are being displaced by passenger flights. If there was such un-met demand to fly into the south east why should this be the case? In 2000 Prestwick (which is clearly not in the South of England) handled 2,112 cargo flights. But by 2017 this had fallen to 670. Freighter flights are falling because there is simply less need for them. www.caa.co.uk
6.0.1	Azimuth's consideration on factors that may impact the future demand for freight are all hugely speculative and only consider potential upside drivers rather than downside risks that would reduce volumes. For example: 1. "The March Of The Makers" – The emergence of ever more complex 3-D printing and manufacturing facilities will reduce the cost advantage of importing from low wage economies. This has the potential to massively reduce demand for air freight. 2. Continued shrinkage of product and packaging . This reduces the volume and weight of goods to be shipped allowing more value and unit numbers to be carried by one flight. 3. Environmental Taxes: It is not hard to see increase taxation of air freight in the light of its environmental costs. Encouraging more local manufacture and reducing demand. 4. Brexit driven onshoring: Reduced dependence on imports as a consequence of Brexit. 5. Growth of Rail Freight from China to Europe. Clearly not as fast as flying but much cheaper and much faster than shipping. *"One of the defining rail freight trends of recent years has been the spectacular rise in the volume of intermodal traffic between China and Europe. In November 2017 , China Railway Corporation (CRC) reported that more than 3000 container trains had run between the two continents since the start of 2017, exceeding the total for the previous six years combined, with services connecting 35 cities in China with 34 destinations in Europe" www.railfreightjournal.com*
6.2.6	It is highly unlikely that two terror events will lead to wholesale changes to the air freight market.
6.3.1	It is noticeable that Azimuth makes no attempt to quantify the cost benefits to shippers of belly hold freight. They should be made to do so as it all goes to the economics and competitiveness of a reopened Manston. Avia's 2016 report estimates that belly hold costs 25% of a dedicated freighter. The UK has huge and increasing belly hold capacity as Heathrow (and an increasing number of other UK airports) drive global long-haul flights with huge untapped belly hold capacity. Given this it is very easy for shippers from all over the world to get to and from the UK by belly hold.

6.3.2	The image of peripatetic air freighter flying from airport to airport as required is correct – it highlight's very eloquently that there is insufficient demand for air freighters from shippers – outside express scheduled express freight (DHL/Fedex/Etc)- to support predictable cargo flights. This is not a business model that you can make a speculative investment on.
6.3.3	Azimuth should quantity the freight volumes and number of ATMs that are driven by each of these categories. If these are the niches that Manston expects to fill it should be set out (i) how big each of the niches actually are, (ii) where they are currently operating from and (iii) how much of that market Manston could expect to attract.
6.3.5	Boeing's 2018 fleet forecasts for the next 30 years anticipates that globally air freighter will make up a reducing proportion of the global fleet. This is not consistent with Azimuths position that we are about to see a migration away from belly hold. Azimuth needs to set out on which routes freighters are critical, the tonnages and the ATM's. The table below from Avia's 2016 report for TDC illustrates that the decreasing proportion of Revenue Tonne Kilometres that are carried globally by dedicated freighters is not expected to be reversed out to 2033. Since the date of this report Boeing have reduced their expectations for growth in the underlying freighter numbers. 
6.3.6	If the average time between pick up and delivery is indeed 138 hours, as stated by Azimuth, it highlights that air freight is only really every going to be a long range business. As trucking (with a daily range of up to 800km) is always going to provide a compelling alternative in terms of both cost and speed over short to medium distances for all but express freight deliveries. The work done by the Airports Commission on capacity in the South East supports this analysis with the useful summary of "How Air Freight Works" on P74 of the report which is extracted below. "*How air freight works* *Air freight is generally used to ship goods that are relatively small and high value and in markets where goods need to be shipped over long distances quickly and surface transport*

	options are limited. Examples include food or pharmaceuticals that need to be delivered in controlled environments with short shelf lives and fast evolving high tech products where several weeks of sea transit to or from the Far East might represent a significant proportion of the product's sales life. *Air freight is either carried by dedicated freighter aircraft or in the cargo holds of passenger services – known as belly hold freight. Freighter aircraft are predominantly flown between freight hubs in an operator's distribution network where volumes are sufficient to justify the expense of running dedicated cargo services. Belly hold freight uses passenger services to expand the potential freight network. The extra time involved in ground handling freight means that such belly hold operations have traditionally not been used in the short-haul low-cost sector where operators focus on reducing turnaround times and maximising the number of flights each aircraft makes in a day. easyJet trialled the carriage of cargo in Europe in 2012 but the operational challenges (e.g. time taken for security processes) led it to discontinue the service.* *The time of day when capacity is available is also of critical importance to air freight companies as it determines the levels of service that they can provide their customers.* *Due in part to the capacity for road and rail transport to compete with airfreight on time over distances of up to 400-500km, air freight tends to be focused on inter-continental long-haul destinations. "*
6.3.7	The statistics quoted regarding the revenues generated by belly hold and dedicated freighter aircraft actually demonstrates just quite how compelling the belly hold cost advantage is if c50% of the air cargo volumes generate only 10% of the revenue it implies that dedicated freighters are up to 5x more expensive than belly hold.
6.3.9	Azimuth blatantly try to misrepresent the UK's position. The UK is the world's 5th largest economy by GDP and has long been a global centre of commerce, travel and trade. These are not advantages that much of the rest of the world has. Hence, the UK benefits from massive belly hold capacity and connectivity through long haul passenger routes that is simply not available in many other areas of the world. Azimuth keep trying to push capacity constraints as being the driver of the reduction in dedicated freighters in the UK rather than it being driven by underlying market trends. There has been a broad and sustained reduction in freighter flights across the UK in airports that are by no means even close to having capacity issues. The only exceptions to this has been the growth of the aggregators and express freight operators at Stansted and East Midlands who have built their UK infrastructure at these locations.

	 Trying to compare East Midlands to Schiphol as Azimuth do is somewhat surprising. One is a global hub with 6 runways and is host to the national flag carrier and one isn't. Yes, East Midlands generates significant revenues from passenger flights, retail and car parking but without these it may not be viable. It is also an indicator of potential viability issues facing a Manston that does not enjoy the same potential catchment area as East Midlands.
6.4	The key issue with air freight in the UK and its interaction with trucking is that the UK is simply not that big. A truck can drive for up to 10 hours a day giving a potential daily range of 500 miles. To illustrate the point, you can drive from Prestwick to Bournemouth within that time. Basically, the whole UK is within one days trucking of any major airport. A reopened Manston would provide (what is un-needed) capacity at what would the most inconvenient locations to all shippers in the UK other than those located in East Kent. Useful illustrations of comparative trucking times from East Midlands are provided in the Altitude Aviation report. Also, East Midlands Airport makes the point very succinctly in their website that "89% of England and Wales is within 4-hours trucking" of the airport. This is not a flexibility that Manston could ever offer due to its peripheral location. Why would any shipper from North of London ever choose to ship from Manston ?
6.4.4	There is massive untapped capacity in all the airports North of London. If this trucking to Europe was driven by demand rather than cost why are they not seeking to use the capacity at these airports. If this was actually a real issue why have freighter numbers been falling across the UK?
6.4.6	As before York dispute Azimuth interpretation of their work.
6.4.9	Tellingly Azimuth do not report on the inbound RFS data to UK airports. Freight flows work both ways to and from hub airports due to the attraction of low-cost belly hold capacity. Does Azimuth have any information on whether the trucking across the Channel is to pursue dedicated freighters or belly hold capacity. Given the arguments that are advanced about the

	cost disadvantages of dedicated freighters it would seem logical that cross channel trucking is cost driven rather need driven. Otherwise a freighter could be chartered as required.
6.4.11/12	The sensitivity of Kent's road networks to delays at the channel ports and the costs to the economy is well understood and is why the Government have paid for Manston's runway to be available as a parking area in order to manage that disruption for both Operation Stack and Operation Brock. It is not clear why adding many 10's of thousands of additional HGV movements to an already congested road network would be something that would make this pressure better rather than worse. Is seems unlikely that any shipper, who is seeking fast and certain air freight would choose to commit to an airport that might be unpredictability and severely impacted by disruption to cross channel ferries. One of Manston's problems is that by the time a HGV has driven to Kent they are already very close the European road network and ready access to cheap belly hold space at European airports.
7.1.7	The table below shows Manston's performance since 1990. It is clear that is has not been able to generate or sustain meaningful cargo volumes or ATM's. Statistics from www.caa.co.uk. **Manston figures from 1990-2014** It should be noted that Azimuth's forecast average tonnage per ATM are much lower than were historically achieved at Manston. Is this because they want to inflate the ATM forecast?
7.1.9	The airport was marketed globally for 2-years by Infratil and their advisor PWC and no buyer came forward for either Manston or Prestwick . Both airports were ultimately and separately sold for £1 in 2013. Manston has closed, and Prestwick remains operational but loss making and has cost Scottish tax payers £40m to date to keep open.
7.2.2	The claims made by Azimuth regarding Manston's potential as a freight hub are frankly laughable. 730 ATM's is equivalent to one plane landing and then taking off per day.

	Freight			Passengers			Totals		
Year	atms	Tonnage	average per atm	atms	Numbers	Avg per atm	Atms	Planes	Planes per week
1990	105	2068	19.70	342	18608	54.41	447	224	4.3
1991	187	2925	15.64	86	4414	51.33	273	137	2.6
1992	155	1938	12.50	91	6459	70.98	246	123	2.4
1993	152	2204	14.50	130	7810	60.08	282	141	2.7
1994	203	5326	26.24	53	3382	63.81	256	128	2.5
1995	227	5073	22.35	49	2523	51.49	276	138	2.7
1996	92	1918	20.85	13	941	72.38	105	53	1.0
1997	68	2206	32.44	62	2936	47.35	130	65	1.3
1998	223	5655	25.36	46	2269	49.33	269	135	2.6
1999	700	22785	32.55	46	1511	32.85	746	373	7.2
2000	920	32239	35.04	64	7594	118.66	984	492	9.5
2001	911	35521	38.99	26	5761	221.58	937	469	9.0
2002	800	32240	40.30	5	52	10.40	805	403	7.7
2003	1081	43026	39.80	25	3256	130.24	1106	553	10.6
2004	730	26626	36.47	2603	100592	38.64	3333	1667	32.0
2005	177	7612	43.01	4454	206875	46.45	4631	2316	44.5
2006	322	20841	64.72	139	9845	70.83	461	231	4.4
2007	444	28371	63.90	164	15556	94.85	608	304	5.8
2008	412	25673	62.31	128	11625	90.82	540	270	5.2
2009	485	30038	61.93	96	5335	55.57	583	292	5.6
2010	491	28103	57.24	660	25692	38.93	1151	576	11.1
2011	389	27495	70.68	1083	37169	34.32	1472	736	14.2
2012	432	31078	71.94	255	8262	32.40	687	344	6.6
2013	511	29306	57.35	1129	40143	35.56	1640	820	15.8
2014	229	12696	55.44	392	12385	31.59	621	311	18.3

	Only 4 times in the 25 years of CAA statistics did Manston achieve more than this. In 2013 when Azimuth state it was 5th busiest freighter airport in the UK it was handling less than one plane per day. It is impossible to viably operate an airport at this level.
7.3.3	This is not consistent with RSP's DCO application which has a much higher number of cargo stands.
7.3.4	How much money have RSP allowed within their appraisal to fund off site traffic improvement measures? If they have not included anything who will fund this ?
7.4.1	How will the expansion plans at Stansted, Heathrow, Gatwick and Luton impact the timing of any airspace changes ?
7.4.4	At what height will fully laden freighters be at over Ramsgate during take-off and landing ? How wide will the Public Safety Zone be. There seems to be no mention of this in Azimuths reports which is a surprise given that dedicated freighters have a significantly worse safety record than passenger planes.
8.0.1	There is no evidence of capacity constraints impacting freighters.
8.0.2	Azimuth make no attempt to address the question of why no major freight forwarder or aggregator chose to operate from Manston when it was open and when its operators were crying out for customers. Particularly if it actually has all the advantages that Azimuth would seek to confer on it. It is not credible to simply blame lack of investment as investment would have been forthcoming if the customers had been available.
8.0.4	A partial and misleading quote from KCC's report on Manston. It actually went on to conclude: "The truth is that Manston has failed over a prolonged period of time to run as a commercially successful airport. Kent County Council gave strong support to various investors but the reality of commercial aviation at Manston Airport led to very significant losses. In fact, in the 16 years since it was taken into privately ownership it has incurred losses by those who have tried to operate it in excess of £100 million" "RiverOak has not managed to convince Thanet District Council that there is a viable business plan. We believe the new owners have got a credible plan and the financial ability to create substantial numbers of new jobs which will bring prosperity and economic growth to East Kent."
8.4.6	It is wishful thinking that a reopened Manston could provide an alternative to Schiphol – even before the impact of Brexit. One is a huge international hub with massive connectivity. One is not.
8.5	The potential tax benefit of Enterprise Zones were all there at the point Infratil sought to secure a sale of the airport. They did not prevent the airport being sold for £1.
9.0.6	Stansted, Luton and Bournemouth all have freight capacity now which is not being used. Runway 3 at Heathrow will provide a massive boost to UK plc air freight capacity hence the capacity in the South East is likely to expand significantly faster than the actual air freight market. This is notwithstanding that East Midlands and Birmingham would always be more attractive freight locations as Manston for any shipper north of London.

Volume 2 - A Qualitative Study Of Potential Demand

Azimuth's decision to choose a qualitative approach to establishing viability and demand patterns is wholly inappropriate for the type of investment decision that is being made. The decision to ignore current and historic trends for air freight in the UK is simply wrong and inexplicable.

Azimuth's justification seems to be that freight forecasting is difficult. So they shouldn't try. Historically all air freighter forecasts have been optimistic.

Any investor will need to establish the baseline size of the market that they are competing within, the potential of that market to grow and the ability of the competing and existing airports to satisfy the likely demand.

Absolutely no attempt has been made by Azimuth to do this. Likely because the trends, clearly evident with the CAA's UK air freight statistics, are diametrically opposed to the justification made for re-opening Manston.

Instead Azimuth have opted to conduct interviews with a selection of interested parties who either have some form of historic connection to Manston airport or have a vested interest in it reopening. No conclusions can be reached on the market for Manston from this form of analysis and this set of interviewees. Not one of the interviews has the ability of making Manston a viable proposition.

The use of Frankfurt as a supporting argument for Manston is surprising and irrelevant. Frankfurt is a 4-runway hub located in the heart of industrial Europe, adjacent to a major city, which serves as the main hub for Germany's flag carrier and with each of its runways longer than Manston's. Even with these advantages Frankfurt achieved **only 21,145 freighter flights in 2017**. Down 1.5% on 2016. If an unconstrained airport at the heart of industrial Europe is experiencing falls in freighter numbers it suggests that something more than perceived South East England capacity constraints are driving the UK air freight market.

This trend at Frankfurt seems to have continued into *2018; "Cargo volumes at Frankfurt Airport fell by 6.4 per cent in July due to fewer freighters and less freight being shipped in passenger aircraft. The German airport handled 175,960 tons, the lowest figure in July since the 2009 financial crisis, mainly due to the number of freighter aircraft operating from Frankfurt, with flight numbers down 3.1 per cent." Air Cargo Week August 2018.*

Throughout all their reports Azimuth seek to make much of the trucking to and from airports as being the untapped opportunity that is being lost to the UK to justify their position on Manston. From an Azimuth perspective this is a very convenient argument to run as it requires no evidence. However, it misses the point that trucking is always an intrinsic part of the end to end journey for all freight. Flying is simply the bit in the middle. As a truck can drive almost 1,000km in a day there is a very large radius from any destination airport from which same day delivery is possible. Decisions to truck back and fore across the channel will be driven by the most efficient way of delivering what is being carried what and where the end customers are.

Azimuth stated there is the potential to attract an integrator to Manston. No evidence has been provided to support this – and it would appear highly unlikely as (i) the UK is already well service by all integrators who are well established and heavily invested in airports in the centre of the country (ii) Manston's remote geographic location does not meet the criterial that have been identified by integrators.

York Aviation's report for SHP concludes the following:

"Manston is too peripheral for integrator operations serving the UK. Integrators have a strong preference for locations more centrally located in the UK with good road access to all of the major markets. The availability of land for warehouses, for example as suggested in terms of the use of the 'Northern Grasslands' part of the overall Airport site, is far less important than a location central to the market and the availability of good road access, neither of which are characteristics of Manston. It is simply in the wrong place to serve the market being located at the far south east at the end of a peninsular, away from the main centres of population and distribution in the UK."

While AviaSolutions for TDC concluded similarly:

"We consider the geographic location of Manston precludes it from being a suitable base airport for an integrator in particular when compared to UK competitors such as East Midlands Airport. "

Given these repeatedly stated conclusions about the incompatibility of Manston's location with integrator/express freight operating models it seems very surprising that c50% of Azimuth's forecast ATM's are either integrators or express freight operators (Amazon, DHL and Fedex etc).

Azimuth also claim potential opportunities to attract low cost passenger operators – but provide no evidence of any commitments. There is simply not the population density within East Kent to support a diverse mix of destinations given the proximity of other airports and low cost operators will not want to cannibalise revenues from existing operations.

Azimuth conclude there is "little doubt" that Manston is needed. But they provide no evidence in support of this. Manston Airport has now been closed for nearly 5 years and its absence from the UK's aviation infrastructure has had zero impact on aviation in the UK. It is unlikely that any future reopening would change this.

The following table provide detailed comments and questions around the Azimuth report against specific clause refences that should be considered.

1.3.2	Azimuths statement that *"Every effort has been made to ensure the robustness of this study"* is simply not true. Firstly, York Aviation have repeatedly disputed Azimuths interpretation and conclusions that are based on their historic work. Azimuth have made no attempt to provide additional supporting evidence to back up their assertions or to justify their approach. Secondly key data sources and trends are not analysed or considered. The CAA statistics provide massive amount of data on cargo, flights, loading and type of planes and show consistent long term trends. None of which is addressed by Azimuth as they represent a pretty "inconvenient truth" for the conclusions they are trying to justify.
2.5	As previously stated generally global trends in FTKs are not relevant to the UK market or the number of ATMs.
2.6.4	Azimuth state that freighter flights are not modelled in detail but the DfT did consider their position enough to reduce their 30-year forecast from growth of 0.5% annually to no growth at all over the period. As outlined above each iteration of freighter ATM forecasts for the UK have proved to be over optimistic and have been downgraded in subsequent iterations.
2.17	None of these factors are evident in Azimuths approach.
3.4	The entire edifice of Azimuth projections are based on these 24 interviewees. Of these 13 have obvious historic links with Manston Airport or RSP's current bid and 7 are quangos, trade and policy associations. This cannot be the basis of any demand forecast. Does the Examining Panel have any precedent where the viability of a £300m projects is supported by local interviewees?
4.1.11	I have discussed this point with the CAA. They claim the security weaknesses outlined are not true.
4.2.31	Manston historically invested in an equine unit to try and capture some of the horse transportation business for the 2012 Olympics. It was never used.
4.2.51	This makes the point about air freight very clearly. Even with a great location Leipzig was a lossmaking airport until DHL made it their European Hub
4.2.56	The average load on a freighter in Frankfurt is 61 tonnes. These are full transcontinental planes flying to central Europe then trucking the contents onward to destinations on the continent and beyond (and the reverse is true for export). This type of shipping does not need night flights. This is not the market that Manston is seeking. Also, it illustrates that RSP/Azimuth's use of much lower loads per ATM are deeply questionable.

	Azimuth/RSP are only assuming an average of 19.8 tonnes per ATM by year 20 at a reopened Manston. This compares to the historic loads at Manston in its last full year of operations of 57.3 tonnes per ATM (bearing in mind that as Manston was primarily an import only destination this number is averaged over all the flights that left empty - where planes were carrying freight the tonnage per ATM was >90 tonnes). It would appear that Azimuth are artificially depressing the load carried per flight to boost their forecast ATM numbers – and make the DCO test easier to meet.
4.4.8	It is very unlikely that KLM would return to Manston unless they are heavily financially incentivised. The previous flight rotations were never more than 50% full during their year of operation and do not represent a financially viable use of their resources. There is just not enough local catchment to support flights. *"In 2013 KLM started passenger flights to Schiphol Amsterdam. However, over its 12 months of operation its seventy eight seat Fokker planes were less than half full (42 per cent of capacity). KLM operations at Manston made no significant financial contribution to the cost of running the airport." KCC Manston Report*
4.4.10	There is no evidence for RSP's discussions with Ryanair. RSP should be made to publish relevant correspondence given that Ryanair have declined to fly from Manston in the past. Ryanair declined to comment on their interest when given the chance; "While we are always interested in new routes, we don't comment on speculation."
4.4.11	The point that is being made about Easyjet entering the long-haul market is wholly speculative with no evidential support. The aviation market remains intensely competitive with pressure on revenues and costs. Recent aviation failures (eg Monarch), the uncertainty around the future of airlines such as Norwegian and FlyBe and statements from Ryanair around closing operational bases serve to highlight this point. There is now widely perceived to be too much capacity in this low-cost sector and operators are retrenching to more profitable routes.
4.4.15	No evidence for this. Demographics of Thanet have not changed since it was open. Population cannot support this type of aviation.
4.4.15	There is no Chinese demand or need for direct flights to Manston. Edinburgh, Glasgow, Manchester, Birmingham, would all be much higher up the preference tree.
4.4.19	These infrastructure improvements will work both ways and will also make it easier for residents of Kent to get to better connected airports than Manston could ever hope to be.
4.5.2	This has nothing to do with a DCO.
5.1.2	See comments about Frankfurt above Manston cannot provide the same sort of offer as Frankfurt. Indeed, not clear there is any demand for such an offer in the UK as the potential cargo catchment around Frankfurt in mainland Europe is 9x that of the UK.
5.1.3	While it is possible that freight can get bumped from belly hold - given the frequency and volume of long-haul passenger flights from Heathrow there will not be much of a delay before it can get placed on the next flight. This compares to the case where shippers would have to wait for a much more infrequent cargo flight to the same destination. As previously stated it is cost and convenience that drive the air freight volumes through belly hold.
5.1.4	From conversations with the CAA this does not appear to be true.
5.1.5	It is equally possible (and probably more likely) that Runway 3 is not immediately filled to capacity with passenger planes and that it sucks in freighters from the rest of the UK so they can

	benefit from the huge cheap belly-hold connectivity that Heathrow offers and the investment in existing distribution networks.
5.1.10	From conversations with the CAA this does not appear to be true.
5.1.12	There is no expectation anywhere in the aviation market that envisages a reducing role for belly hold freight. The Economist Article below outlines the core issues. Some aspects of the market have moved since 2016 but the core fact remains that belly hold capacity, with its material cost advantages is growing faster than user demand. In the UK where we have rapidly increasing long haul routes this is truer than is the case for the rest of the world. Too little freight, too much space *Overcapacity hits another part of the transport industry* Economist Print edition | Business Mar 19th 2016 | BERLIN AND CASTLE DONINGTON, ENGLAND TO BRITISH holidaymakers flying from East Midlands airport, near the quiet English town of Castle Donnington, it seems like any other small airfield. But after dark, when the last passengers have departed, it begins to buzz with activity as Britain's second-biggest air-cargo hub. Freighter planes arrive throughout the night at a dedicated terminal for DHL, a German logistics giant, to be serviced by an army of fluorescent-yellow-clad workers. Some planes are stuffed full of fish from Iceland, others with parcels from places as far-flung as rural Pakistan and the Pacific islands. Although East Midlands airport is bustling, and the global air-cargo business now handles more than a third of world trade by value, the industry has been under pressure since the financial crisis. At the World Cargo Symposium, a meeting of industry bigwigs in Berlin this week, there were grumbles that their business has seen better days. The volume of goods travelling by air has risen marginally over the past year but airlines' cargo revenues have fallen from a peak of $67 billion in 2011 to around $50 billion a year now. Freight provides just 9% of total airline revenues now, down from over 12% a decade ago. A dramatic fall in sea-freight rates—of more than 75% since 2012 on some routes—as a result of overcapacity among shipping lines has encouraged customers to switch from sending some non-urgent deliveries by air. Excess capacity among the airlines themselves has done further damage. Since the financial crisis, there has been no let-up in the growth of passenger demand, so carriers have been expanding their fleets. This means the amount of cargo space in the belly of passenger planes has risen sharply. Combined with flat demand for shipping by air, the result is that average capacity utilisation across the air-cargo business has fallen to 43.5%, the lowest since the crisis. So, customers have been able to demand big price cuts. Some all-cargo airlines have gone bust in recent years, and other carriers with big cargo divisions have been suffering, despite the fall in the cost of jet fuel. Last August, for instance, Midex, at one point the largest all-cargo airline in the Middle East with a ten-strong fleet of freighters, closed down. Lufthansa Cargo, the freight division of Germany's largest airline, slipped into loss last summer. South America's largest airline, LATAM, reported a 27% year-on-year fall in cargo revenue for the fourth quarter of 2015. LATAM has responded by cutting its use of freighter planes to focus on belly-hold cargo. IAG, the owner of British Airways, now looks prescient for having got rid of its freighter fleet altogether. There are some routes on which there is more cargo than the passenger aircraft flying them can handle, says Andrew Herdman of the Association of Asia-Pacific Airlines. Exports from Africa to Europe and mainland China to America are more significant than passenger flows between them. Long journey times across the Pacific mean that many passenger aircraft do not have the range to take off with a full hold. Even so, airlines operating freighters are being squeezed into such niches by the expansion of integrated logistics businesses such as DHL, FedEx and UPS. These firms, with their vast fleets of

	planes, lorries and vans, and their highly efficient distribution centres, are sucking up much of the business from e-commerce companies. FedEx said this week that net profits in its most recent quarter were up 18% year-on-year, beating expectations. Even the logistics giants may soon see their businesses disrupted. This month Amazon, an e-commerce giant, said it would lease 20 Boeing 767 jets for its delivery service. That should have caused some concern at DHL, which currently makes a quarter of its revenues from shipping Amazon's packages, according to analysts. Though plane makers continue to enjoy strong demand for passenger aircraft, weak sales of cargo planes are forcing them to re-examine their freighter programmes. Airbus has put on hold its plan to launch a freighter version of its A380 superjumbo. Sales of the latest freighter version of Boeing's jumbo, the 747-8F, have disappointed since it entered service in 2011. Analysts used to think there was a case for a further update to the 747 freighter, to replace planes that will be retired in the 2020s—but now there is much scepticism. Because of the weak oil price, some elderly, fuel-guzzling freighters have continued to fly, or even been brought out of retirement, which is further reducing the demand for new freighters. However, the sharp fall in air-cargo rates is likely to hasten the decommissioning of many 747s, and the replacement of these four-engined jets with more efficient, two-engined Boeing 777s. And since no one is ordering passenger versions of the 747, Boeing is now losing money on the whole programme. The downturn in the air-freight market has spelled doom for several cargo airlines; it may also be the final blow for the venerable jumbo jet too
5.1.13	Simply put Manston had a good turnaround time due to the fact that it handled less than 1 flight per day.
5.1.14	There may be some flight time benefit to Manston From planes that approach from the direct South but flights from North America, South America, the Far East would likely be longer as they have to overfly other UK airports. So how much of the current market would that provide an advantage to ? RSP need to quantify this. These perceived benefits were available to Manston before and did not help it secure sustainable levels of business or compete effectively with other airports.
5.2.2/5.2.5	Each of the air freight market sectors has to analysed in terms of (i) current ATM's and tonnages, (ii) where current flights are flying to and from, and (iii) why and how much or the sector would choose to relocate to Manston. Without this type of analysis the statements made by Azimuth are meaningless.
5.2.6	Each integrator has already made very substantial financial commitments to their existing operations in the UK and there is no evidence they need additional facilities. Why would the forfeit their investment at other airports to relocate to a less favourable location. East Midlands has massive property development potential around its airport and is at the heart of the UK's distribution networks – which will improve even further with HS2. Manston simply cannot compete with its offer.
5.3	All of this section is entirely speculative and has no relevance in assessing viability. It is no more than wish list of potential operations with zero evidential base. On the positive site Azimuth have removed the previous references to Manston becoming a space port.
6.0.2	Many airports around the UK have this potential. Potential is not enough. However, unlike Manston they have proven to be viable over an extended period of time. Manston never made a profit from operations in any of its 15 years of private ownership. If it had, it would still have been trading today.

6.3.3	There is no objective evidence of widespread support for RSP. There seems to be as many locals who are opposed to the airport as are in favour of it. The submission to the Planning Inspectorate and the statements made to the DCO Examiners support this.

Volume 3 – The Forecast

The 3rd volume of Azimuths report details the flight forecasts that claim to support RSP objectives for Manston is subject to all the same criticisms as the first 2 volumes detailed above; it continues to repeat un-evidenced assertions as fact, is selective and partial in quoting from statistics and provides no empirical evidence to support its conclusions.

It does not, as it claims, provide "the necessary data to underpin the proposal to retain Manston as an airport".

This report (Volume 3) should be read in conjunction with the more detailed aircraft forecast that has been included in Appendix 3.3 of Amec Foster Wheeler's Environmental report that was submitted by RSP which contains spurious levels of detail of the types of planes and the operators that RSP hope to attract to Manston to support their business plan.

The inconsistency of Azimuth's reporting and analysis is demonstrated by that fact that in the first year of operations Manston would be expected to attract 3,224 express freight ATMs from DHL, Fedex and Amazon. Ignoring for the moment that fact that Amazon do not currently operate from Europe at all , have not expressed any intent to do so and the question over why they would ever choose Manston to do so in the future – Azimuth's own reporting makes is clear that Manston is not suited to express freight and integrator traffic. Why would these freight operators walk away from existing and material investments in operation and infrastructure at East Midlands and Stansted in order to utilise Manston?

Azimuth states again that a reopened Manston would provide "immediate relief to the pressing situation that is causing considerable loss of potential trade to the South East". The case for this is simply not made and is not supported by the evidence either within the CAA statistics surrounding freighter ATMs or the DfT's expectations of the usage dedicated of air freighters in the UK.

By the 4th year of operations Azimuth's forecasts anticipate that Manston would capture around a third of all current international freighter flights in UK. This is scarcely credible in its own right but do so with only day time flying, without night flights as is promised by RSP makes their arguments untenable.

Azimuth go on state that "Manston Airport is also at well located to play a vital role in the supply chain…" and the that the opening of Heathrow's third runway "will not hamper Manston's viability". Repeatedly making these statements without a shred of supporting evidence does not make them true. Heathrow's expansion will immediately add 50% of capacity to current UK air freight volumes. How can this be presented as not having a fundamental and wide reaching impact on the UK's air freight market ?

The following table provides detailed comments and questions around the Azimuth report against specific clause refences that should be considered.

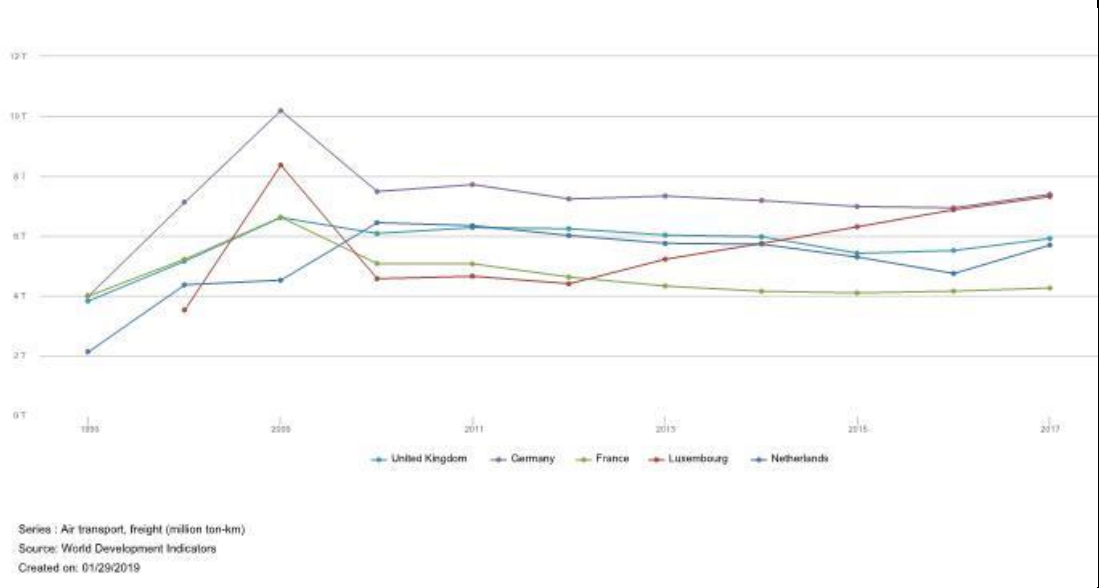
1.1.1	Azimuth keeps repeating the assertion that there is unmet demand for freighter slots in the South East. This assertion is not evidenced and goes against the available statistical evidence published by the CAA which shows freighter numbers falling. More tellingly the monthly CAA stats also show that where the number of passenger flights reduce during the winter season the freighter numbers do not expand to fill this void of available landing slots. This is particularly surprising as if Azimuth's argument had any basis on fact then you would expect that freighter ATMs would significantly increase in the run up to Christmas which is their busiest period of the year. They do not. Azimuth states they "may" have to be trucked to Europe. Conjecture is not evidence.
1.1.2	It is simply not true that a qualitative approach to forecasting is considered more accurate than and an empirically cased approach. Azimuth's approach is based on anonymous parties who claim to

	have a potential interest in Manston. It is not clear that any of these parties actually have any ability to influence traffic to and from Manston. No weight can be place on unevidenced conversations with anonymous sources.
2.1.2	The conclusions that Azimuth draw from the list of forecasting methodologies they have considered does not support the choice of approach that Azimuth has made. Whereby a purely qualitatively based approach, with no anchor in either the current UK freight market or the historic performance of the airport at Manston, has been adopted.
2.1.4	No attempt is made by Azimuth to explain why this approach is most appropriate for a closed airport. They seem to have spoken primarily to local stakeholders who have proved in the past to be insufficient to support a viable aviation business at Manston.
2.1.5	No detailed market assessment has been provided by Azimuth. By their own words does this not negate their own analysis? In order to properly understand where you are going you need to have a full understanding of where you have been and the markets you are trying to capture. Azimuth have made no attempt to do this.
2.1.6	No objective value can be ascribed to a statement that a report has been peer reviewed by its own advisory team. What consultation was the methodology subject to ? This is not disclosed in RSP's submissions ? What was the feedback from this consultation ? No evidence of peer review has been provided in any event. What advice has been provided by Loughborough University? This should be included in RSP's submission so that the Panel is clear on the scope and outcome of the peer review.
2.1.7	Are the interviewees representative of Manston's target market? Many of these interviewee's are public sector or trade bodies rather than users. Hence, they have very limited relevance in relation to either re-establishing the airport or establishing the market potential.
2.1.8	There is not enough detail provided in relation to the potential freight market that Manston could serve (current volumes, routes and ATMs) to come to any view as the appropriateness of Azimuths freight forecast. How can this be correct when Azimuths forecasts are so out of kilter with the wider market. Why has this underlying detail behind Azimuth's assumptions not been provided?
2.1.10	Azimuths statement here around demand growth growing faster than capacity seems to be in direct conflict with IATA's Nov 2018 report (extracts below) which reports that FTK growth has fallen markedly in the 11 months to Nov 2018. Again for the reason outlined above FTKs bear no relation to ATMs. ***"Capacity growth outpacing that of demand*** *Available freight tonne kilometres (AFTKs) rose by 4.3% year-on-year in November – the ninth consecutive month in which annual capacity growth has outpaced that of demand. As a result the industrywide freight load factor fell by 2.2 percentage points relative to November 2017.* ***…as European FTK growth stagnates*** *Year-on-year growth in international FTKs flown by European airlines fell to zero in November, down from 1.6% in the previous month. Traffic is still trending upwards in SA terms but only at a very modest pace. This corresponds with wider weakness in European manufacturers' export order books, particularly in Germany. (Again, see Chart 3.)* This is another example of Azimuth being selective with historic reports and statistics rather than properly reflecting the underlying performance of the sector.
2.1.13	Azimuth are strangely silent on the number of freighter ATMs within the (highly relevant) London system as the CAA statistics do not support their argument (CAA data extracted below). Freight ATMs fell overall in London in 2017 - in total and in all airports other than Heathrow and again in

	2018. This is surprising given Azimuth's repeated position that there is huge unmet demand and that in 2017 air freight reached its capacity. This fact alone highlights the fundamental disconnect between ATMs, FTK's and volumes. **2018. This is surprising given Azimuth's repeated position that there is huge unmet demand and that in 2017 air freight reached its capacity.** **This fact alone highlights the fundamental disconnect between ATMs, FTK's and volumes.**

	2018 ATMS	2017 ATMS	2016 ATMs
Gatwick		1	0
Heathrow	2,731	2,971	2,452
Stansted	9,478	10,126	11,246
Luton	1,585	1,490	1,778
Total	**13,794**	**14,588**	**15,476**
www.caa.co.uk Airport Data. Table 6: 2018 figures are the sum of monthly statistics			

2.1.14	What other evidenced based reports are Azimuth referring to here ? It is not clear. Do they mean their own reporting ?
2.2.2	These "push" and "pull" factors are wholly speculative and cannot be quantified or evidenced. It is not clear that Manston would be an obvious answer for any of them given its location, in what could be post Brexit, an increasingly congested part of the country .
2.2.3	Azimuth's conclusion that it seems "likely" that the freight business model that preferences the flexibility and cost of belly hold will change is a wholly unevidenced assertion and is out of kilter with the industry, aircraft manufacturers and market trends. Simply put there is no evidence for it. This begs two obvious questions: (i): Who else supports this view ? and (ii): if it does not come to pass what is the impact on Azimuths projections ?
2.2.5	How many UK cargo ATMs are used in each of these sectors currently ? What routes are flown ? What volumes are carried by dedicated freighters ? Why would Manston be chosen in preference to existing providers?
2.2.6	No weight can be given to unevidenced confidential discussions with potential users. On what basis would they be prepared to use Manston, how much would they be prepared to pay and how much of their business would be transferred from other airports in the UK.
2.2.9	Historically Manston's backloads were nil as their business was importing fruit and veg from Africa. This is available in historic CAA statistics.
2.2.10	There are lots of potential costs here that RSP seem to be prepared to fund. But no detail of the levels of costs expected and how they have been incorporated into the business plan is provided. The questions that must be addressed are (i) how have the costs of switching for airline's to Manston been costed, (ii) what are they and (iii) how will they be funded by RSP? These costs will include the cost of unwinding long-term occupation leases at other locations. Such costs will have a real impact on cash flows and viability as, in what is a flat freighter market, substantial incentives will have to be paid to freight operators to "buy in" their business from other airports and move them to a sub optimal location such as Manston. Also, given that there are costs to move that will make operating from Manston fundamentally less efficient for operators (location and distance from distribution hubs) and their underlying customers why would they choose to locate there?

2.3.1	How does the opening of Runway 3 at Heathrow impact Azimuths analysis of Manston? This is not considered anywhere in the reporting. Runway 3 at Heathrow will introduce a sudden step change in UK freight capacity which, if opened when planned will drive down UK freight rates in 2026. RSP are wholly silent on this and do not consider how it would impact the freight market or their view of demand for Manston. Give that the likelihood that even if the DCO were successful Manston could not be reopened before 2023 the prospect of Heathrow doubling its freight capacity would have a material impact on the security and level of revenues generated at Manston.
2.3.3	Not clear what point Azimuth are seeking to make here. It is clear from the quote that belly hold capacity was growing at over 3x the rate of large freighters over the period increasing price pressures on dedicated freighters Boeing's fleet forecast (for all manufacturer) expects the number of wide body freighters globally to increase from 1,170 in 2017 to 1,980 in 2037 (a compound growth rate of 2.7% per annum) and also predicts that the numbers of widebody passenger plane will grow from 4,290 to 9,130 (a compound growth rate of 3.8% per annum) over the same period. From this growth rate and the underlying number of widebody passenger jets it is clear that growth in belly hold capacity is expected to outstrip freighter capacity over the long term. Figures from: *https://www.boeing.com/commercial/market/commercial-market-outlook/*
2.3.4	As previously stated FTK's have no bearing on airport capacity or ATMs. The graph below from data from the World Bank shows that FTK trends into the UK have been broadly consistent with the trends in the other large European economies. This is in no way consistent with the Azimuth argument that freight is being depressed in the UK due to lack of capacity. If that was the case, you would see significant divergence in the trends between countries. This is not evidenced. *https://databank.worldbank.org/data/reports.aspx?source=2&series=IS.AIR.GOOD.MT.K1&country=GBR#*  Many of the references used by Azimuth in this clause are significantly dated and should be updated for current market information.
2.3.6	The increased freight tonnage in the UK between 2011 and 2016 referred to by Azimuth was carried on fewer planes. In 2011 there were 55,238 freighter flights in the UK whereas in 2016 this had fallen to 51,863. Of this total Manston catered for 389 cargo flight (down from 491 in 2010) – less than 1% of the UK freighter ATM's.

	Azimuth need to focus on the ATM impact as it is that which impacts airport utilisation. *Data from www.caa.co.uk* Azimuth call into question the DfT's zero growth forecast in freighters as being unreasonable but provide no evidence to justify this position. Advancing entirely speculative arguments surrounding the potential consequences of Brexit to support this assertion. As before the use of FTK's is not appropriate.
2.3.7	In the period that Azimuth quote as there being an 8% increase in freighters the tonnage carried in the UK by air freighters fell from 720,740 to 687,911. Again, this shows that Azimuths arguments are not consistent with that facts on the ground or the growth story for dedicated freighters that they are trying to portray. The facts of the market have to matter. www.caa.co.uk
2.3.8	Its good to know that Azimuth have chosen not to incorporate what are currently imaginary aircraft into their speculative projections.
3.0.1	No evidence of the size of the markets that Manston will attack has been provided by Azimuth. They need to present how large each current market segment is in both tonnage and freighter ATM's and where these flights currently operate from. Specifically, what is the market for fish and shellfish and how will it be approached? At the moment they largely go through belly hold in Heathrow due to the massive and consistent connectivity. Manston could not ever hope to offer this.
3.0.2	Why is Manston well placed for luxury cars and formula one? It is far from centres of production and racetracks? How many flight are year are there in this segment?
3.0.3	What revenues have been assumed from aircraft recycling? What operational model has been assumed? What are the environmental risks ?
3.1.1	Unless specific carriers have contracted with RSP to use Manston in the future providing forecast movements by carrier is simply an attempt to provide spurious detail which does not exist.
3.1.2	Why has Viscount's work and credentials not been presented as part of RSP's DCO application? Why not ?
3.1.3	This is not what York Aviation said. York's reports should be read in full.
3.2.2	Azimuth consider that Manston will service 211,000 tonnes of dedicated freight in its 10th year of operations. This is more than 50% of what is currently carried in the London system of airports. This is frankly an absurd growth assumption. Why has Viscount's analysis of this not been provided?
6.0.2	No evidence has been provided that Manston is the only , or even a, viable option for aviation in the south east. RSP/Azimuth have provided no detailed financial analysis which supports this statement . At the current level of detail no conclusions can be reached as to the viability of their proposed scheme or how the various individual revenue generating components will interact. There is not even enough detail to frame pertinent questions.

Appendix A: Data & Charts Illustrating Airport Seasonality

	Heathrow			
	Days	Passenger	Cargo	Total Flights
Jul-17	31	41,574	268	41,842
Aug-17	31	41,745	237	41,982
Sep-17	30	40,622	253	40,875
Oct-17	31	41,084	257	41,341
Nov-17	30	38,429	283	38,712
Dec-17	31	38,784	246	39,030
Jan-18	31	37,810	251	38,061
Feb-18	28	35,035	232	35,267
Mar-18	31	39,773	274	40,047
Apr-18	30	39,423	247	39,670
May-18	31	40,962	255	41,217
Jun-18	30	40,094	247	40,341

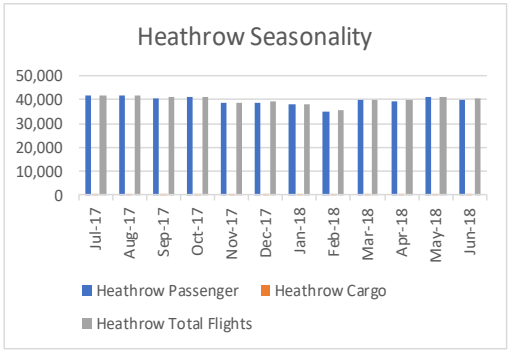
	Passenger ATMs Per Day	Cargo ATMs Per Day	Total ATMs Per Day
Jul-17	1,341.1	8.6	1,349.7
Aug-17	1,346.6	7.6	1,354.3
Sep-17	1,354.1	8.4	1,362.5
Oct-17	1,325.3	8.3	1,333.6
Nov-17	1,281.0	9.4	1,290.4
Dec-17	1,251.1	7.9	1,259.0
Jan-18	1,219.7	8.1	1,227.8
Feb-18	1,251.3	8.3	1,259.5
Mar-18	1,283.0	8.8	1,291.8
Apr-18	1,314.1	8.2	1,322.3
May-18	1,321.4	8.2	1,329.6
Jun-18	1,336.5	8.2	1,344.7
Max	1,354.1	9.4	1,362.5
Min	1,219.7	7.6	1,227.8
Average	1,302.1	8.4	1,310.4
Variance	134.4	1.8	134.7

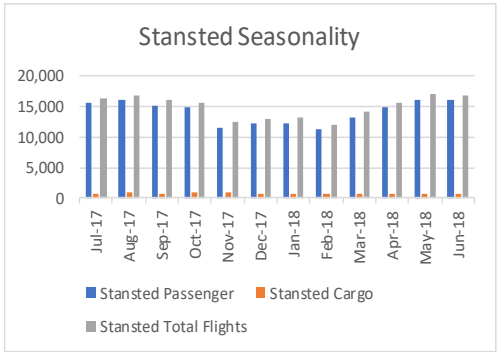
	Stansted			
	Days	Passenger	Cargo	Total Flights
Jul-17	31	15,516	794	16,310
Aug-17	31	15,966	833	16,799
Sep-17	30	15,119	805	15,924
Oct-17	31	14,804	830	15,634
Nov-17	30	11,595	963	12,558
Dec-17	31	12,136	781	12,917
Jan-18	31	12,307	822	13,129
Feb-18	28	11,168	748	11,916
Mar-18	31	13,180	824	14,004
Apr-18	30	14,787	748	15,535
May-18	31	16,079	817	16,896
Jun-18	30	16,034	801	16,835

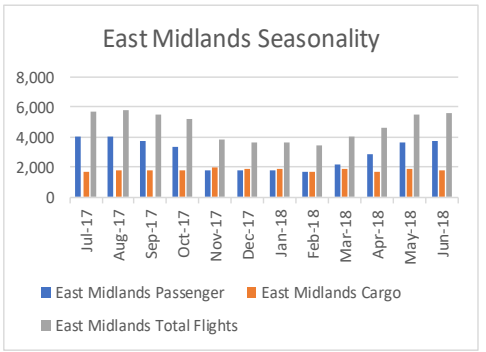
	Passenger ATMs Per Day	Cargo ATMs Per Day	Total ATMs Per Day
Jul-17	500.5	25.6	526.1
Aug-17	515.0	26.9	541.9
Sep-17	504.0	26.8	530.8
Oct-17	477.5	26.8	504.3
Nov-17	386.5	32.1	418.6
Dec-17	391.5	25.2	416.7
Jan-18	397.0	26.5	423.5
Feb-18	398.9	26.7	425.6
Mar-18	425.2	26.6	451.7
Apr-18	492.9	24.9	517.8
May-18	518.7	26.4	545.0
Jun-18	534.5	26.7	561.2
Max	534.5	32.1	561.2
Min	386.5	24.9	416.7
Average	461.8	26.8	488.6
Variance	148.0	7.2	144.5

	East Midlands			
	Days	Passenger	Cargo	Total Flights
Jul-17	31	4,021	1,665	5,686
Aug-17	31	4,020	1,770	5,790
Sep-17	30	3,754	1,754	5,508
Oct-17	31	3,409	1,806	5,215
Nov-17	30	1,827	1,998	3,825
Dec-17	31	1,824	1,851	3,675
Jan-18	31	1,778	1,861	3,639
Feb-18	28	1,732	1,733	3,465
Mar-18	31	2,195	1,877	4,072
Apr-18	30	2,908	1,704	4,612
May-18	31	3,614	1,894	5,508
Jun-18	30	3,753	1,848	5,601

	Passenger ATMs Per Day	Cargo ATMs Per Day	Total ATMs Per Day
Jul-17	129.7	53.7	183.4
Aug-17	129.7	57.1	186.8
Sep-17	125.1	58.5	183.6
Oct-17	110.0	58.3	168.2
Nov-17	60.9	66.6	127.5
Dec-17	58.8	59.7	118.5
Jan-18	57.4	60.0	117.4
Feb-18	61.9	61.9	123.8
Mar-18	70.8	60.5	131.4
Apr-18	96.9	56.8	153.7
May-18	116.6	61.1	177.7
Jun-18	125.1	61.6	186.7
Max	129.7	66.6	186.8
Min	57.4	53.7	117.4
Average	95.2	59.7	154.9
Variance	72.4	12.9	69.4







Commercial Viability of Manston Airport

AviaSolutions FINAL Report for Thanet District Council

September 2016

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A GECAS Company

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Glossary of Terms

- **Air Journeys:** Also referred to Journeys. A unit of measurement for the number of flights taken by passengers.
- **Air Traffic Movement:** Abbreviated to 'ATM'. Defined as an aircraft landing or taking-off for commercial purposes.
- **Belly-hold:** A term referring specifically to passenger aircraft (as opposed to freighters). This term refers to the hold of the aircraft that is utilised for the carriage of passengers' baggage and freight.
- **Capacity per ATM:** A unit of measure defined as the number of seats or freight capacity on each ATM. Often an average of a larger sample.
- **Capacity:** The total capacity of an airport or aircraft to transport passengers or freight.
- **Catchment Area:** Airports draw their passengers from within a catchment area. The size of the airport and its network affect the size of the catchment area. Typically, the smaller the airport the smaller the catchment area that it can draw upon.
- **Discovery Park Limited:** Also referred to as Discovery Park. An entity that is closely linked to Stone Hill Park Limited through shared ownership.
- **Freight per ATM:** A unit of measure defined as the number of tonnes of freight loaded on each ATM. Often an average of a larger sample.
- **Freight:** Also referred to as Cargo or Air Freight. This includes all shipments that are transported for commercial purposes on board the aircraft under an Air Waybill excluding 'Mail'.
- **Freighter:** An aircraft specifically designed for the transportation of freight. This type of aircraft has no seats fitted, and in their place, has a cargo hold.
- **Full Service Carrier:** An airline business model that includes carriers who have traditionally offered all services included in one ticket price. This includes carriers such as British Airways, Lufthansa, Air France-KLM and Virgin Atlantic.
- **IATA Airport Code:** A three letter code designated by IATA to many airports around the world. All major airports are assigned a code, the most commonly used in this report are.
- **Kent Airport Limited:** Formally Infratil Kent Airport Limited. An entity whose main purpose is the operation of Manston, Kent's International Airport.
- **Kent Facilities Limited:** Formally Infratil Kent Facilities Limited. An entity whose main purpose is the provision of facilities to the operator Manston, Kent's International Airport. This entity in effect owns the airport site.
- **London System:** Also referred to as London Area Airports. A term referring to six airports of London (LHR, LGW, STN, LTN, LCY, SEN).
    - London City - LCY
    - London Gatwick - LGW
    - London Heathrow - LHR
    - London Luton - LTN
    - London Southend - SEN
    - London Stansted - STN
- **Low Cost Carrier:** Abbreviated to LCC. Low cost carriers are one of the major airline business models. Major European LCCs include Ryanair, easyJet, Norwegian, Wizz, and Vueling.
- **Million Passengers per annum:** Abbreviated to mppa. A standard unit of measurement for airport capacity or throughput.
- **Narrow-Body:** A type of aircraft, typically distinguished as one which has a fuselage wide enough for one passenger aisle. Includes aircraft such as Boeing B737 series and Airbus A320 family.
- **Passenger Movement:** A unit of measure referring to the number of passengers arriving or departing from an airport.
- **Passenger:** Abbreviated to PAX. The fare paying passengers on board an aircraft. Excludes those travelling on non-revenue tickets such as airline employees.
- **Passengers per ATM:** Abbreviated to PAX per ATM. A unit of measure defined as the number of passengers carried on each ATM. Often an average of a larger sample.
- **Peak Demand:** The demand at its highest point for an airport. There are several forms of peak demand, these include a daily peak (often early morning) and annual peaks (often around holiday seasons).
- **RiverOak Investment Corporation LCC:** Also referred to as RiverOak. An American investment firm that is seeking to acquire the Manston Airport site.
- **RTK:** Revenue tonne kilometre. A unit of measure in the freight industry. Calculated as the tonnes uplifted multiplied by distance flown.

- **Stone Hill Park Limited:** Previously Lothian Shelf (718) Limited. The current entity that owns Manston Airport.
- **Unaccommodated Demand:** A term referring to the demand that cannot be accommodated at a particular airport or combination of airports due to it exceeding the capacity available.
- **Wide-Body:** A type of aircraft, typically distinguished as one which has a fuselage wide enough for two passenger aisles. Includes aircraft such as Boeing 767, 777 and 787 series and Airbus A330, A340 and A350 family.

1. Introduction

1.1. Context

Thanet District Council ("TDC") appointed AviaSolutions to provide independent advice on whether a re-opened Manston Airport might a have financially viable future as an operational airport.

The airport closed in May 2014 and the current owner, Stone Hill Park (formally Lothian Shelf 718), has submitted a planning application for a mixed-use development on the site, comprising 2,500 dwellings, general business and commercial areas which is reported to support the creation of up to 4,000 jobs, and a range of leisure and sports activities.

RiverOak Investment Corporation ("RiverOak") is an American investment firm that wish to acquire the Manston site and re-establish airport operations. The re-established airport would be freight focussed but would also offer passenger services along with ancillary businesses. RiverOak are seeking a Development Consent Order (DCO) under the Planning Act 2008 to compel the sale of the site as a Nationally Significant Infrastructure Project.

TDC is seeking guidance on whether the airport has a reasonable prospect of operating as a financially viable, standalone entity within the period of the Local Plan which extends to 2031.

AviaSolutions commenced this study on 13th July 2016.

1.2. Scope and Limitations

The scope of AviaSolutions work was set out in the procurement document issued in June 2016 by TDC and our proposal for services submitted in the same month. Specifically, the scope requested:

> "The Council requires an independent assessment advising whether or not it is possible to run a viable and economically sustainable free-standing airport operation from Manston. The Council is seeking advice from an independent expert aviation consultant who can make this assessment within the context of the national and international air traffic market, the viability of airport operations at a national and international scale and likely future developments in airport operations."
>
> *Source: TDC Briefing Document*

Our proposal and this subsequent report have been developed in the context of these requirements. It is therefore necessary to indicate specifically those areas which fall outside of the scope of our works, and to which we have given no credence in the application of our analysis. These areas include:

- Whether Manston Airport is an asset of national significance
- The effect of any scenario on the wider Kent economy, or subsequently the effect on the UK economy as a whole
- The legal, planning, environmental, or social effects of any scenario, or whether these elements would present any challenges
- The economic benefit or need for industrial or housing units in the Thanet area
- The comparison between any airport scenario and any other alternative use of the airport site
- Passing judgement on the use of the site beyond that of whether an airport may be viable
- We take a neutral view with regards to the local campaign groups, both those for and against the airport

It should also be noted that many of the stakeholders engaged by AviaSolutions sought to broaden the discussion to include a wide range of airport-related topics. Whilst this has provided useful context and highlights the political sensitivity of the airport, AviaSolutions study is restricted to commercial analysis and does not seek to provide any legal, environmental or socio-economic advice or comments.

1.3. Our Approach

AviaSolutions commenced the study with a review of the various documents that describe the history of Manston Airport, the local and national planning context and the current development proposals for the site. The two main aspects of our work however were seeking the views of stakeholders relevant to the specific topic of airport commercial viability, and an extensive analysis of the relevant air transport market.

In conjunction with TDC, we agreed the primary and secondary stakeholders to be contacted for this engagement. Our interview programme was not intended to canvass the views and opinions of the many parties and individuals with views, many strong held, about the airport and its future. It was intended to seek facts about its historic development and proposed future development from the two prospective developers (Stone Hill Park and RiverOak) and from a range of parties within the air transport and freight industries. It is these parties and their like who will determine whether commercial aviation activities could be viable on the Manston site. Whilst conducting these interviews, many companies and individuals spoke on the condition of anonymity.

Our analysis added to our existing knowledge of the air transport industry the specifics that are associated with Manston Airport, namely its historic traffic performance, details of its catchment area, and the experiences of previous airline and freight users of the airport. AviaSolutions has developed two models specifically for this study. The first assessed the capacity of six airports serving the London Area and how future passenger and freight traffic might be distributed between these airports including Manston, and the second was a financial model to assess the potential cashflow outlook for Manston Airport.

1.4. Report Structure

In this report, we first summarise the history of Manston Airport and describe the different visions of its future put forward by Stone Hill Park and RiverOak. We next describe different scenarios for possible air transport use of Manston Airport, before investigating the passenger and freight traffic potential of each scenario. We then describe our financial model, setting out the basis of our revenue and cost assumptions if Manston were to be brought back to use as an operational commercial airport. Finally, we bring together the different threads of our analysis and reach our conclusions on the financial viability of Manston Airport.

1.5. AviaSolutions' Qualifications

AviaSolutions has been appointed to provide an independent assessment of the prospects for Manston Airport. We are is an aviation management consultancy, established in 2001. In October 2012, GE Capital Aviation Services acquired 100% ownership, adding consultancy to the leasing business for which it is known. Since then, AviaSolutions has grown rapidly, building an airline business in addition to our traditional airport advisory services. Over the past 15 years AviaSolutions has earned a strong market reputation in a number of key areas:

- Airport Strategy and Support
- Airline Strategy and Support
- Airport and Aviation Transactions
- Air Service Development
- Regulation, Policy and Planning
- Passenger and Cargo Traffic Forecasting
- Route and Network Strategy
- Ground Handling
- Business and Commercial Advisory

2. Executive Summary

2.1. Summary

AviaSolutions was appointed by Thanet District Council ("TDC") to advise on whether viable airport operations could be re-instated on the site of Manston Airport. Following ownership by the Ministry of Defence, three separate private companies tried and failed to operate Manston Airport profitably and the airport closed in May 2014. TDC needs to prepare its next Local Plan looking forward to 2031, and has two proposals for the use of the site: an operating airport or a mixed residential, business and leisure development.

AviaSolutions has discussed the re-opening of Manston Airport with a number of organisations and individuals, and carried out a detailed assessment of the air transport market and the potential finances of a re-opened Manston Airport. On this basis of this work, we have concluded that it is most unlikely that Manston Airport would represent a viable investment opportunity even in the longer term (post 2040), and certainly not during the period of the Local Plan to 2031.

The assessment of financial performance of a re-opened Manston Airport is based on relatively favourable assumptions for Manston Airport. We would typically position the financial forecast as a 'High Case' as a number of tailwinds are required to deliver the financial forecast in terms of passenger and freight volume and the revenue yield that can be achieved. Throughout the research AviaSolutions has consistently taken a positive outlook with regards to the underlying demand assumptions. Specifically, this means that we have opted for the upper bounds of traffic, the upper bounds of unit operating revenue, the lower bands of unit operating costs, and minimal asset costs and capital investment requirements.

2.2. Background

Since the Ministry of Defence sold Manston Airport in 1998, three separate private sector investors have attempted to develop the airport as a viable commercial undertaking. These ventures have all been unsuccessful and have incurred substantial losses in the process. The airport closed in May 2014. TDC has undertaken extensive exercises to find new investors prepared to re-open the airport, but has failed to identify an appropriate party. One interested party, RiverOak Investment Corporation LLC ("RiverOak"), has though emerged from this process, and is interested in acquiring the site and developing Manston Airport as a freight airport. RiverOak has been critical of previous owners, considering that they were not sufficiently active in seeking to develop and market Manston as a freight airport. In contrast, the current owner of the site, Stone Hill Park Limited ("Stone Hill Park"), has brought forward plans to develop the area for mixed residential, employment and leisure uses. TDC has identified a need to understand whether an airport would be a viable use for the site, and whether there is a reasonable prospect of that occurring within the period of the Local Plan to 2031.

2.3. Historic Performance of Manston Airport

During its years of operation as a commercial airport, Manston had a range of air services to domestic and short haul Europe points, and handled around 30,000 tonnes of freight a year, almost exclusively imports of fresh produce coming on dedicated freighter aircraft. The scale and nature of the passenger traffic suggests that Manston has relatively few air journeys originating or destined for a catchment area of East Kent that it might reasonably be expected to serve: we estimate that demand from this catchment area is about a third of the size of the demand in a catchment area of Southend Airport. While we consider that a re-opened Manston Airport would attract some passenger services and regain freighter operations at a level similar to its historic performance, our financial assessment is that this would be insufficient to support financially viable operations of the airport.

2.4. Manston as an Overflow Airport for London

Manston is located in the South East of England, where there is a need for additional runway capacity. This issue has been researched extensively over recent years, including the Davies Commission which recommended in 2015 that a third runway be constructed at Heathrow. A decision on the new runway

capacity is expected to be made in October 2016. In addition to the recommendation for Heathrow, Davies also considered a second runway at Gatwick, opening up the possibility of alternative decisions, including of course that either both or neither runway may be approved. We have developed a detailed model of how future passenger and freight demand might be distributed around the six airports in the London area under different airport capacity scenarios, in order to assess how much unaccommodated demand would be generated by 2050. We have also assessed how much traffic might be attracted to a re-opened Manston Airport.

These traffic estimates have been inputs to a financial model which AviaSolutions has developed to assess Manston's viability to 2050. We have based our estimates of unit aeronautical revenue, commercial revenue and operating costs on those levels achieved at other UK airports of a similar scale to that projected for Manston. We have also assumed that the site could be acquired for £10 million, and that further capital expenditure of £27 million would be required to re-commission the site as a licensed commercial airport. We further assume that the business is financed initially through an equity injection from shareholders of £50 million with no debt funding.

The scenario recommended to Government by the Davies Commission is the construction of a third runway at Heathrow. Under this scenario, the forecast passenger traffic at Manston would initially grow to almost 2.5 million passengers per annum (mppa) immediately before the opening of the third runway in 2030, but would fall materially afterwards. Retained earnings would not become positive until around 2040, preventing payment of dividends to equity investors until around that date. EBITDA margin would become positive in the early 2030's and grow and reach 41% by 2050. On this basis, we would very much doubt that an informed private sector investor would consider an equity stake in Manston Airport.

The scenario which most supports the re-opening of Manston Airport is one in which no new runways are built in the South East of England in the period to 2050. In this scenario, forecast operating cash flow of Manston Airport is negative until 2025; re-financings of £20 million are required in both 2028 and 2029 to fund terminal expansion; and retained earnings remain negative until 2029 preventing the payment of dividends. Thereafter, financial performance improves significantly, but it is 2043 before EBITDA margin reaches 50%.

It should be noted that these conclusions are based on a set of assumptions that favour Manston Airport at all times, with examples including above market aeronautical yield, aggressive cost reduction projections and minimal acquisition costs, which, while in our opinion are achievable, would nonetheless require some significant management attention. This attention would be focused on two aspects, securing new business at advantageous aeronautical revenue per passengers from LCC's and structuring the business to take advantage of unit cost reduction through scale. . These would not be assumptions which AviaSolutions would suggest are presented as a Base Case to an Investment Committee considering the proposition, but rather ones describing a potential upside scenario. In our experience, it is likely that an Investment Committee would not consider investing on this basis.

This scenario of no runway development in the South East of England before 2050 is also a low probability scenario in our view. It also carries a high risk that a decision in 2016 not to commission another runway could be reversed at any time in the future. If Manston were operational at the time a decision were reversed the impact on the business would be considerable, and the decision is not one in which the owners would have any control whatsoever To give just one minor illustration of the risk, it was reported in early September 2016 that Heathrow Airport Limited was considering requesting permission to operate an additional 19,000 ATMs each year, which if granted would reduce the traffic that might spill to Manston.

The other runway scenarios which collectively are more likely than 'no runway development', produce worse financial forecasts for Manston Airport.

2.5. Conclusions

AviaSolutions concludes that airport operations at Manston are very unlikely to be financially viable in the longer term, and almost certainly not possible in the period to 2031.

3. Manston Airport: History and Development Proposals

3.1. Introduction

In this chapter, we briefly describe the history of Manston Airport and the different development proposals that are currently being tabled. We also summarise the information and views that we gathered during our interviews with each prospective developer of the site.

3.2. Manston Airport History

The history of Manston Airport has been well documented in a series of reports and investigations about its prospects. Like many airports, it started life as a military airfield and played an important role during the Second World War. Although it continued as an Air Force base after the war, civilian operations were permitted. In 1998, the Ministry of Defence sold the site to the Wiggins Group plc, which endeavoured to build up commercial operations, including investment in an airline (EU Jet) to provide passenger services. However, the airline quickly ceased operations in July 2005 and the parent group (renamed Planestation), went into administration.

The following month, Infratil Limited acquired Manston Airport from the administrators, and sought to continue commercial air transport operations. However, without the support of a based airline, passenger numbers returned to the historically low levels experienced prior to EU Jet. In each year that Infratil Limited owned Manston it incurred losses of more than £3 million per annum and wrote off the purchase price of £17 million. Infratil disposed of the airport and associated liabilities in November 2013 for the notional price of £1.

Manston Skyport Limited completed its acquisition of the airport in December 2013, but in the face of continuing financial losses gave notice to staff in March 2014. The airport closed for operations on 15 May 2014.

TDC then explored the possibility of using a Compulsory Purchase Order (CPO) to buy the airport, and then sell immediately onto a private sector investor willing to use the site as a commercial airport. A month-long search yielded a small number of interested parties but further scrutiny indicated that none provided the Council with sufficient confidence that it would be indemnified were it to exercise its CPO rights. This led the Council to reach an initial conclusion in December 2014 that it was unable to find a CPO Indemnity partner.

At the request of RiverOak Investment Corporation (one of the previously interested parties), in May 2015 it started a review of this decision and in October 2015 reached the same conclusion. Nonetheless, at the start of 2016, the Council launched a further search for a CPO Indemnity partner, but this again proved unsuccessful.

In the meantime, the former airport site was sold in September 2014 to the current owners, Stone Hill Park Limited

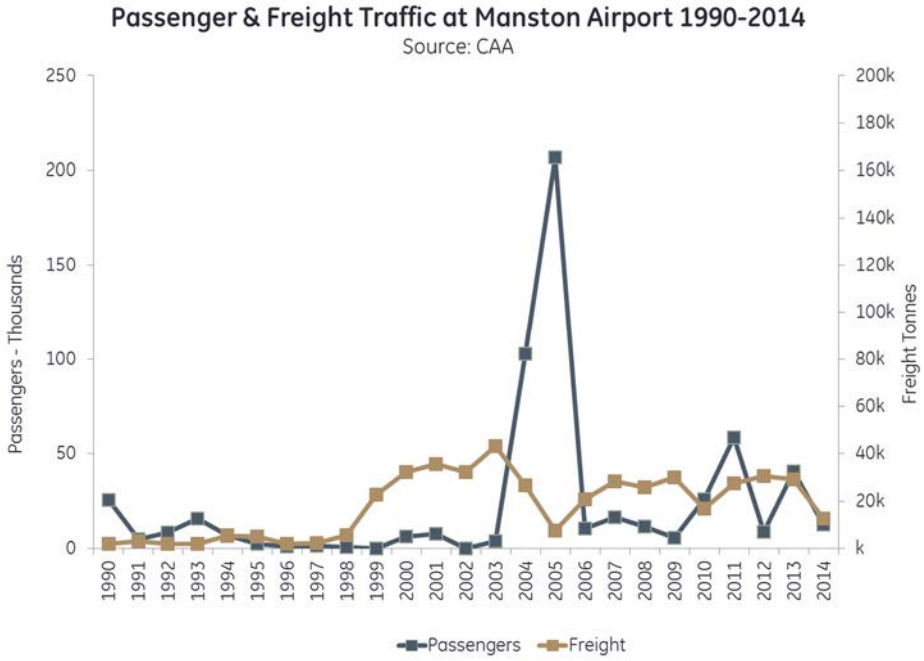
3.3. Commercial Activity at Manston Airport

Immediately after Wiggins Group plc acquired the airport Manston saw an increase in freight traffic. This grew rapidly to circa 30,000 tonnes per annum, however the passenger element of the business stagnated. After Wiggins Group plc invested in an airline specifically for the region, EUJet, the airport saw rapid growth in passengers increasing to 200,000 in 2004. EUJet however, quickly fell into financial difficulty and ceased operations in July 2005 bringing an abrupt halt to the passenger growth.

In the years since, through the ownership of Infratil and Manston Skyport, freight volumes were maintained at circa 30,000 tonnes per annum. Passenger volumes increased with the introduction of Flybe in 2010 but

fell back as the routes were withdrawn. Most recently, KLM began operations from the airport in 2013 but were also withdrawn due to the announcement of the airports closure.

Since being taken into private ownership the airport has averaged 30,500 passengers and 25,000 tonnes of freight per annum, with the peak being 207,000 passengers in 2005 and 43,000 tonnes of freight in 2003.



3.4. Stone Hill Park Development Proposal

Stone Hill Park Limited has lodged a planning application with TDC to construct a mixed development of residential and business units on the site of the former airport.

Stone Hill Park set out its position with regard to the history of the airport, indicating its years of financial losses under various ownerships. The company also outlined the steps that had been taken by management and consultants, both when the airport was operational as Manston SkyPort, and when it came into its ownership, to revive the airport's fortunes. It should be noted that Stone Hill Park indicated that no documents or reports were available to evidence these efforts. Stone Hill Park concluded that the airport site would be better utilised as a redevelopment site than as an airport[1].

3.5. RiverOak Investment Corporation Development Proposal

RiverOak was perhaps the most interested party in TDC's search for an Indemnity Partner to support its consideration of a CPO. It has indicated that its plan for the re-opening of Manston Airport is based on attracting 10,000 annual movements by freighter aircraft.

During AviaSolutions interviews, RiverOak provided a high level review of why it wished to acquire the airport and its vision of the airport's future development. The strategy is to develop a freight hub with supporting passenger services. RiverOak criticised the previous owners' lack of effort to develop air freight traffic at Manston.

[1] The scope of this report does not extend to a consideration of other uses for the airport, and AviaSolutions is therefore not able to comment on the reasonableness or otherwise of the alternative use proposals.

RiverOak was unwilling to disclose any material detail of its Business Plan for reasons of commercial confidentiality. Therefore, the discussion over future viability was at a more generic high-level basis, with RiverOak not disclosing any traffic projections, revenue projections, cost base or specific airlines (passenger or freight) with whom it had discussed plans (with the exception of Ryanair). It did not name any parties that had given firm commitments to use a re-opened Manston[2].

A critical factor for RiverOak's proposal is that in order to establish an airport on the Manston site it will need to obtain ownership of the site from the current owners. They have not secured the site's sale through negotiation with the owners and are currently preparing for a DCO process, a part of which shall aim to demonstrate to the relevant authorities that the airport site is nationally significant transport infrastructure. If successful, RiverOak may then be granted the ability to purchase the site on a compulsory basis. Without this power, there appears little prospect at present of the group securing ownership.

[2] For the avoidance of doubt, AviaSolutions therefore does not offer any opinion about the reasonableness or otherwise of RiverOak's commercial plans for the airport.

4. Potential Development Scenarios

4.1. Introduction

In this chapter, we describe a number of possible development scenarios for Manston Airport. These scenarios have been developed on the basis of our experience of the air transport industry and provided the background for our discussions stakeholders within the air transport industry.

We first describe two scenarios (4.2 and 4.3) that consider possible developments at Manston with regards to cargo and passengers. These scenarios are considered in isolation from decisions made in relation to the provision of a runway in the London area. However, given that Manston is in the South East of the UK, its potential development is likely to be directly influenced by any runway decision. Consequently, we incorporate the first two scenarios into a wider consideration of possible developments in the London area in view of the possibility that Manston might provide some 'over-flow' airport capacity. These considerations are drawn together in our four distinct demand scenarios for Manston Airport.

4.2. Cargo Activity

In the past, Manston Airport was able to attract a certain level of cargo activity, and a potential future role would be for it to again serve this market. In our assessment, we assume as a minimum that Manston attracts this previous freight, totaling 30,000 tonnes per annum.

We also consider whether the scale of activity might be greater than experienced in the past. There would be two possible causes for this:

- The selection of the East Kent area by a major multinational manufacturing (e.g. an Asian electronics or white goods company) or retail group (e.g. Amazon) as the location of its distribution network. Such location decisions can have a significant impact on freight volumes. However the UK's planned exit from the EU leaves makes this less likely.
- As a consequence of their lower sensitivity to airport location, freighters are generally amongst the first category of traffic to be 'squeezed' out of busy airports. With the pressure on runway capacity in the South East of England, it is possible that freighters currently operating through the London airport systems might seek to move to an alternative airport. We discuss this further throughout the remainder of this chapter.

We also considered the role of integrators in the air freight market. Whilst general cargo traffic tends to be more flexible about the location of the airport it uses than passenger traffic, this does not apply to the major integrated freight operators. The business model of operators such as DHL, FedEx and UPS is based on a hub and spoke principle involving both aircraft and road feeder services: the surface element of the network has a greater requirement for a central location within the market being served. We consider the geographic location of Manston precludes it from being a suitable base airport for an integrator in particular when compared to UK competitors such as East Midlands Airport.

4.3. Regional Passenger Airport

Manston Airport played a role from the early 2000s until its closure as a local airport serving the East Kent region. Although our research and analysis (described in Section 5) has indicated that its core catchment area produces significantly less demand for air travel than the area around Southend Airport, we consider that it might nonetheless be able to support an operation equivalent to one or two 150-200 seat passenger aircraft operated by a LCC based at Manston. However, the longevity of such a development may be limited since if a new runway were to be built at Heathrow or Gatwick, the LCC concerned would in all probability transfer its aircraft to the new runway. There are many reasons why these aircraft would be re-based, including:

- Gaining access to vitally important catchment area

- Competitive positioning, the major LCCs are likely to fiercely compete and attempt to gain first mover advantages
- The airlines will need to base multiple aircraft at the airport with a new runway in order to achieve economies of scale on the cost lines of their business
- Securing slots at valuable airports to secure slots
- Airlines have finite resources, including the number of aircraft they have to operate. A major structural change in the runway capacity environment will demand that those resources be reviewed and the optimum allocation revised.

In our analysis we make the assumption that the airport quickly ramps up to 800,000 passengers per annum on this basis until such a time as a new runway is opened, at which point the aircraft are re-based and the passenger traffic lost. This volume of annual passengers is equivalent to two B737-800 based aircraft with a typical LCC seat configuration. We also assume that Manston would not feature in the network plans of airlines for non-based aircraft.

4.4. Runway Development in the South East

The shortage of airport capacity in the South East of England has been widely debated for many years, if not decades. The most recent public investigation was undertaken by the Davies Commission which reported to Government in 2015. No decision on its recommendation to provide a third runway at Heathrow has yet been made, although one is expected in October 2016. Even if a decision is made as currently planned, it could be ten years or more before that runway would be operational. The Davies Commission considered a long list of possible locations for additional runway capacity in the South East, although it should be noted that Manston Airport (still open at the time) was not one of them, and despite its available capacity a new runway was still deemed necessary.

The Commission short-listed two schemes at Heathrow for a third runway (LHR3) and the provision of a second runway at Gatwick (LGW2), and recommended LHR3. During the next ten years, there will be a shortage of airport capacity in the South East, leading to a scenario in which Manston acts as an overflow airport for demand that cannot be accommodated elsewhere. We consider that there are four possible outcomes from the Government's current decision process:

- Build LHR3: While in line with the Davies Commission recommendation, this choice would nonetheless be the most controversial, and probably take the longest time to deliver.
- Build LGW2: It is likely that a runway at Gatwick would be available earlier than at Heathrow. It is probably the outcome that would be least supportive of a re-opening of Manston Airport, since Gatwick is the closest airport to Manston, and a runway there is likely to be operational several years before one at Heathrow.
- Build both: Should Government indicate that its policy would permit both to be built, Gatwick shareholders might well conclude that while its runway could be operational first, there would be a significant risk of loss of traffic to Heathrow as and when its additional runway opened.
- No expansion: It is possible that Government will not sanction any runway expansion in the South East. It is the outcome that would be most supportive of a re-opening of Manston Airport, albeit an outcome that could be reversed at any time in the future, thereby depriving a re-opened Manston of traffic.

It is feasible that there would be a legal challenge, irrespective of which of the above possibilities were chosen (possibly less so with the fourth 'do nothing' option), further delaying the opening of a new runway. It is unclear whether the Government's decision would indicate simply its preferred location with the airport operator then following the normal planning process to obtain the necessary permissions, or whether it would seek to provide the permissions through a Parliamentary process.

4.5. Dynamics of Traffic in the London Airport System

The six airports of the London Airport system all have different owners, and each has a particular characteristic in the traffic which it handles. However, there is a dynamic in the distribution of traffic between the airports, which also have a particular hierarchy.

Heathrow is the premier airport, and there are numerous examples of airlines moving services there when they are able to do so. This has been evidenced with airlines purchasing slots from incumbent Heathrow

airlines, for example in February 2016 Oman Air purchased a pair of Heathrow slots from Air France-KLM for a reported $75 million.

Gatwick is clearly the second airport in the system, and secondary slot trading is also beginning to take place. The airports of Stansted and Luton to the north of London play similar roles in supporting the low cost airline market. London City Airport is very much a niche airport and has marginally relieved pressure on Heathrow by serving an increasing range of short haul (often business-oriented) destinations. The least busy airport is Southend which has grown again in the last few years as a result of easyJet basing two to three aircraft at the airport.

4.6. Model Scenarios

Before the construction of a new runway at Heathrow and/or Gatwick, there is expected to be a shortage of airport capacity with passenger demand growing. We have developed a simulation model to estimate the size of unaccommodated demand at one airport, and how the demand might respond to an airport capacity shortage. Our demand cascade follows the form of:

- Some passengers using the airport to connect between flights will choose to use other airports as their connection point (voluntarily to avoid over-crowded facilities and delayed flights, or as a consequence of airlines increasing fares to such passengers);
- Some passengers will choose not to travel, or not to travel by air (as air fares are increased);
- Some passengers will endeavour to use another London airport; and
- The remaining potential travellers are available for attraction by UK airports other than the six London area airports.

We have used our experience and discrete analyses to determine the likely sizes of the first two categories above, and then estimated the passenger handling capacities of the airports. In general, this is based on the number of Air Transport Movements (ATMs) that each airport's runway system can handle[3] and the average number of passengers per ATM at the airport. There is a long-term and widespread trend for passengers per ATM to increase, meaning that the passenger handling capability of an airport can grow even though there may be no change in the number of ATMs that it can handle. We have also divided the maximum ATMs between passenger and freighter operations, maintaining freighter operations at the average level seen over the five years 2011 to 2015[4], except at Stansted. Within this model we have also considered freight demand and the ability of airlines to carry this demand, either on the dedicated freighter ATMs or in the belly-holds of passenger aircraft.

Once the total unaccommodated demand for the London System has been identified we then apply analysis to identify the share of this unaccommodated demand Manston might attract. These 'spill' demand scenarios are in addition to the base loads of 800,000 passengers (up until a new runway) and 30,000 tonnes of freight. Our demand scenarios are therefore:

- LHR3: The spilled passenger demand Manston would capture if a third Heathrow runway were developed and in addition 800,000 passenger per annum and 30,000 tonnes or freight per annum until FY2030.
- LGW2: The spilled passenger demand Manston would capture if a second Gatwick runway were developed and in addition 800,000 passenger per annum and 30,000 tonnes or freight per annum until FY2025.
- Both: The spilled passenger demand Manston would capture if a third Heathrow runway were developed and a second Gatwick runway were developed and in addition 800,000 passenger per annum and 30,000 tonnes or freight per annum until FY2025.
- No Runway: The spilled passenger demand Manston would capture if no new runway were developed and in addition 800,000 passenger per annum and 30,000 tonnes or freight per annum until FY2050.

[3] *In the cases of Heathrow, Stansted and London City there are also statutory limits*
[4] *One of Stansted's S106 conditions specifies the division of ATMs between passenger and freighter, with freighter ATMs being 20,500 per annum, and passenger ATMs 243,500 per annum*

4.7. Development Options Outside of Scenarios

We have not included in the possible scenarios any development that does not include commercial air transport operations. Hence, we do not consider the potential use of the Manston site as; a Maintenance, Repair and Overhaul (MRO) centre, an aircraft refurbishment or fit-out location, aircraft 'tear-down' or storage centre, or flight training facility. These and similar activities are often sought by owners of airports with low levels of aircraft activity as a means of generating ancillary revenue to boost income. However, the operators of these businesses are often flexible about the location of the works, and as such, the businesses providing these types of activities are highly sought-after by existing airports and the businesses are able to negotiate favorable commercial terms.

Given the intense competition that exists for these types of business, in our judgment no private sector investor would re-open Manston Airport based primarily on this type of activity. Similarly, while the site has an historic position in aviation and has a heritage centre, and this activity could add to viability, this would be only a marginal financial contribution and would be dependent on there being a commercially viable airport around which to build such an activity.

We also discounted the possibility of Manston developing as a business aviation (GA) centre: it is simply too distant from London to be an attractive offering to corporations and high net-worth individuals using private jets and would struggle against established airports such as Farnborough and London City.

5. Passenger Analysis

5.1. Introduction

In this section, we discuss the passenger market both at Manston and in the London Area as a whole. We then explore the potential demand scenarios outlined in section 4.6.

5.2. Historic Passenger Traffic at Manston Airport

Various passenger services have operated at Manston Airport in the past. In general, they were consistent with the type that might be expected at a small UK regional airport, namely scheduled services to major short haul domestic and European destinations, supplemented by charter flights to the more popular Mediterranean holiday resorts.

Passenger volumes peaked in 2005, when EUJet, then a subsidiary of Planestation, was operating from Manston Airport. A large number of destinations were served, although EUJet was achieving a load factor of only 41% when it ceased trading in July 2005.

Destinations/Origins of Manston Airport Passengers, 2005

Airport	Passengers	Airport	Passengers
Edinburgh	32,259	Gerona	6,177
Dublin	26,879	Newcastle	5,118
Amsterdam	16,600	Belfast	4,563
Manchester	15,091	Barcelona	4,351
Malaga	14,119	Ibiza	3,657
Prague	10,434	Shannon	2,897
Nice	9,848	Valencia	2,316
Murcia	9,774	Glasgow	2,200
Alicante	7,822	Madrid	2,077
Palma	7,584	Other international	12,186
Geneva	6,801	Other domestic	18
Faro	6,502	Total	209,273

Source: CAA Airport Statistics

After EUJet ceased trading, passenger volumes fell dramatically, and remained persistently below 20,000 per annum until 2010/11 when Flybe commenced some limited flying to domestic destinations. The service to Manchester performed poorly, with an average load factor of 26% (source: CAA) and was soon terminated. A Belfast service had a marginally better load factor at 44% but ultimately was unsustainable. The highest performing route in terms of load factor was to Edinburgh which reached a load factor of 53% Passengers were mainly outbound from Manston and travelling for personal or leisure reasons resulting in fare yields being relatively low. The culmination of this poor demand resulted in Flybe ceasing services from the airport (source: Flybe Interview).

In 2013, KLM commenced a twice daily service on weekdays from and to Amsterdam, aiming to feed its connecting hub at Schiphol as well as facilitating travel to and from the city. KLM operates to many airports in the UK on this basis and in 2013, KLM carried nearly 36,000 passengers. However, in that same year, a further 48,000 passengers from Manston's core catchment area travelled to Amsterdam from other London Area Airports, meaning that the Manston service captured just 42% of the demand that arose from Manston's core catchment area (albeit services started only in April 2013).

Passengers to Amsterdam, 2013

London Area Airport	Passengers to Amsterdam from Manston Catchment Area, 2013
Heathrow	22,008
Gatwick	20,048
London City	4,091
Stansted	1,932
Luton	596
Total	48,675
Passengers on KLM service from Manston	35,854 (42%)
Total Catchment Area Passengers to Amsterdam	84,529 (100%)

Source: CAA Passenger Survey (N.B. Southend not included in survey)

5.3. Local Demand

We have defined an area of eastern Kent as Manston's core catchment area, as shown in the diagram below.

To gauge the demand from Manston Airport's core catchment, we analysed the number of journeys from the core catchment to a basket of easyJet destinations (using Southend Airport's easyJet network as a typical example). The London airports captured 517,000 air journeys to these UK domestic and short haul

European destinations[5]. This figure does not include the small number of passengers that travelled via Manston to Amsterdam in the first three months of the year.

District	Passengers from Manston's Catchment Area
Ashford	59,463
Canterbury	78,339
Dover	48,575
Maidstone	74,279
Medway	131,123
Shepway	41,159
Swale	47,074
Thanet	37,315
Total Using London Area Airports	**517,327**
Passengers on Services from Manston	**12,344**
Total Catchment Area Passengers to these points	**529,671**

Source: CAA Passenger Survey (N.B. Southend not included in survey)

In contrast, in 2014, the core catchment area for Southend generated more than 580,000 passengers to and from these points flying from the other London Airports. This is in addition to the passengers carried by easyJet from Southend to these destinations.

A proportion of the passengers that used services from Southend will have come from outside the airport's core catchment area. The analysis indicates that the maximum proportion of demand from a core catchment area that a small airport might attract is around 60%. This assumed percentage capture is broadly in line with the 42% capture by KLM from Manston during its first nine months of operations in 2013.

Airport Used	Passengers from Southend Catchment Area
Gatwick	270,450
Stansted	251,443
Heathrow	21,978
London City	20,868
Luton	16,820
Total using London Area Airports	581,559 (38%)
Passengers on easyJet services from Southend	959,523 (62%)
Total Catchment Area Passengers to these points	1,541,082 (100%)

Source: CAA Passenger Survey (N.B. Southend not included in survey)

If this same percentage were applied to the 2014 demand from Manston's core catchment area, it suggests that the maximum number of passengers that might be attracted to these points on services from a re-opened Manston would be some 330,000 per annum (529,000 x 62%). To sustain operations, it is therefore conceivable that Manston would, like Southend, almost certainly need to attract passengers from outside its catchment area. Southend is some 55 minutes from central London by rail (with pedestrian access between airport terminal and station), while Manston is scheduled to be 75 to 105 minutes from

[5] *Barcelona, Belfast, Amsterdam, Faro, Alicante, Ibiza, Malaga, Jersey, Palma. Geneva, Venice, Edinburgh, Berlin, Krakow, Tenerife*

Central London. Manston would face a significant challenge to match Southend's attraction to passengers from central London.

Train to London from airport, (Assumes Ramsgate connection for Manston)

Airport	Train to London	Connect to Terminal	Vs. Manston
Heathrow	15 minutes every 15 minutes from Paddington	Direct to terminal	75 minutes quicker
Gatwick	30 minutes every 15 minutes from Victoria	Direct to terminal	60 minutes quicker
Stansted	50 minutes every 15 minutes from Stratford / Liverpool Street	Direct to terminal	40 minutes quicker
Luton	40 minutes every 10 minutes to Kings Cross St Pancras	10 minute shuttle	50 minutes quicker
London City	On the DLR Line	Direct to terminal	Variable
Southend	53 minutes to Liverpool Street, 44 minutes to Stratford. 8 trains an hour at peak	Direct to terminal	37 minutes quicker
Manston	75 - 105 minutes to Ramsgate, four trains per hour to Kings Cross St Pancras	15 minute shuttle	n/a

Source: Airport website, national rail

This potential level of passenger demand at Manston for short haul services would be approximately equal to that which could be handled by one 150 seat narrow-body aircraft (such as a Boeing B737 or an Airbus A319) operated by an LCC based at Manston.

5.4. Airline Interviews

AviaSolutions spoke to several passenger airlines with regards to potential future operations at Manston airport. More detailed notes are provided in Appendix A.

Ryanair provided the most positive indication of future service concluding that:

> '*Ryanair are constantly reviewing their network and remain open to approaches from any airport. If the airport became operational, the airline would review its potential and fit within the wider airline network in due course, and is available to discuss terms with the owners at any time*'
> Ms. Kate Sherry, Deputy Director of Route Development, Ryanair

Whilst Ryanair remained somewhat open to the possibility of future services, it was in our opinion, far from a commitment to serve Manston airport if it should re-open. We received a similar positon statement from KLM, effectively citing that a re-opened Manston would be included in the annual network review.

Discussions with other carriers indicated a less positive outlook for the airport, with Flybe, an airline that had previously served Manston stating:

> 'I*t is unlikely that, even if Manston should reopen, the airline would choose to serve the airport.*'
> Mr. Martin Pearce, Flybe

Other airlines and individuals interviewed had similar stances, stating that:

> *'…Manston would not be a consideration for us…'*
> Major European LCC

and that:

> '*Following the BREXIT vote many airlines will be considering their approach to the UK. During a period of uncertainty, it will be difficult for Manston to convince carriers to open routes to the airport*'
> Ex-Director of Network Route Development for Major European LCC

We also discussed with a major UK carrier its views on Manston Airport as part of an operational resilience strategy. This is an aspect of the airport which has been made promoted as a potential benefit to the UK aviation sector. Flight Operations within an airline is a highly scrutinised function, in particular with regards to fuel and diversionary airport selection. When calculating a Flight Plan, airlines plan contingency fuel based on regulatory standards that ensure sufficient fuel is available upon landing, meeting this minimum landing fuel is a core part of the duty of all aircraft commanders. Our contact stated that:

'It is my personal view that Manston does not offer any safety or resilience benefits of a material nature to the UK system. The airport is located in close proximity to six London airports which offer excellent resilience already'
Manager, Flight Operations, Major UK Carrier

Based on AviaSolutions interviews in relation to passenger services, we conclude that whilst there is some notional interest in passenger services at Manston Airport, no airline was committed at present, or in the future seeking to serve to the airport should it re-open. No airline wished to give any more commitment beyond that it would consider Manston as part of their process of reviewing their network.

5.5. Potential Overflow from London Area System - Model

We outlined in Section 4 the principles on which we have based our model of how passenger traffic might cascade around the London Area Airport system. In this section we set out the main assumptions and results.

Capacity
The starting point of our assumptions is the ATM capacity of the London airports. At a number of airports, the ATM capacity has a statutory cap (as opposed to an estimate based on its physical capacity). At these airports we have assumed up to 97.5% of the movement cap to reflect constraints on the optimal scheduling and peak demand profiles.

Airport ATM Capacity

Airport	Annual ATM Capacity	Comment
Heathrow	480,000	With two runways. Statutory limit
	720,000	With three runways, from 2030 if added
Gatwick	280,000	Estimated capacity of single runway
	480,000	With two runways, from 2025 if added
Stansted	264,000	Statutory limit. Includes 20,500 for freight flights
Luton	100,000	Estimated. Statutory passenger cap of 18 mppa
London City	111,000	Statutory cap (noise-adjusted) - passenger limit of 6.5 mppa
Southend	53,300	Statutory cap

These ATM capacities are converted into a passenger capacity by multiplying by the average number of passengers per ATM. Passengers per ATM have historically increased over time as a result of larger aircraft with more seats and the increase in the number of seats occupied (the load factor).

We have assumed a continuation of this trend, although at a rate of 0.5% per annum, much lower than seen in recent years. It may be seen that even by 2050, the number of passengers per ATM with this assumption never exceeds 200 at any airport. This assumption acts to increase the demand that cannot be accommodated at the six London Area airports. However, it is likely that when faced with runway capacity constraints, airlines will increase passengers per ATM at a faster rate than would otherwise be the case. Our assumed rate of increase is consequently likely to lead to an over-estimation of the demand that is available to be handled at Manston.

Passengers per ATM

Airport	Passengers per ATM					CAGR 2011 to 2015	CAGR 2015 to 2050	Pax per ATM 2050
	2011	2012	2013	2014	2015			
Heathrow	146.6	149.5	155.0	156.8	159.7	2.2%	0.5%	190.2
Gatwick	137.9	142.5	145.2	149.7	153.5	2.7%	0.5%	182.8
Stansted	142.3	144.1	146.3	149.2	155.9	2.3%	0.5%	185.6
Luton	136.4	139.0	141.8	143.3	145.1	1.5%	0.5%	172.8
London City	49.2	46.9	49.7	52.0	54.5	2.6%	0.5%	64.9
Southend	33.8	84.9	102.4	95.5	100.4	5.7%*	0.5%	119.5

* 2012 to 2015

Demand

We have based our forecasts of future passenger traffic on those set out in the Davies Commission Report - unconstrained carbon traded forecast (the most optimistic). Given that the early forecast volumes have been superseded by actual performance, we have uplifted the forecast figures to reflect actual demand seen across the London System in the intervening years.

Demand Allocation London System

Demand is then compared to capacity available, and assigned to the airport which Davies assumes is its natural first choice. The greatest demand is for Heathrow, and traffic not accommodated there is assumed to (a) spill to other non-London Area airports for connecting traffic, (b) 5% is assumed not to travel (by air), or (c) spill to Gatwick.

A similar process is then followed for Gatwick, with any unallocated demand being allocated to one of the other four London Area airports, until each has reached its capacity. At this point, any unaccommodated demand becomes available for other airports outside the London System to handle. We summarise below the forecast demand at the London Area airports in 2050 for each of our defined scenarios, together with unaccommodated demand.

Forecast Passenger Demand (mppa) at London Area Airports, 2050

Airport	Scenario			
	LHR R3	LGW R2	Both	Neither
Heathrow	134	89	134	89
Gatwick	51	88	88	51
Stansted	45	45	45	45
Luton	17	17	17	17
London City	7	7	7	7
Southend	2	2	2	2
Unaccommodated	44	40	5	79

Unaccommodated Demand (mppa) by Scenario and Year

Year	Scenario			
	LHR R3	LGW R2	Both	Neither
2020	5	5	5	5
2025	11	9	9	11
2030	17	6	2	25
2035	9	9	4	36
2040	16	16	5	49
2045	27	27	3	61
2050	44	40	6	79

Demand Allocation - Regionals

This Unaccommodated Demand is potentially available to airports other than the six London airports and specifically to airports in regions other than the South East as well as to Manston. Using CAA data, we have calculated the origin and destination distribution of passengers at the London Airports split by the part of the UK they are travelling either to or from. This indicates that 49% of total passengers are travelling to or from Greater London and 4% to or from Kent. We have assumed that the distribution of future Unaccommodated Demand matches the pattern of demand seen in 2014, such that if 100 passengers were unaccommodated, 49 of those are travelling to or from Greater London and 4 to or from Kent.

We have then estimated how much of this Unaccommodated Demand Manston may reasonably be assumed to capture. Given its location in Kent it is reasonable to assume it would capture a large share of the Unaccommodated Demand for Kent (4 passengers in the example above). We have assumed that this share is 90% (90% of the 4 passengers). Applying a similar logic, we assume that the Greater London passengers would have more choice and therefore Manston would capture a smaller share of this market. We have assumed Manston will captures 10% of the Greater London market (10% of the 49 passengers).

It is also important to recognise that currently 27% of passengers using the London Area airports do not have origins or destinations in the South East region, but use surface means to access the air services at the London airports. It is our view that airlines will consider adding additional capacity at airports to the North and West of London (potentially Southampton, Bournemouth, Cardiff, Birmingham, Manchester) to dissipate this excess demand and permit the London System to absorb the demand growth in the Greater London area. These non-London airports, in general, have a wider catchment area already provide services from many carriers with the associated economics of scale and mature presence in these markets.

Surface Origin/Destination of Terminating Passengers at London Area Airports, 2014 (mppa)

Area	LHR	LGW	STN	LTN	LCY	Total	%
South East	36.0	28.1	11.6	10.2	3.3	84.2	73%
of which							
Greater London	24.9	15.0	10.1	5.3	3.1	56.7	49%
Kent	0.9	2.5	0.4	0.1	0.1	4.1	4%
Other UK regions	11.3	7.2	7.5	5.0	0.3	31.2	27%
Total Terminating	47.3	35.2	19.1	10.2	3.6	115.4	100%
Connecting	25.8	2.6	0.8	0.2	0.1	29.5	
Total Terminal	**73.1**	**37.9**	**19.9**	**10.4**	**3.6**	**144.9**	

Source: CAA Passenger Survey

In addition to this overflow of unaccommodated demand, in each of our scenarios we have added the introduction of an LCC base of two aircraft supporting 800,000 passengers per annum from 2018, equivalent to two Ryanair B737-800 aircraft. This base continues at Manston until a new runway is opened at Heathrow and/or Gatwick. In the year when new capacity is introduced, the Manston based aircraft are assumed to transfer to the airport with the new runway, as the airline concerned seeks to establish presence at that airport at the same time as consolidating its operations in the London area.

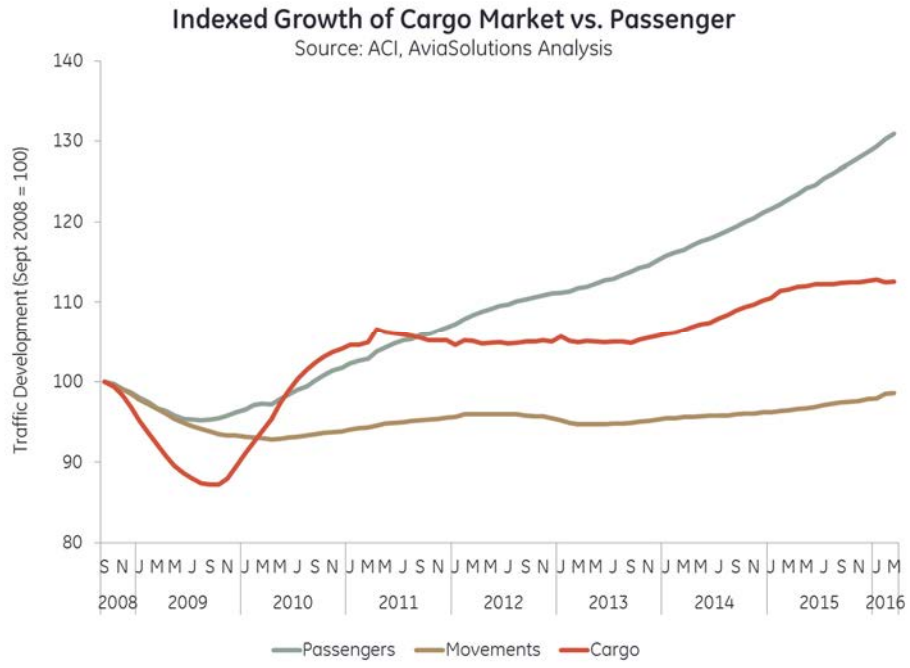
6. Cargo Analysis

6.1. Introduction

In this chapter we examine the air cargo market and its overall prospects. We also consider how freight traffic might develop at Manston Airport in our scenarios.

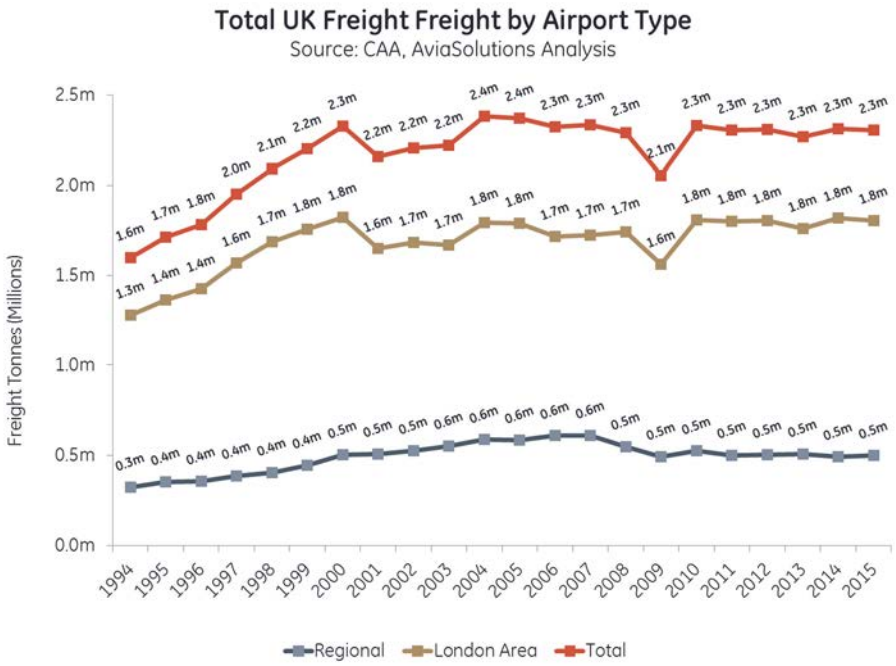
6.2. Overall Cargo Market

The air cargo market declined significantly after the global financial crisis of 2008. Although cargo volumes recovered to previous levels within two years following the crash in 2008, growth over the last five or six years has been modest.



A similar pattern has been observed in the UK. Indeed, total air freight handled at UK airports has been virtually constant at around 2.3 million tonnes per annum since 2000, with the exception of reductions immediately after the start of the recession in the early 2000s and the financial crisis in 2008. Prior to this period, demand for air freight had grown at CAGR of 8% since 1990.

There is a reasonably even split between freight set-down (imports for international freight) at 52.5% and freight picked-up (exports) at 47.5%. More than 95% of UK air freight in 2015 was international.



Within this national context, individual airports' performance has varied, with the five London area airports (Heathrow, Gatwick, Stansted, Luton and City) increasing their aggregate share slightly to just under 80%, with regional airports reducing by an equivalent amount.

The busiest airport for freight has consistently been Heathrow, responsible for two thirds of the country's air freight. This position owes much to the very considerable cargo capacity in the holds of the wide-body aircraft providing the many long haul passenger services from the airport. In contrast, East Midlands' position as the second busiest freight airport is due to its role as the centre of the UK distribution network of the integrated cargo carriers, especially DHL but also UPS and Royal Mail. Stansted is preferred by FedEx and is also used by the cargo operations of a number of airlines. These included British Airways before it discontinued its all-freighter operations in April 2014 and switched to the freighter operations of Qatar Airways.

It has been argued by, for example, York Aviation on behalf of the Freight Transport Association that the stagnation of growth in UK air freight market since 2000 has been caused by a lack of airport capacity in the London area and specifically at Heathrow. Whilst the lack of ATM growth at Heathrow has undoubtedly hampered the development of the national air freight market, it is also true that over this period there was adequate airport capacity available at both Stansted and Manston to support additional dedicated freighter movements. Freighter movements at Stansted decreased over the period[6], while Manston closed. This strongly suggests that the stagnation of UK airfreight is not a consequence of capacity constraints given the excess capacity at Stansted and Manston.

Air freight activity in the UK is highly concentrated, with just six airports handling 95% of the UK's air freight volume.

[6] *Stansted's freight ATMs declined from 13,967 in 2000 to 9,956 in 2015*

Freight by UK Airport

Airport	Freight (Tonnes) 2013	2015	% of 2015 Total	Cumulative Share	% carried on Freighters in 2015
Heathrow	1,422,939	1,496,551	65%	65%	5%
East Midlands	266,968	291,689	13%	78%	100%
Stansted	211,952	207,996	9%	87%	100%
Gatwick	96,724	73,371	3%	90%	0%
Manchester	96,373	100,021	4%	94%	10%
Manston	29,306	-	0%	94%	100% (2013)
Belfast International	29,288	30,389	1%	95%	100%
Luton	29,074	28,008	1%	97%	96%
Birmingham	21,067	7,164	0%	97%	0%
Edinburgh	18,624	19,322	1%	98%	99%
Total	**2,267,812**	**2,304,345**			**30%**

Source: Analysis of CAA Statistics

In 2015, there were around 60,000 ATMs by all-freight aircraft across UK airports. These were split almost equally between international and domestic operations. Freight movements are relatively concentrated on a small number of airports, with East Midlands and Stansted accounting for 64% of movements in 2015.

Airport	Freighter ATMs Domestic	International	Total	Int. as % of 2015 Total
Heathrow	3	2,385	2,388	8%
East Midlands	9,603	12,516	22,119	42%
Stansted	3,445	6,511	9,956	22%
Gatwick	0	3	3	0%
Manchester	205	830	1,035	3%
Belfast International	4,091	17	4,108	0%
Luton	183	1,519	1,702	5%
Birmingham	0	0	0	0%
Edinburgh	3,883	1,088	4,971	4%
Other	10,136	5,032	15,168	17%
Total	31,549	29,901	61,450	100%

Source: Analysis of CAA Statistics

It is important to note that, in the UK market, only 30% of airfreight is carried on dedicated freight aircraft. This is substantially less than the global average, where approximately 56% of RTK's are transported on freighters. In part, this disparity is due to the excellent belly-hold networks available from UK airports and in particular from Heathrow.

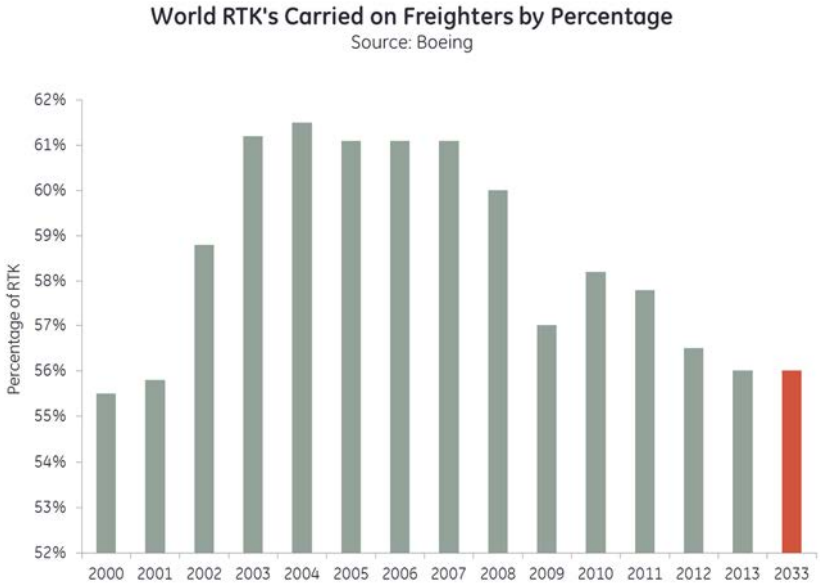
As passenger demand increases additional belly-hold capacity will enter the market. This capacity growth is unhooked from the demand scenario for belly-hold cargo and can result in excess capacity in the market. As a result airlines will often sell this belly-hold capacity using a marginal cost pricing structure. This pricing structure does not need to account for the high cost of the aircraft and must only meet the additional marginal cost that each kilogram of cargo incurs. Through the application of this pricing

structure, belly-hold cargo often undercuts the minimum price that can be charged on dedicated freighter operations.

As a result of this market dynamic, an airport focused on airfreight carried by dedicated freighters may be overly exposed to a declining or stagnant total market, or at best to a market that is not exposed to strong potential.

However, there are some elements of the market that appear to be limiting the increase in belly-hold capacity. These include

- Some of the newer aircraft types have a smaller belly-hold cargo capacity than the aircraft they replace; and
- Low Cost Carriers (such as easyJet and Ryanair) are gaining market share but generally ignore the freight market.



Manston

Before its closure in 2014, Manston Airport was the sixth busiest airport in the UK for freight. For the last ten years of operations the airport handled between 25,000 and 30,000 tonnes of freight annually, representing just over 1% of the UK market (refer table 'Freight by UK Airport' on previous page)

In 2013, the overwhelming majority of the airport's freight was carried on all-freight aircraft, CargoLux being the primary operator. There were 511 freighter movements (landings or take-offs) during the year, with an average of 57 tonnes of freight per movement. In reality Manston was almost exclusively used for imports, and this averaged 107 tonnes per import, with virtually no export volume.

6.3. Freight Industry Interviews

Our discussions with representative of the cargo industry indicate that much of the cargo at Manston was fresh produce from Africa. The airport was popular with shippers as it was uncongested, offered good quality handling services (provided by airport staff) and the airport charges were competitive. While it is close to continental Europe, airlines/shippers nonetheless had to incur the costs of flying freight aircraft virtually empty on the return leg to their base airport (e.g. Luxembourg, Ostend and Liege) after off-loading. When Manston closed, it is understood that some movements transferred to Stansted, whilst others switched to airports on the near-Continent and their loads trucked across the Channel to the UK.

Our primary interest in interviewing representatives of the freight industry (current and former executives), and previous users of the airport was to assess potential future use. It was clear from these discussions that whilst the airport clearly offered a professional service, the strategic position of the airport was a clear disadvantage.

> *'Airlines base the decision on where to operate their freighters based on a multitude of factors. However, the overriding factor is based on where investments in infrastructure have been made by*

their clients, freight forwarders. These capex investments by freight forwarders are required to ensure they maintain economies of scale through their transit facilities and distribution centres. In the UK, these investments are centred at Heathrow, and more recently Stansted'
Senior Executive in Cargo Division for airline operating freighters at Stansted.

The individual went on further to discuss the possibility of relocating his freighters to Manston Airport and was unequivocal in his position:

'The airline would be extremely unlikely to consider moving services to Manston, even if we were no longer able to serve Stansted, regardless of the commercial terms offered. If the airline had to move services, we would consider East Midlands and Manchester or other centrally located airports before Manston'
Senior Executive in Cargo Division for airline operating freighters at Stansted

This view was echoed by Mr. Stanley G. Wraight, a cargo professional with a global reputation, and over 40 years' experience in the cargo industry:

'The conclusion is there is virtually no incentive for operators to move operations to Manston, there are alternative UK airports that offer competitive services on reasonable terms. The UK doesn't need another airport for freight that has no USP. If Manston were to be developed it would be essential for it to gain a niche market such as becoming an Amazon or Alibaba e-commerce base'
Mr. Stanley G. Wraight – Senior Executive Director Strategic Aviation Solutions Limited

Balancing this view were those of an air cargo charter broker who had previously used Manston for charter services. The airport had offered excellent service and, while the broker's use might be for a moderate level of ATMs, it would be keen to re-establish a presence, provided the right commercial terms could be agreed:

'...we would certainly be interested in using the airport again if it re-opened but in order to do so, we would be looking to secure competitive rates for landing, parking and screening charges...'
Air Cargo Charter Broker – UK

We conclude therefore that there is limited interest from the cargo industry in using a re-opened Manston Airport for air freight. The larger scheduled freighter operators are unlikely to relocate their services to the airport, particularly if the airport does not have a unique product offer. We believe it is more likely that were Manston Airport to re-open, the most likely role would be to serve smaller freight operators and the larger operators on an *ad-hoc* basis. There is no compelling reason to believe that the airport would be able to generate appreciably more freight activity than previously, other than in the context of a shortage of airport capacity in the London area.

6.4. Potential Future Freight Operations - Model

Based on our research and analysis, it is AviaSolutions' view that if Manston were to re-open as an airport, it would attract some dedicated freighter operations. However, in the absence of a firm commitment from a multinational to establish a distribution centre near Manston, the growth of freight activity at the airport would be in line with historic performance, with incremental growth resulting from a general expansion of the UK cargo market and a diversion of freighter flights if these were constrained at Stansted.

Demand

There are very few national forecasts for the development of air freight. One example is the report developed by Oxford Economics and Ramboll for Transport for London as part of the investigation of the development of an estuary airport for London. A potential cause of the stagnation of growth in air cargo since 2000 was identified as the increase in oil and jet fuel price. Trend forecasts were based on average growth from 2000 to 2012 (the Lower Bound) and from 1990 to 2012 (the Upper Bound). The difference in growth rates of the two periods produce very different forecast outcomes.

Average Annual Growth	Period	London Area Airports	UK

Belly Hold Cargo	1990-2012	2.95%	2.87%
Belly Hold Cargo	2000-2012	0.49%	0.48%
Dedicated Cargo	1990-2012	2.76%	3.52%
Dedicated Cargo	2000-2012	0.02%	0.40%

Source: Oxford Economics

We note that despite being one of the world's leading economics consultancy's, Oxford Economics relied on a forecasting technique based on historic trends, rather than econometric regression analysis seeking to correlate historic growth in air cargo with changes in external/exogenous variables such as GDP, international trade etc. that might be driving the freight growth. Boeing and Airbus base their long term forecasts on GDP changes. The Oxford Economics' approach is consistent with it either not being confident in any relationships that exist, or simply not finding any explanation for the stagnation of air freight. Certainly, the forecasts produced have an exceptionally large range between low and upper bounds, which indicate the difficulty of forecasting cargo growth with confidence.

We have used the mid-point of these forecasts to drive our cascade model of how traffic might be distributed across the London area airports as and when airport capacity becomes constrained. We have estimated available capacity for cargo based on belly hold capacity generated on passenger services and on dedicated freighter flights.

Capacity

We have considered only belly-hold capacity Heathrow and Gatwick. At Heathrow with a significant number of wide-bodied aircraft (35%), we estimate the average belly-hold freight capacity to be 7 tonnes per ATM at LHR (2015), significantly higher than the actual freight per ATM of 3 tonnes. In an environment of freight growth, we have assumed this figure would increase at 1% per annum, reaching 4.3 tonnes per ATM in 2050, a load factor of 61%.

Currently, the majority of flights (85%) at Gatwick are narrow-bodied aircraft to short haul destinations, and likely to carry minimal volumes of freight. We estimate Gatwick's belly-hold capacity to be two tonnes per ATM. In 2015, actual belly-hold loads averaged less than 0.3 tonnes per ATM. We have assumed that this increases at 1.5% per annum, and reaches just over 0.3 tonnes per ATM in 2050, reaching a load factor of 15%.

We have assumed that the number of dedicated freighter flights remains at the average activity of the last five years at Heathrow and Luton. However, at Stansted permitted freighter movements may approach the statutory cap of 20,500 per annum. We have not included freighter movements at any of the other London airports. As the capacity per ATM on freighters at both Heathrow and Stansted was significantly above the loads actually carried, we have assumed that loads on freighters at these airports would grow by 1.5% per annum if UK freight market was growing at the forecast rate noted above. These assumptions take average loads on freighters to 55 tonnes and 53 tonnes respectively in 2050, still materially lower than the available capacity. We have assumed that the average load on freighters at Luton continues at 2015 levels.

Airport	Capacity Type	2011	2012	2013	2014	2015	Capacity 2015
Heathrow	Belly Hold load (tonnes)	3.0	3.0	2.9	3.0	3.0	7
	Freighter ATMs	2,456	2,380	2,365	2,084	2,388	2,388
	Freighter load (tonnes)	31.3	30.0	29.9	32.8	32.9	83
Gatwick	Belly Hold load (tonnes)	0.4	0.4	0.4	0.3	0.3	0.3
Stansted	Freighter ATMs	9,359	9,602	9,788	9,340	9,741	20,500
	Freighter load (tonnes)	20.3	21.3	21.2	21.7	21.0*	80*
Luton	Freighter ATMs	1,717	1,810	1,716	1,520	1,701	1,693
	Freighter load (tonnes)	15.6	15.9	16.3	15.1	15.8	15.8

* The average load in international freighter ATMs in 2015 was 31.7 tonnes per ATM, and the capacity on these movements 80.3 tonnes. We have used this as our forecasting base since most freight traffic is international.

Demand Allocation

These assumptions indicate that all forecast freight demand can be accommodated in all scenarios up to 2045. It is only in this year that some demand remains unaccommodated in two of the scenarios, although by 2050 there is unaccommodated demand in all scenarios.

Unaccommodated Demand (Tonnes x 1,000) by Scenario and Year

Year	Scenario			
	LHR R3	LGW R2	Both	Neither
2020	0	0	0	0
2025	0	0	0	0
2030	0	0	0	0
2035	0	0	0	0
2040	0	0	0	0
2045	0	35	0	123
2050	173	178	62	278

There is strong anecdotal evidence that a material proportion, probably around 20%, of air freight flying to and from the UK actually originates or is destined for continental Europe and is trucked across the channel. We have assumed that 20% of unaccommodated demand is lost to the UK air freight industry and flies from continental European airports. For the purposes of our assessment and in recognition of RiverOak's stated intention to develop Manston as a freight airport, we have assumed that half of the remaining unaccommodated demand is flown via Manston, with the other half going to other UK regional airports, potentially led by East Midlands and Manchester.

7. Financial Analysis

7.1. Introduction

In this section, we present the findings of our financial analysis based on the passenger and cargo forecasts set out in the earlier sections following an assumed re-opening of Manston Airport. The principles of the financial model and underlying assumptions are explained, followed by the outputs of the model for the Heathrow Third Runway scenario as it is the recommendation of the Davies Commission to Government. Finally, we present summary results of the other scenarios. A more comprehensive description of the outputs for the other scenarios is given in Appendix C.

7.2. Model Description and Input Assumptions

7.2.1. Financial Model

AviaSolutions has developed a model to assess the financial viability of a re-opened Manston Airport. This model assesses the financial performance of the airport based on various assumptions for four London area capacity scenarios which result in different demand scenarios for Manston. The assumptions have been developed in a number of different ways and draw on a wide range of sources including; analysis of the wider aviation industry, published financial accounts of the companies responsible for Manston Airport, benchmarking of comparable airports, information from our stakeholder interviews and our independent judgment based on knowledge and expertise within the aviation industry.

7.2.2. Brief Overview of Model

The model simulates the financial performance of the airport under different scenarios. This performance is measured through simplified financial statements including a Profit and Loss Statement (P&L), Cash Flow Statement and Balance Sheet. It should be noted that these are simplified statements used to illustrate performance and have not been produced to GAAP standards. The financial statements are modelled over a period from FY2017 to FY2050, on the assumption that the airport is reinstated on the site in FY2018. The Financial Year is assumed to correspond to the calendar year. This time period is typical of that used to evaluate long term infrastructure assets such as an airport, and the specific dates correspond with the period of the passenger forecasts used by the Davies Commission.

7.2.3. Approach to Assumptions

Throughout the research AviaSolutions has consistently taken a positive outlook with regards to the underlying demand assumptions. Specifically, this means that we have opted for the upper bounds of traffic, the upper bounds of unit operating revenue, the lower bands of unit operating costs, and minimal asset costs and capital investment requirements.

We therefore conclude that the assumptions and analysis that follow present the prospects of Manston airport in a very favourable context. We would consider these outputs to represent a 'High Case' and believe they present the airport in a situation where there is a very limited prospect of additional revenue or lower cost structures.

7.2.4. General Assumptions

Revenue

Airports generate revenue from two primary sources: from the charges levied on airlines for using their facilities (referred to as Aeronautical Revenue), and from more discretionary activities including retail, car parking and property (referred to as Non-aeronautical or Commercial Revenue). Manston Airport historically provided ground handling services to its customer airlines, and revenue from these activities is included in Aeronautical Revenues. Previously Manston Airport supplied fuel to some airlines, and our model includes this as a separate revenue line (as a net revenue so that the cost of the fuel does not need to be considered).

Revenue Assumptions within AviaSolutions Model

Revenue	
Aeronautical Revenue per Passenger	£7.00
Revenue per Tonne of Freight	£50.00
Commercial Revenue per Passenger	£5.00
Fuel Revenue per WLU	£0.93

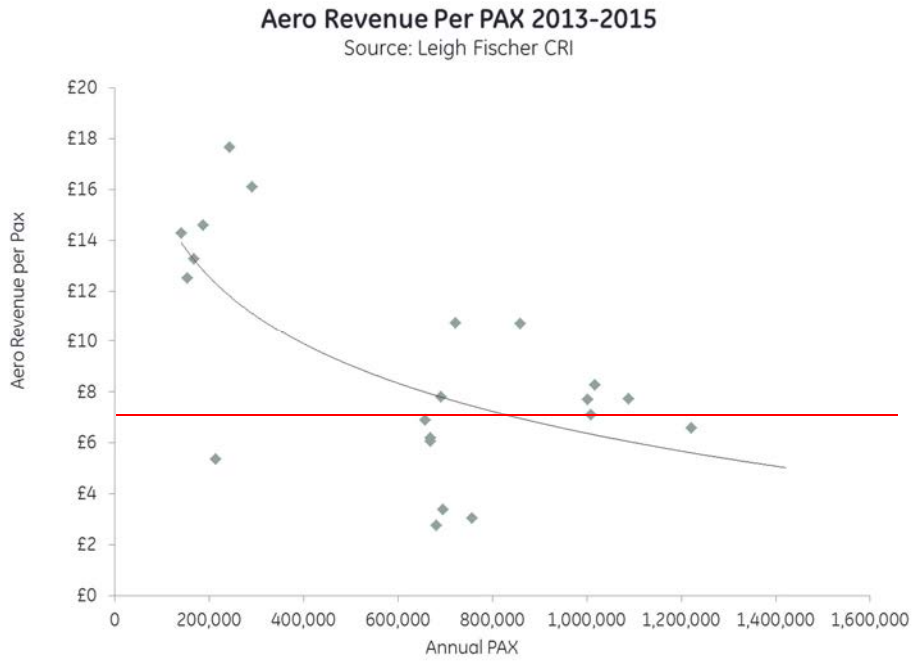
Aeronautical Revenue per Passenger

This revenue includes all airline related fees, including landing charges, passenger charges, and aircraft parking charges. However, it excludes Air Passenger Duty (APD), which is collected by the airline but passed on directly to the UK HMRC. It is normal industry practice, however, and for LCCs in particular to agree a fixed fee per passenger covering the entire range of airport operations (excluding any property rental).

Our experience is that the fees generated by the airport are greatly affected by the type of airline operating at the airport and the level of throughput achieved by the airline. Ryanair's airport charges, across its entire European network in 2015, amounted to €7.80 per total passenger (€15.60 per departing passenger) and during our stakeholder interview the airline indicated it would need to secure a highly competitive airport charge to base aircraft at Manston. The Ryanair average airport charge of €7.80 will include many capital city airports where the airline is very likely to be paying significantly above this average.

We also considered the average aeronautical revenue per passenger of airports that operate with a large share of LCC traffic, as would be expected at a re-opened Manston Airport. In the most recently published accounts (2015) Luton and Bristol airports reported aeronautical revenues of £5.66 and £4.24 per total passenger (£11.32 and £8.48 per departing passenger) respectively.

We have also assessed the aeronautical revenue per passenger achieved across a large sample of similar sized airports in the UK.



Based on these comparisons, we have concluded that a reasonable aeronautical revenue assumption for Manston Airport would be £3.50 per total passenger (£7 per departing passenger) for LCC traffic, and £7.00 per total passenger (£14 per departing passenger) overflowing from the London area.

Revenue per Tonne of Freight

The published accounts of Kent Airport Limited from 2013 identified revenues generated by freight activities. These revenues will reflect the landing charges from freighter movements, the use of the freight warehouses and the handling services provided to the airline. We have confirmed through an independent source that the historic revenue per tonne for freight achieved at Manston is consistent with market rates generally in the UK.

Commercial Aeronautical Revenue

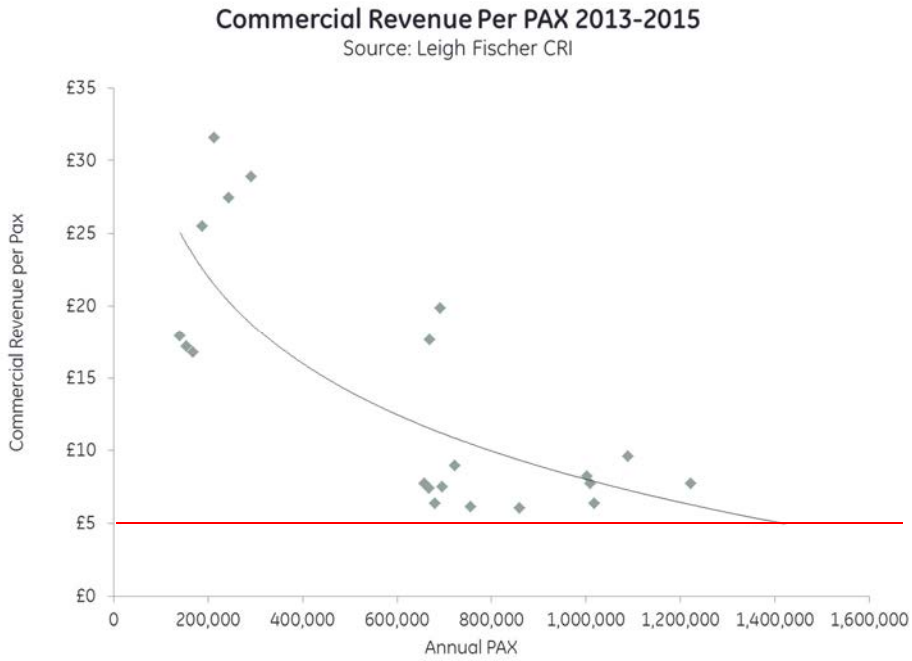
Commercial revenue is generated from passenger-facing services at the airport. One of the main sources of revenue are the airport concessions to operators of the retail shops (including duty free), food and beverage (F&B) outlets, car rental and currency exchange services. The operator will typically pay a percentage of turnover to the airport. Car parking is another source of revenue, with some airports managing operations in-house, whilst others out-source to specialist operators, such as APCOA or NCP.

Property revenue at Manston was £110,000 in 2014, and we have assumed that at a re-opened Manston Airport arrangements would continue on a similar basis.

We have built-up an estimate of potential commercial revenue per passenger by considering typical passenger spending and concession rates (turnover rent) that could be expected at a relatively small airport such as Manston.

In aggregate we have assumed that Manston could generate around £5.00 per total passenger (£10 per departing passenger).

We have also compared the unit commercial revenues generated at a number of smaller UK regional airports. It may be seen that there are a number of airports with low passenger throughputs which record high levels of commercial revenue per passenger. This is almost certainly caused by dividing a relative fixed rental income by a small number of passengers leading to an artificial inflation of the commercial revenue when measured on a per passenger basis.



We therefore conclude that a reasonable initial assumption for commercial revenue per passenger across all non-aeronautical activities is £5.00.

We have also considered the forecast expansion of the terminal to provide the necessary passenger capacity in later years under some scenarios. The terminal expansion would be expected to improve the retail and F&B offer and is assumed to contribute increased commercial revenue by £2 per passenger.

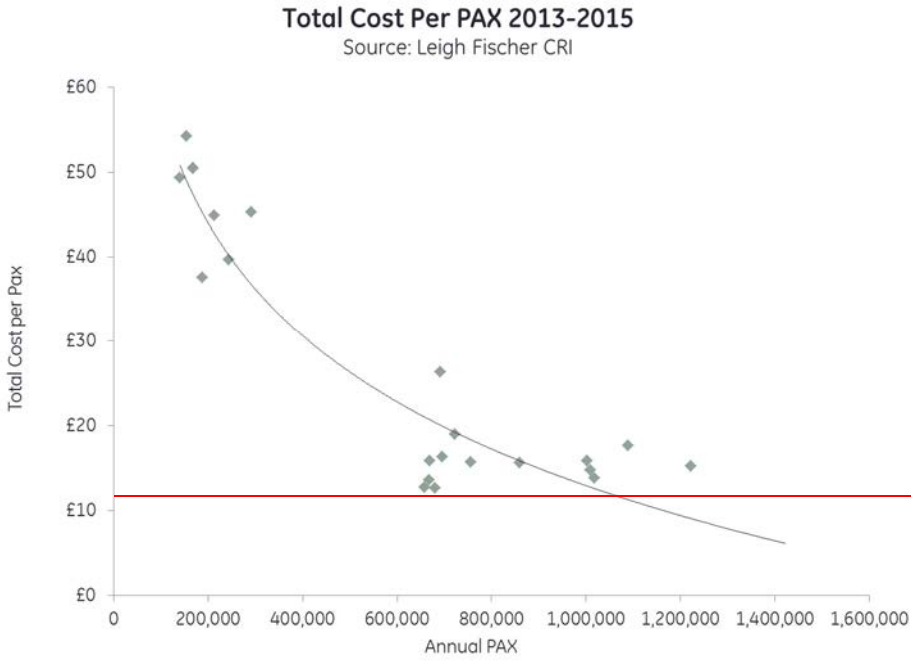
Aviation Fuel

The forecast for aviation fuel revenue is based on the net revenue after cost of fuel has been subtracted. The revenue is effectively the margin payable to the airport for fuel flowage. The margin has been estimated based on industry experience ranging from 3.5% - 7.5%. We have assumed Manston is able to achieve a margin of 5.5% and applied this to the total fuel revenue published in Kent Airport Limited's accounts (2014) to identify the fuel revenue per passenger or tonne of freight.

Total Operating Costs

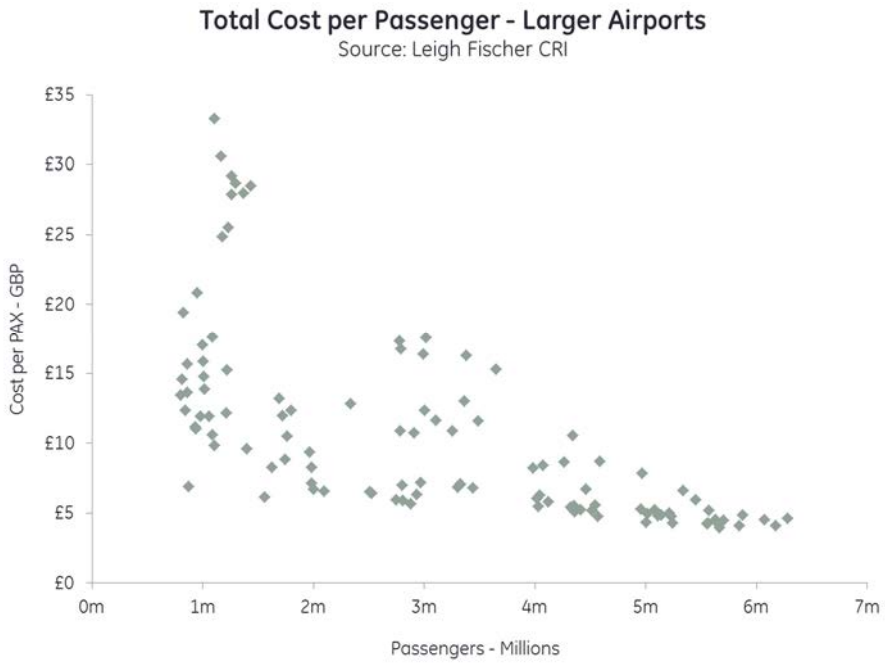
Airports with very low throughput have a high cost of operation per passenger: the fixed cost of airport operations can only be distributed across a low volume. Within a limited range, the marginal operating cost of an additional passenger is zero, but the marginal revenue of an additional passenger will be close to the average revenue per passenger.

This financial characteristic is common to capital intensive infrastructure assets. The chart below illustrates the relationship between volume and unit operating costs (per passenger) at a sample of small UK regional airports.



To reflect the expected evolution of the airport's operating costs over the forecast period we have assumed a fixed total operating cost of £7 million when annual passenger throughput is below 0.5 million. As passenger volume increases beyond 0.5 million we assume that the total operating cost per passenger will decline on a linear basis to reach £12 per passenger at around 1.0 million passengers. This would position Manston Airport amongst the best in class cost per passenger within its UK peer group.

It is reasonable to assume that unit operating costs will continue to decline with further increases in throughput leading to additional economies of scale, as illustrated below. We have linked unit costs to annual passenger throughput such that when annual throughput reaches 6.5 million passengers the unit cost would be £5.00.



Costs specifically associated with freight have been estimated at circa 60% of freight revenue based on the historic performance at Manston.

Overheads

Overheads have been obtained from the published accounts of Kent Airport Limited (2014) and exclude any restructuring costs. In a standard business plan these would often be linked with elasticity to revenue growth. However, as growth would come from a very low base AviaSolutions' view was this would have introduced too many additional costs into the business. Therefore, we estimated that these costs grew at a rate of 0.1x Work Load Units.

Other Assumptions

We have made several assumptions about the initial equity and purchase price of the airport. These assumptions have come from our stakeholder interviews and other research. They are for illustrative purposes only and may differ significantly from any actual investment.

Our estimate of the site purchase price is derived from the recognised value of the airport in Kent Facilities Limited's 2014 published accounts (£7 million) inflated by circa 50%. It is believed that this could be considered a conservative valuation of the site, dependent on the designation of the land at the time of acquisition. The current owners (Stone Hill Park) are seeking planning permission for up to 2,500 dwellings, should this permission be granted, we would assume the land to be valued far in excess of £10m.

We have developed our own estimate of the costs of re-establishing the site as an operational airport based on our industry experience and a site visit. The estimate includes the necessary work to return the airport to a serviceable condition that would satisfy the CAA and facilitate the handling of up to about 2 million passengers annually. We have excluded any advisory or legal fees associated with the Development Consent Order, though these may be considerable.

Cash Flow & Balance Sheet	
Initial Capital Injection	50,000,000
Airport Site Purchase Cost	10,000,000
Airport Site Development Costs	27,000,000
Debt Interest Rate P.A	3.0%
Straight Line Depreciation Years	60
Effective Tax Rate on Net Income	20%
Dividend Payment % of Profit / Cash	0%

We have also assumed that the investment in Manston is funded solely by equity with no debt facility. This is in part to reduce the assumed cash outflow in the early years of operations, but also because we believe that debt-financing would be difficult to secure and relatively expensive.

Additional Capital Expenditure (CAPEX)

Additional capital expenditure is assumed to be required at the point when the airport reaches 2.0 million passengers per annum and is forecast to remain at this level or above. Where the airport is growing rapidly (notably in the 'No Runway' scenario), the additional capacity investment is in two £50 million stages. Where the airport is expected to grow more slowly, additional capacity investment is assumed in a single £30 million stage.

Financial Statements

Taking the combined effect of the financial assumptions and the demand scenarios we have developed a number of illustrative financial statements. These include:

Profit and Loss:

- Operating Statistics
- Revenue Lines
- Direct Cost Lines
- Gross Income
- Overheads
- EBITDA (Earnings Before Interest, Tax, Depreciation and Amortisation)
- EBITDA Margin (EBITDA as a percentage of revenue)
- EBIT (Earnings Before Interest and Tax)
- Net Income (EBIT less Interest and Tax))

Cash Flow Statements:

- Opening Cash Balance
- Net cash flow from Operating activity
- Net cash flow from Investing activity
- Net cash flow from Financing activity
- Closing Cash Balance

Balance Sheet:

- Total Assets
- Long Term Liabilities
- Owner Equity
    - Retained Earnings (which in part determines the ability to dividends to equity investors)
    - Share Capital

7.3. Outputs for LHR Third Runway Scenario

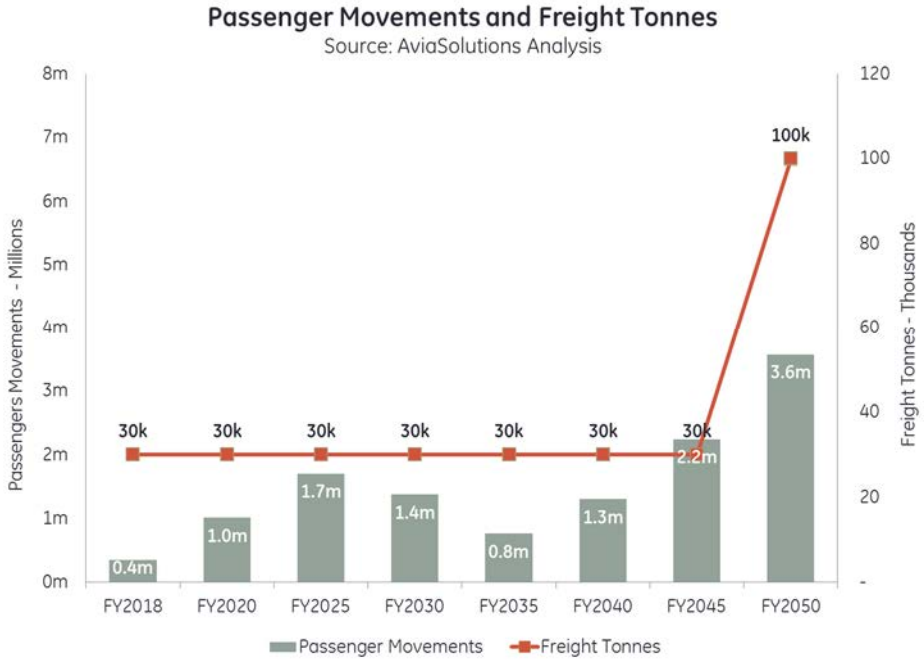
In the following paragraphs we explore the financial viability of Manston Airport based upon there being a third runway at Heathrow. This is the option which was recommended by the Davies Commission and therefore may be presumed to be the most likely outcome. However, the likelihood is that a runway at Heathrow would take longer to commission than one at Gatwick so consequently, Manston may have an initial boost to traffic before falling back and then growing again. This scenario takes spill from the London system in addition to a base level of activity generated from the presumed small LCC operation and freighters. This scenario is more favourable for Manston Airport than a development at Gatwick, and is perhaps the most likely.

7.3.1. Volume Profile

Passenger numbers are forecast to grow to nearly 2.5 million by 2029, the year before the assumed opening of the third runway at Heathrow Airport, but immediately fall back from 2030 and decline to a low of 0.5 million in 2033. From this low point, traffic volume grows as a result of the resumption of overflow, reaching 3.5 million passengers in 2050. Overall growth between FY2018 and FY2050 averages 10% annually.

Freight is not forecast to grow beyond the 30,000 tonnes of the core freighter operations until FY2040, but at that point, freight is assumed to spill from the London Area taking it to some 100,000 tonnes by FY2050.

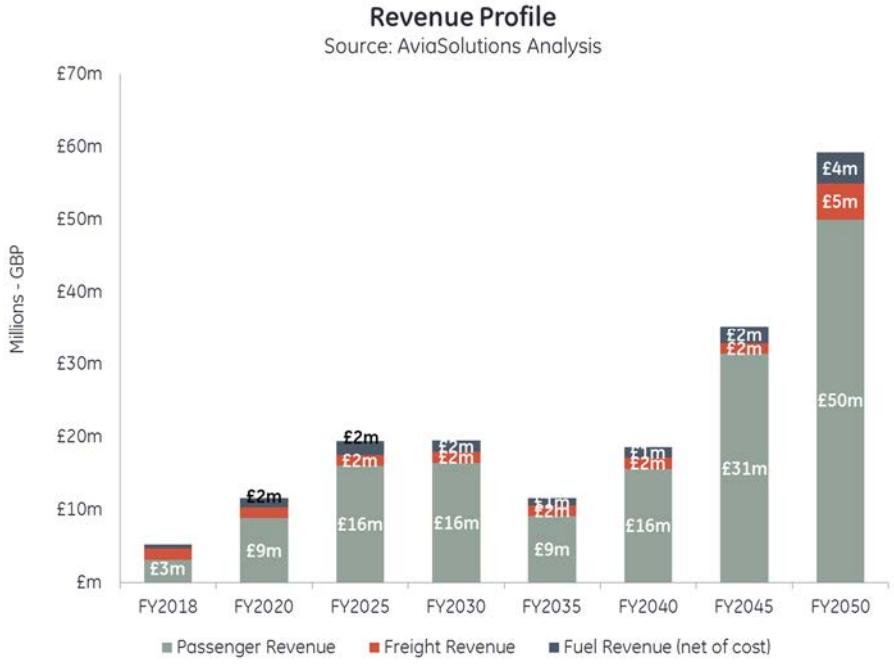
	FY2018	FY2020	FY2025	FY2030	FY2035	FY2040	FY2045	FY2050
Passenger Movements	350k	1,010k	1,700k	1,370k	760k	1,300k	2,240k	3,570k
Freight Tonnes	30k	30k	30k	30k	30k	30k	30k	100k
Total ATMs	1,100	2,900	6,400	9,600	5,300	9,200	15,800	28,000



7.3.2. Revenue Profile

Airport revenue is forecast to grow at CAGR 12% between FY2018 and FY2030, driving revenues to about £20m by FY2030, and at CAGR 8% between FY2018 and FY2050 to reach total annual revenues of around 0m by FY2050.

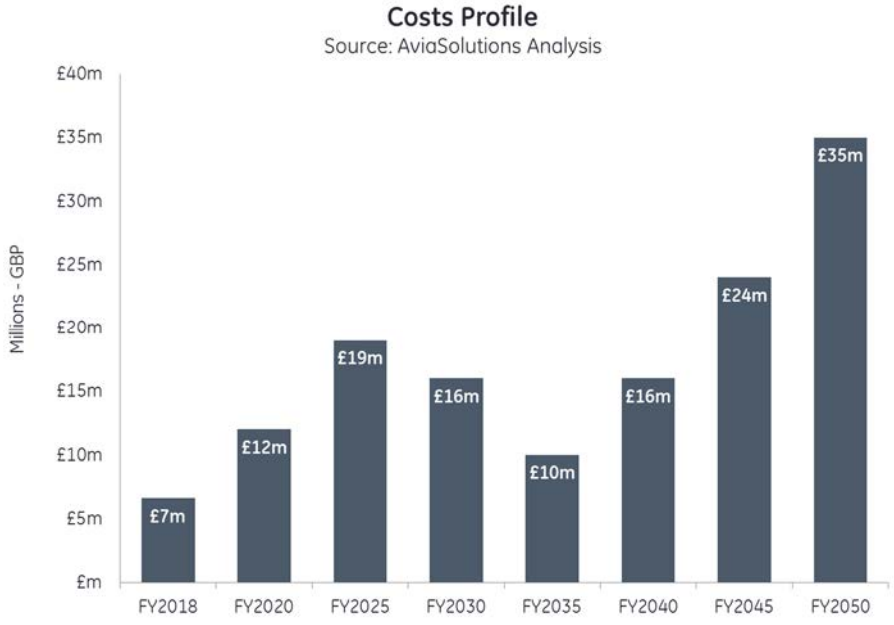
	FY2018	FY2020	FY2025	FY2030	FY2035	FY2040	FY2045	FY2050
Total Revenue	£5m	£12m	£19m	£19m	£12m	£19m	£35m	£59m

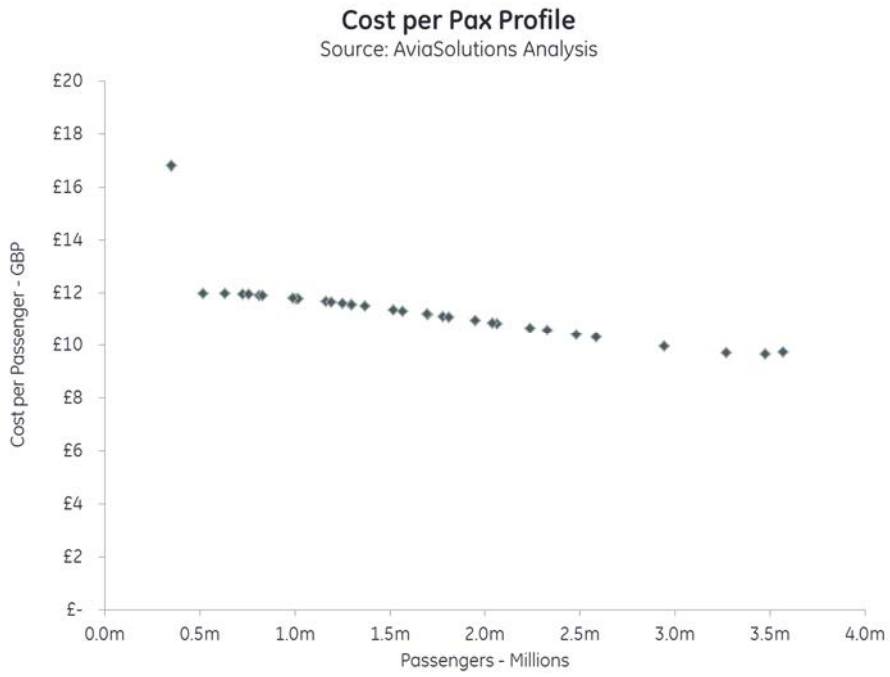


7.3.3. Cost Profile

Total Costs are forecast to grow at 8% per annum on average between FY2018 and FY2030, resulting in total costs of about £15m by FY2030, and at 5% per annum between FY2018 and FY2050 to produce total annual costs of £35m by FY2050.

	FY2018	FY2020	FY2025	FY2030	FY2035	FY2040	FY2045	FY2050
Total Cost	£7m	£12m	£19m	£16m	£10m	£16m	£24m	£35m

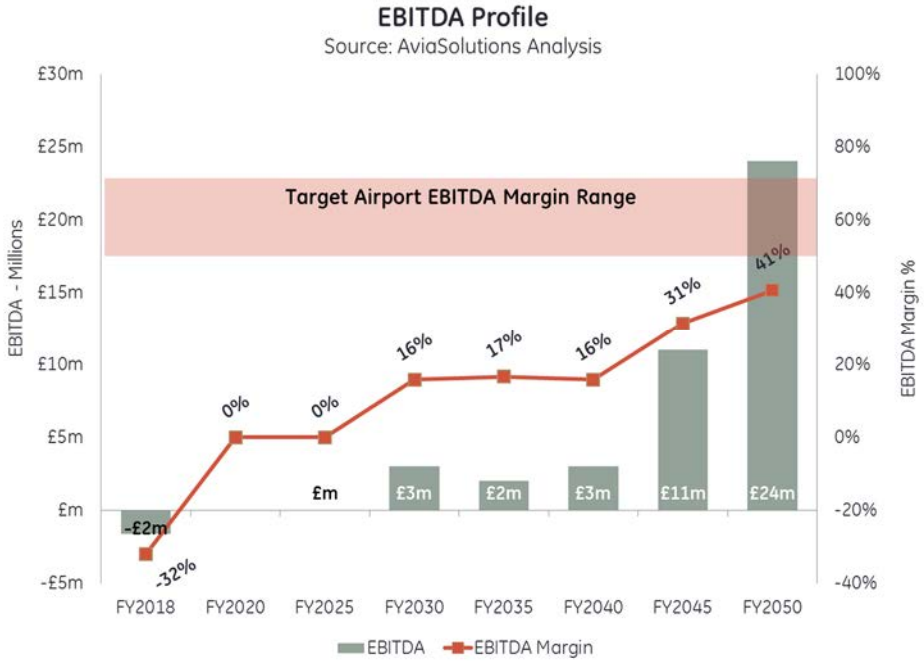




7.3.4. EBITDA Profile

EBITDA is initially forecast to be negative, indicating that the airport would be loss making in the early years at an operational level. It first returns an operating profit in FY2030, generating £9m of operating income and an EBITDA margin of 16%. As the third Heathrow runway comes on-stream, EBITDA at Manston would stagnate due to the lack of available volumes. The EBITDA margin in the long term is forecast to reach 41%, with an EBITDA of £24m in FY2050. This level of EBITDA is significantly below that which we would typically expect for an airport to be attractive to the investment community.

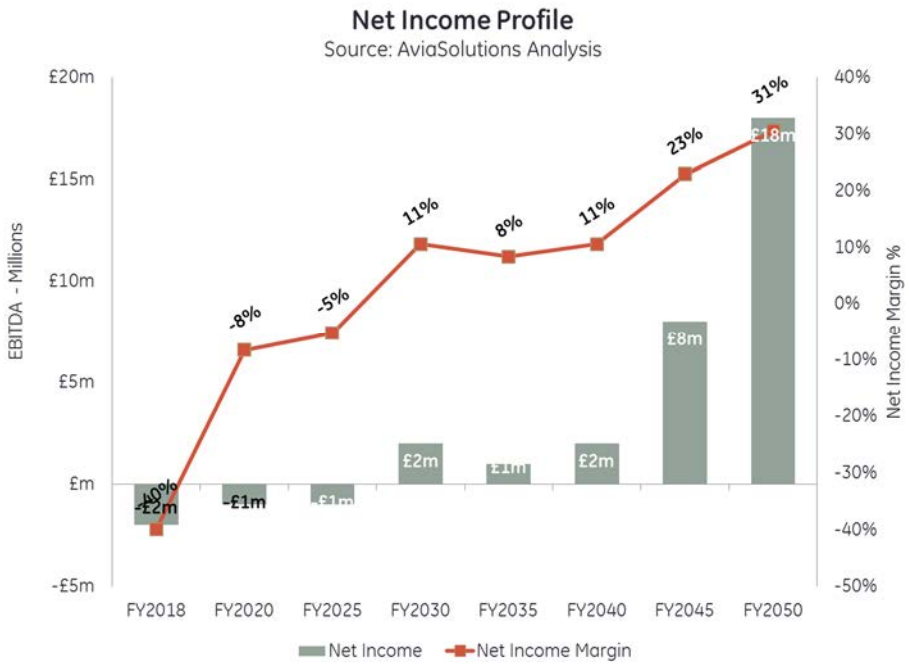
	FY2018	FY2020	FY2025	FY2030	FY2035	FY2040	FY2045	FY2050
EBITDA	-£2m	£m	£m	£3m	£2m	£3m	£11m	£24m
EBITDA Margin	-32%	0%	0%	16%	17%	16%	31%	41%



7.3.5. Net Income Profile

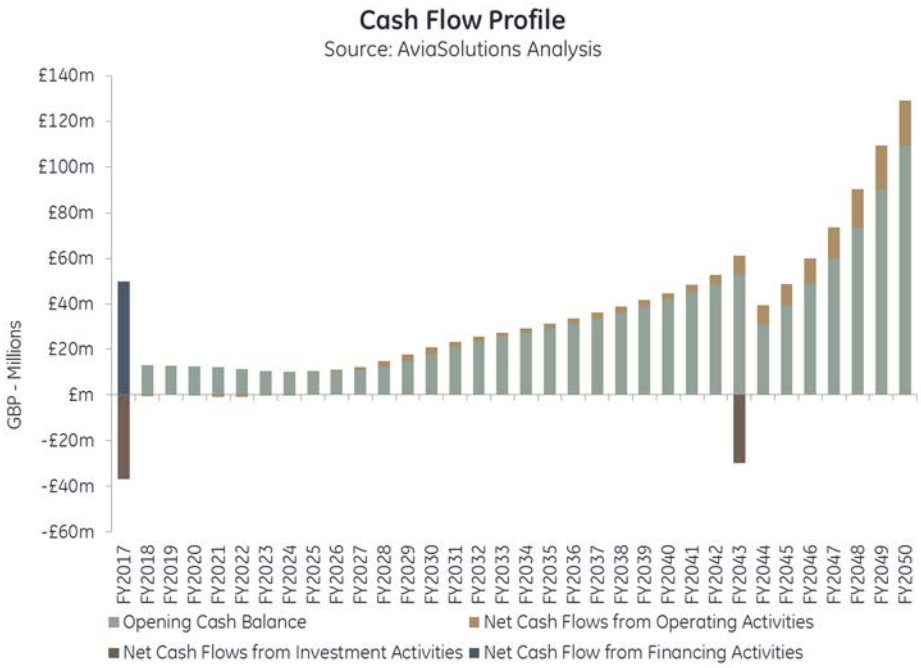
Net income, the profit after deductions, is forecast to be negative until FY2025. The first positive results are generated around FY2030 when the airport is expected to generate net income of £2m. The income stream remains constant for the following 15 years before increasing as capacity becomes constrained once more in the London system. It reaches £18m in FY2050.

	FY2018	FY2020	FY2025	FY2030	FY2035	FY2040	FY2045	FY2050
Net Income	-£2m	-£1m	-£1m	£2m	£1m	£2m	£8m	£18m
Net Income Margin	-40%	-8%	-5%	11%	8%	11%	23%	31%



7.3.6. Cash Flow

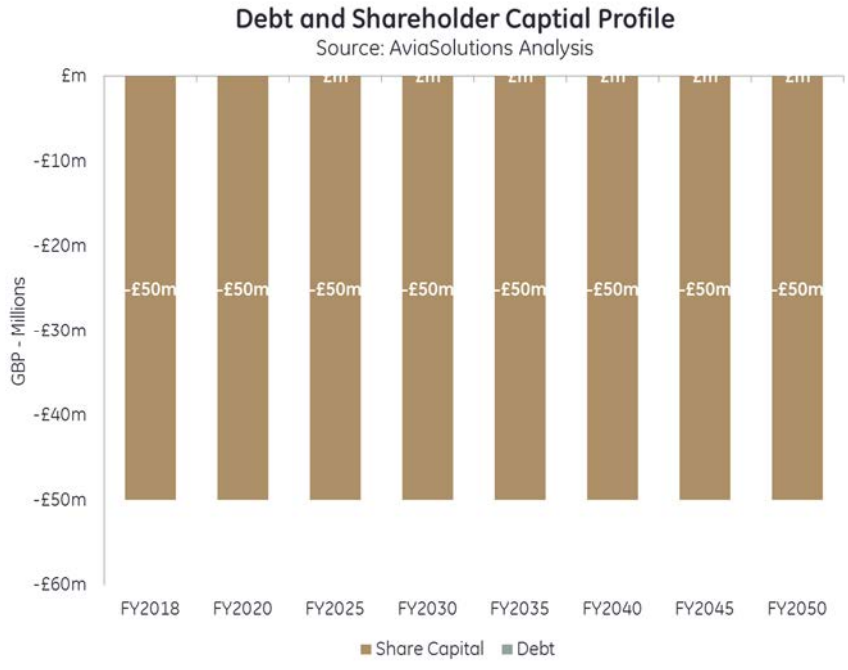
The airport is forecast to develop its cash position with limited additional capital requirements until FY2042 when there would be a requirement to expand the terminal. We have assumed that although demand would exceed terminal capacity in the late 2020s, new terminal capacity would not be provided in anticipation of the loss of traffic following the commissioning of the third runway on 2030. The position shown below excludes any dividend payments that the owner may wish to extract from the asset: such payments would reduce its cash position.



7.3.7. Debt and Shareholder Capital

Whilst the exact nature and mixture of debt and shareholder capital would be subject to complex financial optimisation, we have illustrated below a simple capital structure used in the analysis to illustrate the need for additional capital throughout the period. To maintain the business no further financing would be required. Whilst the business does not generate significant revenues or income, there is little requirement for significant CAPEX investments, thereby eliminating the requirements for additional financing

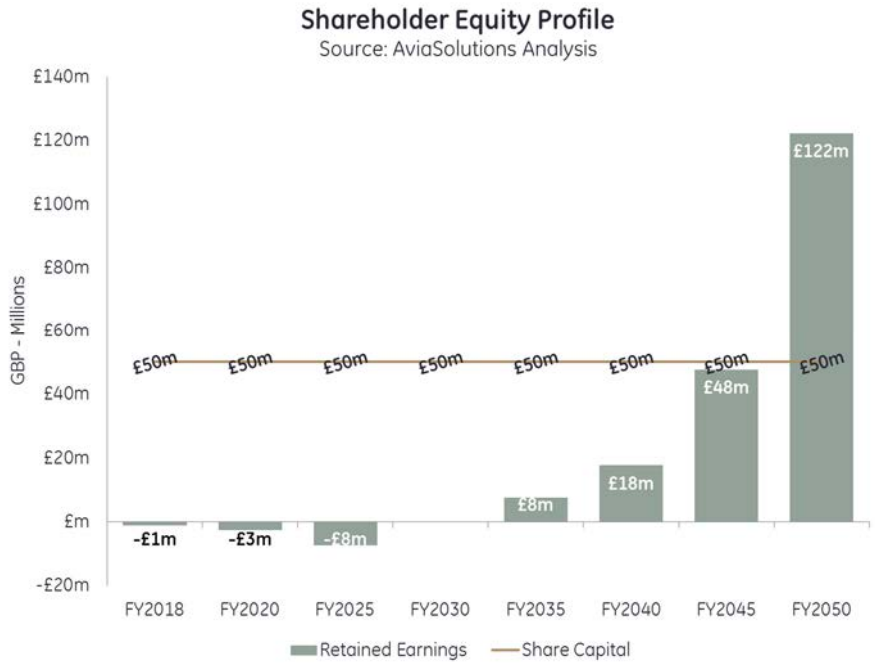
	FY2018	FY2020	FY2025	FY2030	FY2035	FY2040	FY2045	FY2050
Debt	£m	£m	£m	£m	£m	£m	£m	£m
Share Capital	£50m	£50m	£50m	£50m	£50m	£50m	£50m	£50m



7.3.8. Shareholder Equity

Considering the effects of earnings on shareholder equity, the business does not post positive retained earnings until nearly FY2035. This in effect limits the business's ability to pay dividends to shareholders until this point at the earliest.

	FY2018	FY2020	FY2025	FY2030	FY2035	FY2040	FY2045	FY2050
Retained Earnings	-£1m	-£3m	-£8m	£m	£8m	£18m	£48m	£122m
Share Capital	£50m	£50m	£50m	£50m	£50m	£50m	£50m	£50m



7.3.9. Conclusion

The asset would require significant long term investment but would only generate a marginal return on the capital invested. These returns are also predicated on a large number of external variables over which the owner of Manston Airport has limited influence. It is AviaSolutions' view that based on this scenario there is no viable long term prospect of an economically viable airport being established at Manston. It should also be noted that the scenario outlined above excludes any return to the investor, and we have therefore effectively weighted the cost of equity at zero in our model. Investors will always be seeking to maximise the return on their investment in a manner appropriate to the risk they bear in the asset. Given the risks involved with Manston, it would be right to consider that any investor would be seeking the potential for above average returns, which, according to the analyses, may not materialise.

7.3.10. Non-Technical Summary

AviaSolutions' analysis indicates that the airport, operating as a standalone trading entity and in the scenario where a third runway is built at Heathrow, is unlikely to be a financially viable proposition. Airport operations are not anticipated to generate material profit until FY2040.

This is due to the relatively low level of revenue that can be generated and the high level of fixed costs required to operate the airport. This in turn means that the airport would not be able to distribute profits to investors in the airport for many years.

Generally, investors seek to achieve a return on their capital with an expected return commensurate with the risk of the investment. As the risks of investing in Manston are significant there would need to be reasonable prospects of a high return, which does not appear likely based on our analysis.

7.4. Summary of Other Scenarios

We have presented in this main body of text the scenario deemed most likely to occur e.g. LHR3. This is the current recommendation of the Davies Commission and therefore, at the time of writing, believed to be the Government's current preferred option. Details of the three other capacity development scenarios are given in Appendix C.

7.5. Comparison of Scenarios

We compare some key aspects of the four scenarios below.

Measure	LHR R3	LGW R2	Both	Neither
First year retained earnings positive	2031	2032	N/A	2029
Retained Earnings at 2050	£122m	109m	-£20m	£516m
Refinancing				
When?	None	None	None	2028, 2029
Why?	n/a	n/a	n/a	Capex
How much?	n/a	n/a	n/a	£40m
EBITDA Margin				
Year first greater than 50%	n/a	n/a	n/a	2043
or in 2050	41%	40%	34%	60%
Probability	40%	40%	10%	10%

8. Conclusions

8.1. Introduction

In this chapter we draw together the conclusions of our research and analysis to form our conclusions, specifically to opine on whether there is a realistic prospect of a financially viable airport operating on the Manston Site.

8.2. Summary

It is AviaSolutions view that having considered the stakeholder interviews and independent research and analysis into historic accounts and 'reasonable' adjustments for one-off costs that there is little prospect of a financially viable airport on the site.

The only circumstances in which we believe the airport may be viable is that in which no new runway were developed in the South East of England. However, this scenario presents extreme risk to the investor, as a decision to increase runway capacity at those not physically constrained (e.g. legally constrained LHR and STN) could be made at any time, or a new runway may be authorised at any time in the future.

8.3. Stakeholder Interviews

Our stakeholder interviews were split between those focused upon passenger development and those focused upon freight development. The range of interviews provided an understanding from the industry as to their position on the airport.

Our passenger service interviews suggested that overall there is little interest in serving the airport, in particular from airlines that had previously served the airport such as Flybe. There was some limited interest from airlines such as Ryanair and KLM, who would consider the airport as part of their standard UK market review, however they were not actively seeking to serve the airport. It is our view that we must consider this in light of its context; for an airline that bears no risk in an airport's reinstatement and for whom its reinstatement may present upside risk, it would be illogical to rule out the possibility of serving it. Overall, our interviews suggested there was very limited interest in the airport for passenger services thus suggesting a long term viable passenger service may be difficult to sustain.

Our freight interviews indicated that the demand to use the airport for freight was very limited. This, in large parts, is due to two factors; the infrastructure investments that have already been made by the industry around Heathrow and Stansted, and the geographical location of the airport. Infrastructure, and the associated knowledge, skill and supporting industry at airports such as Heathrow and Stansted, as well as the major European hubs such as Frankfurt, and Paris, would be almost impossible for Manston to replicate. The geographic location of the airport, tucked into the corner of the UK, cannot compete with airports such as East Midlands for Integrator services that are sold as fast delivery, due to the increases in surface transportation times. The interviews did however indicate that charter services and ad-hoc freighter flights would certainly return, providing some revenue income for the airport. In summary, we conclude that freight would return to the airport in limited quantities, not dissimilar to the tonnage previously processed at the airport.

8.4. Simulations

AviaSolutions' models provided simulations of the financial performance of an airport on the site under different demand scenarios. These scenarios were developed with a positive view of the potential demand profile, unit revenue and unit cost and investment costs. Two simulations (LHR3 and LGW3) suggested that the airport was unlikely to generate profits at an operational level (EBITDA) until circa FY2025, and that these profits would remain muted through until FY2040. The EBITDA profile suggests that, based on recent industry exit multiples, it would not be possible to recover the initial equity through a sales process as this point. Furthermore, these scenarios suggest that retained earnings would not turn positive for 15 to 20 years, thus limiting the ability of an investor to recover their costs of equity. In summation, these scenarios present very large risks with small returns over a long time horizon.

Our 'Both' runway scenario, naturally, provides an even less favourable result for Manston airport. If this runway scenario were to materialise there would be no prospect of Manston operating on a sustainable basis.

Our 'No Runway' scenario presents some opportunity for the airport. As demand through the London System increases and capacity remains muted, this demand will be spill to alternative airports. Manston, located within reasonable distance to London could be an airport to benefit from this spill, along with airports such as Southampton and Birmingham who are well connected by train to London. In our simulation, this scenario generated sufficient operational income (EBITDA) to support itself, and only required additional financing to expand. However, we must caution that this scenario is balanced in a careful equilibrium, should this be disturbed through the introduction of additional capacity via a new runway or loosening of regulation, the prospects of Manston could be severely diminished.

9. Appendix A: Stakeholder Interviews

Throughout the study, AviaSolutions spoke to many companies and individuals to gather their feedback. Given that these companies operate in a competitive commercial environment, it is not unsurprising that many of those spoke on the condition of anonymity. This is not unusual, particularly given the particular sensitivities around the project. In the following section detailing our interviews, and summarising the comments made, any company or individual that spoke on the basis of anonymity has been identified by only their sector and seniority.

AviaSolutions spoke to the follow stakeholders and / or their representatives:

- Discovery Park / Stone Hill Park
- RiverOak Investment Corporation
- Ryanair Ltd
- Flybe
- KLM
- Mr. Stanley G. Wraight
- Sir Roger Gale MP

Anonymous Sources

- Major European LCC
- Freighter Operator at Stansted
- Air Cargo Charter Broker – UK
- Ex-Director of Network Planning – Major European LCC
- Manager, Flight Operations, Major UK Carrier
- Ex-Senior Executive DHL

Disclaimer: The following Stakeholder Interview notes are representative of the views and opinions of the stakeholders only and not that of AviaSolutions. The notes represent, in AviaSolutions view, an accurate account of the interview but are not a verbatim account of our interview.

Mr. Paul Barber, Managing Director, Discovery Park
Mr. Paul Barber is the Managing Director or Discovery Park, and represents the current owners of the airport site.

- Mr. Barber outlined the ownership structure of the airport site. The airport is owned by Lothian Shelf 718 which is ultimately owned by Chris Musgrave, Trevor Cartner and Ann Gloag.
- Paul Barber is Managing Director and responsible for the day-to-day running of Discovery Park which is the *de facto* administrator of the site.
- The current owners, Mr. Cartner and Mr. Musgrave, are specialists in the redevelopment of the brownfield sites; they have redeveloped Discovery Park and a second site in the north of England.
- Mr. Barber gave a frank view as to the difficulties PricewaterhouseCoopers had when attempting to dispose of the site. After two years the only offer made on the site was from Ann Gloag for £1. Thus, in the view of the current owners, demonstrating the lack of financial interest in the site as an airport.
- During the period of ownership by both Manston Skyport, and under Lothian Shelf 718, Mr. Alistair Welch was heavily involved in the airport. Whilst under Manston Skyport, Mr Welch was chairman of the airport. Later in his career Mr. Welch became Managing Director of Southend Airport and was responsible for introducing EasyJet to Southend.
- Throughout the period of ownership whilst the airport was open Mr. Welch made high-level contact with every reputable airline and not a single airline was interested in operating from Manston, even with aeronautical charges at zero. The only airline that even considered operations was Ryanair, but the option was declined within 48 hours.
- Whilst the airport was open for operations freight was the main source of income. This freight was predominantly import driven from Africa. Whilst the site was able to offer quick access from aircraft to road there was little value-add to clients.

- Thanet Parkway Railway Station will add little value. It is not certain if or when it will be operational, and costs appear to be overrunning already. There is a funding gap and it does not improve journey time to London by more than 10-12 minutes.
- Due to the lack of airlines operating from the airport, Mr. Barber stated that the airport losses were running at close to £5.0m per annum.
- Mr. Cartner and Mr. Musgrave bought into the airport site after the airport had closed. They had no stake in the business whilst it ran as an airport. The business men approached Ms. Gloag given their proximity to the airport and specialisms in the development of brown field sites.
- Stone Hill Park Ltd was formed with Ms. Gloag, Mr. Cartner and Mr. Musgrave. The company believe that Thanet District Council require an additional 15,600 homes. The development will offer around 2,500 of these homes, mixed between starter homes up to five bed executive homes. The planning application includes a provision for social infrastructure such as schools.
- At present there are some small costs associated with the site, but these are mainly the single employee and the security of the site, and utilities. The current owners are not fundamentally against the concept of an airport being run, however they see no credible business plan to evidence its possibility, nor do they believe it is best economical use of the site.
- When pressed on RiverOak's desire to reopen the airport, Discovery Park "don't know where RiverOak are coming from stating an airport is viable". Discovery Park has not had sight of any business plan from RiverOak and RiverOak have not made any credible offers for the site.

RiverOak Investment

AviaSolutions met with RiverOak Investment and its representatives:

- *Mr. Tony Freudmann*
- *Ms. Sally Dixon*
- *Mr. Richard Connelly*
- *Ms. Angela Schembri*

- RiverOak Investment (RiverOak) became interested in Manson airport due to a previous project in the U.S.A. A RiverOak Partner (Nial Oldman) had organised a bond for a U.S airport that was freight driven and found excellent returns on the investment, thus sought an investment of similar characteristics.
- With regards to the asses itself, RiverOak believes the airport is geographically well positioned to capture freight, being in the South East and near the Channel Tunnel. It acknowledges that considerable investment will be required to return the airport to an operational state. However, they are confident through their initial plans that this is feasible and the asset can quickly be returned to a state in which is can handle in excess of 10,000 freighter movements per annum.
- The total investment that RiverOak would seek to make is in the region of £300m over the course of a 12 year period. This would ensure the airport site delivers a high level product and service. Further to this investment, the group would need to sink costs in the DCO process, the DCO purchase cost (circa. £4m in RiverOak's view) and finally in compensation to the current owners (although RiverOak have a value in mind, they are unable to disclose). RiverOak believe the minimum investment needed to bring the airport back to viability is circa £20m, excluding DPO, site purchase and compensation.
- The driving force behind the business plan is air freight and is the vital link to secure a NSIP designation.
- The absence of a national freight strategy is an opportunity which RiverOak seek to influence and develop.
- When probed as to the previous failures at the airport, the RiverOak team held strong views as to the causes of this, and what could be done to overcome this situation in the future. The team had strong views that whilst the airport offered excellent service, the previous owners had done nothing to exploit the asset, or its niches, or to improve its market position. In particular, the team felt strongly that the airport had not made any efforts to promote the airport to Freight Forwarders.
- It is RiverOak's understanding that the airport should be heavily involved in the sale of capacity on board freighters. They believe the previous owners were satisfied to allow freighters to depart with unutilised capacity, and this is an area they would seek to address as owners. ***(Note, AviaSolutions understand this to be an irregular market position to take and pressed to clarify this point during our interview).***
- RiverOak have also considered the geographic location of Manston airport and how it feeds into the ATC systems. They believe Manston is ideally located for aircraft to plug in and out of the national ATC

network. Furthermore, they would expect to receive an EASA license and have had discussions with the CAA to understand the processes required to re-license the airport.
- Further to passenger and freight traffic, RiverOak believe the airport would offer additional services as a diversionary airport within the UK system. There may also be revenue streams from permitting the airport to be used for training purposes.

Traffic

The team talked to AviaSolutions briefly on their Traffic forecast, this area of the business plan has been developed by Ms. Sally Dixon.

- Initially, Ms. Dixon began by reviewing the currently available literature. York Aviation's report of January 2015 suggested that due to capacity constraints 2.1m tonnes of freight will be lost from the London system if no runway is built. RiverOak estimate that this is the equivalent to 100,000 truck movements across the Channel, should this freight all be lost to Europe.
- With regards to capacity type, RiverOak stated that capacity is 70/30 split in the UK with only 30% of capacity offered on Maindeck-freighter services. In Europe, it is stated that this is much closer to 60/40. It is RiverOak's belief that this is caused through a lack of slot availability for freighters in the UK, thus the demand is being constrained.
- The business plan forecast that Manston would achieve 10,000 freighter ATMs in the fifth year of service, these ATMs would be predominantly wide-body aircraft. This level of freighter movement is supported, in RiverOak's view by the wider industry.
- The airport would also seek to develop a passenger business and seek volume from several sources. RiverOak believe that KLM would be keen to return to the airport (despite low load factors). They also state that they are in advance discussions with Ryanair over the potential to base two to three aircraft at the airport. RiverOak are also in preliminary discussions with EasyJet. Finally they believe there is a potential to develop Charter traffic, in particular with the cruise markets and Dover port.
- Taking all these considerations together RiverOak state that they would 2m passengers per annum in the second year of operations.

Ms. Kate Sherry, Deputy Director of Route Development, Ryanair

- Ryanair have recently discussed with RiverOak potential future operations at Manston airport. These conversations have been on the same basis as Ryanair is open to discussions with any airport wishing to obtain services from the airline.
- Previous to these discussions, Ryanair held talks with the owners of Manston airport prior to its closure. These talks were halted when the airport closed and therefore not concluded.
- If Manston were to become an operational airport once again, it is not a foregone conclusion that Ryanair would serve the airport. The airline would look to base any decision on a multitude of factors, including the size and depth of the catchment area and also the commercial terms proposed. Securing a low cost base to the airline is a core aspect of the analysis; this includes the handling and airport charges, effects of APD, operating economics of the route, and in the case of the UK, FX rates to Euros.
- When considering the Catchment delivered from population size Ryanair would look to the airport to sell the benefits of their specific catchment. It is difficult to comment at present on the quality of the Catchment.
- When considering the effects of the London System, Ryanair are not currently concerned with spillage from the London System to periphery airports. The airline is comfortable that there is room for expansion at Stanstead.
- If Ryanair were to serve the airport, the depth of the network would permit the airline to serve it without necessarily basing aircraft at Manston. However, it is possible in the future that the airline could choose to base a single aircraft at the station.
- Once a decision to operate had been reached, generally a lead time is permitted to allow the sales and marketing processes to embed. This also ensures the airline can plan its schedule appropriately, working approximately six to nine months in advance.
- As has been recently stated in the media, BREXIT remains a concern for Ryanair and any effects of the UK's exit from Europe would be factored in to a decision to operate.
- In summary, Ryanair are constantly reviewing their network and remain open to approaches from any airport. If the airport became operational, the airline would review its potential and fit within the wider airline network in due course, and is available to discuss terms with the owners at any time.

Mr. Martin Pearce, Flybe

- Europe's largest regional airline, Flybe, operated several routes from Manston in the years' preceding its closure. The airline did not base aircraft at Manston. In their experience the service offered was excellent with no issues arising from handling or passenger services. The passengers traffic was were mainly leisure and VFR, with very few business passengers.
- Mainly outbound e.g. Manston to the destination, very little in terms of other end originating
- These routes closed predominantly due to poor load factors, there was insufficient demand for the service from the local catchment area and very little demand for inbound traffic to Manston. Furthermore, the yield profile of the traffic did not meet with the airlines expectations.
- In normal circumstances the airline would permit a two to three year ramp up period following a route opening, however given the operating conditions the airline ceased operations within 12 months.
- The reasons the route performed below expectations are varied, but these are believed to have been exacerbated by the relatively small local catchment, less favourable average economic development and poor public transport infrastructure links to London.
- The airlines have reservations as to whether the airport could serve the South East catchment, and do not believe that the airport could realistically serve spilled traffic from the London system.
- It is unlikely that, even if Manston should reopen, the airline would choose to serve the airport.

Major European LCC

- Manston is not an airport the airline is considering. The company focuses on core catchment areas with less than 60 minute travel to the airport, and at most 90 minutes.
- Manston has a weak demand and the local catchment area is not overtly wealthy.
- Alternative airports offer better options, Southend and Stansted tap the London catchment area and can be really cost-effective airports
- Manston would have to tap into Gatwick's catchment and price would need to be very low (no more than a few pounds per passenger.
- The airport is probably not for the LCC in question. If there was no runway capacity available in the South East, the LCC would opt for a larger aircraft type before selecting Manston and would probably consider alternatives such as Southampton and Bournemouth first.
- Other carriers without a footing in Gatwick might consider Manston, as might freighters.

Ex-Director of Network Route Development for Major European LCC

- Following the BREXIT vote many airlines will be considering their approach to the UK. During a period of uncertainty it will be difficult for Manston to convince carriers to open routes to the airport.
- LCC's would look to secure deals with minimal aeronautical charges. Without an extremely competitive rate there is no possibility an LCC would locate services at an airport. In some cases, LCC's have walked away from airports offering negative aero-charge deals due to poor volumes.

Manager, Flight Operations, Major UK Carrier

- The individual plays a key role in the Flight Operations team at a major UK carrier.
- It is the individual's view that Manston does not offer any safety or resilience benefits of a material nature to the UK system. The airport is located in close proximity to six London airports which offer excellent resilience already.
- The airline would also not consider using Manston airport as diversion airport except in an on-board Mayday emergency (which are extremely rare).
- When considering diversion airports the airline considers multiple factors such as; does the airline already offer services at the airport, the size of the airport, the facilities at the airport to handle passengers, the local facilities to provide hotel and accommodation, the equipment at the airport to handle all types of aircraft required e.g. GSE equipment, and other legal requirements such as the provision of sufficient Fire Cover. On these measures, it is considered unlikely that Manston would be selected as an alternative airport, when Gatwick, Heathrow and Stanstead can all provide superior services within London.
- In the individuals view, whilst Manston would be used in an absolute emergency, it would be very unlikely to receive regular diversions for routine operational reasons, such as weather or runway closures.

KLM Position

- We are evaluating our network to the UK on a yearly basis. We are constantly being approached by airports who would like us to operate to their airports. These opportunities that arise are being looked into and MSE could be one of them.
- It is not possible to say how likely the chance would be that this would materialize in a new operation in the next 5 years in case MSE airport would be operational again

Senior Executive in Cargo Division for Airline Operating Freighters at Stanstead

- Airlines base the decision on where to operate their freighters based on a multitude of factors. However, the overriding factor is based on where investments in infrastructure have been made by their clients, Freight Forwarders. These CAPEX investments by Freight Forwarders are required to ensure they maintain economies of scale through their transit facilities and distribution centres. In the UK, these investments are centred at Heathrow, and more recently Stanstead.
- The airlines first choice of destination was Heathrow, as the majority of Freight Forwarders have their major infrastructure in and around Heathrow. The airline was unable to access slots at Heathrow and so selected Stanstead due to runway length, a mature offering including infrastructure development and third party handlers
- Stanstead operates a world class facility and has the competencies to handle freighters. It is questionable whether this would be possible, at least initially, at Manston.
- The airline would be extremely unlikely to consider moving services to Manston, even if they were no longer able to serve Stanstead, regardless of the commercial terms offered. If the airline had to move services they would consider East Midland and Manchester or other centrally located airports over Manston.
- The individual also believes that there is virtually no chance that a Freight Forwarder would choose to relocate services to Manston.
- Furthermore, as air cargo is a commodity virtually all operators offer the same service and compete on prices. Therefore, most operators implement similar strategies and business models. The result of this is that, in the individual's opinion, other freighter operators would also take a similar stance.

Air Cargo Charter Broker – UK

- The company had made use of Manston Airport in the past (circa. Up to 2 x flights per week) and found it to be a reliable and efficient airport that was well placed for access to the South East of England. The airport had the facilities to handle many aircraft gauges, from small freighters right through to B747F operations. The airport provided good access and the company had no difficulty in obtaining slots. The cost of operating from Manston was more effective than at Stansted, this included the aeronautical landing fees and associated handling costs.
- The company's over riding view was that Manston was an easy airport to use, it provided a good service and gave priority to freight.
- The airport provided all services on the ground, including ramp handling for freight.
- The company was aware that many of its competitors also used the airport along with scheduled operators such as Cargolux and ANA.
- The company was cognizant that, whilst the inbound demand for freight existed, there was little demand for outbound freight, which resulted in aircraft departing with unutilised capacity. The inbound demand was largely from West Africa, with strong volumes of fresh flowers and produce imported. Manston was particularly efficient at handling this cargo and permitted road feeder services to access the apron which resulted in quick access to the UK road network.
- Alongside produce, the airport had a reputation as being able to handle outsized freight such as engines and turbines.
- The airport's location prohibited its use for more northern destinations, East Midlands and Doncaster were favourable in these instances
- The Air Cargo Charter Broker confirmed that they would certainly be interested in using the airport again if it re-opened but in order to do so they would be looking to secure competitive rates for landing, parking and screening charges.

Ex-DHL Aviation Senior Sales Executive

The individual has held senior positions in the cargo industry for over 15 years.

- Whilst Manston may offer an opportunity for some it is unlikely that DHL would relocate its operations. The setup at East Midlands is tuned to its needs. Further, East Midlands is geographically well located for quick access to the UK road network which is exceptionally important for the courier business model.
- In their experience, they believe it unlikely that any integrator would be interested in moving their operations to Manston.
- Generally, more and more freight is being shipped as General Cargo from Heathrow. Given the six hour close out period, it is reasonable to assume carriers could then use road feeder services to distribute this via Manston.
- Regarding other freight uses, Charter operators and scheduled all cargo operators may wish to locate services at Manston but this is highly dependent on the commercial offer. The sole purpose of utilising Manston would be to reduce cost, either through reduced flight operations or lower airport charges.
- One point of note is that the UK is a lot cheaper to export form at present. Thus, a lot of freight originates in continental Europe and moves via belly hold.
- Overall the individual's view was that whilst Manston would undoubtedly attract some business it is unlikely to be significant volumes.

Mr. Stanley G. Wraight – Senior Executive Director Strategic Aviation Solutions Limited

Mr. Wraight is an industry veteran with over 40 years' experience in the air cargo industry. Previously, Mr. Wraight held the positon of CEO at AirBridgeCargo, and Senior Executive roles at Atlas Air and KLM.

- The airport offered a good location for freight being imported from Africa; this was the predominant origin market. Generally, the freight that was imported was pre-packed shop-ready fruit and vegetables that could be transported directly into the supply chain.
- When the airport closed, Doncaster and Stanstead tried to win the business from Manston, whilst some gains were made, the majority of the business relocated to European hubs as they are more closely located to the final destination, thus reducing overall cost.
- There are few all-cargo operators who would consider locating operations at the airport. Operators will be tied into their networks, in part due to their clients locating their facilities at the main airports (Heathrow and Stanstead). One opportunity could be Cargo Logistics, an off chute of AirBridgeCargo.
- In order to secure freighters movements at the airport, it will be necessary to demonstrate a cost advantage over competitors. This could be through a reduction in the overall Flight Hours required for operations, however the ability to do this is limited given much of the freight is destined for Europe. The ideal origin market for freight, on minimum Flight Hours basis is the USA.
- With regards to Integrators basing operations at Manston, the probability of this is viewed as slim. The Integrators have committed large capital expenses to existing operations at Stanstead and East Midlands, these barriers to exit are substantial and would be difficult to overcome, in particular given Manston's inferior geographical positon within the UK.
- It would be difficult for Manston to compete with East Midland or Stanstead. EMA in particular offers 24/7 cargo operations with customs available 24/7. They have developed economies of scale in both service and cost.
- Further to this, the saturation of regional airports in the UK and Scotland in conjunction with additional wide-body passenger aircraft create difficult trading conditions for a new regional airport.
- Finally, the centre of power within the industry is held by Freight Forwarders, the majority of whom are based at LHR. As the industry is ever increasingly commoditised, Forwarders refuse to divert their business from Heathrow, instead choosing to truck cargo in from the regions to feed the facilities and consolidation business centred there and achieve the necessary economies of scale required to compete.
- The conclusion being that there is virtually no incentive for operators to move operations to Manston, there are alternative UK airports that offer competitive services on reasonable terms. The UK doesn't need another airport for freight that has no USP. If Manston were to be developed it would be essential for it gain a niche market such as becoming an Amazon or Alibaba e-commerce base.

AviaSolutions Meeting with Sir Roger Gale MP – 13th Sept 2016

As part of the stakeholder engagement process AviaSolutions has, at his request, interviewed Sir Roger Gale (MP for North Thanet) to seek his perspective on the commercial viability of and political support for, Manston Airport. The following comments are intended to reflect the substance of the meeting, rather than a verbatim transcript.

- Sir Roger Gale MP ("SRG") stated that Manston Airport and its associated runway are national assets of strategic importance to UK PLC.
- SRG noted that he does not support any particular group wishing to use the asset as an airport and that his interest is in solely in keeping the airport open. He notes, however, that to date RiverOak offers the only sustained and viable interest in operating Manston as an airport. SRG noted that he had seen the outline River Oak business plan which in his view was credible. SRG was not surprised that River Oak did not disclose the plan to AviaSolutions, and was not willing to divulge any of the details for reasons of commercial confidentiality. However, SRG also added that all of RiverOak`s case would be made public when the company submitted its` application for a Development Consent Order to a Planning Inspectorate that was qualified to subject the submission to detailed public scrutiny and inquiry.
- SRG said that it was clear that the intentions of those currently in control of the site were to develop the land for residential and commercial purposes, rather than invest in the airport facilities and expand the air service network.
- SRG provided a brief summary of the historical evolution of the airport, including services by Silver City to Jersey and Clive Bourne, a logistics operator.
- With regards to the development of a railway service to the airport SRG noted the scope to develop the railway is limited by the physical constraints of laying the line and precludes a link directly into the airport. The practical alternative is a Thanet Parkway station, which would initially be linked by a shuttle bus service, and ultimately could be linked by a Gatwick-style monorail.
- SRG is of the view that the primary reason that the airport has not been financially sustainable in the past is the nature of the business model that has been pursued. Previous operators have focussed on developing the passenger business, rather than the freight capacity of the airport, which is the reverse of the model that SRG believes, would be more sustainable.
- SRG noted that UK PLC is losing business to Europe already, with freight being switched from the UK to other European hubs (Frankfurt, Amsterdam, and Paris). SRG also noted that a major courier has expressed an interest in relocating to Manston. He was of the view that the UK has reached maximum capacity for London originating freight services and that excess demand was being lost to other hubs.
- SRG observed that post-Brexit it was going to be vital that the UK develops additional and alternative markets outside the European Union. These greater distances will inevitably mean an increase in the demand for air freight capacity between Britain and the rest of the world if the country is not to lose still more aviation business to mainland Europe.
- In terms of runway capacity, SRG suggested that freighter traffic currently using Heathrow could be relocated to Manston, freeing these slots to facilitate additional passenger services to the Far East. SRG also noted that operators that were forced to re-locate following the closure of Manston were waiting for the airport to reopen and would be keen to return.
- SRG stated that Low Cost Carriers are very interested in operating from the airport, and that if the airport were to re-open, would be very likely to start services at the appropriate time in the airport`s re-development. However, SRG was not willing, for reasons of commercial confidentiality, to disclose the source of this information nor the airline in question.
- SRG was keen to stress the importance of ancillary businesses to the airport's viability, which included aircraft dismantling and engineering firms. SRG also noted the Search & Rescue operations which had recently been permanently located at Lydd. Further options for the airport would include General Aviation (GA) which would be able to access London via Battersea Heliport.
- SRG noted the widespread political support for Manston Airport, including Sir Patrick McLoughlin, the former Transport Minister, The Minister of State for Aviation, John Hayes and David Cameron when Prime Minister. He indicated that that political support at national and local levels was, particularly in the light of the Brexit decision, on-going. SRG also noted that there would not be any need for financial support from Central Government and that the airport should be able to attract sufficient private capital to exist as a standalone business.
- SRG spoke at length on the alternative proposal by Stone Hill Park for the site, noting that that the ability to develop the site for residential and commercial purposes was questionable, with several potential challenges including the likely presence of a war grave, buried low level radio-active waste,

archaeological interests, and issues with the effect upon Thanet`s aquifers all needing to be addressed prior to any redevelopment. He indicated that any alternative development would, prior to change of use, require the same intensive Environmental Impact Assessment as that currently being undertaken by RiverOak for airport purposes. Furthermore, SRG noted that there is limited demand for additional industrial space in the area, that there is already a more than adequate supply of industrial land available in East Kent and that the number of new jobs generated at Discovery Park is, contrary to the claims made by the Leader of Kent County Council, low.

- With regard to a new runway in the South East, Sir Roger indicated that he believed that a runway decision would be made fairly soon but that any actual new runway would not be operational for at least 15 years. It is his belief that, even with a new runway in the London airport system, the Manston Airport remains a viable facility with freight as its primary purpose supported by passenger traffic.

Non-Reply

- The following airlines were sent a request for their positon on Manston airport but chose not to submit a response.
    - Monarch
    - Thomas Cook
    - Tui

10. Appendix B: Condition Report Manston Airport

Introduction

The following section contains our report on the condition of the airport assets, it should not be read as a definitive summary of the asset condition. Our report is based on a visual inspection of the airport on 3 August 2016 under the supervision of the current airport owner's representative.

Terminal Building

Summary

The current facility has an approximate footprint of 1,900m^2 and in general would have been suitable for single and dual aircraft operations simultaneously. On balance we would suggest that the building in its current configuration could be re-instated but that the cost of such modifications may make it more economically viable to demolish it and erect a purpose built low cost facility. In general the basic fabric of the building was intact, although there is evidence of water entering the building via the roof at various locations.

General

We observed that the drop off/pickup area was located adjacent to the front of the terminal building. This is in contravention to current security requirements and would necessitate the offsetting of the drop off pickup area. In-turn, this would require the transforming some land currently allocated to parking. The current site could facilitate this change through lateral expansion of the parking area.

We note that the current configuration of the terminal building, along with the apron, limits lateral expansion. To accommodate significant traffic volume would require a significant change to the current layout.

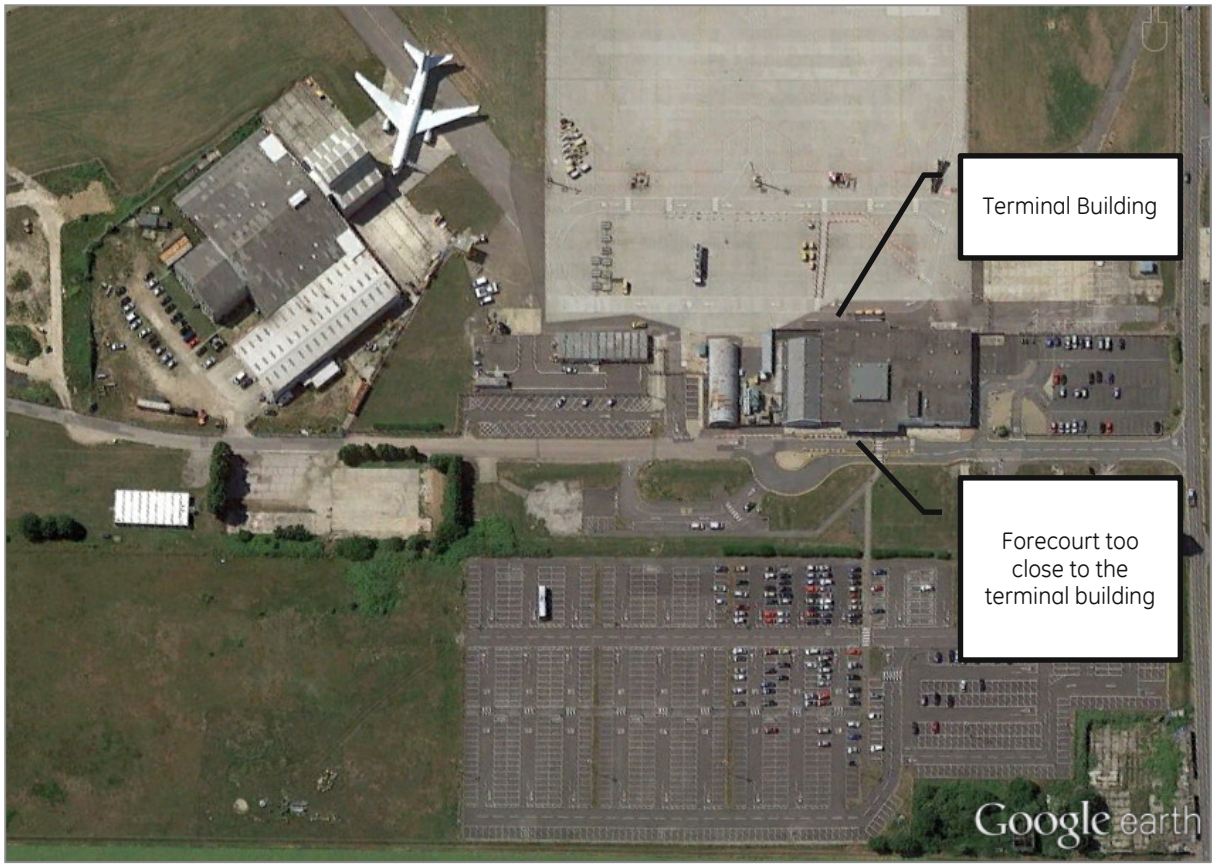


Figure 1: Google Earth image of aircraft maintenance hangar, terminal, parking area and apron (prior to the closure of the airport)

Figure 2: Evidence of water entering terminal building

Figure 3: Main foyer of terminal building from arrivals. Check-in area to the left of the image.

Figure 4: Evidence of water damage in may foyer.

Figure 5: Check in hall (desks removed)

Movement Areas

Apron

Summary

The fabric of the apron appeared to be in relatively good condition with space for up to four simultaneous Code C or two Code E operations.

General

Of note was the significant depth of the apron which accommodated a large GSE storage area at the head of the stand. To become compliant the apron marking would need to be re-established, which is relatively straight forward to accomplish.

Figure 6: Apron as viewed from terminal

Figure 7: Apron Drainage. Some growth of plants which will need to be addressed.

Taxiways

Summary

In general we observed that the taxiways were of relatively good condition with only minor spot repairs required. To re-stablish services appropriate lighting and marking would be required.

Runway

Summary

A visual inspection of the runway indicated that overall it is in very good condition. There is evidence of some vegetation appearing. Discussions with the current owner's representatives identified a surface friction issue. We note that there were plans to address this through surface treatment issues but to our knowledge this work was not carried out.

General

The runway approach and edge lighting has been removed and require re-installing to permit operations. Additionally, the runway has been painted to accommodate 'Operation Stack'. Considerable work is required to remove the current markings from the runway and repaint it with appropriate aviation markings. However, it is our understanding that this work will be completed as part of the current agreement with the Department for Transport.

Figure 8: Runway (Rwy) 29 Threshold

Figure: 9 Large aggregate used for wearing course may be impacting surface friction characteristics

Figure 10: Shoulders of runway are paved. Evidence of plants establishing a presence in cracks

Figure 11: Runway 27 and evidence of plants establishing presence in cracks

Systems

Navigation

Summary

It is our understanding that the Instrument Landing System and supporting systems were sold upon the airport's closure. These systems, including backup power supply, would need to be re-instated.

Figure 12: Radar tower with radar removed

Lighting

Summary

It is our understanding that the approach, runway, taxiway and apron lighting systems and supporting elements were sold upon the airport's closure. These systems including backup power supply would need to be re-instated.

Control Tower

Summary

No appreciable control tower facilities were available to inspect. To facilitate commercial operations it would be necessary to install a new control tower and associated support systems, including appropriate radar systems.

Rescue & Fire Fighting

Summary

The current Fire Station is unsuitable for use. We believe it would require demolishing and the construction of a new Fire and Rescue Station.

Figure 13: Dilapidated Rescue & Fire Fighting Facility

Ancillary Buildings

Maintenance Hangar

Summary

Adjacent to the primary apron is a large aircraft maintenance hangar with a unique addition allowing it to accommodate aircraft larger than what it was originally designed for. It is our understanding that this building is currently under lease by a maintenance company undertaking limited maintenance work. The building fabric appeared to be in reasonable condition.

Figure 14: Maintenance hangar

Figure 15: Interior of maintenance hangar

Figure 16: Bespoke tail enclosure of hangar

Cargo Hangars

Summary

During the visit we undertook a preliminary inspection of several cargo facilities on the airport site. The location of the facilities was ideal for this type of operation, having access to the local road network and the taxiway system. In general the buildings appeared to be in reasonably good condition. We foresee no reason as to why they could not be re-instated as cargo facilities.

Figure 17: First cargo hangar exterior

Figure 18: First cargo hangar interior

Figure 19: Second cargo hangar exterior

Figure 20: Second cargo hangar interior

Re-Establishment Cost Estimate

The following is an estimate of costs associated with re-establishing the required infrastructure to operate commercial services from the airport.

For the avoidance of doubt, these costs do not include the costs associated with any acquisition of the airport site.

Element	Cost Estimate £	Note
Old Terminal Demolition	400,000	Demolition of existing terminal building
Terminal Building	7,500,000	Construction of new modular single story terminal
Approach Road	750,000	Relocation of approach road to accommodate security requirements
Apron Repairs	200,000	Repairs to apron surface
Airport Lighting	3,000,000	Complete airport navigation lighting system
Navigation Systems	2,500,000	ILS/DME/DVOR
Radar	3,500,000	Secondary Radar System
Runway Treatment	1,500,000	Grooving of runway to address low friction characteristics
Cargo Building Repair	400,000	Minor repair to cargo buildings
Power System	2,500,000	Complete power back up system to accommodate CATI ILS approaches
Mobilisation	1,200,000	Ancillary mobilisation costs of re-instating airport operations
Contingency	3,517,500	15% contingency
	£ 26,967,500	

11. Appendix C

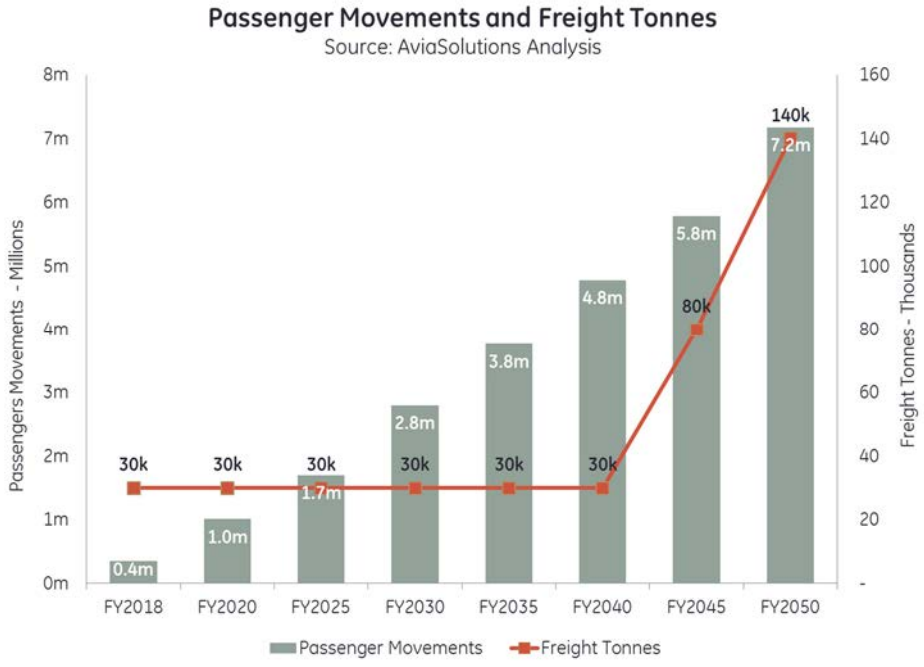
11.1. Outputs for No Runway Development Scenario

In the following paragraphs, we explore the financial viability of the airport based upon there being no new runway in the South East. This scenario takes spill from the London system in addition to a base level of activity generated from the presumed small LCC operation and freighters. Whilst this scenario is the most favourable for Manston airport, as it generates the largest number of passengers and freight, it is perhaps the least likely.

11.1.1. Volume Profile

Passenger movements are forecast to grow at CAGR 19% between FY2018 and FY2030, totalling circa 2.8m passengers by the close of FY2030, growth FY2018 to FY2050 is estimated to be at CAGR of 10%. Freight is not forecast to grow beyond the 30,000 tonnes of the core freighter operations until FY2040, but at that point, freight is assumed to spill from the London Area taking it to some 140,000 tonnes by FY2050.

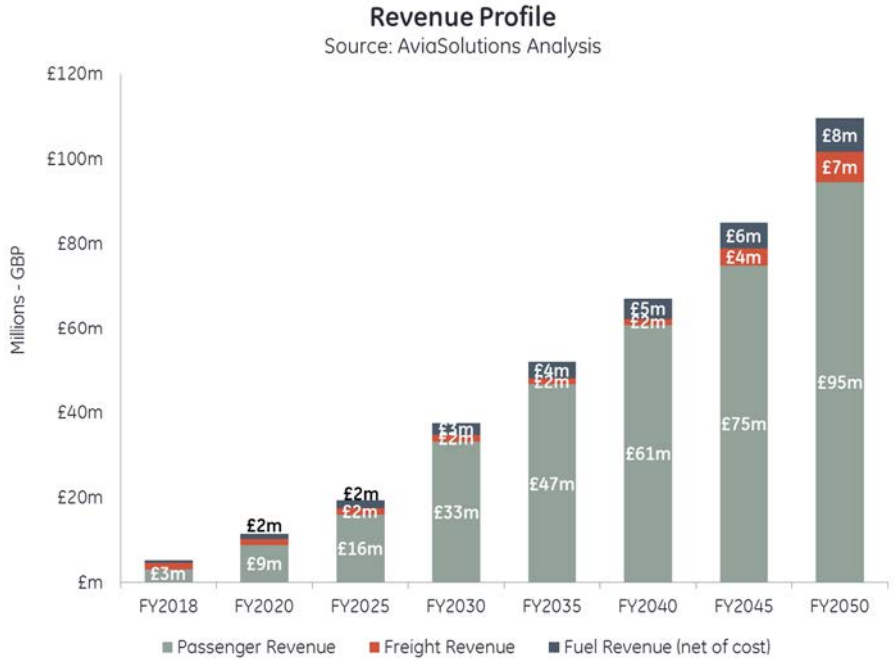
	FY2018	FY2020	FY2025	FY2030	FY2035	FY2040	FY2045	FY2050
Passenger Movements	350k	1,010k	1,700k	2,800k	3,770k	4,780k	5,790k	7,180k
Freight Tonnes	30k	30k	30k	30k	30k	30k	80k	140k
Total ATMs	1,100	2,900	6,400	14,100	20,900	28,100	37,200	49,500



11.1.2. Revenue Profile

Revenue generation is forecast to grow at a CAGR of 18% between FY2018 and FY2030, driving revenues to £38m by FY2030, and at a CAGR of 10% between FY2018 and FY2050 to reach total annual revenues of £110m by FY2050. The revenue profile is exponential in nature due to the increasingly constrained London System environment permitting increasing spill to Manston.

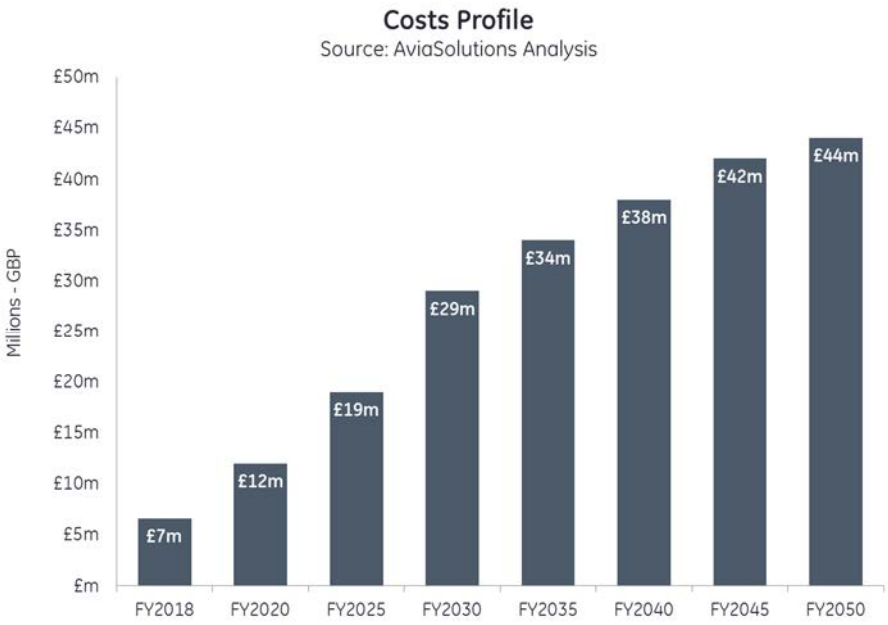
	FY2018	FY2020	FY2025	FY2030	FY2035	FY2040	FY2045	FY2050
Total Revenue	£5m	£12m	£19m	£38m	£52m	£67m	£85m	£110m

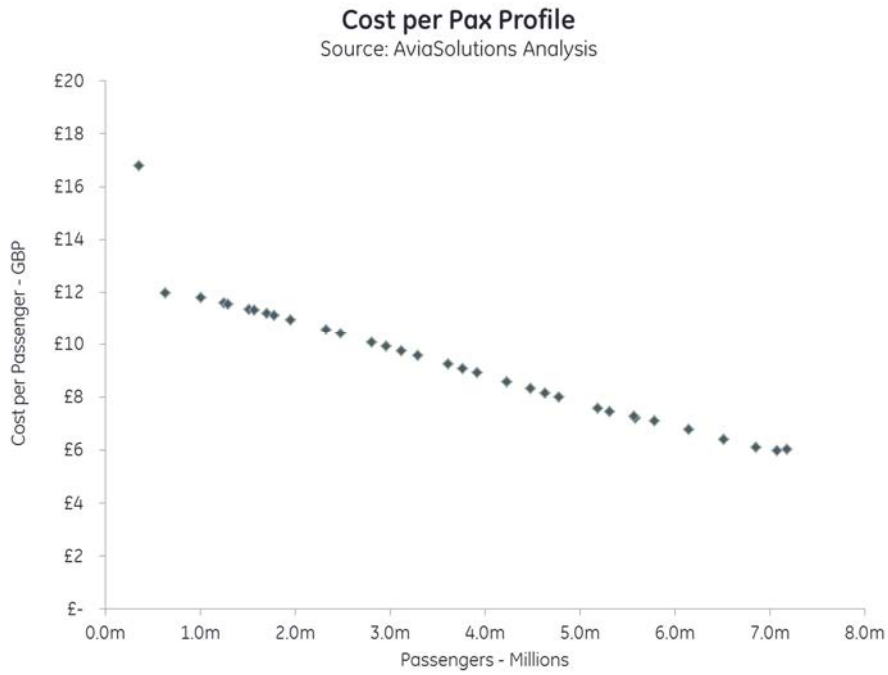


11.1.3. Cost Profile

Total Costs are forecast to grow at 13% per annum on average between FY2018 and FY2030, resulting in total costs of £29m by FY2030, and at 6% per annum between FY2018 and FY2050 to produce total annual costs of £44m by FY2050. Costs are increasing more slowly than revenue, leading to greater margin generation. We consider that as the airport generates increased volumes of traffic, it is able to achieve increasing economies of scale, in particular within its passenger operation. Furthermore, as the passenger volume increases, the non-unit driven costs are distributed over an increased base, thereby reducing the average cost per passenger to the airport, an essential element in increasing margin.

	FY2018	FY2020	FY2025	FY2030	FY2035	FY2040	FY2045	FY2050
Total Cost	£7m	£12m	£19m	£29m	£34m	£38m	£42m	£44m

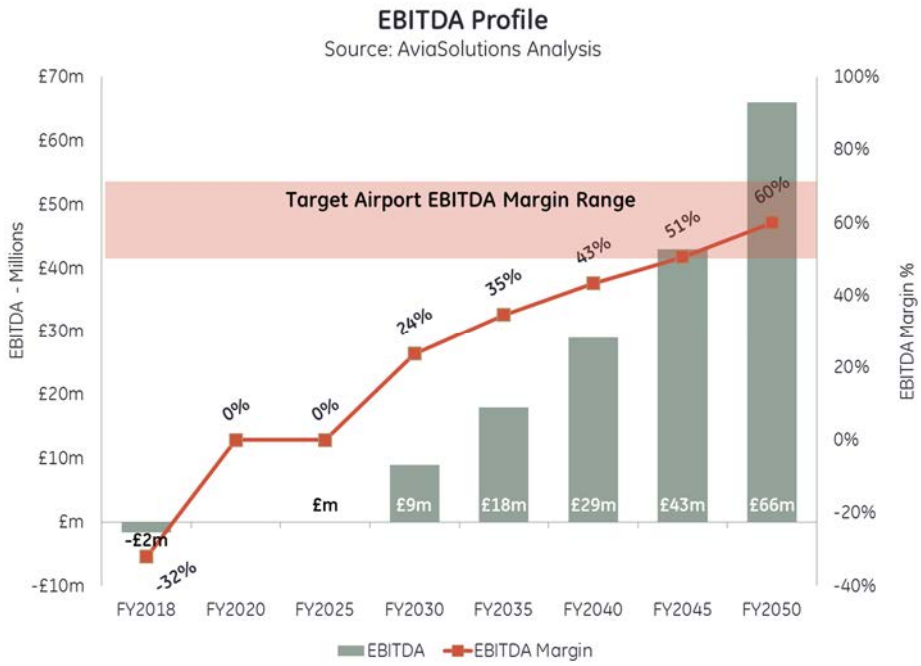




11.1.4. EBITDA Profile

EBITDA is initially forecast to be negative, indicating that the airport would be loss making in the early years at an operational level. It first turns an operating profit in FY2030, generating £9m of operating income and an EBITDA margin of 24%. The EBITDA margin in the long term is forecast to reach 60%, generating £66m of EBITDA in FY2050. This level of EBITDA is much more akin to a typical airport which requires sufficiently high EBITDA margins to cover the ongoing costs and CAPEX of a large asset base.

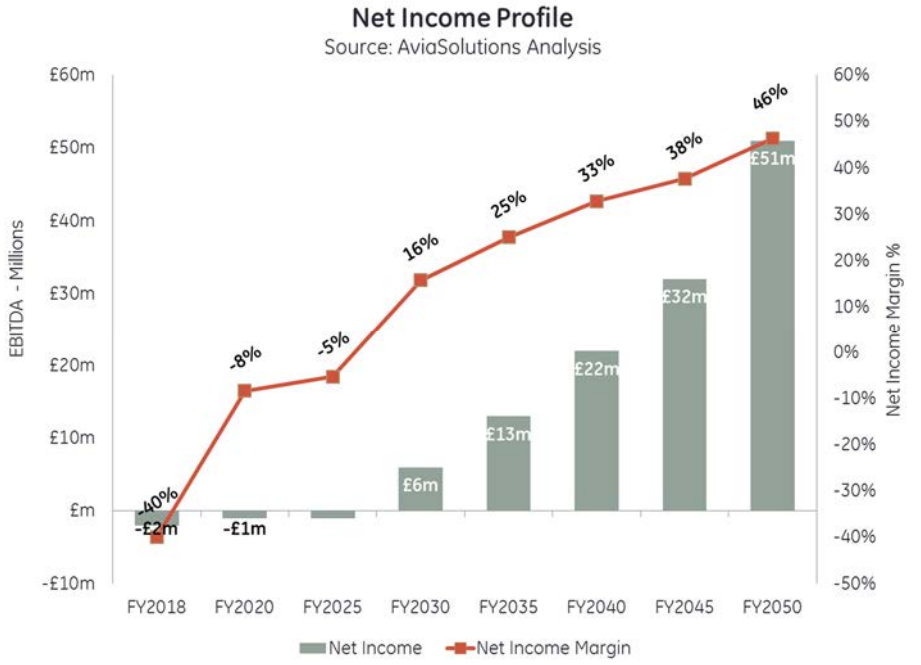
	FY2018	FY2020	FY2025	FY2030	FY2035	FY2040	FY2045	FY2050
EBITDA	-£2m	£m	£m	£9m	£18m	£29m	£43m	£66m
EBITDA Margin	-32%	0%	0%	24%	35%	43%	51%	60%



11.1.5. Net Income Profile

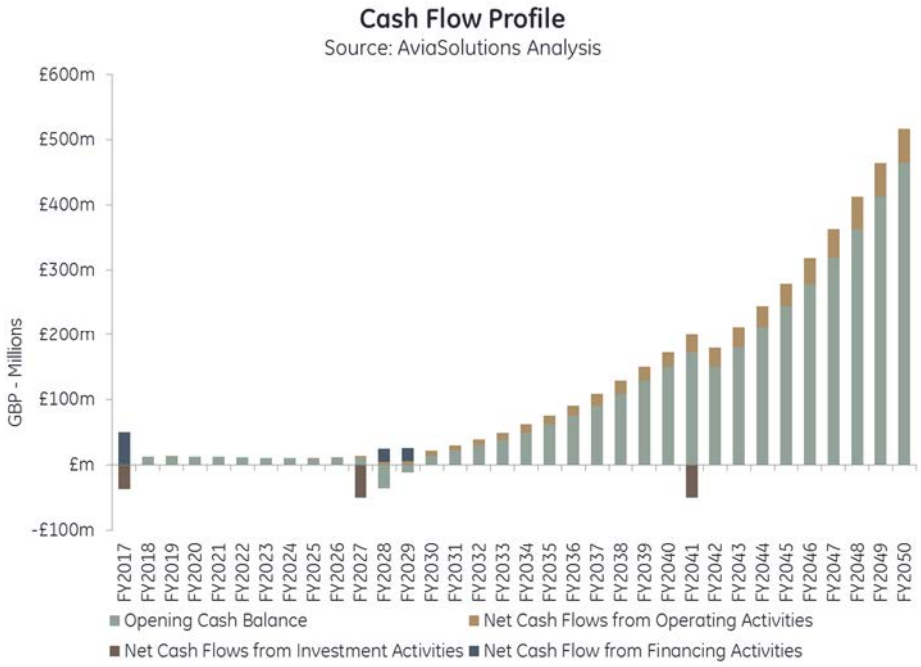
Net income, the profit left after all deductions, is forecast to be negative until FY2025. The first positive results fall circa FY2030 when the airport is expected to generate net income of £6m. This income stream steadily increases through to FY2050 at which point it is expected to be circa £51m per annum.

	FY2018	FY2020	FY2025	FY2030	FY2035	FY2040	FY2045	FY2050
Net Income	-£2m	-£1m	-£1m	£6m	£13m	£22m	£32m	£51m
Net Income Margin	-40%	-8%	-5%	16%	25%	33%	38%	46%



11.1.6. Cash Flow

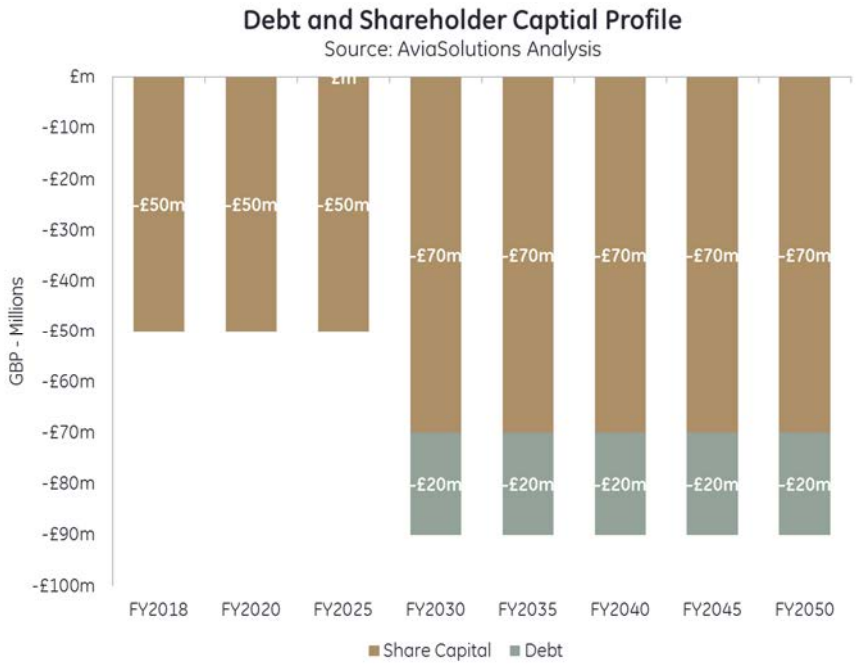
The airport is forecast to develop its cash position with limited additional capital requirements except those required to expand the terminal in FY2027. The position shown below is excludes any dividend payments that the owner may wish to extract from the asset: such payments would reduce its cash position.



11.1.7. Debt and Shareholder Capital

Whilst the exact nature and mixture of debt and shareholder capital would be subject to complex financial optimisation, we have illustrated below a simple capital structure used in the analysis to illustrate the need for additional capital throughout the period. To maintain the business it would be necessary to acquire circa £40m in additional capital around FY2027. For the purposes of modelling this additional capital has been split between debt and equity.

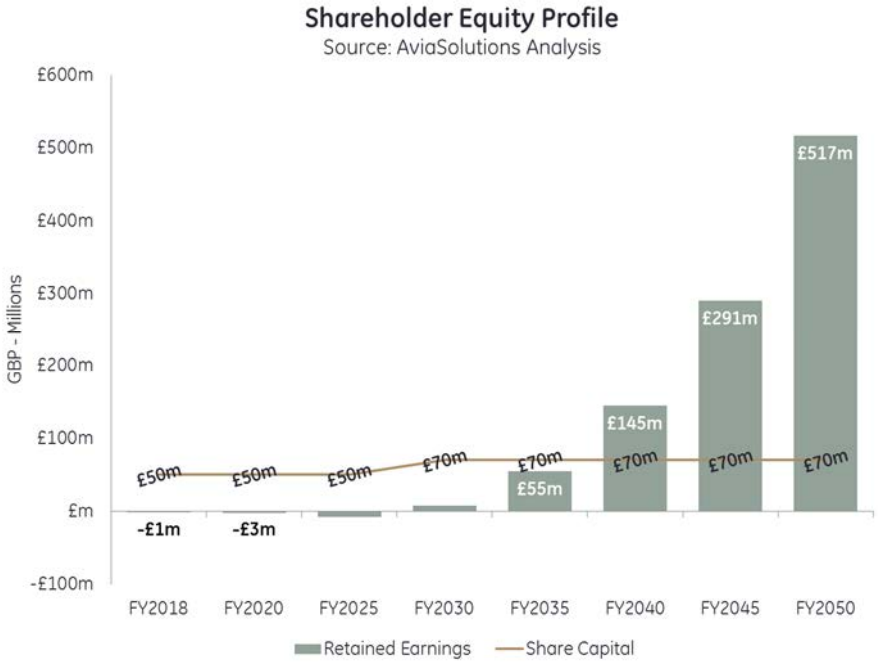
	FY2018	FY2020	FY2025	FY2030	FY2035	FY2040	FY2045	FY2050
Debt	£m	£m	£m	£20m	£20m	£20m	£20m	£20m
Share Capital	£50m	£50m	£50m	£70m	£70m	£70m	£70m	£70m



11.1.8. Shareholder Equity

Considering the effects of earnings on shareholder equity, the business does not post positive retained earnings until circa FY2030. This in effect limits the business's ability to pay dividends to shareholders until this point at the earliest.

	FY2018	FY2020	FY2025	FY2030	FY2035	FY2040	FY2045	FY2050
Retained Earnings	-£1m	-£3m	-£8m	£8m	£55m	£145m	£291m	£517m
Share Capital	£50m	£50m	£50m	£70m	£70m	£70m	£70m	£70m



11.1.9. Conclusion

Given the parameters of this specific scenario it could be feasible to operate a commercially viable airport on the site. However, the risks in doing so are high and many of the elements that cause the proposal to payback can be reversed (such as a new runway being authorised) and are out of the control of the asset manager.

Whilst we believe an airport on the site may be feasible in this scenario, the probability of there being no new runway in the South East is very low, even if a decision is delayed, it is still expected that a new runway will be required at some point. If Manston were to become an established airport it would need many years to reach a point of maturity where it would be able to withstand a new runway becoming operational. The probability of this occurring, given the Government's current position on runway capacity, is uncertain at best. Therefore we conclude that whilst potentially feasible, this scenario is improbable.

11.2. Outputs for LGW Second Runway Scenario

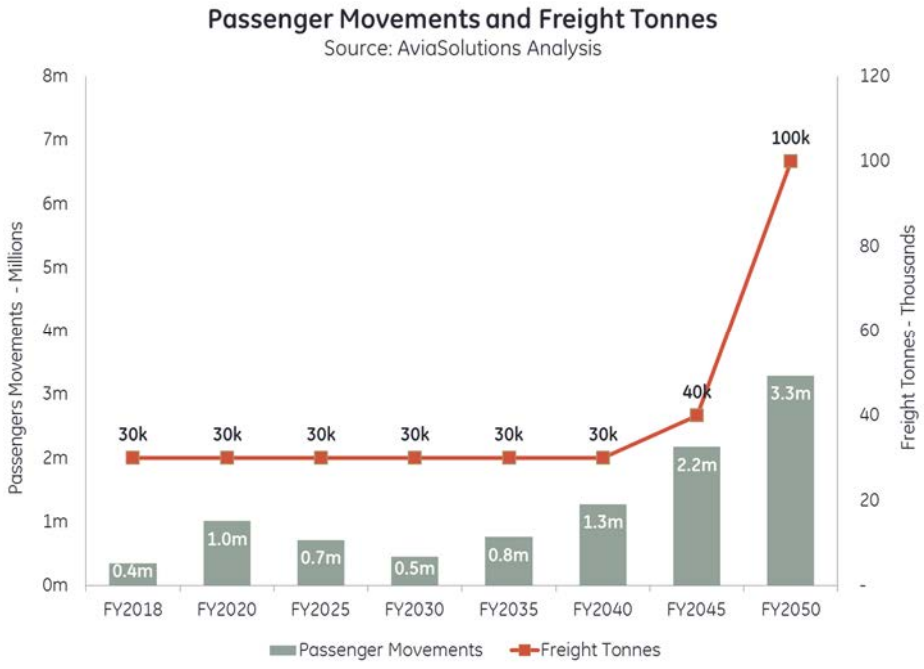
In the following paragraphs, we explore the financial viability of Manston Airport based upon there being a second runway at Gatwick. This was an option short-listed by the Davies Commission and while not finally recommend has a body of support based on its lower environmental impacts and the consequent ability to be delivered earlier (assumed here to be 2025). Manston may have a short initial boost to traffic before the second runway becomes available but then traffic falls before growing again. This scenario takes spill from the London system in addition to a base level of activity generated from the presumed small LCC operation and freighters. This scenario is less favourable for Manston Airport than would be a development at Heathrow.

11.2.1. Volume Profile

Passenger numbers are forecast to grow to more than 1.5 million in 2024, the year before the assumed opening of the second runway, but immediately fall back starting in 2025 and declines to a low of 0.5 million in 2033. From this low point, it grows as a result of the resumption of overflow, reaching 3.5 million passengers in 2050. Overall growth between FY2018 and FY2050 averages 7% per annum.

Freight is not forecast to grow beyond the 30,000 tonnes of the core freighter operations until FY2040, but at that point, freight is assumed to spill from the London Area taking it to some 100,000 tonnes by FY2050.

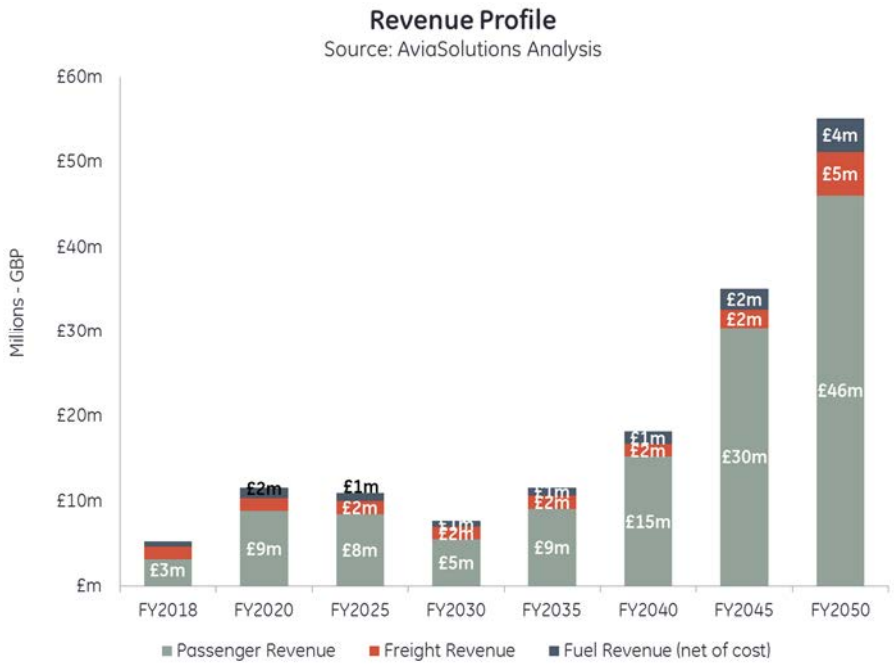
	FY2018	FY2020	FY2025	FY2030	FY2035	FY2040	FY2045	FY2050
Passenger Movements	350k	1,010k	710k	450k	760k	1,270k	2,170k	3,290k
Freight Tonnes	30k	30k	30k	30k	30k	30k	40k	100k
Total ATMs	1,100	2,900	5,000	3,200	5,300	8,900	15,900	26,000



11.2.2. Revenue Profile

Revenue generation is forecast to grow at a CAGR of 4% between FY2018 and FY2030, driving revenues to £8m by FY2030, and at a CAGR of 8% between FY2018 and FY2050 to reach total annual revenues of some £55m by FY2050.

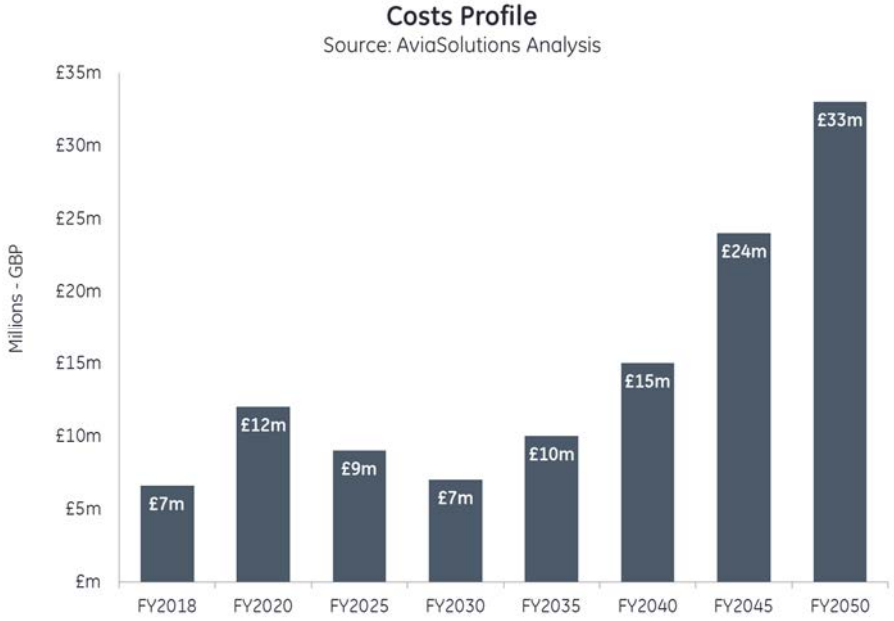
	FY2018	FY2020	FY2025	FY2030	FY2035	FY2040	FY2045	FY2050
Total Revenue	£5m	£12m	£11m	£8m	£12m	£18m	£35m	£55m

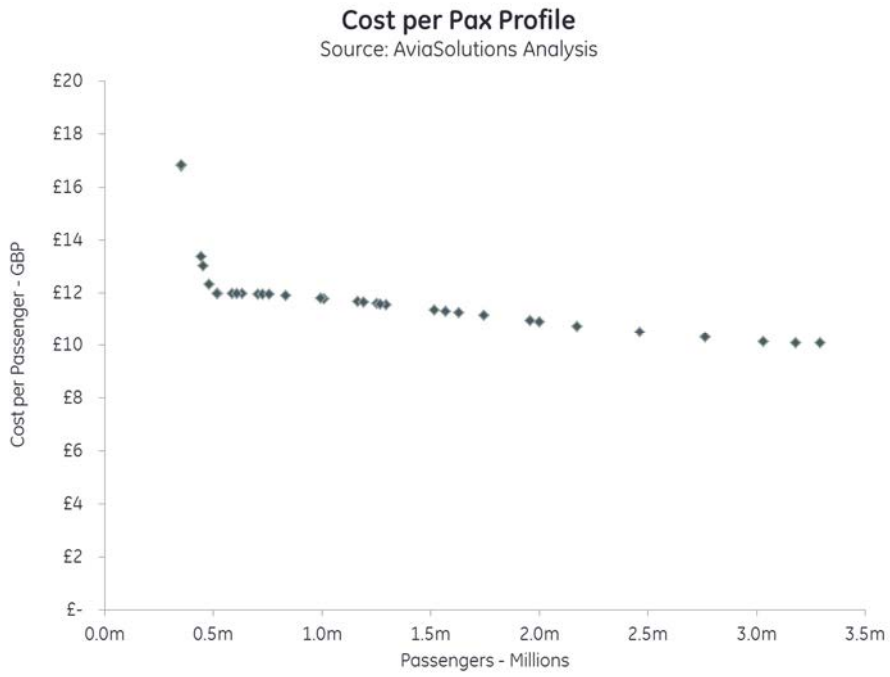


11.2.3. Cost Profile

Total Costs rise prior to the opening of the second runway, but then fall back to £7 million in FY 2030. Thereafter, they increase to nearly £35 million in 2050, representing an average increase between FY2018 and FY2050 of 5% per annum. Cost per passenger falls over the period of the projections.

	FY2018	FY2020	FY2025	FY2030	FY2035	FY2040	FY2045	FY2050
Total Cost	£7m	£12m	£9m	£7m	£10m	£15m	£24m	£33m

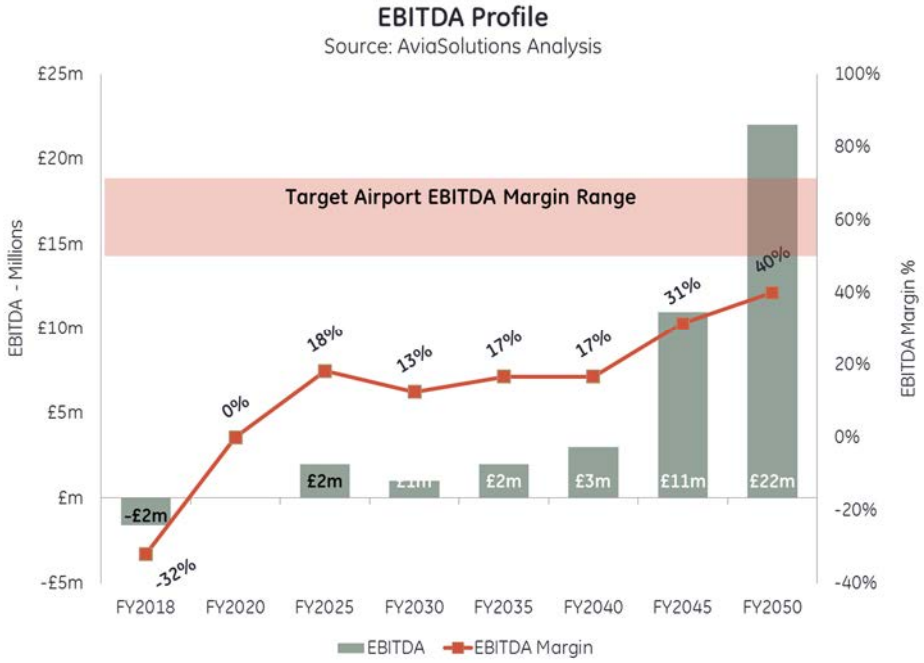




11.2.4. EBITDA Profile

EBITDA is initially forecast to be negative, indicating that the airport would be loss making in the early years at an operational level. It first returns an operating profit in FY2025, generating £2m of operating income and an EBITDA margin of 18%. As the second runway at Gatwick comes on-stream, EBITDA at Manston would stagnate due to the lack of available traffic volumes. The EBITDA margin in the long term is forecast to reach 40%, with an EBITDA of £22m in FY2050. This level of EBITDA is significantly below that which we would typically expect for an airport to be attractive to the investment community.

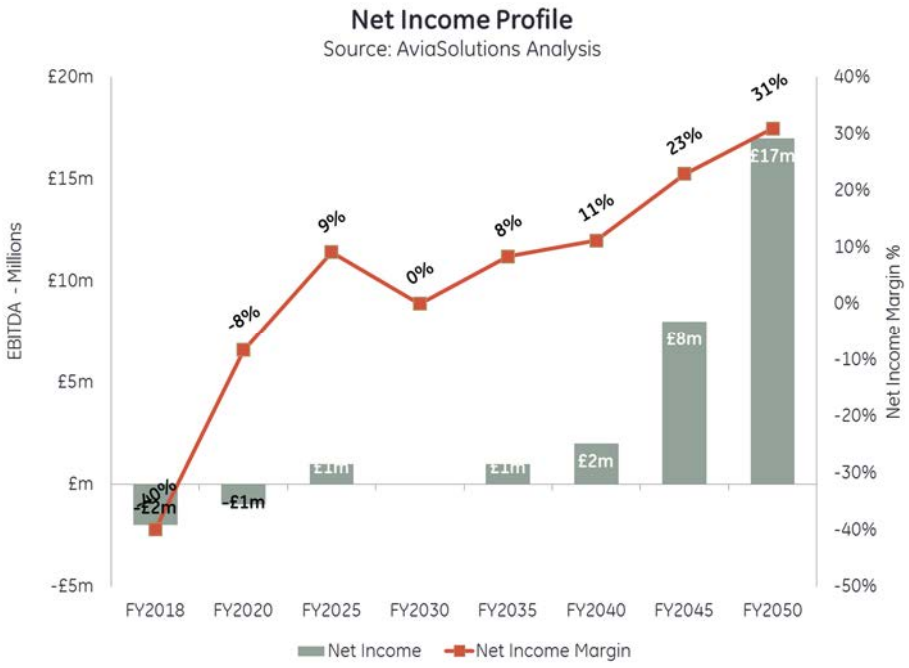
	FY2018	FY2020	FY2025	FY2030	FY2035	FY2040	FY2045	FY2050
EBITDA	-£2m	£m	£2m	£1m	£2m	£3m	£11m	£22m
EBITDA Margin	-32%	0%	18%	13%	17%	17%	31%	40%



11.2.5. Net Income Profile

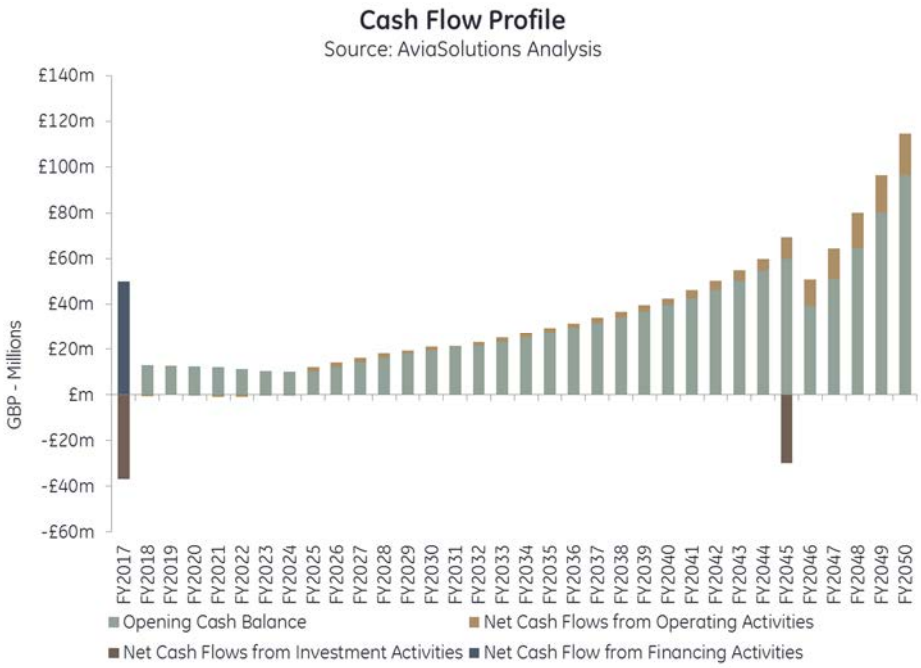
Net income, the profit left after all deductions, is forecast to be negative until after FY2020. The first positive results are generated around FY2025 when the airport is expected to generate net income of £2m, although it falls slightly thereafter as Gatwick's new runway absorbs traffic. The income stream then remains broadly constant for the following 15 years before increasing as capacity becomes constrained once more in the London system. It reaches £17m in FY2050.

	FY2018	FY2020	FY2025	FY2030	FY2035	FY2040	FY2045	FY2050
Net Income	-£2m	-£1m	£1m	£m	£1m	£2m	£8m	£17m
Net Income Margin	-40%	-8%	9%	0%	8%	11%	23%	31%



11.2.6. Cash Flow

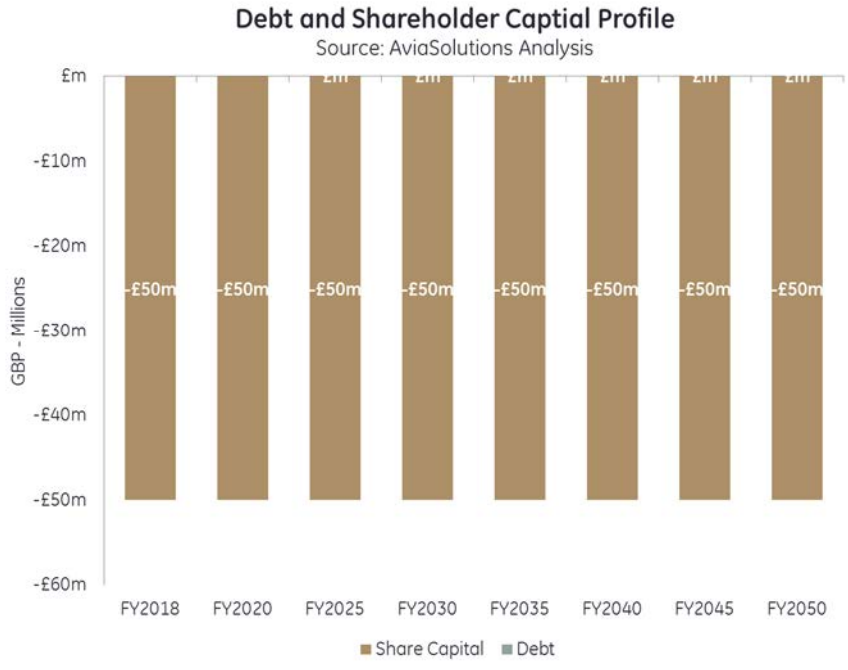
The airport is forecast to develop its cash position with limited additional capital requirements until FY2045 when there would be a requirement to expand the terminal, by which time the company could have built up sufficient cash to be able to finance the CAPEX from reserves. The position shown below excludes any dividend payments that the owner may wish to extract from the asset: such payments would reduce its cash position.



11.2.7. Debt and Shareholder Capital

Whilst the exact nature and mixture of debt and shareholder capital would be subject to complex financial optimisation, we have illustrated below a simple capital structure used in the analysis to illustrate the need for additional capital throughout the period. To maintain the business no further financing would be required. Whilst the business does not generate significant revenues or income, there is little requirement for significant CAPEX investments, thereby eliminating the requirements for additional financing

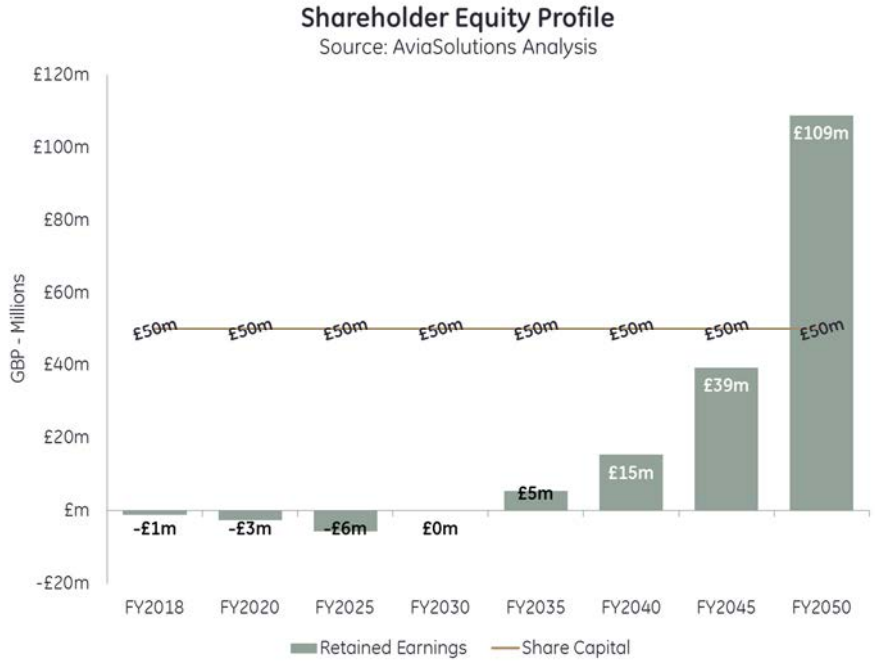
	FY2018	FY2020	FY2025	FY2030	FY2035	FY2040	FY2045	FY2050
Debt	£m	£m	£m	£m	£m	£m	£m	£m
Share Capital	£50m	£50m	£50m	£50m	£50m	£50m	£50m	£50m



11.2.8. Shareholder Equity

Considering the effects of earnings on shareholder equity, the business does not post positive retained earnings until nearly FY2035. This in effect limits the business's ability to pay dividends to shareholders until this point at the earliest.

	FY2018	FY2020	FY2025	FY2030	FY2035	FY2040	FY2045	FY2050
Retained Earnings	-£1m	-£3m	-£6m	£m	£5m	£15m	£39m	£109m
Share Capital	£50m	£50m	£50m	£50m	£50m	£50m	£50m	£50m



11.2.9. Conclusion

The asset would require significant long term investment but would only generate a marginal return. These returns are also predicated on a large number of external variables over which the owner of Manston Airport has very little influence. It is AviaSolutions' view that based on this scenario there is no viable long term prospect of an economically viable airport being established on the site.

11.3. Outputs for Both Runways Scenario

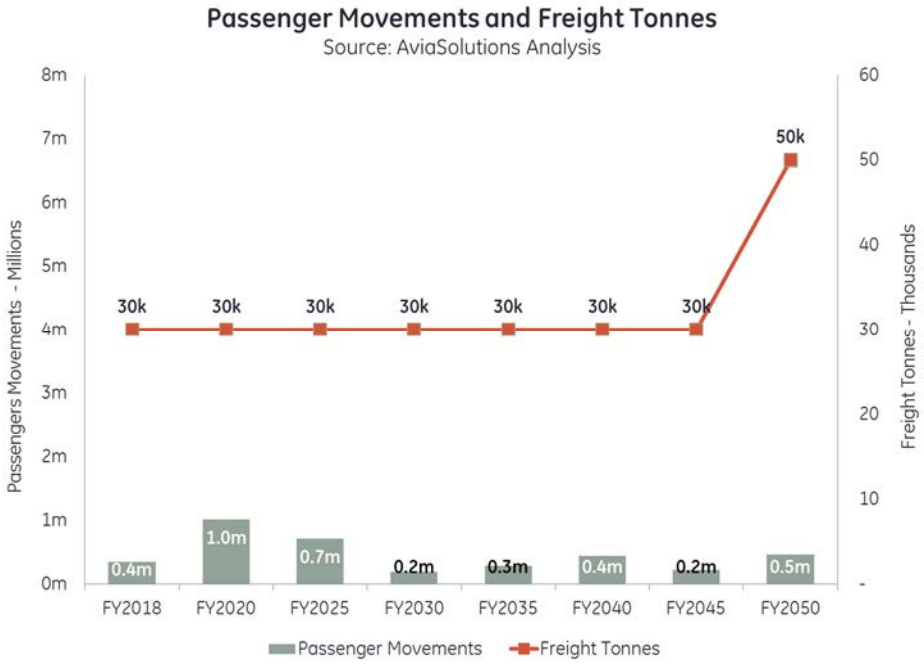
In the following paragraphs, we explore the financial viability of Manston Airport based upon there being two runways constructed in the South East, one at Gatwick and the other at Heathrow. It is clear from this assessment that in the longer term there is forecast to be sufficient demand to require two additional runways. In our assessment, we have assumed that the runway at Gatwick would be opened first, followed later by that at Heathrow. It is though possible that Gatwick might decide to postpone its second runway given its likely loss of traffic Manston would have a short initial boost to traffic before the first of the runways becomes available but then traffic falls and only resumes growth towards the end of the forecasting period. This scenario is the least favourable for Manston Airport.

11.3.1. Volume Profile

Passenger numbers are forecast to grow to more than 1.5 million in 2024, the year before the assumed opening of the first of the runways, but immediately fall back starting in 2025. Passenger traffic remains minimal for the remainder of the forecasting period.

Freight is not forecast to grow beyond the 30,000 tonnes of the core freighter operations until after FY2045, but might reach some 50,000 tonnes by FY2050.

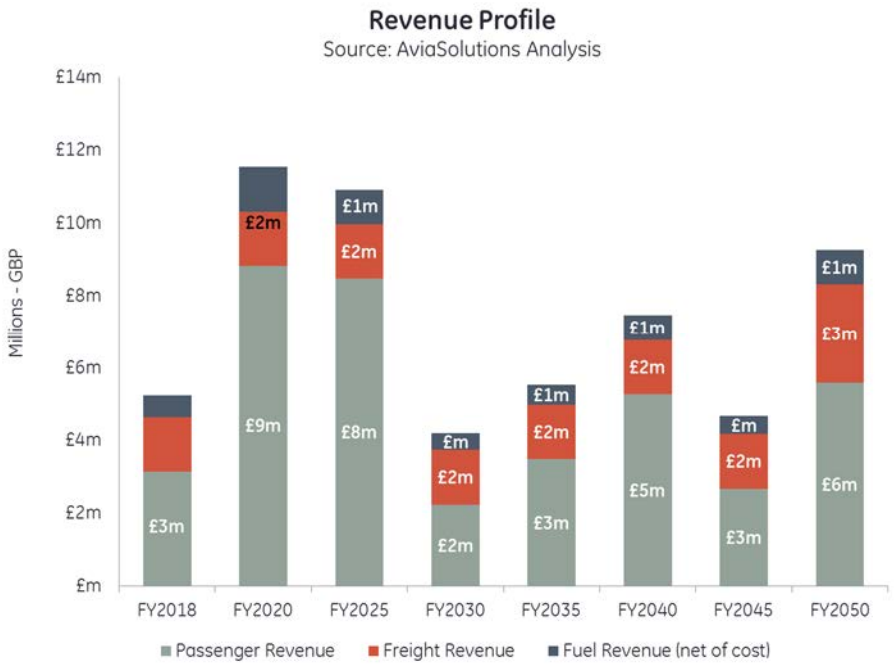
	FY2018	FY2020	FY2025	FY2030	FY2035	FY2040	FY2045	FY2050
Passenger Movements	350k	1,010k	710k	190k	290k	440k	220k	460k
Freight Tonnes	30k	30k	30k	30k	30k	30k	30k	50k
Total ATMs	1,100	2,900	5,000	1,300	2,000	3,100	1,600	4,300



11.3.2. Revenue Profile

Revenue generation reflects the lack of traffic volume and peaks in the period up to FY2025.

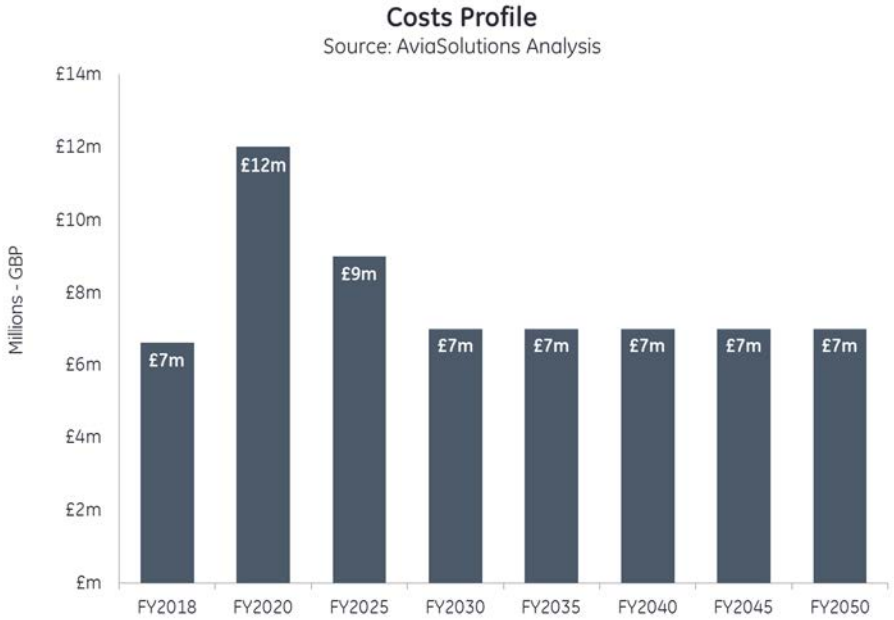
	FY2018	FY2020	FY2025	FY2030	FY2035	FY2040	FY2045	FY2050
Total Revenue	£5m	£12m	£11m	£4m	£6m	£7m	£5m	£9m

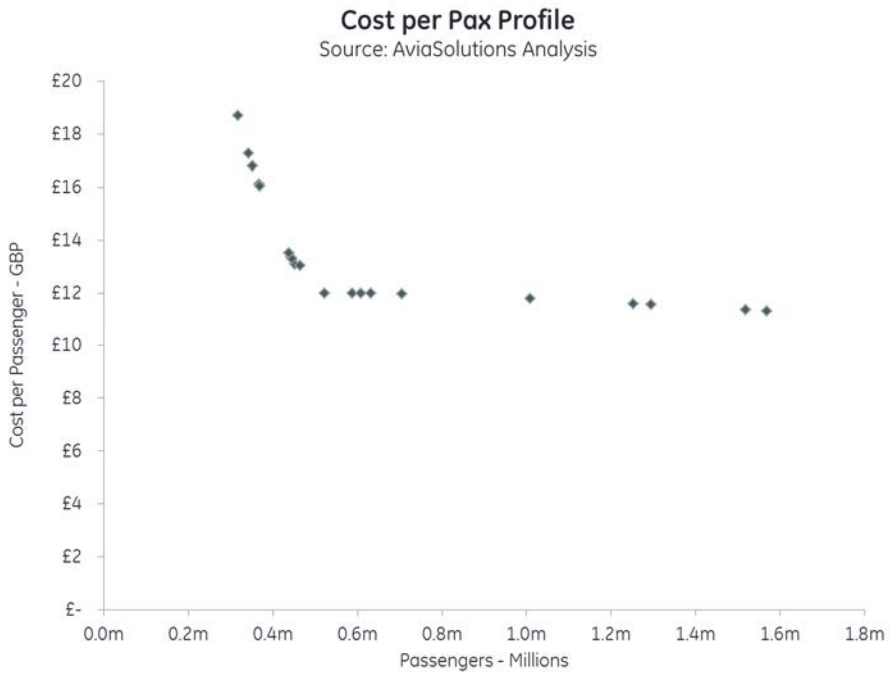


11.3.3. Cost Profile

Total Costs rise a little before the opening of the first of the runways, but then fall back to the core essential fixed costs associated with having the airport open

	FY2018	FY2020	FY2025	FY2030	FY2035	FY2040	FY2045	FY2050
Total Cost	£7m	£12m	£9m	£7m	£7m	£7m	£7m	£7m

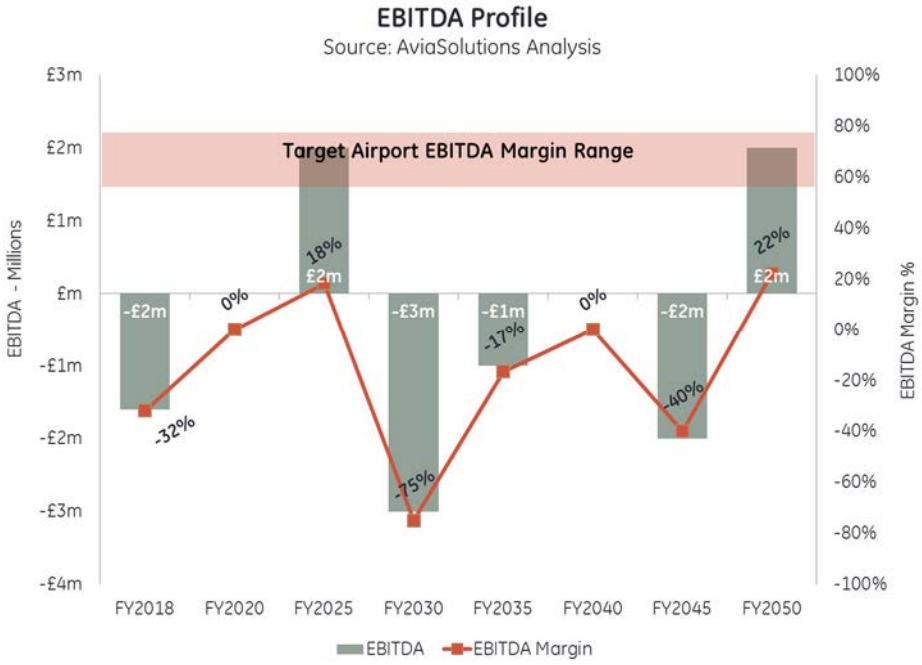




11.3.4. EBITDA Profile

EBITDA is forecast to be negative for the majority of the forecast period, except for the period up to FY2025 and at the very end

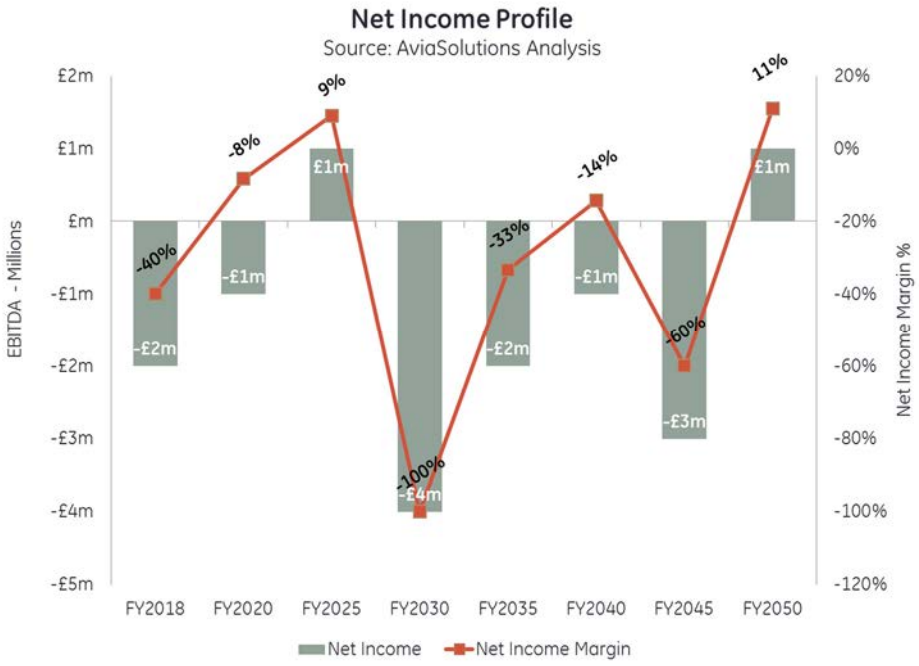
	FY2018	FY2020	FY2025	FY2030	FY2035	FY2040	FY2045	FY2050
EBITDA	-£2m	£m	£2m	-£3m	-£1m	£m	-£2m	£2m
EBITDA Margin	-32%	0%	18%	-75%	-17%	0%	-40%	22%



11.3.5. Net Income Profile

Net income, the profit left after all deductions, is forecast to be negative for almost the entire period.

	FY2018	FY2020	FY2025	FY2030	FY2035	FY2040	FY2045	FY2050
Net Income	-£2m	-£1m	£1m	-£4m	-£2m	-£1m	-£3m	£1m
Net Income Margin	-40%	-8%	9%	-100%	-33%	-14%	-60%	11%



11.3.6. Conclusion

If two runways were to be constructed in the South East, then it is clear that there is no realistic prospect of long term viability for a re-opened Manton Airport. The potential profits in the period to FY2025 would not be adequate to justify the costs of acquiring and re-commissioning the airport, and prospects thereafter would be exceptionally poor.

Manston Airport
Local Plan Representations - FINAL REPORT

Report for Thanet District Council

By AviaSolutions

August 2017

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Executive Summary

AviaSolutions has reviewed the Local Plan Representations that referred specifically to AviaSolutions' earlier report prepared for Thanet District Council "Commercial Viability of Manston Airport" (September 2016) that Thanet District Council is using as evidence in the Local Plan process.

AviaSolutions' opinion, based on updated market information since the publication of our previous study, is consistent with our earlier view that Manston Airport does not represent a financially viable investment opportunity under normal market conditions.

The objections raised through the Representations are similar across the eight documents under review and variously suggest that AviaSolutions' report did not fully consider the excess demand for air freight and passenger movements in the congested London airport system nor the full range of commercial opportunities available to the operator of Manston Airport. This argument is put forward alongside a range of counter-proposals for Manston Airport. However, it is evident that these counter proposals do not stand up against scrutiny on a variety of regulatory, commercial and financial aspects.

The Local Plan Representations do not make a credible case, nor provide the evidence for AviaSolutions' to change its views on the financial viability of Manston Airport. We remain of the view that whilst Heathrow Airport continues to offer substantial freight capacity to a truly global network, and Stansted Airport utilises only around half of the statutory provision of air freighter movements, the London air freight market has capacity to grow without the re-introduction of capacity at Manston Airport. Freight Forwarders have invested heavily in infrastructure around these core airports, carriers have developed their networks as such, and without clear value drivers that support relocating services to Manston Airport, the case remains to be made that demand exists for a freight facility at Manston Airport. This view is reinforced by the empirical evidence of multiple failed attempts to develop profitable operations at the airport.

1. Introduction

1.1. Introduction

Thanet District Council (TDC) commissioned AviaSolutions on 26th June 2017 to provide support pertaining to TDC's treatment of Manston Airport within the Local Plan, and more specifically, to provide commentary as required with regards to Local Plan Representations ("Representations") it received through the public consultation period.

This work scope follows the previous engagement of AviaSolutions by TDC to report on the financial viability of Manston Airport (AviaSolutions: Commercial Viability of Manston Airport[1]) and a subsequent Frequently Asked Questions report[2].

1.2. Documents Reviewed

AviaSolutions has reviewed the following Representations, copies of which may be found in the Appendix of this report.

Colin Bandick	Comment ID 136
Beau Webber	Comment ID 527
David Stevens	Comment ID 826
Phillip Kruger	Comment ID 950
Dover District Council	Comment ID 1221
Bob Parsons	Comment ID 1316
John Jeapes	Comment ID 1425
Supporters of Manston Airport	Comment ID 734

[1] *https://www.thanet.gov.uk/media/3500741/Final-Report-for-TDC-Manston-Airport-Viability-Oct2017_2.pdf*

[2] *https://www.thanet.gov.uk/media/3553836/AviaSolutions-FAQ-for-TDC.pdf*

2. Local Plan Representations

2.1. Colin Bandick – Comment ID 136

Representation Details

Comment ID: 136 Respondent: Colin Bandick

Response Date: 30 Jan 2017 Response Type: Object

Summary of Representation

Mr. Bandick surmises that the former Manston Airport site should be reinstated as an airport dedicated to the carriage of airfreight, but also with a parallel development of a rail-head, permitting intermodal freight. It is further suggested that this rail-head would permit the carriage of the Road Feeder Service ("RFS") vehicles on board the freight trains and disperse them via strategic locations throughout the UK. The support for this type of service, would, in Mr. Bandick's opinion, be forthcoming from the rail freight industry.

AviaSolutions Response

In the UK, there are currently no intermodal airfreight to rail freight exchanges[3], and the major freight hubs of Heathrow, East Midlands and Stansted are no exception. The reasons are multifaceted and revolve around key areas. Firstly, current legislation permits the carriage of bonded 'Known' freight by Road Feeder Services (trucks) but this does not extend to rolling stock. Secondly, the structure of the industry is highly concentrated amongst the large Freight Forwarders; they have invested heavily (strategically, presenting barriers to entry of new competitors) in their current infrastructure which is centred around hub airports and the distribution channels they can already access.

[3] 3. *Page 41- Department for Transport (2009), The Air Freight End-to-End Journey: An analysis of the end-to-end journey of air freight through UK international gateways. Available from http://webarchive.nationalarchives.gov.uk/+/http:/www.dft.gov.uk/about/strategy/transportstrategy/tasts/userexperience/endtoendjourney.pdf*

2.2. Beau Webber – Comment ID 572

Representation Details

Comment ID: 572 Respondent: Beau Webber – Save Manston Airport Association

Response Date: 13 March 2017 Response Type: Object

Summary of Representation

The Representation by Mr. Webber is strongly pro-Manston airport and raises several areas of objection. These include:

- Stating that "There is … 'currently unmet demand for freight in the South East, which for the South East of the UK is calculated to be around 80,000 movements ….' – this is nearly 10 times the movement requirement for the Development Consent Order, which is 10,000 movements per year. So, to say that there is no need for aviation at Manston Airport requires wilful blindness"

- In the RiverOak non-statutory consultation document, they say, additional facilities proposed include:
  - a base for at least one passenger carrier;
  - an aircraft recycling and engineering facility;
  - a flight training school;
  - a fixed base operation for executive travel; and
  - business facilities for aviation related organisations.

AviaSolutions Response

Several of the URL's provided by Mr. Webber link to a secure site that has restricted access permissions, so it has not been possible to ascertain the source of these quotes. Notwithstanding this, AviaSolutions believes that the points raised regarding demand / capacity is invalid.

As one of the premier UK freight hubs, Stansted Airport currently handles c. 10,000 ATM annually for dedicated air freighters. This less than half of the statutory 20,500 ATM allocated under its licensing agreement for dedicated freighter operations. Whilst some of these slots are arguably less favourable, or less cost attractive, if demand for these slots were as much as 80,000 ATM, it is difficult to understand why they remain at less than half of their allocation. Furthermore, the industry fully expects a new runway to be built in the South East (the Government currently opting for Heathrow) which will bring additional belly-hold capacity into the market. The strong, mature, long haul market from Heathrow is one of the prime reasons that freight flourishes in the UK; it offers a far wider, more frequent set of destinations than dedicated freighters could ever achieve. Finally, whilst not definitive, it is believed the '80,000' freighters quoted may be a reference to a

York Aviation[4] report in which (p19), it presents various scenarios and the residual unmet demand. 80,000 ATM in this case correlates to a 'No Expansion' scenario, which is clearly at odds with industry expectations. Furthermore, the report purely considers the effect on the London Area Airports; the residual demand could be met by regional airports such as the national freight centre at East Midlands, or Manchester Airport (same ownership as Stansted under MAG).

In addition, Manston Airport whilst operational, offered the air freight industry additional cargo capacity, though annual cargo throughput remained relatively constant from 2000 to 2013 at around 30,000 tonnes.

With regards to the facilities it is stated RSP wish to provide at Manston Airport:

- A base for at least one passenger carrier - a plausible option - this was explored in the AviaSolutions viability study. This would most likely be a Low-Cost Carrier, seeking to pay the minimal landing and passenger charges. The AviaSolutions Viability Study used a proxy yield of £3.5 per passenger which is above the rates paid by Low Cost Carriers at many regional airports.
- An aircraft recycling and engineering facility - these facilities are courted by many airports around the world, and in the UK. Whilst it is acknowledged that at least one party has expressed an interest in Manston Airport due to a personal tie, this does not substantiate a sustainable economic industry interest.
- A flight training school - many airports offer flight training schools, it is difficult to justify what Manston Airport's unique proposition would be given the relatively thin catchment for such activities.
- A fixed base operation for executive travel - Executive travel in private jets is likely to be undertaken by wealthy individuals and business people. The offer at Manston Airport, located so far from central London, is highly questionable. It is challenging to understand why users would opt to travel to Manston over Farnborough, Biggin Hill, London City Airport or similar mature and more convenient airports.
- Business facilities for aviation related organisations - whilst aviation related organisations would undoubtedly support the airport, the revenue generated by the airport from these activities is relatively small. Typically, this comes in the form of property rent, the market rates for which are not likely to be sufficient to turn the airport into a financially viable entity.

[4] *http://www.fta.co.uk/export/sites/fta/_galleries/downloads/air_freight/air-freight-implications-from-new-capacity.pdf*

2.3. David Stevens – Comment ID 826

Representation Details

Comment ID: 826 Respondent: David Stevens

Response Date: 17 March 2017 Response Type: Object

Summary of Representation:

The Representation by Mr. Stevens objects to the SP05 proposal along the following lines:

- It is the view of Mr Stevens that the information put forward by RSP and its associates, in conjunction with the forthcoming proposed DCO process, demonstrates that there is a reasonable prospect of the Manston Airport site being utilised as a fully operational airport.

- Furthermore, it is Mr Stevens view that the AviaSolutions Viability Study, which is being used as evidence from by Council, is not evidence based and is opinion, which has been shown to be unreliable by Mr. Chris Cain, a consultant for RSP for the following reasons:
  - Excluded the RiverOak business plan because Avia would not or could not sign a non-disclosure agreement.
  - When the RiverOak plans are run through the Avia model it shows that the airport is viable.
  - Was based on an out of date growth rate of 1% when it should be nearer to 3.7%.
  - Worked on a modest investment of £77m when RSP are looking to invest up to £300m.
  - Assumed that cargo tonnage would remain static at 30,000 tons when two experts working independently using different models project figures of between 220,000 to 230,000 tons.
  - Uses the assumption that belly hold capacity will be able to take up all the demand, which is simply not the case.
  - Ignored the income and jobs generated from general aviation activities, which is worth between 20%-25% of a smaller airport's total revenue.
  - Ignored the plans for maintenance, repair and tear down which will generate substantial income as well as providing skilled jobs.
  - Focused primarily on passenger not freight which is the basis of the RSP plan.
  - Stated that Manston was in the wrong place, but the key to freight operations is trucking time and Manston is within three to three and a half hours of most of the South East.

AviaSolutions Response

AviaSolutions' Viability Study examined the financial viability of Manston Airport under various demand scenarios. The majority of these scenarios resulted in the airport being financially unviable, predominantly due

to the competitive landscape reducing Manston Airport's ability to attract sufficient cargo and / or passenger traffic.

With regards to the proposal put forward by RiverOak Strategic Partners and its associates, and the forthcoming DCO, it is unclear which material this refers to specifically. In any case, given the DCO is yet to be submitted, AviaSolutions has not had access to this material and cannot provide comment on the probability of its success, or whether it would then result in a financially viable entity as its substance and detail is not known.

With regards to Mr. Stevens comments pertaining to Mr. Chris Cain's evidence and the effect this has on the AviaSolutions viability study.

- AviaSolutions client throughout has been Thanet District Council, therefore all and any work AviaSolutions conducts must be done in a manner that can be shared with Thanet District Council. RiverOak, at the initial meeting between AviaSolutions and RiverOak, made it clear that it did not intend to share its Business Plan, in the same way it had not been shared with Thanet District Council. It is thought that an NDA would not have altered this course of action.
- It is suggested that RiverOak's Business Plan, against the AviaSolutions Viability Study indicates a profitable business, however no information has been provided to this effect. AviaSolutions has not shared publicly its financial model so it is difficult to understand how such a claim could be substantiated.
- Mr. Stevens indicates that the AviaSolutions report is based on '1% growth', however it is unclear what this refers to. A search on the document reveals the only growth rate of '1%' is the 'Tonnes per ATM' at Heathrow when considering the average freight carried on-board passenger aircraft. The actual growth rate in the AviaSolutions model for total freight in the London System is 1.9%.
- The investments used in the AviaSolutions model were based on the demand forecast. In infrastructure investment, normal practice is to stagger facilities investment in line with demand to ensure maximum return on capital investment. The investment is a function of the growth in demand, thus increasing the investment to £300m would simply reduce the free cashflow requirement to service the debt and / or shareholder returns.
- AviaSolutions' model assumed cargo throughput could be between 30,000 tonnes and 140,000 tonnes by 2050 depending on the development of additional capacity at alternative London airports. This is based on a cascade model that AviaSolutions has developed to mimic the most likely business behaviour in a capacity constrained environment. The suggestion that Manston might achieve 220,000 tonnes does not specify which experts have predicted this, although for the purposes of this report it is assumed to be Sally Dixon[5]. This level of freight activity would place

[5] *Sally Dixon – Manston Airport: A National and Regional Aviation Asset: Volume III pg. I*

Manston Airport as the 3rd busiest freight airport in the country within 10 years, a case that is simply unachievable under normal market conditions given the level of maturity of the cargo operation at Heathrow, Stansted and East Midlands.

- AviaSolutions has not assumed belly-hold capacity will absorb all freight demand. However, given the extremely mature aviation networks operating from the UK, that belly-hold will continue to represent the largest share of capacity. Bellyhold capacity tends to be cheaper (except on the busiest of freight routes), more frequent, and offers more destinations than freighters.
- General aviation income is usually derived from an FBO license fee and landing fees. By way of a comparator, a highly successful regional UK airport might expect to generate revenues of £1million annually from GA, and after operating costs and overheads are deducted the impact on EBITDA at an airport the size of Manston is limited.
- MRO and Tear-down facilities are large, complex investments that often require operating partners to be involved in the infrastructure proposal and development thus ensuring the facility has a means of revenue generation form the outset. Whilst RiverOak state they will develop these facilities, it has yet to be demonstrated that such facilities are in demand in Manston. Notwithstanding such demand issues, the revenue the airport actually generates from such operations usually only constitutes rent and licenses, which are generally low value operations for the airport.
- Manston Airport is located in the south east of Kent. Viewed on a map, 3/5ths of the circle around it is the sea. It is not realistic that it could be considered as an excellent location for RFSs. Freight transported to Heathrow, Stansted and East Midlands has instant access to the UK motorway network, is much more closely located to large conurbations, and therefore reduces RFS time and cost.

2.4. Phillip Kruger – Comment ID 950

Representation Details

Comment ID: 950 Respondent: Phillip Kruger

Response Date: 17 March 2017 Response Type: Object

Summary of Representation

The Representation by Mr. Kruger objects to the SP05 proposal through an objection to the AviaSolutions Viability Report:

- The AviaSolutions report ignores the impact of BREXIT.
- The AviaSolutions report ignores the impact of the Paramount Theme Park or Ebbsfleet Garden City.
- New runway capacity at Heathrow or Gatwick will not be ready until 2036 so the need for freight capacity at Manston is more pressing.
- The AviaSolutions viability report does not consider the diversified income streams available, as indicated by Mr. Chris Cain in his evidence.
- Lessons to be learnt from other benchmark airports.

AviaSolutions Response

The objections put forward have been considered by AviaSolutions:

- Brexit was not considered directly in the report which was written a few months after the referendum, at which point little was known on the impact Brexit may have. Now, more than a year on from the vote, the impact of Brexit is still unclear, as is the potential positive or negative impact on the freight industry. At present, huge volumes of freight move in both directions across the Channel seeking the most advantageous prices, however, due to the networks available from the UK, generally this is to the UK's advantage and it is believed to be a net-beneficiary. A Brexit agreement that increases the friction in this operation may result in less freight moved across the Channel, and therefore more residual capacity from the UK. However, the UK Government has stressed that it will seek an arrangement with the EU that has the least possible impact on the free movement of goods between the UK and EU states, therefore we would expect the impact to moderately supress air freight demand in any case.
- In June 2017, it was announced that Paramount has pulled out of the proposed an entertainment park development in Swanscombe, Kent. Despite this, the developers are continuing the planning and though there is clearly a risk that the project may never materialise, therefore incorporating any incremental demand assumptions would not be prudent. Furthermore, the airports at Gatwick and Southend will both be closer to the theme park than Manston, therefore any benefit to Manston Airport is considered marginal at best.

- New runway capacity consensus amongst the industry is that it will be operational by 2030, which leaves a limited period of time for Manston Airport to develop its infrastructure and operation to recoup its investment. Currently there is residual capacity at Stansted airport to handle freighter operations, and airports in the Midlands have additional capacity. This again indicates that should Manston Airport re-open, it will face stiff competition from the outset.
- Whilst the income available from diversified business opportunities certainly augments airport profitability, the ability to generate such income on a long-term basis is challenging. Businesses of these type require high levels of investment meaning that barriers to entry are high, furthermore once they are established at an airport their barriers to exit are high. It is AviaSolutions' opinion that such businesses are unlikely to invest in Manston Airport until such time as they can be sure of its long-term future. Manston Airport presents significant risk, particularly in light of its recent track record of unprofitable operations.

2.5. Dover District Council – Comment ID 1221

Representation Details

Comment ID: 1221 Respondent: Dover District Council

Response Date: 23 March 2017 Responses Type: Observation

Dover District Council's representation raised no objections, rather it provided a commentary on the process thus far, and the position of the Council. In summary, it stated that Dover District Council upheld its previous resolution with regard to the airport;

> "This Council supports the campaign to retain Manston as an operational airport, recognising the role and place it can have in the UK aviation industry, making the better use of regional capacity in accordance with the views of the South East Local Enterprise Partnership, while making a significant contribution as one of the strategic priorities for regeneration of the East Kent area"

The Council came to this conclusion through an appraisal of the process to date including:

- A summary of DDCs agreed representations to TDC, including; an encouragement on TDC to more actively engage in the Duty to Cooperate (DCT) system, until any DCO process is concluded not to change the designation of the site away from 'Aviation Use Only'; a clear specification of other potential uses of the site, and a consideration of the impact on DDC of such uses.
- The chronology since its original resolution was passed in July 2014
- A summation of potential interested parties including RiverOak Strategic Partners and City financier Eddie Truell.
- A summary of the potential challenges DDC has to a housing and commercial development, including; employment and leisure floor space demand, the district centre and its effect on trade in across the two authorities' constituencies, and the visual impact on the landscape of any redevelopment.

AviaSolutions Response

DDC do not raise any objections specifically related to the viability of Manston Airport, rather it focuses on the process and political aspects. As such, AviaSolutions has not provided further comment at these areas of concern are outside of its remit.

2.6. Bob Parsons – Comment ID 1316

Representation Details

Comment ID: 1316 Respondent: Bob Parsons

Response Date: 13 February 2017 Response Type: Object

Summary of Representation

The Representation by Mr. Parsons objects to the SP05 proposal through an objection to:

- Manston's location has been described as being remote from a reasonable catchment area to support passenger flights but this is exactly the opposite for cargo where it is located close to dual carriageway and motorway routes avoiding the capital, railway infrastructure and ferries for efficient payload ground handling. The airport can deliver similar services for air cargo that the three-year-old London Gateway does for marine containers currently transferred from/to about five Freightliner/DB Cargo rail services in each direction per day.
- Manston has the potential to also develop some passenger services; some perhaps linked to operation of regional combi aircraft with a cargo capacity of (say) 3,000kg-4,000kg and 50 passengers to destinations beyond a reasonable time achievable by road or rail for time critical business and able to mix passenger and cargo capacity to ensure a high overall load factor.
- With its 2,750m runway the airport also has the potential to accept the largest aircraft for maintenance and end of life recycling which was a minor business under previous owners but is increasingly important for aircraft manufacturers' life cycle planning. The process removes reusable equipment that might then be reconditioned and form part of maintenance of equivalent aircraft with a continuing working life, the remainder of the body being deconstructed for removal to specialist recycling businesses.
- Turning to ground transport, there is a fairly high volume of air cargo moved by road between airports. As an example, the German operator Lufthansa operates about 200 HGV services, Mondays to Fridays, serving UK airports. Attracting cargo from/to Manston can, as with marine containers, allow for air cargo to be conveyed directly by rail from/to inland terminals in a similar way to present Royal Mail rail services and the planned international "Euro Carex" rail operation (Eurotunnel being the UK partner, the trains planned to use Deutsche Bahn's rail freight terminal at Dagenham via HS1).

AviaSolutions Response

AviaSolutions has reviewed the representation and provides the following response:

- Manston Airport is located in the south east of Kent. Viewed on a map, 3/5ths of the circle around south east Kent is the sea. It is not realistic that it could be considered as an excellent location for RFSs. Freight transported to Heathrow, Stansted and East Midlands has instant access to the UK motorway network, is much more closely located to large conurbations, and therefore reduces RFS time and cost.
- In the UK, there are currently no intermodal airfreight to rail freight exchanges[6], and the major freight hubs of Heathrow, East Midlands and Stansted are no exception. The reasons are multifaceted and revolve around certain key features. Firstly, current legislation permits the carriage of bonded 'Known' freight by Road Feeder Services (trucks) but this does not extend to rolling stock. Secondly, the structure of the industry is highly concentrated amongst the large Freight Forwarders; they have invested heavily (strategically, presenting barriers to entry of new competitors) in their current infrastructure which is centred around hub airports and the distribution channels they can already access.
- Whilst the income available from diversified business opportunities certainly augments airport profitability, the ability to generate such income on a long-term basis is challenging. Businesses of these type require high levels of investment meaning that barriers to entry are high, furthermore once they are established at an airport their barriers to exit are high. It is AviaSolutions' opinion that such businesses are unlikely to invest in Manston Airport until such time as they can be sure of its long-term future. Manston Airport presents significant risk, particularly in light of its recent track record of unprofitable operations.
- The suggestion for operators to utilise 50 seat combi aircraft is an interesting consideration, however, there are no airlines operating these aircraft types in the UK or Europe, and the concept is largely out-dated globally in all but the most remote regions; it would be challenging for the airport to attract such an operator. Furthermore, the range of such an aircraft would be considered limited, only able to operate to destinations that are currently operated to by aircraft from Heathrow and Gatwick. Such short haul flights attract very little freight which is generally transferred throughout Europe by RFS.

[6] *3. Page 41- Department for Transport (2009), The Air Freight End-to-End Journey: An analysis of the end-to-end journey of air freight through UK international gateways. Available from http://webarchive.nationalarchives.gov.uk/+/http:/www.dft.gov.uk/about/strategy/transportstrategy/tasts/userexperience/endtoendjourney.pdf*

2.7. John Jeapes – Comment ID 1425

Representation Details

Comment ID: 1425 Respondent: John Jeapes

Response Date: 10 February 2017 Response Type: Object

Summary of Representation

The Representation by Mr. Jeapes objects to the SP05 proposal through an objection to various aspects:

- Mr Jeapes has a clear belief that Aircraft Tear Down and Recycling would be suitable for Manston Airport and that this should be consider further.

AviaSolutions Response

AviaSolutions has reviewed the representation and provides the following response:

Whilst it is evident that Mr Jeapes has domain knowledge of the Aircraft Recycling sector it remains questionable whether:

- Aircraft recycling alone could support Manston Airport's viability.
- Any investor has the desire to invest in potentially the world's largest aircraft recycling centre in Manston Airport.
- Investors are willing to invest in Manston Airport given its uncertain future, or at what point in the future they may wish to invest. It is not unreasonable to assume they may defer investment for two years to ensure the airport is viable.
- Manston or the wider region in Kent has the labour knowledge and skills to support an operation in its start-up phase.
- How competitors will react. It would be highly unlikely that those businesses already operating in this sector would simply accept a loss of business.
- How such a business located in Manston, with its relatively high cost base vs. emerging economies, will compete in a labour-intensive industry.

2.8. Supporters of Manston Airport (SuMA) - Comment ID 734

Representation Details

Comment ID: 734 Respondent: Ruth Bailey, on behalf of Supporters of Manston Airport

Response Date: 16 March 2017 Response Type: Object

This document has been supplied as a non-submitted Representation.

The objections are as follows:

- AviaSolutions Viability Study cannot be used as evidence as it failed to meet the brief in that it did not consider ALL options, including various diversified businesses.
- The AviaSolutions report does not consider opportunities to offer short term capacity at Manston Airport whilst a new runway is developed, and then transfer/ redistribute services to a new runway at Heathrow or Gatwick.

AviaSolutions Response

AviaSolutions has considered the document supplied and has provides the following response:

- AviaSolutions considered what it believed to be the most viable means of ensuring the airport became a financially viable entity. This approach has been adopted because an airport must have a profitable core service offer. It is not conceivable that an investor would invest c. £75m - £300m to develop a business where its core service is unable to generate profits. In airport terms, this means the airport needs to be profitable from either its passenger or cargo operations, or a combination of the two. Additional and auxiliary services, no matter their number or diversity, should serve to improve EBITDA margins and generate incremental profit. If these businesses are required simply to break-even, the risk is likely to be considered too great for investors.
- With regards to a joint venture / share of operations with either Heathrow or Gatwick, airports in the UK operate in a free market and compete to attract airline customers. Airlines in turn operate their fleet, network and schedule for commercial objectives. In our view, Manston Airport (working with either London Heathrow or London Gatwick) could not develop the above proposition as neither Manston nor Heathrow/Gatwick has the authority to 'direct' aircraft to alternative airports. Furthermore, the commercial proposition to the airline is simply not the same, as operations from Manston Airport (when compared with Heathrow for example) will not generate the same levels of demand or average seat yields. A further key feature of Heathrow Airport is the diversity of connecting options, which would not be available at Manston. The concept of an airport seeking to 'redistribute' airline traffic is simply untenable in the UK aviation sector.

Review of Azimuth & Northpoint Forecast for Manston Airport – FINAL REPORT

Report prepared by AviaSolutions for Thanet District Council

August 2017

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Executive Summary

AviaSolutions has reviewed the cases for Manston Airport prepared by Azimuth Associates and Northpoint on behalf of RiverOak Strategic Partners in February 2017. Azimuth's case for Manston Airport is based on an assessment of the airport's ability to capture a significant share of the air and road freight market in London and the south east. Northpoint's forecast is based on a similar premise coupled with the introduction of multiple aviation related auxiliary activities.

AviaSolutions' view is that the Azimuth and Northpoint forecasts both represent a highly ambitious outlook for air freight volume at Manston Airport and the likelihood of the forecasts being realised is very low. We do believe that there may be scope for the reintroduction of passenger services, broadly consistent with the volume projections set out in AviaSolutions report, although this alone would not generate sufficient revenue to develop profitable operations.

Neither report puts forward a sufficiently credible case, nor provides the evidence, for AviaSolutions to change its views on the financial viability of Manston Airport.

We remain of the view that whilst Heathrow Airport continues to offer substantial freight capacity to an extensive global network, and Stansted Airport offers capacity for air freighter movements, the London air freight market has capacity to grow without the re-introduction of capacity at Manston Airport. Freight Forwarders have invested heavily in infrastructure around the UK's core cargo airports and carriers have developed their networks as such. Without clear value drivers that support relocating services to Manston Airport, the case remains to be made that demand exists for a freight facility at Manston Airport.

Provision of capacity alone is no guarantee of financial success, a view reinforced by the empirical evidence of multiple failed attempts to develop profitable aviation operations at Manston Airport.

1. Introduction

1.1. Context

AviaSolutions ("Avia") has been commissioned by Thanet District Council ("TDC") to undertake a detailed analysis of the reports prepared by Sally Dixon of Azimuth Associates ("Azimuth") for RiverOak in February 2017.

- Volume I – Demand in the south east of the UK
- Volume II – A qualitative study of potential demand
- Volume III – The forecast

Additionally, a Representation to the Local Plan was produced, entitled "The Shortcomings of the AviaSolutions Report and an Overview of RSP's Proposals for Airport Operation at Manston" prepared for RiverOak Strategic Partners by Chris Cain of Northpoint Aviation Services ("Northpoint"). The Representation is largely a repeat of the Appeal prepared on behalf of RiverOak Strategic Partners, which has already been the subject of review by AviaSolutions in March 2017. In the second part of this document, AviaSolutions presents the earlier critique of Northpoint's appeal, updated to reflect some additional airport benchmarks included in the Representation.

Avia has previously been engaged by TDC to assess the financial viability of Manston Airport. The report was completed in September 2016 and concluded that it is unlikely that the airport would be financially viable in the long term, and almost certainly not possible in the period to 2031. This conclusion was reached after interviewing key stakeholders and industry experts and analysing extensive market data. In the UK, today and into the foreseeable future, there is excess market capacity for air freighter movements due to the strength of the bellyhold market at Heathrow, which continues to grow despite the statutory movement cap. Stansted and East Midlands, which both are much more centrally located than Manston Airport, provide ample capacity for air freighter movements in the short to medium term, by which time we expect the south east market to introduce new capacity at Heathrow.

Azimuth Associates is an independent aviation and business research consultancy providing analysis and insight into the future direction and potential for airport development around the world (source: www.azimuthassociates.co.uk).

In March 2017, RiverOak Investment Corp., LLC announced that RiverOak Strategic Partners Limited, a newly UK-registered joint venture company had acquired all rights and interests and has assumed full financial and operational responsibility for the Development Consent Order (DCO) with respect to Manston Airport and the future reopening and operation of the airport. The new operating company, which is not affiliated with RiverOak Investment Corp., LLC, will pursue the DCO application to acquire and reinstate Manston as a fully operational

airport and if successful, will be operated, owned and managed completely independently of RiverOak Investment Corp., LLC (source: www.riveroakic.com/news.html).

The stated objective of the Azimuth report is to consider whether there is a compelling case in the public interest to create a freight focused facility at Manston Airport. The report contends that the decision for Manston Airport to be returned to operational use hinges on three key questions:

1. Does the UK require additional airport capacity in order to meets its political, economic, and social aims?
2. Should this additional capacity be located in the south east of England?
3. Can Manston Airport, with investment from RiverOak, relieve pressure on the UK network and meet the requirement of a nationally significant infrastructure project?

The report considers a range of data sources and publications to answer the above questions, concluding that there is an overwhelming case to support planning and development at Manston Airport.

In this review of the Azimuth and Northpoint reports, Avia considers the supporting evidence, rationale and the case put forward by the authors to inform subsequent discussion on the future of Manston Airport.

2. REVIEW OF AZIMUTH ASSOCIATES REPORT

2.1. Volume I – Demand in the south east of the UK

2.1.1. Overview

The first document prepared by Azimuth (Volume I) sets out an overview of airport capacity in the UK, focussing on the south east of England. This is followed by a review of air freight capacity in the south east that may fulfil excess air freight demand in the short to medium term. The report proceeds with an outline of the political context for UK aviation decision making before focussing on Manston Airport's potential as a freight focussed airport and the various external influences on the airport's future.

The report by Azimuth draws on a range of data sources and publications although there are several aspects of the report which we believe merit further scrutiny and challenge which are set out below.

2.1.2. Requirement for additional airport capacity in the UK and South East

There is little to add with regards to Azimuth's assessment of the lack of capacity in the UK airport sector and its impact on the UK economy (Chapter 2). Supporting information is drawn from extensive material available on the subject including a range of data sources referred to in the Airports Commission publication on UK airport capacity, July 2015. We do note however that the conclusions drawn from the research are centred on air passenger traffic rather than air freight.

In Chapter 3 of Volume I, the focus of the report shifts to air freight, drawing on information from Boeing and Airbus forecasts which consider the global aviation markets and intercontinental trends in production and supply, citing long term air freight growth rates of 4.2% and 4.0% respectively. Azimuth further note that the UK air freight market has become constrained at London airports, with the implication that a lack of air freight capacity is one of the causal factors behind the stagnation of the UK air freight market, the annual performance of which is set out below.

UK Air Freight ('000 Tonnes)	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2016 Vs 15	CAGR (2006-16)
London Airports	1,717	1,724	1,743	1,564	1,808	1,803	1,806	1,761	1,820	1,806	1,869	3.5%	0.9%
UK Airports	2,315	2,325	2,282	2,048	2,325	2,298	2,302	2,262	2,304	2,299	2,385	3.7%	0.0%

Source: CAA

We would also highlight the excess capacity that exists in the UK market today which supported air freight growth of 3.7% in 2016, and in the London market which increased by 3.5%. Stansted Airport (the second largest UK airport by freighter ATMs after East Midlands Airport) increased freight tonnage by 7.3%, though utilised only around half of the airport's statutory freighter movement cap (20,500 per annum). Further, load factors from Heathrow in bellyhold remain well below constrained levels. Azimuth has not commented on the market's ability to continue driving freight throughput out of the existing infrastructure as evidenced by the above growth in 2016.

A key observation is Azimuth's absence of comment on the uniqueness of the UK air freight market, particularly in London. Only around 30% of UK air freight is carried on dedicated freighter aircraft, substantially lower than the global average, where 56% of revenue tonne kilometres (RTKs) are transported on freighter aircraft. This is at least in part due to the significant bellyhold capacity and network diversity available to exporters and importers from an airport as large as Heathrow. The lack of excess air transport movement (ATM) capacity at Heathrow (480,000 annual movement cap) has led to a sustained increase in aircraft size, which increases bellyhold capacity and keeps the price of bellyhold air freight low, relative to dedicated freighter based capacity. Around 35% of ATMs at Heathrow are widebody, long haul aircraft resulting in an average bellyhold cargo capacity of around 7-8 tonnes per aircraft and an extensive network of direct flights to destinations around the world that is unrivalled by any other European airport.

A central tenet of the Azimuth reports appears to be that the bellyhold and dedicated freighter markets are mutually exclusive, whereas the reality is that they are intrinsically linked and overlapping markets with some minor exceptions (low density bulk freight), and where price per kg plays a pivotal role in determining the movement of goods by shippers and freight forwarders. Bellyhold freight tends to be far more cost effective than freighters for an equivalent distance and density from Heathrow which, especially when coupled with the extensive network, ensures the predominance of Heathrow in the UK air freight market.

2.1.3. Can Manston Airport relieve pressure on the UK aviation system, and be considered a nationally significant infrastructure project?

The Azimuth report concludes that the London Airports will be at capacity by 2030 based on the Airports Commission findings. As noted earlier, the findings of this report relate mainly to passenger plus freighter movements, and AviaSolutions' view is that excess cargo capacity (combining bellyhold and freighter capacity) will continue to exist in the south east of England beyond 2030.

Azimuth put forward a case for the re-introduction of Manston Airport to relieve pressure on the London airport system. However, AviaSolutions view is that the provision of airfield and terminal capacity alone is not sufficient to develop financially viable air freight based airport operations as there must be a corresponding demand scenario to support such operations. In the long term, only if additional runway capacity is not delivered at Heathrow / Gatwick is there likely to be excess demand that will spill from the London system to Manston Airport, but that is a very long term, risk-laden investment proposition.

The stated objective of RiverOak is to develop an air freight focussed business at Manston Airport, but the provision of capacity is not the determinant of profitability. It is AviaSolutions' view that Azimuth's report does not provide sufficient evidence of demand at Manston Airport from air freight operators to support the required investment in facilities and profit generation potential to re-establish Manston Airport as a going concern.

Manston Airport continued to provide a gateway to the UK air freight market until ceasing operations in 2014. It is therefore difficult for Azimuth to argue that the UK air freight market has stagnated due to a lack of capacity, without also acknowledging that one of the providers of air freight capacity in the UK and south east market during this period (Manston Airport) was unable to attract sufficient cargo volume throughput to operate profitably, leading to its eventual demise as a London based air freight focussed facility. The Azimuth report does not acknowledge nor address the fact that even if there has been a lack of air freight capacity in the UK and south east causing the cargo market to stagnate (a hypothesis that is not supported by Avia), the market still chose not to utilise Manston Airport as a solution to this capacity shortfall.

Overall, taking these issues into consideration, whilst the airport envisioned by inference from RiverOak Strategic Partners' proposal would technically be capable of handling more than 10,000 freighter ATMs, it is Avia's view that the demand would not exist at Manston Airport to support such a number of ATMs, and by deduction, therefore Manston Airport would not serve to relieve pressure elsewhere on the aviation system.

2.2. Volume II – A qualitative study of potential demand

2.2.1. Overview

The second document prepared by Azimuth sets out an assessment of the expected demand for Manston Airport as a freight hub for the south east of the UK. The objective is to provide a 20-year demand forecast for freight and passenger movements based on a thorough review of the market, existing literature and stakeholder interviews. The report contends that Manston Airport has the location, airspace, capacity potential and demand required to grant a DCO which would allow the redevelopment of the airport.

Azimuth acknowledges the challenge of reliably forecasting freight demand and instead of extrapolating past trends seeks to establish a body of qualitative evidence to underpin the proposal to retain Manston Airport as a freight based airport serving London and the south east market. The report identifies specific opportunities for Manston Airport based on constraints in the London airport market and aviation related activities which could improve the prospects of profitability at the airport.

2.2.2. Methodology

The report sets out an extensive review of the air freight market characteristics and the available air freight forecasting literature, acknowledging not only the lack of academic research into this subject but also the differences between forecasting cargo and passenger movements. The review concludes that instead of adopting a mathematical model, a qualitative approach that gathers opinions from industry experts will allow areas of potential demand for Manston Airport to be identified and explored. There follows an outline of the methodology to identify and select interviewees and the freight related questions that would inform the demand forecast model for Manston Airport.

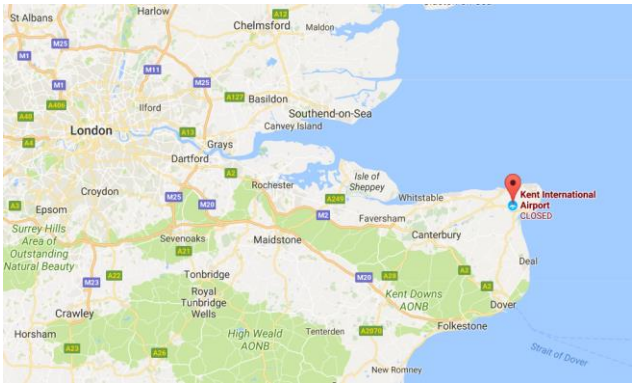
Chapter 5 sets out the stakeholder responses which are almost entirely favourable and present Manston Airport as a solution to the challenges caused by an air freight market operating in London's highly congested air travel system. Chapter 6 provides a summary of these findings and their influence on expected freight and passenger demand at Manston Airport, including sector and geographic market opportunities.

2.2.3. Conclusions

The report concludes with a summary of the stakeholder feedback which is considered to be an affirmation of the findings in Volume I, namely a significant and deteriorating lack of aircraft movement capacity in London and the south east. The report ends with statements outlining the implications of the research outcomes for UK aviation policymakers and RiverOak.

Avia's assessment of this report is that it reflects a wider body of evidence that supports an urgent need for additional movement capacity in the London air travel market. Similarly, we would concur with the view that UK aviation policymakers do not have the same depth of knowledge about the air freight market that they do about the air passenger travel market and a National Air Freight Demand Model would be a useful development.

The findings of the stakeholder interviews do however contrast markedly with Avia's own findings, published by Thanet District Council in September 2016 ("Commercial Viability of Manston Airport", Chapter 6.3). Avia's primary research indicated that whilst Manston Airport offered some service quality and processing time benefits, the cargo market did not value these over the remote geographic location which is 3/4 surrounded by the English Channel. When considered against its competitors such as Stansted Airport and East Midlands Airport, the location of Manston Airport and its relative access to the south and south east of the UK is inferior.



Source: Google

2.2.4. Additional Considerations

We would also add that the perceived advantages and opportunities that exist for Manston Airport reported by Azimuth are not new. This is not to underestimate the value of introducing these non-core activities at the airport, more to highlight the fact that previous owners will also have sought to exploit these opportunities, though no previous owner has been able to do so successfully.

- Maintenance, Repair & Overhaul (MRO) base
- Fixed Base Operator (FBO) facility
- Integrator operations
- Aircraft recycling

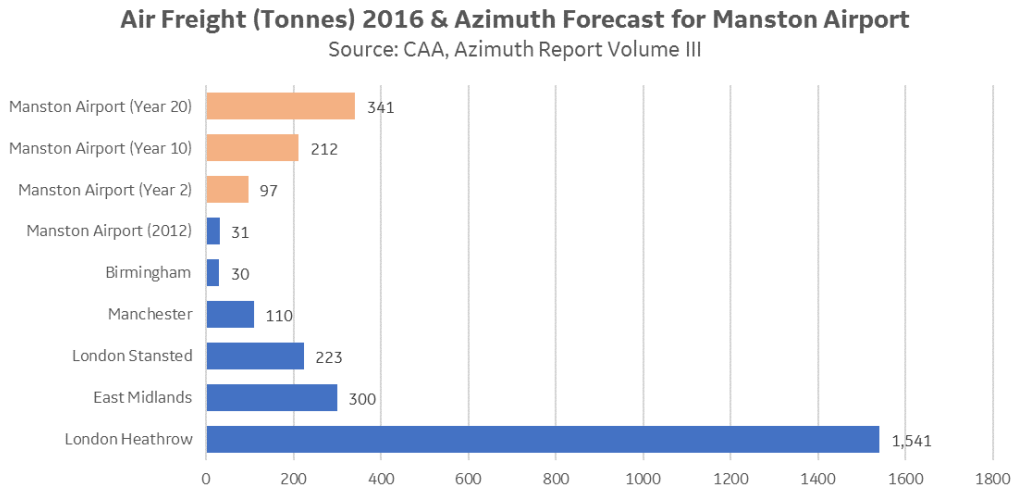
2.3. Volume III – The forecast

2.3.1. Overview

The third document prepared by Azimuth presents the air traffic forecasts for Manston Airport including freight and passenger movements for the first 20 years of operation (notionally 2020 to 2040). The report also sets out the expected infrastructure requirements to provide suitable facilities to accommodate the demand.

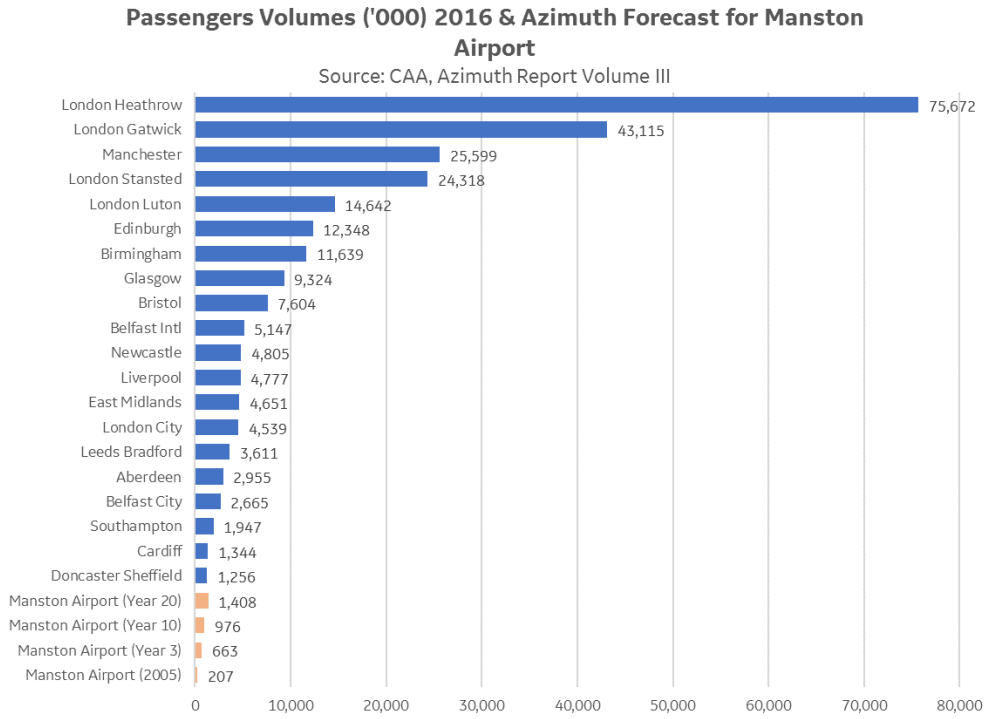
2.3.2. Forecast Results

The chart below illustrates the expected volume of freight (tonnes) at Manston Airport as set out in the Azimuth report (Volume III). The forecasts are compared with the most recent air freight tonnage throughput (2016) at the UK's five largest air freight airports. Manston Airport is forecast to become a significant provider of air freight capacity by Year 2, which would see the airport rank alongside Manchester, and towards the end of the forecast horizon would be competing with London Stansted and East Midlands (assuming limited growth of the UK air freight market more generally over the next 20 years).



The report notes that the bottom-up approach to the air freight forecast, based on specific traffic types, is considered '*… more conservative than those derived by a macro-level, top down method*'. The approach utilises the outcomes of the stakeholder interviews (primary data) and industry forecasts from IATA, Boeing and Airbus *inter alia* (secondary data). The report asserts that the 'push' and 'pull' factors at Manston and more widely in the London and south east air freight market will catalyse a change in the air freight model, in a similar way that the low-cost passenger model has led to a paradigm shift in fares and demand for passenger air travel.

The chart below illustrates the forecast passenger volume at Manston Airport as set out in the Azimuth report (Volume III). For context, the forecasts are compared with the most recent passenger throughput (2016) at UK passenger airports with more than 1 million annual passengers.



The report notes that the short to medium term passenger forecast is based on market intelligence rather than an extrapolation of past performance or an allocation of spill from London's congested airports. This includes *inter alia* a scheduled carrier with twice daily services to a European hub, two based low cost aircraft during years 3-5 and a further based aircraft thereafter and a small number of other charter operations. Longer term forecasts reflect recent industry projections from IATA, Boeing and Airbus.

2.3.3. Forecast Review

The projections set out in the Azimuth Report claim to be supported by stakeholder interviews and an extensive review on the literature available to inform the approach to air freight forecast modelling. The forecast growth reflects the combined expectation that Manston Airport can benefit from the spill resulting from a lack of air freighter capacity in the London and south east market and stimulate market growth by capturing a share of the freight market that is currently transported by road to and from Europe.

Avia's assessment of the forecast methodology is that the approach adopted by Azimuth is reasonable, though the reliance on primary data (interviews) to develop the bottom-up freight forecast has significant potential to exaggerate or overstate the market appetite to introduce services at Manston Airport.

For example, the forecast inputs set out in chapter 2.1 and 2.2 of the report focus exclusively on the opportunity, and do not take into consideration the many risks that would be incurred by a cargo operator or freight forwarder choosing to commence operations at Manston Airport. Many of the commercial risks which precipitated the recent air freight decline and subsequent closure of Manston Airport are still in evidence today. Azimuth continues to cite the lack of capacity at other airports in the south east as a major push factor in favour of services at Manston Airport, despite the evident excess combined freighter and bellyhold capacity at Heathrow and Stansted and mature air freight bases at both airports.

Furthermore, the use of OEM forecasts, which are developed around global trading patterns, as a base for long term development of air freight at Manston Airport is unsuitable, particularly given the static volumes seen in the UK air freight market over the last decade. Global trends are significantly ahead of recent trends in the UK market. To use global trends as the basis of forward projections for the UK market given the historic divergence between the two markets is at best naïve and without the necessary qualification is disingenuous.

Therefore, whilst there is the possibility given the right macro and micro economic conditions for Manston Airport to regenerate itself and act as catalyst for air freight operations transitioning away from Heathrow and Stansted, the probability of such an outcome remains very low. In our view this represents a significant risk to investors at the airport, and a significant operational risk to any airline that places services at the airport.

2.3.4. Infrastructure Review

The assessment of infrastructure requirements to meet the forecast demand has been developed by other independent consultants; Viscount Aviation, Osprey Consulting Group and RPS Group. The approach appears methodical, resulting in various capacity solutions covering aircraft stands, terminal buildings for international arrivals and departures and car parking. Fuel storage and transportation requirements are also considered, though the report appears to overlook air traffic control, security and fire service facilities which add significantly to the upfront capital cost of restoring commercial services.

2.4. Conclusions

Avia has considered the material set out in the Azimuth report which presents traffic forecasts for Manston Airport and is intended to establish the rationale for retaining Manston as an operational facility that contributes to the national aviation network.

Traffic forecasts are inherently subjective, but should be based on professional experience and judgement. However, at the heart of the Azimuth forecast is an assumption that there will be a paradigm shift in the approach to air freight in the London and south east, which will stimulate a switch from road freight to air freight and see significant air freight capacity move eastwards from London's Heathrow and Stansted airports. Given that Heathrow continues to offer substantial bellyhold capacity to a truly global network, and Stansted is utilising only around half of its statutory provision of air freighter movements, Avia's view is that the Azimuth forecast represents a highly ambitious outlook for air freight at Manston Airport, and one where the probability of such an outcome arising is very low under normal market conditions. We do however believe that there may be scope for the reintroduction of passenger services, broadly consistent with the projections set out by Azimuth and AviaSolutions' earlier report.

Avia's opinion, based on updated market information since the publication of our previous study (September 2016) is consistent with our earlier view that Manston Airport does not represent a financially viable investment opportunity under normal market conditions. As such, our conclusions are very much at odds with those of Azimuth, which in our opinion do not sufficiently consider or recognise the risks associated with investment in an airport which has failed to generate adequate financial returns since privatisation in 1998.

3. REVIEW OF NORTHPOINT REPORT

3.1. The Shortcomings of the AviaSolutions Report and an Overview of RSP's Proposals for Airport Operation at Manston

3.1.1. Summary of Evidence

Chris Cain indicates the position that he holds with Northpoint Consulting and its relevance to the project. He also states his relevant experience that qualifies him to opine on the project in hand. Northpoint then set out the three key elements of the AviaSolutions Viability Study that the report seeks to challenge, namely freight projections, cross channel transshipments and substitutable bellyhold capacity. Finally, the report sets out suggestions for alternative forecasts for Manston Airport.

3.1.2. AviaSolutions Review

Northpoint's Proof of Evidence focuses on three key aspects of the AviaSolutions Viability Study, namely the overall freight projections, cross Channel transhipments and substitutable belly hold capacity.

3.1.3. Manston Airport Benchmarks

Northpoint put forward several benchmark airports as comparable to a re-opened Manston Airport offering air cargo, air passenger links and aircraft servicing and re-cycling. We set out our reasoning why the comparison with Manston Airport is incongruous due to the vastly differing location and catchment characteristics of each benchmark airport.

Alliance Fort Worth: The airport in the centre point of an 18,000-acre industrial complex, with a multi-modal railway head located some 2km away and handling around 400k tonnes in 2016. The airport is at the heart of a huge complex of industrial and manufacturing companies with the business park specifically designed for large-scale manufacturing, distribution and industrial use. Many areas of the campus have direct access to the taxiway and airport apron to increase the speed of logistics. Additionally, it sits to the north of Fort Worth and the West of Dallas which have a combined GDP believed to be close to that of London.

Hamilton Ontario Airport: The airport's website indicates it handled a total of 439k tonnes of freight in 2016, behind the Northpoint forecast for Manston in 2040. It also handled 300k passengers. It is an express cargo hub for domestic and international shipments with multiple airlines offering flights on international routes as far as South America. Additionally, the airport is the local point of access to the air travel market for the city of

Hamilton, with a population of c. 500k. Cargo partners include UPS and DHL who use it as their international Canadian hub and Canada Post.

Bergamo: Secondary hub for DHL / UPS facility, handling 117k tonnes of air freight in 2016, with DHL as a base operator and with UPS also present. The airport has 24/7 customs facilities with no restrictions on night operations. Most of Milanese cargo volume is processed through Milan Malpensa (550k tonnes in 2016) due to the large number of widebody aircraft offering bellyhold capacity across its extensive long haul network.

Liege: Located at the centre of the golden-triangle (Paris / Amsterdam / Frankfurt), the airport offers quick connections to all European destinations. It's breadth of airline customers is huge and offers a resilience from changes in mix. Operations are 24 hours a day with a limit of 90 ATM per night with no time restrictions. Offers aircraft landing to first truck leaving in 1 hour.

Leipzig: DHL's European hub, with the airport handling over 1m tonnes in 2016 which has grown rapidly in 10 years from 100k tonnes. The growth coincides with DHL making the airport its European hub and the birth of Aerologic, a JV between DHL and Lufthansa that has its base at the airport. The airport is a multi-modal hub with train line in terminal. The airport has a 24-hour operating permit for cargo flights and direct link to the trans-European motorways and railway network.

There are clearly structural and geographical reasons as to why each of these airports is different to the proposal for Manston Airport. As such, suggesting these are comparable benchmarks is not realistic. In order for Manston Airport to acquire the status of these airports it would need to demonstrate key elements of development, namely; commitments from key express players (DHL / UPS / FedEx / Amazon / Alibaba); an ability to operate night operations with few regulatory restrictions; and geographical advantages from nearby cities, industrial parks, and population centres.

3.1.4. Freight Projections

There are very few long term forecasts for the UK air cargo market, a position supported by Dr Dixon's report. However, RiverOak and AviaSolutions have both considered a report by York Aviation, and another by Oxford Economics / Ramboll. RiverOak consider that both these reports support their position.

Of these reports, York Aviation's forecast (produced for the Freight Transport Association) assumes that unconstrained cargo growth would be in line with UK GDP growth, a method that Dr Dixon appears to disagree with in the body of her report. York Aviation's study also assumes that freight growth is bellyhold focussed. This report also questions Boeing and Airbus' forecast growth rates, which are utilised in the long term growth forecast by Dr Dixon.

The cargo forecast produced by Oxford Economics and Ramboll was produced for Transport for London (TfL). The forecast produced was based upon various extrapolations of historic trends and provided high and low case projections.

AviaSolutions did not prepare its own UK cargo market forecasts (outside the scope of the original study) and instead adopted the mid-point of the most recent local forecast available for the UK market, namely that prepared by Oxford Economics. The UK market forecast was allocated by AviaSolutions based upon a cascade / preference model across the systems' airports (e.g. LHR, STN). As such, the AviaSolutions report does foresee some growth in the UK air cargo market, despite the market's stagnation for the last 16 years.

The differences between Northpoint's view and the assessment in the AviaSolutions Viability Study arise from alternative views of overall market growth and the airports that will handle the increase in demand. AviaSolutions' conclusions were based in part on inputs from industry experts, from its own knowledge of the sector, and from a detailed quantitative analysis of the freight capacity (bellyhold and main deck) which individual airports would be able to offer. Northpoint's views are based on the opinion that demand will be supply driven, and the evidence of the experts with whom RiverOak consulted.

It should also be noted that recent growth in the UK freight market is driven in large part through the weakening of UK Sterling (GBP) since the EU Referendum in June 2016. European shippers can access capacity to the West and East at more competitive rates than on continental Europe and channel traffic through the UK accordingly. Secondly, fears of cross-border tariffs in an increasingly protectionist environment are believed to be driving an element of inventory build-up in many economies, as the UK prepares to leave the EU and the USA focuses inwardly.

3.1.5. Cross Channel Transhipments

Northpoint's second point is in relation to the trucking of freight to and from continental Europe. This practice is recognised in the AviaSolutions report, largely in the context of UK airfreight being flown in and out of continental European airports. It is important though to note that a reverse flow also exists with continental European freight being trucked across the Channel to be flown into and out of UK airports. A lack of verifiable data on these flows hinders quantitative analysis, although the practice has existed for many years and despite this the freight industry chose not to use Manston Airport when it was open.

UK carriers rely heavily on European-originating freight to fill services ex-UK and on European-destined freight to fill services inbound to the UK. This freight is often priced at a discount to the direct-flight option as it is a sub-optimal routing, and the airline offers this routing to fill residual capacity it cannot fill otherwise with point to point shipments. The same is true in reverse for European carriers. It should also be noted that most freight shipped across the Channel in either direction will be flown from Heathrow in the UK and from the major

European hubs on the continent. This is driven through the large-scale passenger networks available at these airports, with bellyhold capacity to an extensive range of destinations, at a competitive price. This is a market position that would be difficult for Manston Airport to replicate.

Northpoint cite a York Aviation estimate of 55,000 additional dedicated freighter movements in the south east by 2050. This evidence cannot be located in the York Aviation report. Northpoint further cite York Aviation stating 'recognising that Manston is the only realistic opportunity to meet that scale of demand [55,000 freighter ATM]', again, this reference is not apparent in the York Aviation report.

3.1.6. Substitutable Bellyhold Capacity

Northpoint's final observation is in relation to the competitive dynamic between bellyhold capacity and pure freighters. Carriage of airfreight is a commodity and price is often the determining factor when selecting an airline for carriage (assuming all options are from airlines of a similar high regard).

AviaSolutions' experience in the freight industry is that many bellyhold operators can, when supply exceeds demand, reduce rates to such a level as to cover the marginal cost of freight plus a margin. The business is often operated as an addition to the passenger service, and therefore its real marginal costs are low. It is simply impossible for a freighter operator to reduce its rate to match this marginal cost and operate at profitably. Therefore, freighters tend to operate on thick routes where the economies of scale of a freighter operation can be realised. These routes are also curtailed by a non-related market, that of passenger demand. Where large scale passenger demand exists e.g. UK to USA, a residual effect of this is large scale freight capacity, which is unmatched to demand. The reverse can be seen on routes to the East, where passenger demand is less, but freight demand, particularly inbound to the UK, is high. As such, many freighters operate on these routings.

Given these market dynamics, AviaSolutions is unable to reconcile Northpoint's stance, but note that none of Azimuth's 24 interviewees were from a passenger airline providing bellyhold capacity, the segment of the industry responsible for most of the airfreight to and from the UK.

While not all cargo can be flown in the bellyhold of passenger aircraft, the extent of freight that can be carried may surprise the casual observer. Dependent on the aircraft type, heavy shipments up to seven tonnes can be transported, and regularly many wide-body aircraft transport pallets of 4,500kg. Shipments can easily be accommodated up to 2.43M x 3.17M and up to 1.6M in height, with some larger items able to be split across multiple ULD. An example of this includes the carriage of luxury cars, which are a regular component of many wide-body passenger services. Many passenger airlines now offer express services that guarantee the shipment will travel, and can also provide carriage for many types of dangerous goods.

AviaSolutions also disagrees with the assertion that, because 50% of global airfreight is flown on freighters, and within the UK only 30% is flown on freighters, that therefore the UK must be suffering from a lack of freighters

slots. In fact, it could be argued that this difference is due to the highly developed passenger network available from the UK providing sufficient bellyhold capacity such that freighters cannot operate the routes on an economically sustainable basis.

3.1.7. Additional Comments

Northpoint appears to argue that Manston would be attractive because it would be available for night time operations, while at the same time indicating that freighter movements at German airports can be scheduled in daylight hours. The report does not therefore highlight how it proposes to handle Express Freight (e-commerce) which is almost exclusively handled through night operations.

The report also (inadvertently) recognises that passenger operations are more remunerative to airport operators than freight only movements, hence AviaSolutions in its report on the possible viability of a re-opened Manston Airport thoroughly investigated the passenger market, an investigation criticised by both Northpoint and Azimuth.

Northpoint is misleading in suggesting that airport operators always give preference to passenger operators, as the allocation of slots is not in their gift. In the UK, slots are allocated by an independent body (Airport Co-ordination Limited) and provided that airlines utilise the slots allocated to them, they may hold them in perpetuity. This situation would also mean that Manchester Airport Group (the owner of Stansted Airport) may have some difficulty in displacing "...several thousand freighter movements to create 'new' passenger slots...", notwithstanding the legal ring-fencing of annual freighter movements that exists at Stansted.

It should be noted that the passenger numbers given in Table 1 of Northpoint's Evidence relate to travel to all destinations from the catchment area, while the figures in the AviaSolutions report relate to passengers travelling just to destinations which a Low-Cost Carrier might serve from Manston. While of course Manston's core catchment area "...does not have a large airport like Stansted close to it like as Southend does..." (Paragraph 3.3), the wider area corresponding "...closely to the industry standard 60-minute drive time..." is of course very close to Gatwick Airport.

Northpoint also discusses various aviation-related activities which could be attracted to a re-opened Manston Airport. However, such activities tend not to need an airport to be in a specific location. Consequently, there is considerable competition in these markets, both national and international, from airports with limited commercial traffic but considerable unoccupied real estate for such activities.

Northpoint concludes by indicating that the RiverOak vision is a completely different model from that envisioned in the AviaSolutions report, which focussed on passenger driven revenues. While AviaSolutions does not accept this categorisation, it notes that its remit from TDC was to assess if a re-opened Manston Airport could be viable,

and not per se to express an opinion on the RiverOak proposal. In view of Northpoint's own words, "...the preference airports will always give to more remunerative passenger operations...", we investigated the passenger market. Additionally, it was also necessary to establish the scale of belly hold capacity on passenger services likely to be available to be able to assess the volume of freight that might be available for freighters at Manston Airport.

Northpoint asserts that "...the AviaSolutions work...does not stand-up to close scrutiny...". It does not however identify any factual errors in the work and its evidence merely highlights areas where different interpretations of facts, and different assumptions about the future apply.

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York Aviation

STONE HILL PARK LIMITED

SUMMARY REPORT ANALYSING USE OF YORK AVIATION MATERIAL BY RIVEROAK STRATEGIC PARTNERS LIMITED AND ASSESSMENT OF CAPABILITY OF MANSTON AIRPORT

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York Aviation

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EXECUTIVE SUMMARY

1. York Aviation was appointed by Stone Hill Park Limited (SHP) in September 2017 to review the evidence presented by RiverOak Strategic Partners Limited (RSP) in connection with RSP's prospective application for a Development Consent Order (DCO) for the redevelopment and re-opening of Manston Airport as a hub for international air freight services, which also offers passenger, executive travel and aircraft engineering services.

2. We were the authors of two specific reports upon which RSP seek to rely in making their case, namely a report for the Freight Transport Association (FTA) and Transport for London (TfL) in 2015 and a note on Freight Connectivity for TfL in 2013. The first of these documents was used by RSP in its public consultation and this may have led respondents to believe that we were supporting the re-opening of Manston, which is not true and, as we go onto explain in this report, our analysis in these documents for the FTA and TfL does not support RSP's conclusion that there would be a substantive or sustainable role for Manston in the UK air freight industry.

3. The RSP case is principally based on circumstantial evidence presented in the Volumes I to IV of *Manston – A Regional and National Asset* prepared by Dr Sally Dixon of Azimuth Associates (June 2017 consultation version). Much of the material upon which Azimuth seek to rely as the basis of RSP's case relates to the economic costs to the UK if additional passenger hub capacity is not provided in the South East of England by 2050. This is not relevant to the specific question as to whether there would be sufficient demand for pure freighter movements to be operated to/from Manston in the foreseeable future or by their assessment year 2040.

4. The analysis presented by Azimuth shows a lack of understanding of the economics of the air freight market. This leads to a misinterpretation of our work, upon which Azimuth seek to rely to support RSP's case. Just because there could be excess air freight demand in 2050, compared to the bellyhold capacity available in the absence of further runway capacity at the UK's main hub, it does not follow that displaced bellyhold freight will seek a more expensive pure freighter service from a relatively nearby airport over the use of available bellyhold capacity from a more distant airport which can be provided at a lower cost to the shipper with only a marginal penalty in terms of the overall shipment time.

5. Fundamentally, Manston's past operation was economically inefficient due to the inherent lack of viability. Hence, reopening the Airport, in the face of a very limited niche market, has the potential to damage the productivity of the UK aviation sector overall, particularly, as we have demonstrated in our own assessment of cargo demand for Manston in Section 3 of this report, that there are more economically efficient alternatives available for any freight displaced due to specific capacity constraints at Heathrow both now and in the future.

6. Manston is too peripheral for integrator operations serving the UK. Integrators have a strong preference for locations more centrally located in the UK with good road access to all of the major markets. The availability of land for warehouses, for example as suggested in terms of the use of the 'Northern Grasslands' part of the overall Airport site, is far less important than a location central to the market and the availability of good road access, neither of which are characteristics of Manston. It is simply in the wrong place to serve the market being located at the far south east at the end of a peninsular, away from the main centres of population and distribution in the UK.

7. In the absence of hard market evidence of the need for Manston Airport, Azimuth undertook an interview survey to supplement RSP's case and to inform the forecasts. However, the list of interviewees was small, dominated by mainly local companies with something of a vested interest in seeing Manston re-opened. Even so, if anything, the views of those interviewed by Azimuth suggest that there would, at best, be a limited role for Manston. The one airline interviewed made clear that *"success at Manston depended upon identifying a niche market and becoming known for excellence. In particular, suggestions included a perishables centre, handling of live animals, easy access for charter flights, and handling cargo that is not necessarily straightforward"*. The scale of this opportunity was never quantified by Azimuth. It is clear, however, that the realistic expectation for Manston is for a small niche operation rather than as a general 'overspill' cargo airport for London.

8. The outputs from these interviews are then used by Azimuth as a basis for postulating a number of cargo aircraft movements that might operate at Manston. However, it is not possible to relate the proposed services to be operated with the responses by the interviewees. There is simply no explanation for, or justification for, the services postulated by Azimuth. At the very least, there is a lack of transparency in the approach adopted.

9. In our view, the Azimuth cargo movement forecasts simply lack credibility. To illustrate this lack of credibility of the forecasts, in Year 2 (the first operational year), a cargo throughput of nearly 100,000 tonnes is forecast by Azimuth. This would make Manston the 5th largest freight airport in the UK in its first year after re-opening (compared to 2016 actual throughput at the other airports). This would place it close to the scale of freight operations at Manchester Airport, which includes a substantial amount of bellyhold freight. It would make Manston the 3rd busiest airport in the UK in terms of tonnage carried on dedicated freighter aircraft. This is simply not a credible proposition. This lack of credibility is important in reaching any decision under section 23 of the Planning Act 2008 (as amended).

10. We have updated and further developed our analysis of the UK air freight market from that previously undertaken in 2013 and 2015 for TfL and for the FTA and TfL (RSP seek to rely on our 2013 and 2015 work as corroboration of their own cargo movement forecasts). When properly interpreted, our forecasts of air freight demand and capacity across the UK as a whole, taking the role of bellyhold fully into account, show that, to the extent that there is any need for additional pure freighter movements, there is plenty of freighter capacity at Stansted and East Midlands to accommodate any growth. These airports are better located relative to the market and the key locations for distribution within the UK. Overall, we conclude from this analysis that there will be no shortage of freighter capacity in the UK in the period up 2040 (RSP's assessment end date) and that overspill from other airports would not provide a rationale for re-opening Manston.

11. Taking the most optimistic basis for assessing its potential role, we have estimated that Manston might be able to achieve at most 4,470 annual air transport movements by cargo aircraft by 2040, but this is highly unlikely given its location and the clear market trend away from the use of dedicated freighter aircraft. Our more likely projection is that it might attain 2,000 annual air cargo aircraft movements by 2040 and it is equally plausible that it might not achieve more than 750 such movements annually. These are all far below Azimuth's projection, upon which RSP rely, of 17,171 annual cargo aircraft movements.

12. Our initial assessment of the passenger market is that the throughput might, at best, be around half of that projected by RSP and, hence, given the dependence on passenger related income for the financial viability of airport operations, this will impact substantially on the viability of the proposal. The other activities suggested by RSP, such as business aviation, maintenance, repair and overhaul, and aircraft dismantling are highly competitive markets and, to the extent that Manston might attract any such operations, these are unlikely to contribute substantially to the overall viability of the Airport.

13. The existing infrastructure at Manston Airport, if made good, is capable of handling 21,000 annual air cargo aircraft movements[1]. The actual usage of that capability would depend on the pattern of operation and how the infrastructure was used on a day by day basis. Our assessment, therefore, provides essential missing information from RSP's materials to date which is necessary for the purposes of section 23 of the Planning Act 2008 (as amended), for assessment purposes under the Environmental Impact Assessment Regulations and for consultation purposes.

14. Without prejudice to our view that demand to use Manston is not likely to be anything like 17,171 cargo aircraft movements a year, we have considered the land required to accommodate such a number of movements. Our assessment is that the land required would be substantially less than shown on the RSP Master Plan and that the proposed land take is excessive and without justification in terms of the compulsory acquisition of the land. Any development required to handle 17,171 annual movements by air cargo aircraft can all be accommodated to the south of the B2050 and, even allowing for passenger operations and other activities, would not require all of the airfield land to the south of the road. Obviously, on the basis of more realistic forecasts of future demand, the area required to support the ongoing operation of the Airport would be materially smaller.

15. We can see no justification for the inclusion of the 'Northern Grasslands' area within the DCO on the basis of it being for associated development. There will be little requirement for or likelihood of the relocation of freight forwarding activity from adjacent to the UK's main cargo hub at Heathrow to Manston, as suggested by RSP, and any requirement for such activity specifically to support the proposed level of freight activity at Manston could easily be accommodated on land to the south of the B2050. The development on the 'Northern Grasslands' site appears to be speculative commercial development which, based on the precedent at East Midlands Airport – the UK's principal airport for pure freighter operations – would be expected to be largely for non-aviation related uses.

[1] Based on an 18-hour operational day. Should a night time noise policy be agreed with Thanet District Council pursuant to the existing planning agreement that enabled a longer operational day and/or a number of scheduled night movements, then the capability could, in theory, be higher than 21,000 annual cargo aircraft movements.

16. In terms of the socio-economic implications of the proposed development, Azimuth have shown a lack of understanding of how such impacts should properly be calculated. Leaving aside the use of inappropriate multipliers, the impacts have been assessed at a national scale and should have taken displacement of activity from other airports fully into account, reducing the impacts well below those stated. Furthermore, the assessment should have considered the impact on alternative uses of the site, including SHP's proposed mixed use development and the socio-economic benefits deriving therefrom. We have set out a more realistic and robust assessment, which shows that the local impacts within Kent, even on Azimuth's forecasts, would be substantially less than claimed and it is these lower order effects which would need to be balanced with the environmental and other impacts in assessing the acceptability of the proposed development against the alternatives.

17. Unsurprisingly, the socio-economic impacts associated with the Airport are lower still on the basis of more realistic forecasts of likely usage if it re-opened. The operation is simply of a much smaller scale such that, in Year 2, it would generate only 452 jobs, 17% of Azimuth's estimate of 2,654. By Year 20, the differential is even larger, with the Azimuth estimates reaching over 30,000 jobs compared to our estimate of just over 1,000 jobs. Once again, the evidence presented by Azimuth on behalf of RSP cannot be relied upon. It is infected with the flaws in the traffic forecasting methodology identified previously but also the approach to identifying socio-economic impacts is, in itself, badly flawed. The socio-economic impacts are, as a result, massively overstated. In any event, these benefits would not be realised if the Airport ceases operation again due to it not being commercially viable.

18. As well as the Azimuth reports which form the basis of RSP's case, we have also reviewed a number of other reports on the potential for Manston. In overall terms, we agree with Aviasolutions for Thanet District Council that there is little realistic prospect of the re-opening of Manston Airport being a commercially viable proposition. We have reviewed their original report and the more recent reports and concur with their views on the overall structure of the UK air cargo market, noting that they, unlike Azimuth, have correctly understood the implications of our 2015 work for the FTA. We do not accept Northpoint's rebuttal of the Aviasolutions work. Like Azimuth, Northpoint's work is largely aspirational without any robust evidence or analysis of the market. Northpoint, too, misinterpret our previous work for the FTA and TfL.

19. In overall terms, we do not consider that the case that the re-opening of Manston Airport would constitute a Nationally Significant Infrastructure Project has been robustly made or substantiated. In any event, given that the baseline capability of Manston Airport is at least 21,000 annual cargo air transport movements (see section 4), this means that RSP must, effectively, be seeking to increase the capability of Manston Airport from 21,000 annual air transport movements by cargo aircraft to at least 31,000 such movements each year, a level of activity which has not been consulted on or assessed in RSP's Preliminary Environmental Information Report (PEIR). Indeed, RSP's consultation material does not provide any detail as to what the increase in capability would be as a result of its proposals (i.e. the increase in capability as a result of its proposed alteration to Manston Airport). As a minimum, the increase in capability would be to 31,000 annual air transport movements by cargo aircraft, but in our view their proposals would result in a significantly higher 'new' capability which is not revealed or assessed by RSP.

20. Our overall assessment is that RSP have failed to provide their own evidence of the capability of Manston Airport and the amount by which their proposals would increase that capability by. Rather, the only information that they present is a forecast of future freight demand, which has no credibility as explained in this report. There are, hence, major omissions in RSP's consultation material. This failure means that, in our opinion, the requirements in section 23 of the Planning Act 2008 (as amended) have not been satisfied. In essence, we would have expected RSP to be able to show:

- the capability of Manston Airport of providing air cargo transport services;
- the amount by which RSP is proposing to increase that capability by and thus the "new" capability; and
- a credible forecast for why that 'new' capability is required.

None of this information is provided by RSP.

1 INTRODUCTION

1.1 York Aviation was appointed by Stone Hill Park Limited (SHP) in September 2017 to review the evidence presented by RiverOak Strategic Partners Limited (RSP) in connection with RSP's prospective application for a Development Consent Order (DCO) for the redevelopment and re-opening of Manston Airport as a hub for international air freight services, which also offers passenger, executive travel and aircraft engineering services.

1.2 York Aviation is a specialist air transport consultancy that focusses on airport planning, demand forecasting, strategy, operation and management. The company was established in 2002. We offer a broad range of services to airports, airlines, governments, economic development organisations and other parties with an interest in air transport. Our team is a mixture of experienced air transport professionals and economists. Key members of the team have substantial experience of airport operations and development gained through working for Manchester Airports Group. Our core services include:

- business planning and strategy;
- capacity and facilities planning;
- master planning and planning application support;
- demand forecasting;
- economic impact assessment and economic appraisal;
- policy and regulatory advice;
- route development;
- transaction support.

1.3 Our clients include:

- Transport for London;
- Transport for the North;
- Department for Transport;
- Scottish Enterprise;
- Northern Ireland Government;
- Manchester Airports Group;
- Birmingham Airport;
- London City Airport;
- London Luton Airport;
- Ryanair;
- Freight Transport Association.

As well as numerous investors in airports and other parties with an interest in the development, operation and management of airports in the UK and abroad.

1.4 Louise Congdon, Managing Partner of York Aviation has provided evidence in relation to the need for and economic impact of airport development at several airport public inquiries, including Manchester Runway 2, Liverpool Airport, Doncaster Sheffield Airport, Stansted Generation 1, London Ashford Airport (Lydd) and London City Airport.

1.5 We were the authors of two specific reports upon which RSP seek to rely in making their case, namely a report for the Freight Transport Association (FTA) and Transport for London (TfL) in 2015 and a note on Freight Connectivity for TfL in 2013. The first of these documents was used by RSP in its public consultation and this may have led respondents to believe that we were supporting the re-opening of Manston, which is not true and, as we go onto explain in this report, our analysis in these documents for the FTA and TfL does not support RSP's conclusion that there would be a substantive and sustainable role for Manston in the UK air freight industry.

Historical Position

1.6 Manston Airport closed to commercial operations in May 2014, following several unsuccessful attempts to attain commercially viable operations. In the decade prior to closure, the Airport did manage to attract some cargo and passenger activity but not to levels that could ensure financial and commercial viability for its owners. The historic traffic performance is set out in **Table 1.1**. The Airport's cargo traffic peak was in 2003.

Table 1.1: Historic Commercial Traffic at Manston Airport

	Passengers	Cargo (tonnes)	Air Transport Movements[2] (excl. Air Taxis)	of which, Cargo Aircraft Movements[3]	Total Aircraft Movements
2003	3,256	43,026	1,106	1,081	24,934
2004	101,328	26,626	3,333	730	23,324
2005	204,016	7,612	4,631	177	21,358
2006	9,845	20,841	461	322	16,687
2007	15,556	28,371	608	444	21,521
2008	11,625	25,673	540	412	19,269
2009	5,335	30,038	583	485	18,902
2010	25,692	28,103	1,151	491	16,260
2011	37,169	27,495	1,472	419	18,695
2012	8,262	31,078	687	432	14,688
2013	40,143	29,306	1,640	511	17,504
Source: CAA Airport Statistics					

[2] Air Transport Movements (ATMs) are those services sold to the public as distinct from private flights or those operated on behalf of individual companies using their own aircraft. All substantive cargo operations in the UK would be treated as air transport movements. Aircraft movements are all aircraft movements at an airport, including 'touch and go' landings by flying school aircraft.

[3] Based on more detailed records maintained by the former airport operator, it would appear that CAA data may not record all empty cargo positioning flights. However, we do not have complete data. The total number of cargo flights could, hence, be somewhat greater than shown.

1.7 Table 1.1 shows that the number of air cargo movements and the tonnage carried was fairly consistent over the last 10 years of the Airport's operation, but these operations were not sufficient to support a commercially viable operation at the Airport.

1.8 We address the realistic levels of freight demand that Manston Airport might attract if re-opened in **Section 3** of this report.

The Application

1.9 RSP's prospective DCO application is predicated on its proposed alterations to the Airport's infrastructure, the effect of which is expected to increase by at least 10,000 a year the number of cargo air transport movements (CATMs) a year that the Airport is capable of accommodating. In practice, the case set out in the consultation documents produced by RSP and used in the Preliminary Environmental Information Report (PEIR) are predicated on it being able to attract and handle a forecast of 17,171 CATMs and 1.4 million passengers per annum (mppa) by 2039 and all of the assessments are made on this basis.

1.10 In order for RSP's proposals to be considered a Nationally Significant Infrastructure Project (NSIP), which can be taken forward using the DCO procedure under the Planning Act 2008 (as amended), it must comprise of an alteration to an airport which would *"increase by at least 10 million per year the number of passengers for whom the airport is capable of providing air passenger services"* or *"increase by at least 10,000 a year the number of air transport movements of cargo aircraft for which the airport is capable of providing air cargo transport services."*[4] [5] In this case, the relevant criterion relates to air transport movements for cargo aircraft. It is clear, therefore, that validating the capability of Manston Airport of providing air cargo transport services is vital to determining the legitimacy of a DCO.

1.11 RSP's prospective DCO application does not provide any explanation or understanding of the capability of the Airport before its proposed alteration is made. The capability of the Airport is a necessary component of Section 23(5) of the Planning Act 2008 (as amended), as it is from that figure that a prospective applicant must consider the effect of its proposed alteration, which must be expected to have the effect of an increase of at least 10,000 annual air transport movements by cargo aircraft. Without identifying the capability of Manston Airport, one does not have all of the components required under section 23 of the Planning Act 2008 (as amended) for a decision to be made as to whether the proposed alteration falls within section 23. In addition, an applicant must then explain what the 'new' capability would be following its proposed alteration in order to then assess the effects of the proposed alteration. We consider this further in **Section 4**.

[4] Section 23(5) of the Planning Act 2008 (as amended).

[5] It is noted that the Planning Act 2008 (as amended) also refers to an increase in permitted use as a relevant criterion. In this case, the existing planning consent under which Manston operated contained no limit on the number of annual aircraft movements permitted although there was a prohibition on night movement of aircraft between 23.00 and 07.00 in force, pending agreement to a night movement policy with the local planning authority, Thanet District Council. In any event, the increase would still need to be at least 10,000 per year in the number of air transport movements of cargo aircraft for which the airport is permitted to provide air cargo transport services.

1.12 A further consideration is the extent of development proposed in terms of its capability of supporting the projected number of movements but, more importantly, given that RSP is seeking to compulsory acquire the entirety of the Manston Airport site from SHP, whether the land area proposed is actually necessary in order to handle the projected number of aircraft movements and whether there is a *"compelling case in the public interest"* for its acquisition[6]. This requires consideration as to whether the case for the development and re-opening of Manston Airport is *"compelling"* and whether the full extent of land required has been fully justified. We consider this in Section 4 of this report.

1.13 We consider the socio-economic case for the development in **Section 5** of this report.

This Report

1.14 RSP sets out its strategic case and need for the re-opening of Manston Airport as a hub for international air freight in 4 volumes prepared by Dr. Sally Dixon of Azimuth Associates (Azimuth), namely '*Manston Airport - a Regional and National Asset, Volumes I-IV; an analysis of air freight capacity limitations and constraints in the South East and Manston's ability to address these and provide for future growth; June 2017'.* **Section 2** of this report reviews this analysis and the extent to which the analysis presented by Azimuth justifies the forecast cargo and passenger activity projected for Manston. This is important for the purposes of section 23 of the Planning Act 2008 (as amended) and whether the analysis presented by Azimuth provides a compelling case in the public interest for the acquisition of the site through compulsory acquisition procedures.

1.15 Within this report, we address, in particular, the use made by Azimuth of analysis that we undertook for Transport for London[7] and for the Freight Transport Association[8] in connection with the work of the Airports Commission and the need for new hub airport capacity for London. For reasons which will be made clear, the York Aviation work relied upon by RSP does not, and cannot be taken to, support RSP's proposed alteration to Manston Airport and, therefore, cannot be relied upon by RSP, the Planning Inspectorate, the Secretary of State and any future appointed Examining Authority (should RSP submit the application and the Secretary of State accepts the application). Given the errors in the interpretation and use of our work by Azimuth, we are concerned that the consultation carried out to date has not properly informed the public in respect of the valid interpretation of our work regarding the prospects for the viable operation of Manston as a freight airport.

1.16 We also review independent reports produced variously by Aviasolutions (Avia) for Thanet District Council in September 2016 and August 2017 and Northpoint Aviation Services (Northpoint) for RSP. This peer review of the other reports is at **Section 6** of this report. To the extent that we agree with these other reports, we do not repeat the detailed analysis in this report but reference the corroborating evidence as appropriate.

[6] Department for Communities and Local Government, *Guidance on compulsory purchase process*, October 2015, page 6.

[7] Referenced by Azimuth as Transport for London (TfL), *Note on Freight Connectivity*, unpublished paper 2013. For the avoidance of doubt, this note as made available by TfL under a Freedom of Information Request is appended to this report at **Appendix A**.

[8] York Aviation (2015), *Implications for the Air Freight Sector of Different Airport Capacity Options*.

1.17 Our conclusions are presented in **Section 7**.

2 CRITIQUE OF RSP APPROACH TO FORECASTING

2.1 In this section, we review the work of Azimuth that forms the justification for the DCO and was part of RSP's consultation documents in June and July 2017. The work is presented in 4 volumes:

- Volume I: Demand in the south east of the UK
- Volume II: A qualitative study of potential demand
- Volume III: The forecast
- Volume IV: The economic and social impact of airport operations

This section also addresses the basis of the demand forecasts for Manston as set out in Volumes I, II and III, focussing principally on air freight in this summary report. We address the socio-economic assessment in Volume IV in Section 5 of this report. Given the repetition of much of the material across the first three volumes of Azimuth's work, we have grouped issues broadly under the appropriate volume in this section.

2.2 We do not, in the main, dispute the accuracy of the factual detail, some relevant and some not, set out in the Azimuth reports or the veracity of the secondary evidence presented. We do, however, have serious and considerable issues in relation to the interpretation and the completeness of this evidence base, in particular relating to the use of previous York Aviation reports, and the inferences and conclusions drawn from it. Ultimately, we consider that the case put forward by Azimuth is weak and unsubstantiated as the extensive evidence base presented does not, in reality, support the conclusions drawn which, in many cases, go well beyond what can reasonably and sensibly be inferred from the information presented. Much of the information is effectively circumstantial and falls far short of making a compelling case, or indeed any case, that the demand forecasts would be capable of being realised.

2.3 Although Azimuth state at paragraph 1.2.1 of Volume 1 *"RiverOak, who specialise in identifying profitable market opportunities, has identified the substantial need for additional and specialised airport capacity for dedicated freighters in the southeast of England"*, we are unaware of any other research upon which RSP rely. All other documents produced in support of the prospective DCO appear to rely on the work of Azimuth.

2.4 In essence, the work of Azimuth sets out to address three key questions, which they assert provide the answer as to whether there is a compelling case in the public interest for the development of Manston Airport sufficient to meet the test for the inclusion of compulsory acquisition powers as part of the DCO. These are largely addressed in Volumes I and II, and lead on to the preparation of demand forecasts set out in Volume III. The three tests put forward by Azimuth are:

- *Does the UK require additional airport capacity in order to meet its political, economic, and social aims?*
- *Should this additional capacity be located in the South East of England?*
- *Can Manston Airport, with investment from RiverOak, relieve pressure on the UK network and meet the requirement of a nationally significant infrastructure project?*

2.5 At the outset, we query whether these are the correct questions to be addressed in terms of the case that RSP seek to make for the use of Manston as a major freighter hub. As is clear from the draft Airports National Policy Statement (NPS)[9], the first two questions relate to the requirement for more capacity at the UK's main passenger hub airport at Heathrow. The updated draft NPS makes clear at paragraph 1.30 that, in relation to the Government's preferred solution of a new northwest runway at Heathrow:

"Consideration has been given to alternative solutions to the preferred scheme, and the conclusion has been reached that there are no alternatives that would deliver the objectives of the Airports NPS in relation to increasing airport capacity in the South East and maintaining the UK's hub status."

2.6 Hence, these first two questions are not relevant to considering whether there is a need for dedicated freighter capacity at Manston sufficient to meet the tests for a DCO. Manston would make no contribution to meeting the identified requirement of passenger hub capacity for the UK or for the South East of England. Furthermore, the draft NPS makes clear, at paragraph 1.39 in relation to any other development consent application for airport development, that:

"Nevertheless, the Secretary of State considers that the contents of the Airports NPS will be both important and relevant considerations in the determination of such an application, particularly where it relates to London or the South East of England. Among the considerations that will be important and relevant are the findings in the Airports NPS as to the need for new airport capacity and that the preferred scheme is the most appropriate means of meeting that need."

2.7 This confirms that the proposed northwest runway at Heathrow addresses the identified need as set out by the Airports Commission for new airport capacity in the South East of England and that this provides a context against which any other DCO application would need to be assessed.

Demand in the South East of the UK (Volume I)

2.8 As has been noted above and in the most recent 2017 reports from Avia, much of the analysis presented by Azimuth relates to the evidence for a shortage of airport capacity overall in the South East of England and, specifically, the work of the Airports Commission relating to the need for additional hub airport capacity serving both the needs of passengers and of air freight. Much of the evidence presented by Azimuth to justify the existence of an airport capacity shortfall in the South East of England relates to the shortfall in capacity for passenger aircraft and, specifically, a shortage of capacity at the main aviation hub at Heathrow as noted above. This does not provide any underpinning justification for the specific development that RSP proposes at Manston, which comprises a specialist freight airport with a small number of low fare, regional and charter flights for passengers.

[9] Department for Transport, *Revised Draft Airports National Policy Statement: new runway capacity and infrastructure at airports in the South East of England*, October 2017. Note that the provisions referred to have not changed since the original draft as of February 2017, which pre-dated RSP's consultation.

2.9 Azimuth cite a number of reports which highlight the potential shortage of airport capacity, not just in the UK but across Europe, and the economic costs of not addressing these shortfalls. Azimuth then seek to imply that Manston could provide part of the solution and contribute to delivering these benefits. This is not justified and creates a false impression of the potential economic significance of RSP's proposals. A key point is that the reports relied on by Azimuth need to be seen in the context in which they were written, namely to set out the economic consequences of the failure to address the shortage of hub airport capacity principally for passengers but also providing bellyhold capacity for freight in the UK. All of the reports pre-date the Government's decision to promote an additional runway at Heathrow and were largely directed at ensuring that a positive decision was taken regarding the development of additional runway capacity.

2.10 Furthermore, the reference at paragraph 5.1.4 to concern expressed in the Aviation Policy Framework[10] regarding the implications of capacity shortfalls on the range of destinations served does not, as Azimuth infer, indicate a need for additional aircraft movements by dedicated freighter aircraft as these would require a concentration of freight flows to a specific destinations to fill a single aircraft at a time. Rather, the Aviation Policy Framework refers to the need for a wide range of global destinations being available at the UK's national hub airport, offering passenger and bellyhold capacity so as to maximise the choice and convenience for both passengers and shippers[11] of airfreight. It is this variety of destinations and, importantly, the high frequencies of service that lead the market to favour a bellyhold hub and spoke system so that freight can reach its end destination in the most efficient and cost effective way possible.

2.11 In the light of the Government's support for the provision of a third runway at Heathrow and the potential for further development of airport capacity beyond 2030[12], the use of these economic assessments of a constrained situation to 2050 is no longer relevant, if indeed it ever was, as a context for the potential re-opening of Manston as a freight airport. The use of this data by Azimuth to support RSP's proposals is disingenuous at the very least.

Reliance on York Aviation work

2.12 Ultimately, Azimuth rely heavily on two existing pieces of research undertaken by York Aviation during the Airports Commission process. The first an unpublished note for Transport for London (TfL) prepared in the early stages of that process (see Appendix A), and a later more detailed piece of research undertaken for the Freight Transport Association (FTA), in conjunction with TfL[13]. Both documents considered the overall position of the air freight market in the London system and what might be the circumstances of that market in 2050 under different assumptions regarding runway capacity development in the South East. Whilst we continue to believe that, in the very long term, there will be excess demand for air freight and that existing infrastructure in the London area will struggle to service this demand, more recent developments lessen the capacity pressure.

[10] Department for Transport, *Aviation Policy Framework*, 2013.
[11] Shippers are the originators of the airfreight, i.e. the exporters or importers.
[12] Department for Transport, *Beyond the Horizon The future of UK Aviation*, Call for Evidence, July 2017, paragraph 7.23.
[13] The FTA report being included explicitly in RSP's consultation documents on its website.

2.13 The key point, however, is that, to the extent that there is excess air freight demand in the long term, it does not follow that there will be a market for Manston, as asserted by Azimuth, as any excess demand at the Heathrow hub does not lend itself to being displaced onto dedicated freighter operations at Manston, for reasons we explain later in this section. To the extent that there is any role for additional freighter aircraft to accommodate some part of the displaced demand, there is ample spare capacity at other airports in the short to medium term at least. Thus, the York Aviation work relied upon by RSP does not, and cannot be taken to, support the need for a re-opened Manston Airport as a freight airport and cannot be so relied upon by RSP, the Secretary of State, the Planning Inspectorate and any appointed Examining Authority (should RSP submit its application and the Secretary of State accepts the application).

2.14 Specifically, Azimuth seek to rely on estimates presented in our reports of the number of freighter movements which might be required to carry the freight tonnage that could be displaced from the London airports in 2050 if there is no additional capacity provided by that date. It is important to note that our reports for TfL and the FTA went on to explain why there were other alternatives, such as regional airports or trucking to Europe, which would be favoured to meet demand ahead of any residual use of more dedicated freighters.

2.15 Despite the reports being very clear, when read in their entirety, that the solution to any shortage of capacity would not be extensive use of pure freighter aircraft, Azimuth rely on the freighter movement equivalents from our reports as justification for their projections of freighter movements at Manston both in the short to medium term and up to 2039. There are a number of problems with this approach:

- The analysis as at 2050 is not representative of the position at 2039 or any earlier date;
- The Government is committed to there being a third runway at Heathrow, with a major justification being the increase in bellyhold freight capability at the UK's principal freight hub;
- Gatwick has increased its effective hourly movement capacity, enabling more passenger aircraft and associated bellyhold capacity, particularly related to recent expansion of the long haul network;
- Stansted has 20,500 annual movements that are reserved for freighter aircraft, of which only around half are currently used. The Airport's Sustainable Development Plan[14] sets out an aspiration to grow cargo, including on dedicated freighter aircraft, to 400,000 tonnes annually;
- Regional airports have developed additional long haul services, providing additional bellyhold capacity, and have plenty of spare capacity to accommodate additional freighter aircraft movements to the extent that there is any need for more pure freighter capacity;
- The Government has not ruled out the provision of further additional airport capacity beyond 2030.

2.16 Fundamentally, the use of theoretical levels of excess air freight demand at 2050 cannot be used to underpin short to medium term forecasts for the expected usage at Manston or an assessment as to whether it could be viably developed in the meantime, regardless of the precise timing of the delivery of the third runway at Heathrow.

[14] Stansted Airport Ltd, *Sustainable Development Plan 2015*, Summary.

Transport for London

2.17 At the outset, it is important to note that our 2013 paper for TfL (referenced by Azimuth as an unpublished TfL note[15]) points out the UK did not then appear to be disadvantaged in terms of air freight capacity and that there was still substantial capacity for freighter movements remaining at Stansted. This is an important consideration in terms of short term forecasting and should have informed Azimuth's thinking.

2.18 In this paper for TfL, we estimated the excess air freight that could not be accommodated in bellyhold capacity on passenger aircraft under different scenarios of additional capacity at the London airports and converted that excess to an equivalent number of freighter movements. The 54,000 potential additional freighter movements that Azimuth (and Northpoint) cite at paragraph 3.4.5 are the additional freight carrying capacity required in the event of there being no further runway capacity at any of the London airports[16] (a severely constrained scenario) that is simply no longer realistic as we have set out above. Azimuth's (and Northpoint's) use of this figure as a potential market for Manston is misleading.

2.19 The note then goes on to set out how this requirement for additional freight capacity might be met and the economic consequences. In the first instance, we noted that around 14,000 additional freighter movements could be accommodated in the London system if no capacity expansion takes place, and this included the use of additional available freighter slots at Stansted. Azimuth appear to have taken our inclusion of Manston, as an example of a smaller airport in the South East that could accommodate some movements, as an indication that it could play a substantial role, wrongly stating in the Executive Summary and at paragraph 3.4.5 that we said that Manston was expected to handle 14,000 freighter movements. Manston was given simply as an example of an airport with freighter activity at the time of writing (2013) with the potential to accommodate some additional movements (as we set out in Section 4 of this report, the capability of Manston Airport is 21,000 annual cargo aircraft movements before allowing for any night operations).

2.20 In essence, our assumption was that, across the London airports (including Manston albeit on the periphery of the South East of England), it was plausible that, by 2050, double the number of existing freighter movements could be accommodated compared to 2012. If anything, the correct inference to draw from this is that we expected the number of freighter movements to double from 2012 levels, i.e. to around 1,000 movements a year at Manston.

2.21 Beyond this, the question of how excess freight demand in the London system in the future will be served is largely left open in our 2013 note but we made clear, at paragraph 26, that we believed the two most likely options would be greater use of bellyhold capacity and freighter operations at UK regional airports, noting Birmingham, East Midlands and Manchester particularly, or the trucking of freight to major European hub airports with substantial route networks and bellyhold capacity. This reflects the growing role of regional airports in serving their local freight markets (avoiding the need to truck to London), while balancing particularly the attractiveness of the substantial bellyhold capacity, lower air freight rates, and flexibility offered by the major continental hubs. We discuss this further below in relation to the economics of the air freight sector.

[15] See Appendix A.
[16] Based on the Airports Commission capacity assumptions.

2.22 Our TfL note also makes clear (paragraph 25) that, to the extent that there was a capacity constraint, the first consequence might well be less capacity for transit freight through the UK airports, prioritising freight to and from the UK. Ultimately, our TfL note concludes that:

"In the constrained, max use, case, there would be severe limitations of pure freighter movements at the London airports, which could amount to around 26% of the required air freight capacity to/from London. The extent to which this would act as a limitation on overall air freight volumes would depend on the extent to which the freight is still carried from regional airports or by truck. Clearly this would impact on the cost/efficiency of shipment, which in turn could impact on freight volumes carried. Again, it is outside the scope of the current exercise to assess these effects.

Overall, in assessing the economic value for air freight between the scenarios, the main difference is likely to lie in producer costs passed through to users and the impact that would have on business costs and hence output/freight generated. It would not be safe to assume that the reduction in cargo ATMs at the London airports necessarily translates to lost shipment value in its entirety."

2.23 Azimuth, at paragraph 3.3.2, incorrectly characterises our note to TfL as expressing a concern about the amount of trucking to Europe. Significantly, the last part of paragraph 9 is omitted by Azimuth. When looked at in its entirety, it is evident that we were noting that trucking is an inevitable part of the market, for reasons which we explain later in this section:

"However, the role of the low countries and Germany in acting as the major freight centre in western Europe is noticeable. In total, the main German freight airports handled almost 4.2 million tonnes of freight in 2012 which, when combined with the Netherlands and Benelux countries, amounted to 7.2 million tonnes of air freight flown. These airports have developed major and specialist air freight roles, with freight being trucked from all over Europe to feed these freight hubs. The integration of trucking with air freight should not be overlooked, even within the UK. In practice, it is unlikely that the UK could replicate this role, even with unconstrained airport capacity, due to its island location on the western edge of Europe."[17]

2.24 In other words, our assessment was that there would not, in effect, be a shortage of capacity for freight, albeit that there would be some loss of producer efficiency by way of increased trucking and time related costs, which would be small in the context of the overall cost of air freight transport. Our summary conclusion in this note makes this clear:

"The key difference between these two scenarios would be in terms of the efficiencies and economies of scale gained by the industry arising from the concentration of freight activity at a single hub. In both cases, the overall volume of air freight to and from the UK is expected to be broadly the same, although the actual freight carried including transit freight would be higher in the hub case. However, under the new hub scenario, savings from greater efficiency may be passed onto users, so reducing shipping costs and facilitating trade leading to higher freight volumes, but it is beyond the scope of the current exercise to assess this. "[18]

[17] See Reference 6, paragraph 9.
[18] Ibid, paragraph 30.

2.25 We were cautioning against the assumption that there would be a requirement for more capacity for dedicated freighter aircraft in a constrained scenario as there would be other more cost effective routes by which the freight would be carried, albeit at a higher cost than with the availability of more bellyhold capacity under a 4-runway hub scenario as being advocated by TfL at the time. Use of more dedicated freighter aircraft would represent a further increase in cost for shippers as we explain further later in this section.

Freight Transport Association

2.26 Our work for the FTA and TfL in 2015[19] again identified the potential for excess demand for air freight in the London system by 2050 and converted this number to freighter movements to demonstrate the point that a four runway hub could house this excess demand in one place. If this demand could not be served in the London system, the report makes clear our belief that it would then be trucked to alternate airports that offer significant options in terms of bellyhold freight or freighter operations. In this context, the bellyhold capacity and destinations offered by the continental hubs are a decisive factor in determining how the market will be served due to the range of destinations served and the lower costs inherent in using bellyhold freight. These continental airports act as freight consolidation hubs for the whole of Europe given their more central locations and, hence, offer consolidation advantages and more competitive freight rates.

2.27 Azimuth's interpretation of our work for FTA appears to erroneously assume that excess demand in the London system will need to be met by additional freighter movements from an airport in the vicinity of London. For instance, at para 4.2.3, they state that *"Even so and as York Aviation figures show, there will be a shortfall of slots for dedicated freighters, likely to be in the region of 45,000 by 2050"*. Whilst our report does estimate that the excess air freight demand with a third runway at Heathrow would be around 1.2 million tonnes by 2050, equivalent to 45,000 additional freighter movements, at no point does our report say that this is how the market could or should be served. Indeed, as we state on Page 20 of our FTA report *"we have assumed that freighter aircraft primarily act as a means to supplement bellyhold capacity where insufficient bellyhold capacity is available"* and our later analysis of how the market might react to this excess tonnage focusses on this assumption by considering the attractiveness of alternative airports in terms of both passenger and freight services on offer. We continue to be of the view that bellyhold capacity elsewhere will be the primary alternate given the price advantages, the flexibility offered by the long haul networks of major airports, including those on Continental Europe, and the low cost of trucking as our report for FTA makes clear.

2.28 By the time of this report for FTA, Manston had closed but, even if it had not and had been included within our modelling work, the lack of bellyhold capacity and limited overall market presence would have meant it could only be projected to capture a very small percentage of the excess demand. For instance, East Midlands, an airport with around 10 times the freight throughput of Manston, and only 1 hour further away from London than Manston (and substantially closer than Manston to many of the major regional markets and manufacturing centres) captured only 8% of the excess demand in our 2015 modelling. In the Heathrow 3rd runway scenario, this equates to around 100,000 tonnes in 2050. This would equate to around 3,600 additional freighter movements in 2050.

[19] See paragraph 1.14 above.

The Economics of the Air Freight Industry

2.29 Throughout the analysis, Azimuth appear to assume complete interchangeability between bellyhold freight, pure freighter operations and express/integrator operations without any analysis of the economic drivers for the use of each type of freight transport and the economics of trucking of air freight between the UK and Europe. This is a fundamentally unrealistic assumption and leads to a misrepresentation of the market opportunity for pure freighters.

2.30 In our work on international connectivity for Transport for the North (TfN) in 2016 (in conjunction with MDS Transmodal[20]), we identified the key characteristics of the air freight market. We identified that air freight can, in principle, be broken down into three main sectors:

(i) bellyhold, where cargo is carried principally in wide-body long-haul passenger jets[21]. Shippers are able to take advantage of flights to a wide variety of destinations from the main hub airports such as Heathrow and from other major European hubs, e.g. Frankfurt and Paris, similarly offering a wide range of global destinations on passenger flights;

(ii) freight only services, which are viable on only a handful of routes and/or for specialist commodities on an ad hoc basis. This is an increasingly limited sector in the UK due to the variety of bellyhold routes available and the strong presence of the integrators in the market;

(iii) express 'parcel' type services that operate on a hub and spoke network basis by 'integrators' (typically DHL, Fedex and UPS). These services increasingly carry larger consignments and East Midlands and Stansted Airports dominate the UK market, feeding bigger hubs located more centrally within Europe.

2.31 In general, air freight is seeking door to door journey times of the order of 4-5 days, which is possible using bellyhold through major hub airports, whilst integrator freight will generally seek a door to door journey time of no greater than 2 days.

2.32 The majority of tonnage moves by bellyhold as, in essence, this capacity is sold at marginal cost, with the majority of the airlines' operating costs covered by the passengers carried. The market is dominated by Heathrow and the other major European passenger hub airports because the sheer range and frequency of services provides a competitive environment which typically delivers the lowest freight rates and the greatest range of destinations served. There is high locational inertia in the air freight sector, which is likely to remain focussed around Heathrow for the foreseeable future as it is expected to remain by far the largest UK airport for cargo. In our TfN work, we estimated that around 70% of freight from the North of England in 2015 was trucked to or from other hubs for uploading, with some freight trucked to Heathrow for consolidation by the freight forwarders before being trucked back to Manchester to avail of bellyhold capacity there. Assuming similar proportions from other regions of the UK, it is clear that at least a part of any excess demand at the London airports is likely to be satisfied at regional airports, not least as airports such as Manchester, Birmingham and Edinburgh increase their range of direct long haul services offering bellyhold capacity.

[20] Transport for the North, *International Connectivity Evidence Report*, York Aviation/MDS Transmodal July 2016, Appendix C.

[21] Short haul flights provide small amounts of bellyhold capacity but, generally, low fares airlines do not carry cargo within their operating model.

2.33 The integrator sector carries more urgent parcel traffic based upon hub and spoke networks offering (typically) two day intercontinental transits. Spoke services from the UK from East Midlands and Stansted serve central European hubs at airports such as Brussels and Frankfurt. The need for frequency tends to mean that, typically, only one 'spoke' can be justified per integrator per country and these spoke services tend to be centrally located to maximise accessibility from all parts of Great Britain. East Midlands Airport is ideally placed in this regard. The integrators are increasingly using bellyhold capacity as well, essentially acting as freight forwarders in this regard.

2.34 A handful of freight only services complement bellyhold and integrator services where there is sufficient cargo to justify dedicated aircraft to a particular destination. There are a small number of scheduled freighter services which circumnavigate the globe, picking up and dropping off cargo at each point. More often, dedicated freighter services, other than those linking with major cargo hubs such as Hong Kong, Seoul or Dubai, operate on an ad hoc basis dealing with special consignments, such as large loads, or specific commodities where time is of the essence, such as the perishables trade, which was previously the principal cargo usage at Manston. Whilst there is some cascade from bellyhold to pure freighter operations where capacity is not available or time is critical, ultimately, it is the economics of the operation which is key. It does not follow that displaced bellyhold freight will seek a more expensive pure freighter service from a nearby airport over the use of available bellyhold capacity from a more distant airport.

2.35 In particular, we identified that the high cost of air freight leads to a pressure to be cost effective and the role of freight forwarders[22] in consolidating loads in order to secure the lowest possible freight rates. Cargo, other than integrator operations, tends to be assembled by specialist air freight forwarders, which cluster around the major hub airports so as to avail of the competitive freight rates on offer. As the road transport costs are very low compared to the value of the cargo and the air freight costs, air cargo is often trucked long distances to find capacity (at a lower freight rate). This forms an important driver in how freight moves from its origin to the actual airport of uploading and applies both within the UK and between the UK and Europe.

2.36 The charges levied per tonne of cargo for the long haul flight leg are high relative to inland haulage costs so that a relatively small difference in air freight rates between different airports will easily cover any additional costs for road haulage. It is for this reason that the majority of air freight will always gravitate towards bellyhold where there is capacity available, even if there is a substantial road haul as part of the journey. Given the wide range of bellyhold services available from the UK, which will increase following the development of a third runway at Heathrow and long haul service growth elsewhere, it is reasonable to expect that pure freighter operations will continue to make up a declining share of the market.

[22] A freight forwarder, forwarder, or forwarding agent is a person or company that organizes shipments for individuals or corporations to get goods from the manufacturer or producer to a market, customer or final point of distribution. For example, the freight forwarder may arrange to have cargo moved from a plant to an airport by truck, flown to the destination city, then moved from the airport to a customer's building by another truck.

2.37 Trucking of air freight is not a new phenomenon. The work by Steer Davies Gleave for the Department for Transport (DfT) in 2010[23] estimated that over 50% of air freight leaving the UK for Europe was trucked rather than using the bellyhold of passenger aircraft. In other words, airlines are using trucks rather than aircraft to distribute freight arriving on and connecting to their global passenger (bellyhold) and freighter operations. At the time of this analysis, Manston was still operational. If it was more economical to use a pure freighter service from Manston rather than trucking over the Channel, this would have been happening in 2010 but it was not. Other than the potential additional border checks as a consequence of Brexit, Azimuth advance no reasons why freight would switch from the cheaper trucking/bellyhold model to expensive pure freighter operations. We believe that the economics of air freight will continue to favour the use of bellyhold freight, other than for a minority of consignments, to and from the UK even if there is a lengthy trucking leg.

Manston in the context of the drivers of air freight

2.38 At Para 4.0.2, Azimuth suggest the reasons why cargo airlines choose airports. In reality, Manston does not fulfil a number of these key criteria meaning that, even in the most favourable circumstances, it can never be more than a niche player in the market. Specifically:

- It does not provide convenient access to the main markets;
- The drive time to Central London is nearly two hours[24];
- The great majority of the Airport's natural catchment is sea and there is very limited evidence of any local demand base;
- Competition is strong from the London airports, with already established freight forwarding and a wide range of bellyhold capacity;
- Given that the Airport is closed and staff dispersed, Manston would not provide any advantages in terms of experience of cargo handling and is likely to offer only marginal advantages in terms of the speed of transit through the Airport;
- Manston could potentially offer lower airport costs, albeit this would impact on the viability of the Airport, but these lower airport costs and any reduction in flying time would not offset the additional cost of freighter transport compared to bellyhold;
- It is also unclear as to what extent night time operations will be an option at Manston given the operating constraints under which the Airport formerly operated which prohibited scheduled night flying[25].

[23] Steer Davies Gleave, *Air Freight: Economic and Environmental Drivers and Impacts*, March 2010

[24] Based on Google maps standard driving speeds.

[25] Azimuth Vol 1 paragraph 7.1.6 quotes from a 2005 MORI survey that people were not impacted by night flights but this would reflect that there were no scheduled night flights when the airport was operational. Local resident support for re-opening (paragraph 7.1.1) needs to be seen in this context. We note that RSP's Consultation Overview Report states (on page 11) that *"Air freight operations would be predominantly during the daytime, in accordance with operations at other similar air freight airports. There may be a requirement for a small number of night-time flights, the details of which will be determined as part of the on-going project design, taking account of feedback from the Statutory Consultation, and presented with the DCO and assessed within the Environmental Statement. For the purpose of the PEIR assessment, and as a worst case, the working assumption is that there might be a maximum of eight (8) aircraft movements at night between the hours of 2300 and 0600."*

2.39 A key consideration is Manston's geographic position substantially away from the economic spine of the UK and with very limited local demand. It is remote from most markets with a journey time to the M25 of nearly 1 hour and accessibility beyond would be subject to the general levels of traffic congestion in the London area. Azimuths's suggestion (paragraph 1.2.2) that Manston might effectively serve as a 4th runway for Heathrow for air cargo flights is merely fanciful given the journey time of 1¾ hours, which is little shorter than the time from Heathrow to East Midlands Airport with an already well developed infrastructure for handling air freight and more likely to fulfil such a role in relation to freight overspill from Heathrow that is time critical or of such a special nature as to warrant the use of pure freighter aircraft.

2.40 Many of the other points raised by Azimuth regarding security, e-commerce and just-in-time delivery are all factors relating to the overall efficiency of the industry. If anything, what the analysis presented by Azimuth demonstrates is the importance of developing efficient freight networks serving the whole of the UK rather than the need for a re-opened freight focussed airport in the South East of England. Manston could only recapture economic benefits from cargo being trucked to the continent, as asserted at paragraph 4.8.4, to the extent that it provides a more economically efficient solution. Manston was not viable in the past and there do not appear to be significant changed circumstances that would make it viable in the future. This lack of inherent viability is indicative of the fact that it did not provide an economically efficient solution.

2.41 One of the key reasons that the UK aviation sector is so productive, as cited by Azimuth at paragraph 5.2.1, is that it allows the market to work. Inefficient and unnecessary actors in the market are allowed to fail. There is a strong argument to suggest that the closure of Manston is simply a part of the process of the market working and delivering more efficient solutions. The argument around the importance of the sector and Manston's role only applies if it is commercially viable (and makes an adequate return to shareholders) and represents an economically efficient allocation of resources. Otherwise, it will in fact damage the productivity of the UK aviation sector.

2.42 Azimuth asserts, paragraph 6.2.2, that the perceived lack of investment in Manston by the previous owners was an impediment to freight growth. However, this is at odds with previous statements by former operators of the Airport and comments by interviewees, in Azimuth's Volume I, on the quality of service received by customers at Manston. In its 2002 results, the Wiggins Group plc claimed that, following investment, Manston was capable of handling 200,000 tonnes of cargo a year[26]. The subsequent owners, Infratil, published a Master Plan in 2009[27] which identified triggers when there might need to be some increase in cargo aprons or warehousing at 100,000 tonnes and 200,000 tonnes of cargo annually. Given that peak tonnage was 43,000 tonnes, this does not suggest that lack of capacity or shortage of investment was an impediment to increasing cargo volumes at Manston in the past, rather the limitation was the market.

[26] https://www.investegate.co.uk/wiggins-group-plc---230-/rns/final-results/2002073007004526862/
[27] Manston, *Kent International Airport Master Plan*, November 2009, page 62.

2.43 The only specific impediment to increasing throughput cited by Azimuth is a limitation to 1 aircraft being handled at a time but we understand that this was not the case, albeit supervised taxi-ing procedures had to be put in place when there were 2 aircraft using the apron at the same time. In practice, it does not appear that lack of investment was an issue which impacted on freight throughput. Rather, it must be assumed that the previous owners did not believe there was a viable economic case for investment. Lack of investment does not necessarily mean constrained demand and it may simply be that there was not sufficient demand to justify investment and that the market was functioning properly.

Qualitative assessment of demand (Volume II)

Forecasting Methodology

2.44 Volume II of Azimuth's work begins with an assessment of different forecasting approaches for cargo, noting that forecasting of cargo is not as well developed as that for passenger activity. We agree that air freight forecasting is difficult and that there is a lack of hard data. However, we do not agree with Azimuth's assertion that quantitative methods are, therefore, not suitable and that qualitative methods are more appropriate. The evidence cited by Azimuth at Table 3 does not support this conclusion and suggests that causal methods (regression analysis) remain the most appropriate for forecasting demand for cargo and freighters. Such an approach is far more akin to the type of analysis undertaken by York Aviation in its work for TfL and FTA and upon which Azimuth seek to rely as a basis for the scale of activity that Manston might attract.

2.45 Whilst we understand the reason for Azimuth's assertion that it <u>may</u> not be appropriate to extrapolate Manston's future performance from its historic performance, this does not take away from the importance of grounding any future forecast in quantitative evidence of the drivers of the market and how these might change in the future. In any event, the assertion is at odds with the reliance placed by Azimuth on our quantitative assessments of 'spill' from the London airports at 2050, in the circumstances of no additional runway at Heathrow, as corroboration of their qualitative projections for Manston to 2039. To reiterate, reliance on these estimates is not appropriate for considering the potential role for Manston, not least as they relate to 2050 and cannot be applied to 2039, or any earlier year, without working through from first principles how any constraints in the London system might bite and the likely market reaction.

2.46 As well as reviewing forecasting methodologies, Azimuth sets out some air freight growth forecasts produced by others. At paragraph 3.6.1, Azimuth cite the DfT's assumption for growth in freighter movements in its 2013 UK Aviation Forecasts at 0.4% p.a[28]. The DfT makes clear that the growth in freighter flights is seen as a residual, representing the share of freight on pure freighter flights after allowance is made for bellyhold cargo being the primary mode. It is clear that the DfT is expecting the share of the market using pure freighters to and from the UK to continue to decline. Indeed, the most recent UK Aviation Forecasts published by the DfT[29] suggest that there is expected to be no growth in the number of pure freighter movements to and from the UK above 2016 levels in the period to 2050. Hence, any increase in freight movements at Manston would have to come at the expense of other airports. We discuss the ability of other airports to handle such movements in Section 3.

2.47 Given the existence of a definitive 'official' UK forecast for freighter movements over the period to 2050, it is not clear why Azimuth rely on global forecasts for air freight produced by the manufacturers Boeing and Airbus for the purpose of selling aircraft (paragraph 2.1.10) as a basis for the longer term projections of freighter movements at Manston in their Volume III (paragraph 2.3.2). The global growth rates cited by Azimuth are inappropriate for projecting growth in freighter movements at Manston for several reasons:

- They relate to RTKs (Revenue tonne kilometres) (Boeing[30]) and FTKs (Freight tonne kilometres) (Airbus[31]) and will reflect increased tonnage per aircraft, including freight carried in the bellyholds of passenger aircraft, and longer sector lengths as well as any growth in aircraft movements;
- The projections relate to growth in air cargo at the global level and lower growth is clearly shown as expected to/from and between more advanced economies such as the UK;
- In the case of Airbus, specific lower growth rates are cited for growth in freight tonne kilometres in freighter aircraft (2.6% p.a. compared to 3.8% per annum in their latest forecasts which are lower in any event than the previous forecasts used by Azimuth). Even then, this growth rate relates to FTKs not to freighter movements.

2.48 Taken together, these reports point to a declining market share for freighter aircraft in mature markets such as the UK, where there is a good supply of bellyhold capacity. It is, hence, not reasonable to use the Boeing and Airbus growth rates as a basis for projecting future growth in movements by pure freighter aircraft to and from the UK, particularly given the existence of DfT projections for such movements. Rather than being conservative, as suggested at paragraph 2.3.2 in Volume III, the use of a 4% per annum growth rate for years 10 to 20 at Manston is highly optimistic, and is certainly not supported by the DfT's analysis of the UK market.

[28] Department for Transport, *UK Aviation Forecasts 2013,* paragraph 3.49.
[29] Department for Transport, *UK Aviation Forecasts*, October 2017, paragraph 2.56. The decline in pure freight movements since 2001 is illustrated in Figure 4.5.
[30] Boeing, *World Air Cargo Forecast 2016-2017*, page 2.
[31] Airbus, *Growing Horizons – Global Market Outlook 2017/2036*, page 101. Note that the 2016 version to which Azimuth refer is no longer available on the Airbus website.

Interviews

2.49 Having rejected the recognised methodologies for forecasting freight demand at an airport, Azimuth rely on interviews with 24 individuals and/or organisations as set out in Table 4 of their report. To a large extent, these are people with past connections with Manston and who may not have a totally unbiased view on the desirability of it re-opening. It is notable that few cargo airlines or large scale air freight operators were interviewed, rather the list is dominated by local interested parties and logistics firms, not all of which are still in business. In some cases, throughout the remainder of Volume II, individuals are referred to who are not listed in Table 4 and, in other cases, individuals or organisations are referred to in different terms to those listed in the table. This does not suggest a very robust or rigorous approach to setting out the potential for Manston. Although the framework of questions is set out at paragraph 4.3.1, we are unable to identify any questions that would enable an assessment to be made of future passenger or freight volumes that would be likely to use Manston and which could be used as the basis for any forecast of future usage.

2.50 In the light of this, the remainder of Volume II is largely a qualitative description of current problems experienced in transporting cargo in general in the UK and in terms of past operations at Manston. These do not, however, provide any insight into the potential scale of demand for freight or passenger services at Manston. Essentially, it constitutes a speculative description of where there might be opportunities if Manston re-opens. We highlight the speculative nature of some of these comments relating to freight activity below. Taking Azimuth's categories in turn:

Process and Issues associated with airfreight

2.51 This analysis is generic and of no direct relevance to the potential for Manston. In particular, no linkage is drawn between the commodities which typically use air freight set out at paragraph 5.1.2 and the economic sectors active in Kent. Significantly, at paragraph 5.1.5, Azimuth cite a respondent that made clear that *"tendered"* prices determine how air freight moves. This is a powerful reason why bellyhold will in most instances win over pure freighter operations. Issues of price for pure freighter operations are reinforced at paragraph 5.1.10, particularly in relation to the risks associated with higher fuel prices.

2.52 There are then a number of comments regarding the current difficulties of operating at Heathrow at paragraph 5.1.6ff. It is recognised that there are few realistic slots available for additional freighter operations at Heathrow so unsurprisingly Coyne Airways cite a difficulty for them if they sought to fly to Heathrow on an ad hoc basis. However, in reality, this airline is not a major player in the UK or Europe, operating a small number of weekly flights from Amsterdam to feed its network of flights within the Caspian Sea region[32]. Comments from ACC Shipping and Active Transport need to be read in the context that they are local Kent shippers and transporters of cargo that have a vested interest in seeing Manston re-opened.

[32] http://www.coyneair.com/caspian_schedule.htm

Future trends in airfreight

2.53 To some extent, the issues highlighted here regarding security relate to the specific issues around Calais at the time when the interviews were carried out but the situation has now changed since October 2016. It is recognised that security of air freight is an increasing concern globally but this would apply at Manston as well as elsewhere.

2.54 Again, paragraph 5.1.15 highlights the dominance of bellyhold freight. Whilst noting that the A380 aircraft has more limited space for bellyhold cargo than B747s at paragraph 5.1.14, Azimuth neglect to point out that other new aircraft, such as B787 and A350 aircraft, do not suffer from similar reductions in space and capacity and continue to offer substantial bellyhold opportunities and capacity.

Motivation to use Manston

2.55 The response cited at paragraph 5.1.19 makes clear that the most important factor in considering freighter operations is *"cost, speed and access to road networks"*, which is not a condition which Manston can meet for the majority of the UK. The local transport firms (paragraph 5.1.21) clearly saw an advantage for them in Manston re-opening but it is far less clear that this was reflected by the broader industry. Significantly, paragraph 5.1.20 does not address the operational reasons why major freight forwarders seek to locate close to Heathrow, Stansted or East Midlands, except possibly for their city centre sales offices.

2.56 The response quoted at paragraph 5.1.23 makes clear that for Manston to be an attractive option to freighter operations, it would need to offer night operations. In the light of the past ban on scheduled night flying, this would be a major change to operating mode, with consequential environmental impacts. Furthermore, RSP's position in relation to whether scheduled night flights will be allowed or not is ambiguous (see paragraph 2.37 above) and we understand that some supporters of the re-opening have said that such operations would not be allowed. In the event that night flights are not allowed or heavily restricted, this would further diminish the attractiveness of Manston for pure freighter operations (comparisons with the major European freight hub at Frankfurt as included by Azimuth are simply not realistic).

Demand model and data for Manston Airport

2.57 This section does not, in fact, contain any data for Manston nor set out a view on how future demand might be modelled.

Freight focussed findings

2.58 The one airline interviewed made clear (paragraph 5.2.3) that *"success at Manston depended upon identifying a niche market and becoming known for excellence. In particular, suggestions included a perishables centre, handling of live animals, easy access for charter flights, and handling cargo that is not necessarily straightforward"*. We would have expected the remainder of the report to concentrate on quantifying the size of this niche market, including any Brexit implications for exports (paragraph 5.2.1). It is clear, however, that the realistic expectation for Manston is for a small niche operation rather than as a general 'overspill' airport for London.

2.59 The spurious suggestion that freight might be *"banned"* from Heathrow (paragraph 5.2.6) and Manston might benefit is clearly nonsense in the context of the Government's support for a third runway to provide capacity for freight in the bellyholds of passenger aircraft as much as for passengers.

2.60 Whilst the suggestion from Coyne Airways about the potential for Manston to offer fuel cost savings when flying south from the UK (paragraph 5.2.11) is interesting, it appears not to take any account of the locations where freight is generated in the UK or where it is consolidated into viable loads. It does not seem likely that Coyne Airways would itself relocate its one European feeder service from Amsterdam to Manston given this would increase rather than decrease fuel burn. As noted earlier, the real reason freight is trucked across the channel is to avail of cheaper freight rates available at the main European hub airports, which act as focal points for cargo for the whole of Europe.

2.61 Azimuth also claim that the bellyhold model is broken and that there is about to be a shift back to pure freighter operations at paragraph 5.2.25 but this is pure speculation and at odds with other industry commentators (see Airbus freighter forecasts which project an increasing share of bellyhold globally[33]) and the UK Government's view as expressed by the Department for Transport.

2.62 Whilst paragraph 5.2.24 says there was underinvestment in facilities by the previous owners, the quotation from Finlays at paragraph 5.2.26 makes clear that Manston previously offered a good level of service. Hence, there is little evidence to suggest that underinvestment was any impediment to Manston attaining its natural share of the market in the past. Although Finlays have now relocated their operation back to Stansted, we would accept that they might choose to return to Manston with a similar number of movements as previously if the facilities were re-instated and provided the cost of operating was competitive compared to Stansted. There may also be scope for some humanitarian and military flights (paragraph 5.2.48) but these will be small in number and not the basis for a viable operation of the Airport.

2.63 At paragraph 5.2.45, Fedex's criteria for an airport to be attractive to an integrator are set out and these seems to describe the characteristics of their main UK base at Stansted. There is then a discussion about some of the problems DHL perceive at Heathrow but, of course, DHL's principal UK operation is focussed at East Midlands where they have an extensive operation. From our work with the integrators and with the Freight Transport Association, we know that Manston is too peripheral for integrator operations serving the UK. Integrators have a strong preference for locations more centrally located in the UK with good road access to all of the major markets. The availability of land for warehouses (paragraph 6.2.6) is far less important than a location central to the market and the availability of good road access, neither of which are characteristics of Manston. This would apply equally to the suggestion that Amazon might locate there or that the Airport could become a base for drone operations (6.3.24-27). It is simply in the wrong place to serve the market being at the far south east at the end of the country on a peninsula.

[33] See Footnote 31.

2.64 The comparisons to Frankfurt Airport, in terms of the ability to sustain a freight operation without night movements, are simply irrelevant given that Frankfurt carries the second highest freight tonnage of any European airport and acts as a major cargo hub for air and road freight given its highly central location. Much of Frankfurt's cargo is carried in the bellyholds of passenger aircraft and this underpins the freight hub role. Given that Manston does not have anything like the overall market attractiveness of Frankfurt, for many reasons, any constraint on night operations would be a major impediment to freighter operations.

2.65 We do not discuss the passenger market in this report, albeit we have reviewed Azimuth's forecasts and disagree with their conclusions, which we can report upon should any application be made by RSP. The latter parts of Azimuth's Section 5 mention opportunities around ancillary activities such as MRO, aircraft recycling, flying schools and business aviation. We would simply highlight, at this stage, that these areas are highly competitive markets and it is not immediately obvious why Manston would provide an attractive option for operators in these markets when compared to what is often global competition. Nor is it evident that such activities would contribute substantially to the viability of Manston.

Analysis and Conclusions

2.66 Sections 6 and 7 of Azimuth's Volume II, go on to discuss what this means for Manston and draw conclusions. In general terms, Azimuth seek to draw conclusions about the cargo performance of Frankfurt, Heathrow and Stansted airports which are not consistent with the actual facts.

2.67 Again, there is reliance on our work for TfL and the FTA (paragraph 6.1.8) to justify the conclusions reached. As stated above this work does not support RSP's case.

2.68 Azimuth then identify that there are sectoral and geographic markets for which Manston has potential but there is no quantification of the scale of these markets. This is a fundamental gap if the scale of any potential opportunity is to be understood.

2.69 At paragraph 6.3.1, Azimuth set out 9 potential scenario drivers for Manston. However, it is not clear how these scenario drivers have been taken forward to the forecasts set out in Volume III, which do not set different potential scenarios for growth. If we take each of these drivers in turn:

1. *The UK's position in Europe* – Azimuth appear to assume that there will be an opportunity for multi-hop freighter services from Manston but it is far from clear that the traffic rights for such services will continue to be available post-Brexit.
2. *Changes to fuel prices* – in the face of the decline in the value of sterling, these are more likely to work against the operation of more freighter aircraft.
3. *The availability of more efficient aircraft* – the introduction of B787 and A350 aircraft will increase bellyhold capacity rather than reduce the capacity.
4. *Onshoring of manufacturing in the UK* – it is not clear how this is relevant given Kent does not have a strong manufacturing base.
5. *Changes to logistics and transport systems in Kent* – this is a circular argument as it relies on the re-opening of Manston driving a step change in the logistics and transport sector in Kent.

6. *Dramatic changes to economic performance* – it is noted that these are not factored into the forecasts but to the extent that there are Brexit effects on the economy, these would reduce trade and demand for air freight.

7. *Manston becomes a major integrator/forwarder base* -

8. *Manston becomes an Amazon base* -

9. *Manston becomes a hub for drone activity* –

for the reasons noted above, all three of these seem highly unlikely and are, at best, pure speculation with no evidence base whatsoever.

2.70 Section 7 sets out the conclusions from Volume II. According to Azimuth (paragraph 7.1.1), the key issues that are seen to favour Manston are:

- Lack of available slots at other South East airports;
- Bumping of freight from passenger aircraft;
- Security issues particularly with outsized cargo;
- Speed of turnaround.

However, our analysis of the factors would suggest that, other than perhaps the last two factors, there are few factors which would favour Manston and, in any event, these could be replicated by other airports closer to the main UK distribution centres, such as Doncaster Sheffield Airport, if these were deciding factors in the market.

2.71 Based on their analysis, Azimuth then set out (at paragraph 7.1.2), the markets which it believes that Manston could attract:

- Parcels and packages through an integrator;
- Perishables including fruit, vegetables, flowers, fish, and shellfish;
- Outsized freight;
- Formula One and luxury cars;
- Live animals;
- Time sensitive items such as aircraft [parts] and the oil and gas industry;
- Humanitarian and military flights.

In addition, some passenger operations along with a number of ancillary activities such as recycling, MRO[34] etc. are postulated for Manston.

[34] Maintenance, repair and overhaul of aircraft

2.72 Whilst, except for integrator operations, they are plausible markets for some potential operations from Manston, Azimuth make no assessment of the potential quantum of local demand as a basis for assessing how big a market there is. Whilst seeking to discredit analytical methods for projecting future demand at Manston, at the same time, Azimuth rely heavily on estimates made by us and using such methods that suggest there would be excess demand in the London system at 2050 if there is no new runway at all. Fundamentally, Azimuth make no assessment of the viability of what might be on offer or address any concerns as to why such operations have not secured a viable future for the Airport previously.

2.73 The key conclusion drawn by Azimuth is that *"This report demonstrates the potential demand for Manston Airport, indicating its viability and clearly showing that Manston Airport is a valuable local, regional and national asset, providing airport infrastructure badly needed by the UK."* (Paragraph 7.0.1) There is, quite frankly, no factual basis for Azimuth to make this claim. Azimuth claim that the capacity is *"badly needed by UK"* but this is linked to erroneous use of the economic costs of there being no further runway capacity in the UK (see paragraph 2.6 of this report) and a lack of understanding of the air freight market.

2.74 In summary, Azimuth's insistence that Manston's past market performance is not a relevant consideration in understanding how it might perform in the future is both erroneous and contradictory to the evidence put forward to support the qualitative market forecasting approach. The interview findings presented are clearly focussed towards operators that have used Manston in the past and would be pleased to be able to use it again but the evidence presented does not suggest that operators would do more than reinstate past operations. This did not result in an airport that was viable and certainly did not result in annual cargo air transport movements predicted by Azimuth. In our view, and having regard to the evidence, it is unlikely that circumstances have changed so dramatically in the intervening period since the Airport was last operational that there is likely to have been a fundamental change in its ability to capture market share. Its previous cargo performance remains the best starting point from which to consider its future.

2.75 In defence of their position, Azimuth cite lack of investment by the previous owners as being a key cause of Manston's inability to fulfil its potential previously but this is not borne out by the interview responses as the quality of service was noted as good. Fundamentally, the failure to consider the drivers of the Airport's previous performance effectively is a key error which infects the subsequent forecasts presented. The limited size of the market is perhaps the best explanation as to why there was not still further investment in developing the facilities as the operation was fundamentally not viable and it would have been imprudent to invest further.

Forecasting (Volume III)

2.76 The forecasts set out in Volume III draw extensively on the analysis in Volumes I and II. Although stated to be derived on a 'bottom up' basis (Executive Summary Page 1) and claimed to be more conservative than top down, econometrically driven, projections, reliance is still placed, at paragraph 1.1.1, on our quantitative work for TfL/FTA to justify/verify the overall quantum of movements projected, stating *"Rather than merely extrapolating past activity, studies that have focused on the 'lost' or suppressed demand include York Aviation's work (2015, p. 19)."* This work was itself fundamentally top down, based on examining past activity and its implications for the future. Azimuth rely on this as, effectively, the only quantitative evidence presented of a possible level of future demand which might be available to Manston. However, for the reasons set out earlier, Azimuth has incorrectly interpreted our findings and their use of our data to support RSP's case cannot be relied on.

2.77 Paragraph 2.1.2 again suggests that the literature review undertaken showed that *"a qualitative approach was the most appropriate method through which to gather data on the potential demand for an individual airport"*. Whilst we agree that freight forecasting is difficult, as Azimuth themselves note, at paragraph 2.1.4, qualitative forecasts still need to be based on *"market data"* and, at paragraph 2.1.6, Azimuth go on to refer to the anecdotal information collected in the interviews as primary market data. Overall, this anecdotal evidence does not provide a basis for the development of a forecast of future usage nor for the presentation of a business case of the proposed development.

2.78 To further justify the approach to forecasting, Azimuth claim that the Airports Commission recommended the use of a Delphic approach. This is not strictly true as what the Airports Commission actually said was:

> *"In cases where there is limited or no data available, judgement based forecasting, using techniques such as the 'Delphi Method' is applied. This approach involves experts in the field considering historical patterns to predict future trends and is often used in conjunction with both naïve and causal models to compare forecast trends. The Delphi method is considered especially useful for long term forecasting (20-30 years) and is effective in drawing on existing knowledge to identify areas of agreement and disagreement in forming the forecast. However, for complex themes the Delphi Method is not always considered appropriate as there is no way of testing different outcomes e.g. through scenario testing."*[35]

2.79 First of all, the Delphi Method involves a number of independent experts considering historic patterns of data and forming a judgement based forecast. Results are shared and refined until a consensus is reached amongst experts. This is not the same as a single judgemental based forecast as Azimuth have presented, based not on historic data but some unquantified estimate of 'lost' demand. In any event, we would question the appropriateness of this methodology, for the reasons that the Airports Commission cite, namely the importance of scenario testing in the context of a forecast to be used for a planning application, particularly one where the applicant is purporting to promote a NSIP under Section 23 of the Planning Act 2008 (as amended) and seeking to demonstrate that there is a compelling case in the public interest for the compulsory acquisition of the Airport site.

[35] Airports Commission, Discussion Paper 01, *Aviation Demand Forecasting*, February 2013, Paragraph 2.8

Freight Forecasts

Short to Medium Term (10 years)

2.80 Azimuth place reliance on both the overspill argument (paragraph 2.2.2) and that there will be a reversal away from the existing preference for bellyhold for most types of air freight, despite the overwhelming evidence that this is likely to remain the case in future due to the lower freight rates available. Azimuth's claim is not supported by the facts, current market trends or by other industry observers including the DfT and Airbus.

2.81 Furthermore, Azimuth appear to assume that, to the extent there is overspill seeking freighter capacity as an alternative, that Manston would be the only solution. This is not the case given available capacity for freighters at airports such as East Midlands (particularly well placed for the distribution of goods across the UK), Stansted and Doncaster Sheffield. These airports are already established and operational and, therefore, well placed to deal with any such requirements in the short to medium term using their existing infrastructure and without the need for any compulsory acquisition of land.

2.82 At paragraphs 2.2.6 and 2.2.7, Azimuth set out the methodology they have used for deriving freight movements and tonnage for Manston. In essence, these movement forecasts are entirely based on claimed confidential discussions with airlines, airports and others involved in the industry, which are then converted to freight tonnage based on the capacity of each aircraft and assumed load factors. These discussions would appear to be different from the list of interviewees reported in Volume II, which included only 1 airline (unlikely itself to relocate its single European operation to Manston) and no other airports. Although it is claimed (paragraph 2.2.9) that switching costs have been taken into account, there is no explanation as to how these costs have been factored into the assessment of what operations Manston might attract. It is likely that RSP would need to incentivise such a switch of activity and this would impact on the overall viability of the Airport, particularly in the early years. A further consequential issue arising from this is the economic cost of displacement of activity, which we discuss further in Section 5, as this needs to be accounted for in economic assessment of RSP's proposal.

2.83 A vague list of potential operations is set out at paragraph 3.2.3, albeit with specific assumptions then stated about the loadings on each. However, the basic information regarding the likely annual frequency of each operation is not given, which is essential to enable an understanding of the likelihood of such operations using Manston in the context of the UK air cargo market as a whole and taking into account ongoing operations at other airports. Paragraph 3.2.3 appears to set out simply a list of generic airlines that might offer services if Manston is re-opened. It provides no insight into whether the demand to fill those services will be there or whether the services could be operated viably by the airlines concerned and at what weekly or annual frequency. This is simply not an appropriate or robust basis for a forecast.

2.84 Whilst accepting that there may be confidentiality concerns in revealing the specific plans of any individual airline, this is all the more reason why there needs to be some underpinning analysis of the potential scale and viability of each specific market identified in the forecast in order to provide some basis for asserting that any of the airlines might operate to the destinations postulated. As presented, the aircraft movements and the consequential tonnage forecasts are entirely hypothetical with no obvious linkage back to any of the evidence presented in the earlier volumes. This is not acceptable given the implications and importance of any proposed application for a DCO and the requirement that a compelling case be demonstrated for the purpose of compulsory acquisition. At the very least, there is a lack of transparency in the approach that needs to be explained so that consultees can understand the forecast and in order to determine whether or not the proposed DCO application falls within Section 23 of the Planning Act 2008 (as amended).

2.85 To illustrate the lack of credibility of the forecasts, Table 1 shows for Year 2 (the first operational year), a throughput of nearly 100,000 tonnes. This would make Manston the 5th largest freight airport in the UK in its first year after re-opening (compared to 2016 actual throughput at the other airports). This would place it close to the scale of freight operations at Manchester Airport, including bellyhold freight. It would make Manston the 3rd busiest airport in the UK in terms of tonnage carried on dedicated freighter aircraft. This is simply not a credible proposition. It is simply at odds with the verifiable evidence and contrary to all experience there is of operations at Manston. If there is a short term market of that scale available for Manston, why did it historically not exceed 43,000 tonnes (2003)? Without full explanation of the scale of each of the markets and a reasoned justification for the number of movements assumed for each of the operations identified at paragraph 3.2.3, the forecasts as presented cannot be considered robust and substantial further evidence is required to validate the basis of the RSP DCO proposal.

Long Term (10-20 years)

2.86 As noted earlier in this section, the long term forecasts wrongly apply a 4% per annum growth rate as a basis for deriving the longer term freighter aircraft movement forecasts for Manston. To reiterate, this is inappropriate and unrealistic given that it is based on forecasts by Airbus for freight tonne kilometres at the global level[36]. Even if the short term forecasts were credible, which they are not, their extrapolation is on an unrealistic basis. At most, any extrapolation should more realistically have been based on the 2013 DfT freighter movement growth rate of 0.4% per annum and the latest DfT estimates[37] suggest that even this may be too high.

2.87 Table 6 then sets out the infrastructure requirements for cargo, which are based entirely on the forecasts put forward. However, even then, we are not told how these infrastructure requirements have been derived in terms of the operating pattern over the day, turnaround times, the number of night movements and other key assumptions for each aircraft type stated or indeed how they relate to the capability of Manston Airport with its existing infrastructure. Such information is critical to validate the infrastructure required (if indeed any is required given our assessment of the capability of Manston Airport), as well as to carry out the assessment of the environmental impacts.

[36] Now reduced to 3.8% in the latest Airbus forecasts.
[37] Department for Transport, UK Aviation Forecasts, October 2017, paragraph 2.56.

Passenger Forecasts

2.88 Although not the main focus of this summary report, we note that the passenger forecasts, set out by Azimuth in Section 2.4, suffer from many of the same problems as the freight forecasts. They appear to be based almost entirely on supposition and inferences that cannot be relied upon. There appears to be no consideration of what is known about market sizes, nature or previous performance, nor a recognition of the extent to which growth will need to be incentivised through discounting of airport charges and marketing support payments. Similarly to the freight forecasts, and for reasons that are not given, Boeing global growth rates appear to be used by Azimuth for passenger operations beyond year 10 rather than the UK specific forecasts produced by the DfT[38], which are substantially lower. This, once again, is a substantial overstatement of the potential for growth.

Overall Conclusions on Forecasts

2.89 Azimuth's entire analysis of the air freight market is focussed on the existence of a theoretical opportunity based on estimates of spill from London in the event of the third runway at Heathrow not being built or being delayed, an unsupported hypothesis that there is a trend away from bellyhold freight, and based on a small sample of interviews with largely marginal players in the UK air freight sector and/or local interests.

2.90 Azimuth's reports do not at any point provide any substantive evidence or analysis as to whether Manston Airport can effectively, viably and sustainably compete in that market. Azimuth's reports do not explain how Manston Airport will be able to price effectively against the bellyhold rates offered by growing established and operational UK regional airports or the continental hubs. Azimuth's reports do not explain how Manston Airport will compete against the range of destinations offered by the long haul passenger networks of the continental hubs or the much greater freighter network offers of East Midlands or Stansted airports. We agree that there may be a niche market for Manston, just as there was previously, and that this market will probably grow in the future in line with the pure freighter market overall (noting that the DfT does not see growth in this market to 2050), but we cannot see how Manston will provide a sufficiently attractive alternative in a broader freight market to attract a market share sufficiently large as to reach the volume and movement numbers envisaged by Azimuth and required to justify RSP's proposals to be considered under the Planning Act 2008 (as amended). Indeed, if we look at past history, it seems highly unlikely that commercially viable operations for the Airport would be attainable for the foreseeable future.

2.91 In overall terms, the forecasts presented by Azimuth at Table 1 of Volume III are simply not credible and do not provide a robust basis for promoting a DCO. We present analytically derived cargo movement forecasts in Section 3 of this report to evidence and support this conclusion that any future projected use of Manston Airport would be significantly lower than that asserted by RSP.

[38] Department for Transport, UK Aviation Forecasts 2013 and 2017.

2.92 In terms of Azimuth's key questions, as set out at paragraph 2.3 at the start of this section, the first two tests may well be met in terms of the need for more airport capacity in the South East of England. That is why the draft Airports National Policy Statement is promoting the development of a third runway at Heathrow as a solution in the period up to 2030. The first two questions are, therefore, irrelevant to RSP's proposals. However, in relation to the third test, the key point is that for Manston to be a long term solution to the UK's capacity problems, it must be a sustainable, commercial proposition, capable of attracting airlines, passengers and shippers to use it. Azimuth's analysis ignores the history at Manston and does not provide any evidence to conclude that any future projected use of Manston Airport would require an increase in the capability of the Airport.

2.93 Indeed, whilst we have provided in this report our assessment of the capability of Manston Airport (Section 4), we note that nowhere has RSP done the same exercise. The failure of RSP to provide their own evidence of the capability of Manston Airport and the amount by which the proposals would increase that capability by is a major omission in RSP's consultation material. Rather, the only information that they present is a forecast of future freight movement demand, which has no credibility as explained in this report. This failure means that, in our opinion, the requirements in Section 23 of the Planning Act 2008 (as amended) have not been satisfied. In essence, we would have expected RSP to be able to show:

- the capability of Manston Airport of providing air cargo transport services;
- the amount by which RSP is proposing to increase that capability by and thus the "new" capability; and
- a credible forecast for why that 'new' capability is required.

None of this information is provided by RSP.

3 FREIGHT FORECASTS

Introduction

3.1 In this section, we present our view of demand in the UK air cargo market at present and consider how this market will develop in the future, setting out a number of potential cargo forecast scenarios for Manston Airport specifically over the period to 2039/40 (RSP's assessment year). This is a more robust approach than the qualitative approach adopted by Azimuth and builds on the approach adopted in our work for TfL and the FTA, by updating this work and assessing Manston's potential share of the market. This is the correct way to use our earlier work to inform an assessment of the potential at Manston.

3.2 The analysis presented here builds on our previous work but supersedes it and extends it in terms of:

- considering changes in the market and circumstances since the time of the previous research, notably the decision to move forward with a third runway at Heathrow, the increasing long haul passenger operations at regional airports and the continued commitment from Stansted Airport to the freight market through its future plans;
- examining the demand and capacity position not only in London but across the UK as a whole;
- analysing potential cargo capacity growth in more detail using Airports Commission traffic forecast data, not available at the time of our previous work;
- more explicitly considering the nature of air cargo that might be affected by any form of constraint within the London airport system or in the UK;
- providing some indication of how cargo demand is spread geographically in the UK to aid consideration of how it might be served in the future.

3.3 Our previous work did not consider in detail the role that might be played by Manston Airport or indeed other UK regional airports. It considered, in broad terms, the effect of a constrained London system capacity on freight demand and how this demand might be met within the confines of the capacity position at the time, noting particularly the role that might be played by the major continental hub airports, given the price advantages that they might offer through the availability of bellyhold capacity.

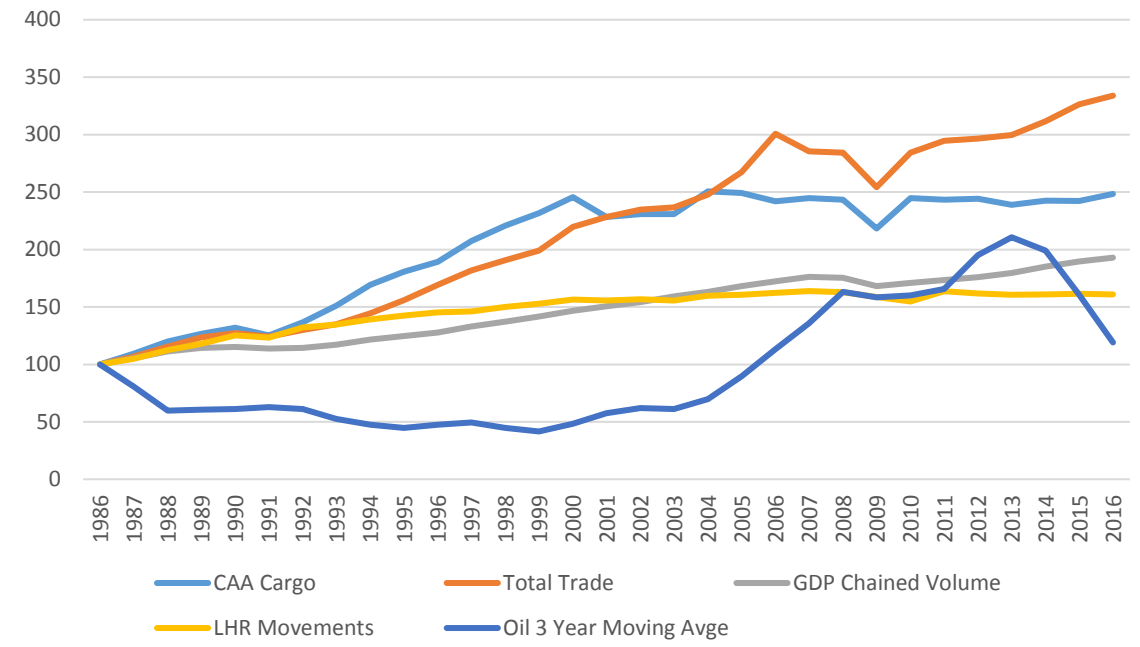
3.4 In this report, we now consider specifically the potential role for Manston by way of a scenario analysis that draws on the analysis of the overall market and the past performance of the Airport. The use of scenarios rather than a single forecast is intended to show a range of possible outcomes for Manston, allied to an assessment of the likelihood that the scenarios might be achieved in a manner which properly reflects the uncertainties identified in air freight forecasts.

Historic Performance of the UK Air Cargo Market

3.5 Our assessment of the quantum of air freight demand in the UK is fundamentally driven by analysis of the past performance of UK air cargo against a range of key economic and market indicators, notably UK trade in goods, GDP, oil price and ATM numbers at Heathrow. **Figure 3.1** shows the indices for these various metrics over time (with each indicator set to 100 in 1986).

3.6 This analysis reveals a number of interesting patterns. Until around 2000, UK air cargo was strongly related to UK trade in goods, with what would appear to be some stimulus provided by falling oil prices that would have made the cost of air cargo relatively more competitive with other cheaper modes. However, in around 2000, the market changed and this relationship appears to break. UK trade in goods continues to grow but growth in air cargo essentially stalls.

Figure 3.1: UK Air Cargo and Economic Metrics (Index: 1986 = 100)



Source: CAA Statistics, ONS

3.7 It is, therefore, helpful to look at why this might have happened. There are two main factors that need to be considered. The first is the oil price, which, through much of the late 80s and 90s, had been on a relatively benign downward trend. However, in around 2000, it started to rise again, accelerating through the mid-2000s and peaking in around 2013. The price of fuel is a key factor in the attractiveness of air cargo compared to other modes, particularly for pure freighter services, where the full direct operating costs of the flight must be borne by the cargo being shipped (as opposed to bellyhold freight where direct operating costs are largely covered by passenger operations, with cargo revenue essentially treated as a marginal benefit). This change in oil prices slowed demand for air freight globally and, in particular, drove users towards bellyhold rather than freighter options[39]. We set out the effect in the UK further below.

[39] Department for Transport, *UK Aviation Forecasts 2013*, paragraph 3.48, Steer Davies Gleave for Department for Transport, *Air Freight: Economic Drivers and Environmental Impacts*, 2010, Executive Summary.

3.8 The second point to note is the relationship to Heathrow ATMs. Up until around 2000, Heathrow was still growing its annual ATMs, which ultimately was driving the availability of bellyhold capacity in the UK air freight market. However, with runway capacity constraints biting, from around 2000, the rates of growth in ATMs at Heathrow initially slowed dramatically then stalled as it reached its consented limit.

3.9 When these two factors are combined, it is possible to understand what has happened in the UK air cargo market. It also has two key implications for considering the growth of the air cargo market moving forward and specifically in relation to Manston:

- ✈ it is reasonable to assume that the fundamental link between economic or trade growth and air cargo still exists and that, ultimately, with economic growth and increasing trade, demand for air cargo will grow. However, with oil prices remaining higher than seen in the past, it is likely that the growth path will be lower. We have assumed that it is likely to be more in line with the growth in real GDP over time;
- ✈ the capacity position at Heathrow is clearly a constraining issue for UK air freight demand but it is noticeable that this constraint has not resulted in significant gains being made by other airports in the London system. This suggests that, while there is probably a degree of constrained demand in the London system at present, this is affecting bellyhold air cargo and that is not translating through into substantially greater freighter growth at, for instance, Stansted or East Midlands. We examine this issue further below.

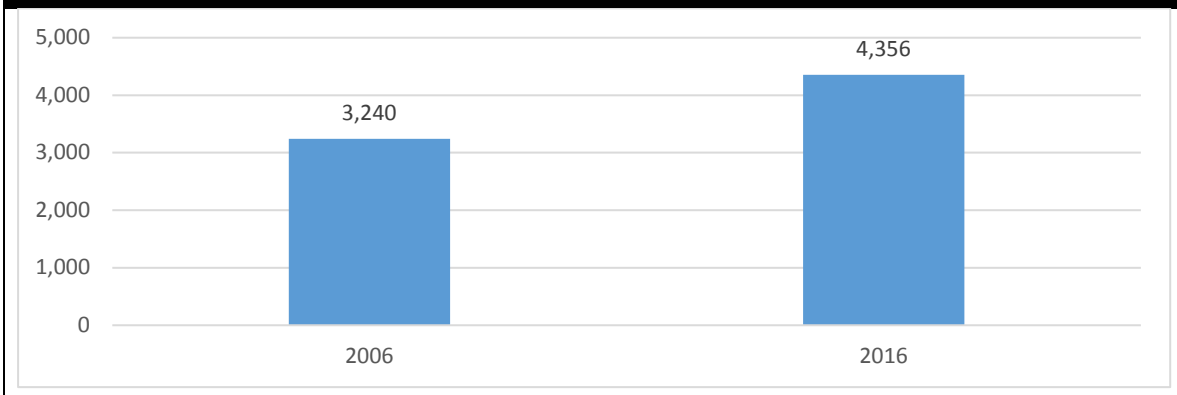
3.10 This is particularly important as it suggests that the market for bellyhold freight is different from that for pure freighter traffic. This is a function of price and urgency in relation to general air freight, as opposed to either express freight or niche products. For express freight or niche products, shippers are prepared to pay a premium which allows the use of freighters because either speed is of the essence or the destination is hard to reach or the cargo is difficult to handle in some way. For general air freight, these drivers are not the same. Accepting that all air cargo is to some degree sensitive to speed of delivery, it seems that what is likely to be being pushed from bellyhold capacity, in a capacity constrained environment, is less time sensitive and shippers' willingness to pay is lower. Hence, in the current market with relatively high fuel prices, freighter options are not an adequate substitute.

3.11 This is very important from the perspective of considering the potential role of Manston. It suggests that it will be very difficult for the Airport to compete effectively for any traffic displaced as a result of constraints in the London market as it cannot and will not be able to provide the price, frequency and breadth of destination advantages that bellyhold freight can offer. The airports competing for cargo traffic being pushed away from Heathrow, now and in the future, are the large UK regional airports with growing long haul passenger networks and the near European global hub airports, which offer the closest substitutes to Heathrow and are within easy trucking time of, certainly, the London and South East market. In any event, bellyhold capacity at Heathrow is expected to increase substantially once the third runway becomes operational so driving down the competitive prices in the market, making it even more difficult for freighters to compete. Even if there are delays to the provision of additional runway capacity at Heathrow, we would not expect a change to the pattern of behaviours observed since 2000, namely that cargo displaced from Heathrow will be trucked to other airports with available competitively prices bellyhold capacity.

3.12 Whilst the volume of air cargo flown to/from the UK's airports over the past 15 years has remained relatively static, there have been considerable changes in the way that demand has been serviced, which again reflect the drivers and constraints on demand described above. Essentially, the market has been consolidating to a small number of airports and bellyhold cargo has become more dominant.

3.13 The Herfindahl-Hirschman index (HHI) is a commonly accepted measure of market concentration[40]. **Figure 3.2** shows the HHI for the UK air cargo market in 2006 and in 2016. The change in the concentration level in the market over the last 10 years has been marked. The HHI for the UK air cargo market has increased by around 34%. The consolidation in the UK air cargo market in the last 10 years has resulted in an increase in the HHI of nearly 1,100. This continued concentration in the market can also be seen by examining the drivers of change in UK air cargo over the last decade. **Figure 3.3** sets out a bridge diagram between 2006 and 2016 showing the change in freight handled via bellyhold and pure freighter at major UK freight airports.

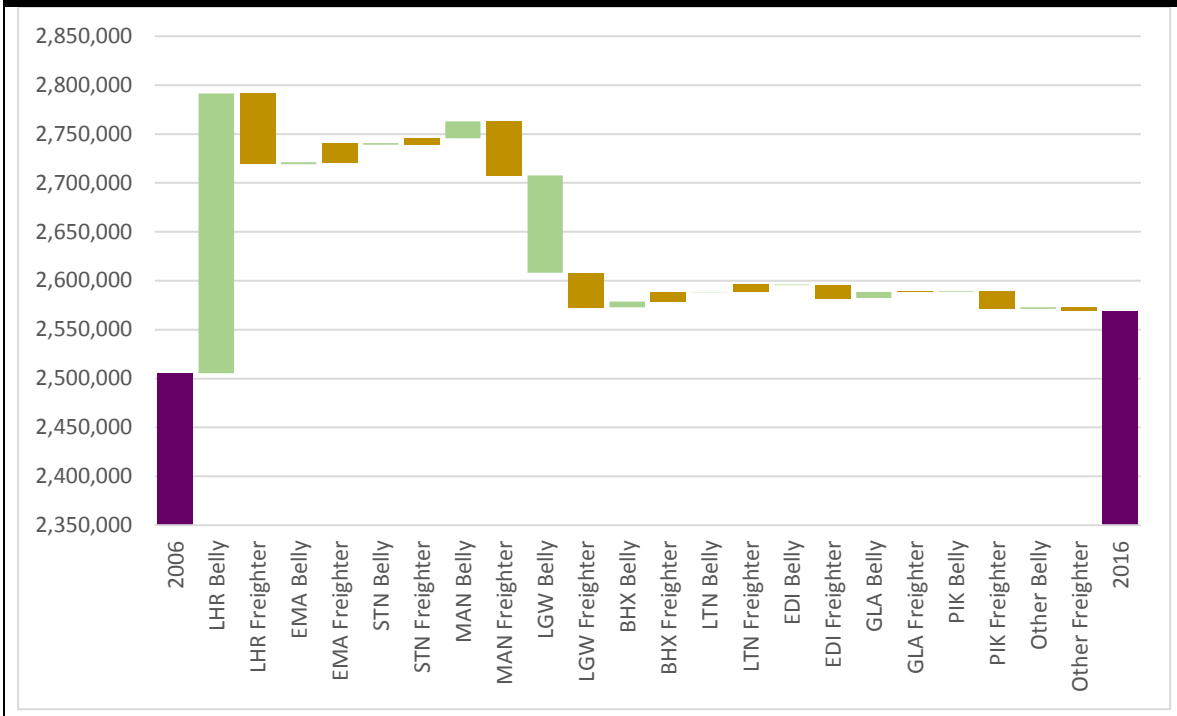
Figure 3.2: UK Air Cargo Market Herfindahl-Hirschman Index of Market Concentration



Source: York Aviation analysis of CAA Statistics

[40] It is calculated by squaring the market share of each firm competing in a market, and then summing the resulting numbers, and can range from close to zero to 10,000. The closer a market is to being a monopoly, the higher the market's concentration (and the lower its competition). If, for example, there were only one firm in an industry, that firm would have 100% market share, and the HHI would equal 10,000, indicating a monopoly. If there were thousands of firms competing, each would have nearly 0% market share, and the HHI would be close to zero, indicating nearly perfect competition.

Figure 3.3: Drivers of Change in the UK Air Cargo Market – 2006 to 2016



Source: York Aviation analysis of CAA Statistics

3.14 There are a number of key points to note:

- the market has continued to consolidate into Heathrow through increased bellyhold capacity due to the increasing focus on long haul destinations. These gains have been offset by significant erosion of freighter capacity;
- elsewhere in London, Gatwick has seen both bellyhold and freighter capacity significantly eroded as that airport has become more capacity constrained and it has focussed increasingly on short haul low fare passenger services, albeit this trend is starting to reverse as more long haul operations come on stream. Stansted and Luton have seen some growth in freighter tonnage but this does not come close to offsetting what has been lost from elsewhere with Stansted heavily focussed on the integrator and express services market;
- East Midlands, with major DHL and UPS bases, has been the only airport that has seen significant growth in pure freighter traffic, but again this has not offset losses in freighter traffic from elsewhere, suggesting that, for more general air cargo, bellyhold capacity is fundamentally more attractive, even potentially if this involves trucking to distant airports;
- this is reinforced by what has happened at Manchester, which has seen growth in its bellyhold market, relating to its growing long haul network, but with its freighter traffic falling away. The growth in bellyhold traffic at Birmingham is also probably reflective of its growing long haul passenger network;
- in general, there has been a noticeable switch towards the use of bellyhold capacity. Since 2006, pure freighter cargo's share of the UK market has dropped from 37% to 30%, while actual freighter tonnage has dropped by 17%;

- the performance of Prestwick (PIK) provides perhaps the most obvious direct comparator to Manston, with a similar sized freighter operation in 2006 to Manston at its peak. Freighter traffic at that airport has dropped by 64% since 2006. In the meantime, Prestwick was nationalised to maintain operations as it had been heavily loss making for a considerable period of time.

3.15 The implications for Manston are clear. Bellyhold is the preferred option for a significant proportion of the air cargo market and this preference has intensified in recent years. The only airports experiencing freighter growth are those with significant integrator activity. This suggests that Manston's likely niche freighter offer will struggle to penetrate the market. There has been consolidation into larger airports, which again suggests that Manston will struggle to establish market presence. Finally, the experience of Prestwick, its nearest comparator in many ways, is not encouraging for Manston. Prestwick's well established pure freighter operation has been heavily eroded and the airport has had to be nationalised to maintain its operation due to inherent lack of commercial viability.

The Geographic Distribution of UK Air Cargo Demand

3.16 At the outset, it should be made clear that there is very limited data on where air cargo originates from or is destined for within the UK. However, some indications are available from other research, notably recent work by MDS Transmodal, in conjunction with York Aviation, for TfN in relation to its International Connectivity Strategy[41]. MDS analysed a series of datasets on air freight and road haulage and estimated that around 14% of UK air freight demand originates in or is destined for the North of England. We also know that air cargo is often trucked a considerable distance before being loaded on to aircraft.

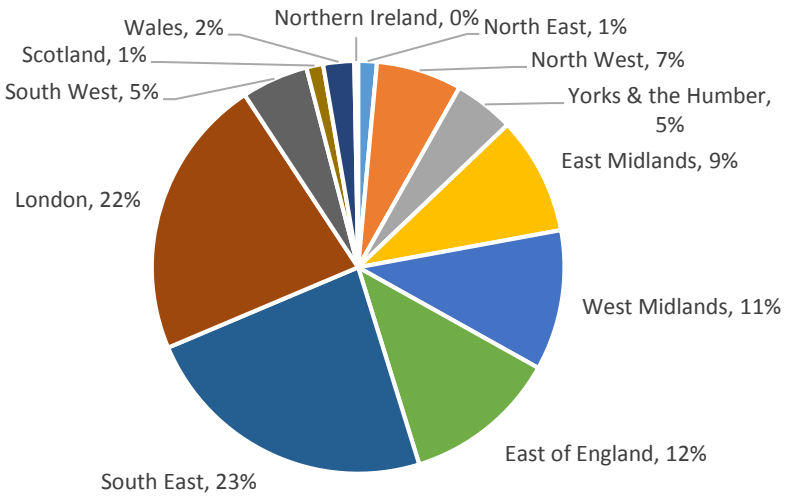
3.17 We have, therefore, developed a simple gravity model that distributes air cargo regionally across the UK based on:

- for exports, the distribution of manufacturing employment in the UK. This is intended to reflect that air cargo exports are likely to be primarily manufactured goods;
- for imports, the distribution of UK population. This is intended to reflect that imports are, in many cases, destined either for consumers directly or retailers. This is clearly a simplification but we believe a sensible one given the data available;
- a relatively low distance decay factor of 1.5, reflecting the relative insensitivity of air freight to trucking times. This has, in part, been calibrated based on observed distance decay factors using data available in the TfN work. This is generic and we have no reason to believe that the balance between trucking costs and the use of air freight would vary across the UK.

3.18 The resulting distribution of air cargo demand is shown in **Figure 3.4**. While there is a heavy concentration of demand in the Greater South East, there is significant demand located across the country. The issue for Manston is that it is poorly placed geographically to serve this demand, even for London and the South East, particularly once the location of distribution centres for import freight, which cluster around the M1 and M6, is taken into account.

[41] Transport for the North, *International Connectivity Evidence Report*, York Aviation/MDS Transmodal July 2016, Appendix C.

Figure 3.4: Modelled Regional Distribution of UK Air Cargo Demand



Source: York Aviation analysis of CAA Statistics, ONS and Google Maps Data

3.19 In the event of air cargo capacity constraints in London, this demand is likely to look initially for cargo capacity closer to home at the major regional airports, particularly those that are developing broader long haul passenger networks. Even if freighter aircraft are required for this demand, there are likely to be substantially better options than Manston. Not least the national freight hub at East Midlands, with its central location in the UK and excellent multimodal connectivity to a wide geographic area.

Future Demand for Air Cargo in the UK

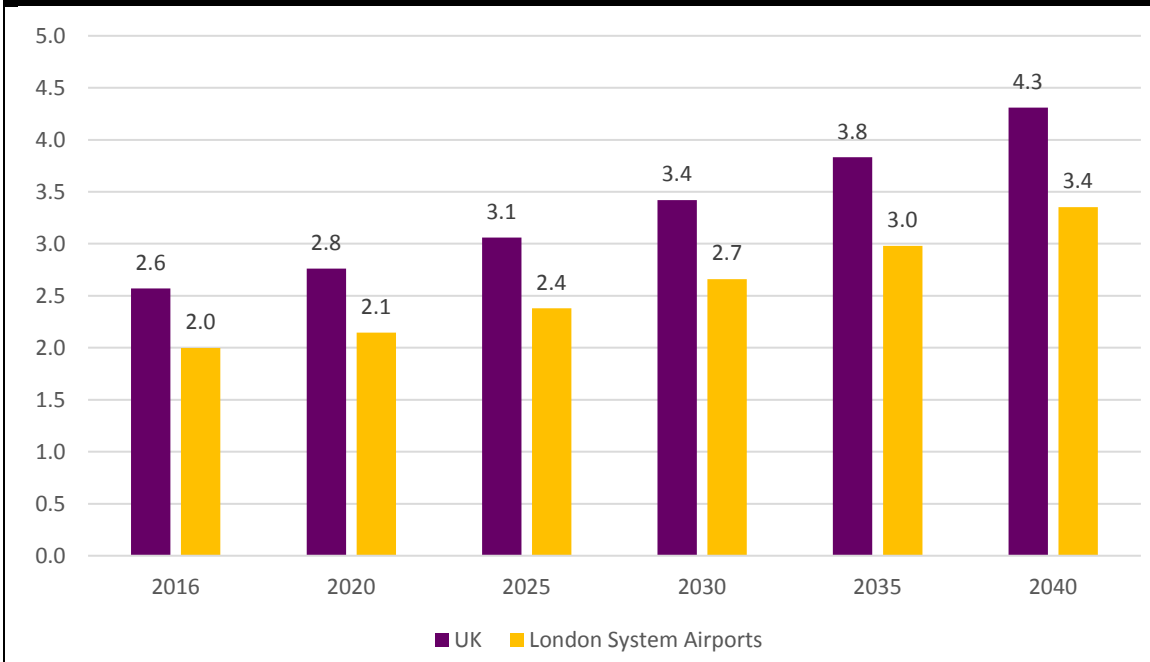
3.20 The initial step in producing our cargo forecasts for Manston is to consider the likely size of the London system and UK air cargo markets in the period to 2040. This is an unconstrained forecast and does not, at this stage, consider whether capacity will be available to deliver this demand.

3.21 In line with our analysis above and consistent with our 2015 report for the FTA, we adopted a relatively simple approach, growing existing air cargo demand forward in line with GDP projections for the UK economy. The GDP forecasts used are the latest forecasts produced by the Office for Budgetary Responsibility at the time of writing. These are taken from:

- Economic & Fiscal Outlook (March 2017), which provides short to medium term forecasts;
- Fiscal Sustainability Report (January 2017), which provides long term forecasts for the UK economy.

3.22 These forecasts suggest average real growth in UK GDP of around 2.2% over the period to 2040. The resulting projections of air cargo demand at the London system airports and across the UK are set out in **Figure 3.5**. This analysis sees total UK air cargo demand reach around 4.3 million tonnes by 2040 and demand in the London system[42] of around 3.4 million tonnes by 2040. At this stage, we have assumed that the split of tonnage between the London airports and the rest of the UK remains as currently, driven by the large concentration of freight forwarders in the vicinity of Heathrow in the light of its major air freight hub role. This may well overstate the scale of demand in London given increasing long haul networks at regional airports.

Figure 3.5: Air Cargo Tonnage Forecasts (million tonnes)



Source: York Aviation

Air Cargo Capacity at UK Airports

3.23 The second stage in our assessment is to consider the extent to which the demand identified above could be met by UK airports and the London system airports. This is, again, in line with our approach taken in our work for the FTA in 2015. However, the analysis undertaken for this research is more detailed, uses more up to date and detailed information on future passenger ATM forecasts and, specifically, considers Stansted's more recent statements in relation to continuing growth in the cargo market to around 400,000 tonnes[43] and removal of the existing 35 mppa passenger planning cap and extension to 43 mppa[44]. Had we been specifically asked, we would have advised Azimuth of the need to carry out such an assessment so as to understand the implications of our earlier work for TfL and the FTA.

[42] Based on the London airports current share of the national market.
[43] Sustainable Development Plan – Stansted Airport (March 2015).
[44] Press Release – Stansted Airport (17 October 2017).

3.24 In order to estimate the likely bellyhold capacity that will be available through the period to 2040, we have produced projections of passenger ATM demand for each of the top 10 freight airports in the UK in 2016, along with a residual forecast for Other UK airports. For Heathrow, Gatwick and Manchester, these forecasts have been split into domestic, EU and non-EU ATMs. The future years for each airport have been based on the ATM forecasts produced by the Airports Commission for which detailed data files have been released[45]. Years prior to the opening of Runway 3 at Heathrow, uses the Base ATMs scenario, while post opening uses the HAL ATMs scenario, which reflects the third runway.

3.25 The existing freight loads per passenger ATM for each airport have been estimated using CAA Statistics. These average loads have then increased by 1.0% per annum tapering to 0.5% per annum for Heathrow and 1.6% per annum tapering to 1.0% per annum for other airports. This reflects trends in average loads identified from CAA Statistics over the last five years.

3.26 In relation to pure freighter capacity, we have, in the first instance, considered what might be termed a business as usual view of capacity moving forward. This considers the likely number of freighter ATMs that might be flown rather than considering the actual movement capacity of individual airports, which may be greater. This is, ultimately, a more stringent view of capacity moving forward and is more likely to lead to a conclusion that there is a lack of freighter capacity to meet any demand than simply considering what any given airport could actually handle, especially given that Stansted is some distance from its freighter ATM cap and East Midlands is not close to any form of ATM limit. To enable this analysis, we have grown freighter ATMs at each airport by 0.4% per annum, in line with the expected growth rate from the DfT's Aviation Forecasts 2013[46]. However, we note that the most recent DfT forecasts[47] suggest that no growth in freighter movements to or from the UK is now expected. Hence, our use of the previous DfT growth rate may overstate the market for pure freighter operations but we have retained this approach so as not to understate the extent of any potential overspill market for Manston.

3.27 Once again, average loads per freighter ATM have been estimated for each airport from CAA Statistics. As with bellyhold cargo per ATM, there has been an upward trend in average loads on freighters in recent years of around 1.1% per annum (York Aviation analysis of CAA Statistics). This is assumed to continue over the period.

3.28 In addition to this business as usual view, we have also taken a view as to the likely total tonnage capacity over time of the two largest freighter airports in the UK, East Midlands and Stansted, based on those airports' development plans:

- the Stansted Sustainable Development Plan talks about developing cargo capacity to handle around 400,000 tonnes of cargo. We have assumed that current capacity is around 300,000 tonnes and that this grows steadily over time to 400,000 tonnes by 2040;

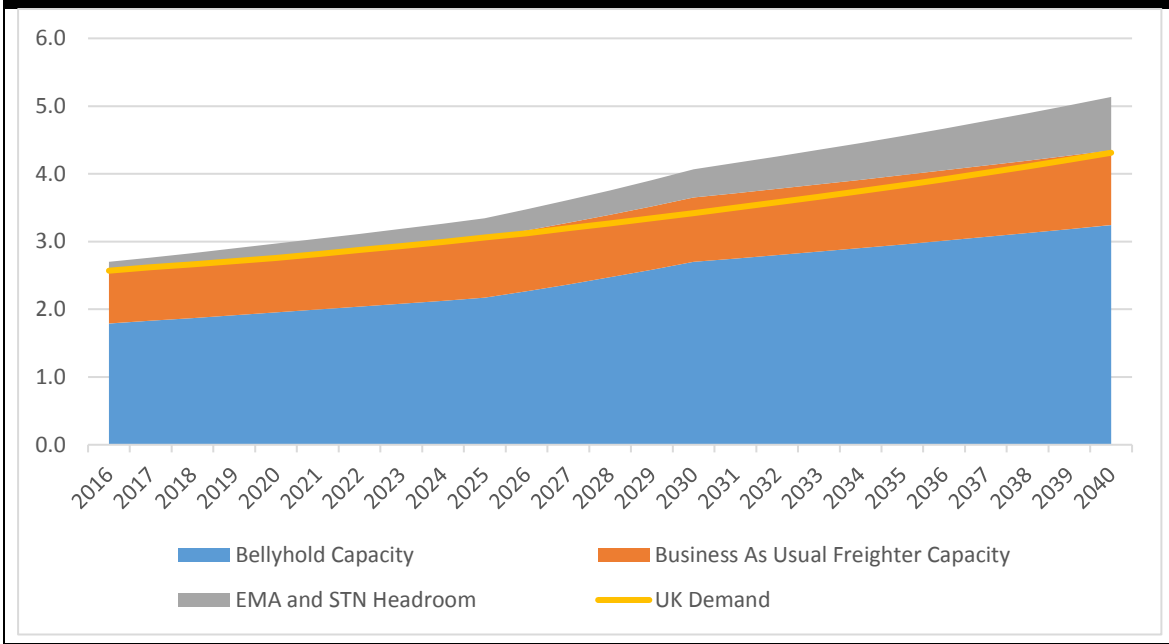
[45] https://www.gov.uk/government/publications/airports-commission-documents-and-data.
[46] The exception to this is the small number of freighter movements at Heathrow, which are not allowed to grow until the Third Runway is opened.
[47] Department for Transport, *UK Aviation Forecasts*, October 2017, paragraph 2.56.

- the East Midlands Sustainable Development Plan describes its runway capacity as able to support a 10 million passenger and 1.2 million tonne cargo airport[48]. We have assumed that this capacity could be developed over time to 2040 from a base capacity of 400,000 tonnes.

3.29 This assessment of the cargo capacity headroom at Stansted and East Midlands helps provide a view of how any excess demand identified could be handled by freighters in the UK if this were the response of the market to any shortage of bellyhold capacity, although it is important to note that we do not believe this would be the primary market response given the lower cost of bellyhold alternatives. It should, however, be recognised that the speed of build-up of this headroom is to a significant degree a matter of conjecture. There will be infrastructure developments required to enable capacity but, if demand were there, it is likely that these could be brought forward as they would be incremental expansion of existing facilities which could be phased in to meet demand more easily and cheaply than the substantial cost involved in re-opening Manston.

3.30 The resulting estimates for air cargo capacity for the UK as a whole and the London system over time are shown in **Figures 3.6** and **3.7**.

Figure 3.6: UK Air Cargo Capacity

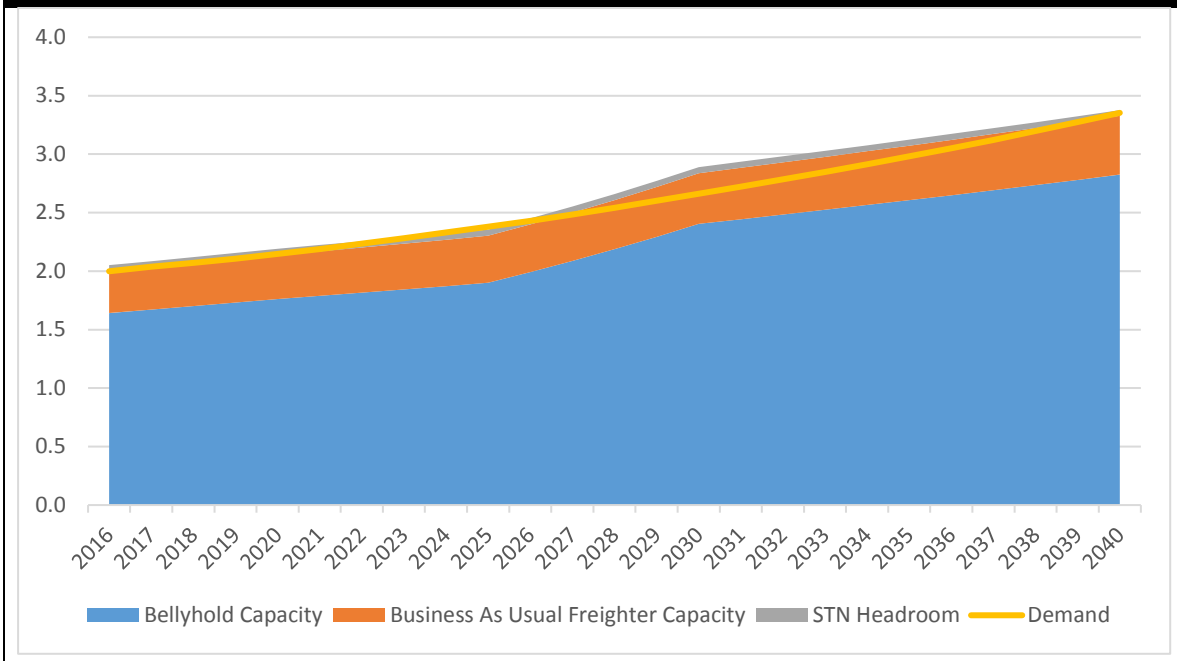


Source: York Aviation

[48] East Midlands Airport Sustainable Development Plan, 2015. Page 75.

3.31 At a UK level, our analysis suggests that there are unlikely to be capacity issues in the cargo market prior to 2040 even on a Business As Usual Freighter Capacity basis. Once the third runway is opened at Heathrow, there is in fact likely to be excess capacity in the market, which is likely to soften demand for supporting freighter capacity dedicated to general air freight (accepting that integrator/express freight is a separate market to a significant degree). It should, however, be noted that capacity on a Business As Usual Freighter Capacity basis is likely to become constrained shortly after 2040 but this can easily be addressed by exploiting the inherent airport capacity headroom still available at Stansted and East Midlands if it is appropriate to serve the market in that way. Overall, we can conclude from this analysis that there will be no shortage of freighter capacity in the UK before 2040 and overspill from other airports would not provide a rationale for re-opening Manston.

Figure 3.7: London System Air Cargo Capacity



Source: York Aviation

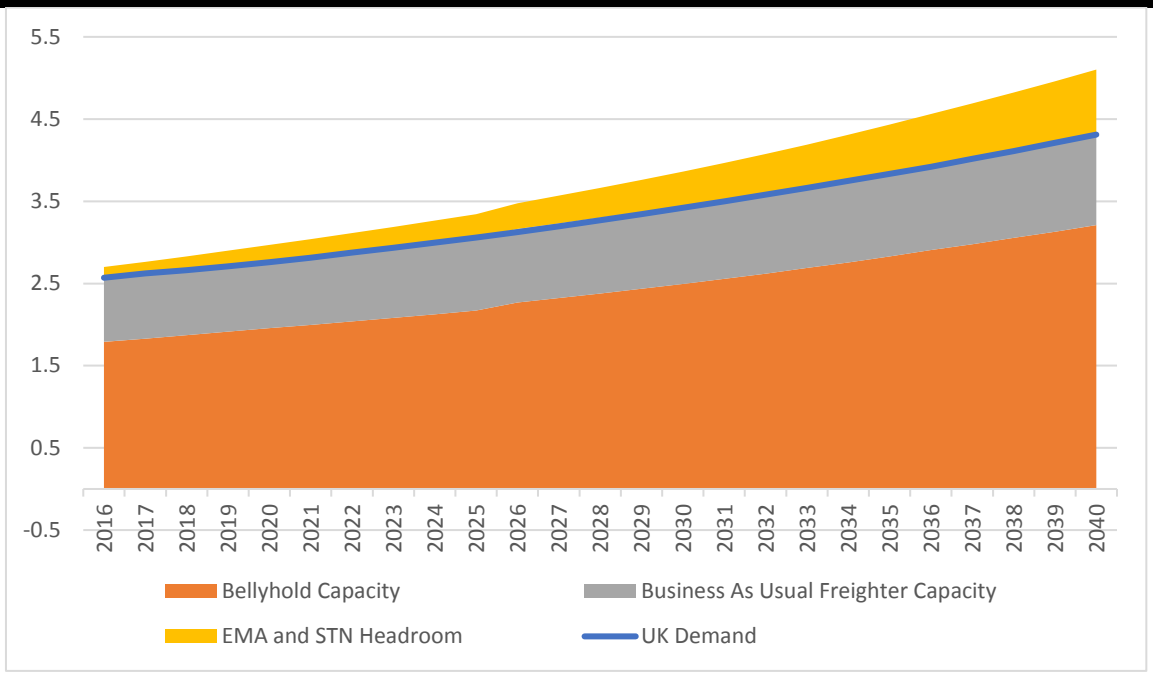
3.32 The situation at the London airports is slightly different if we assume that London maintains its market share of the overall market and there is no natural 'clawback' to the regions. With Heathrow's bellyhold growth relatively constrained, there are potentially some limited capacity constraints in the medium term before the third runway opens but, if there was demand, we would expect Stansted to develop additional freighter capacity sooner. Any constraint would be fleeting. Once the third runway is opened, excess capacity develops rapidly. Potential capacity issues do not then start to re-emerge until around 2040, when it appears that Heathrow is likely to become runway capacity constrained once more.

3.33 The implications for Manston Airport are that, even in pure volume terms, push factors from other airports in London are unlikely to provide opportunities for growth before 2040, and this is before any consideration is given to Manston's suitability to serve the markets in question. In the short to medium term, there is likely to be some limited constraint in the London system before the third runway at Heathrow is opened. However, this is largely a function of bellyhold constraints at Heathrow and it is highly questionable as to whether the type of cargo that is likely to be forced out will be suitable for Manston or indeed would switch from bellyhold to pure freighter operations at all.

3.34 Logic would suggest that what will be pushed out is relatively low yielding, general air cargo that is more sensitive to price and less sensitive to time. Essentially, this is akin to business passengers forcing leisure passengers out of Heathrow. This type of air cargo is not likely to see pure freighters as an effective alternate, given the higher prices involved. It is more likely to seek out alternative bellyhold capacity at UK regional airports (which might actually be closer to its point of origin given our analysis above) or travel via truck to the continental European airports.

3.35 Our analysis here has been predicated on the construction of a third runway at Heathrow, as this is clear stated Government policy. In the event that the third runway is delayed or does not happen at all, it is expected that there would be other adjustments in the UK air transport market, including the provision of more long haul services from other airports offering bellyhold capacity. In this case, whilst there could theoretically be a level of capacity shortfall at the London airports assuming that they maintain a constant market share, we would expect demand and capacity to keep pace at the UK level as growth at regional airports is accelerated. This is illustrated in **Figure 3.8**. We consider that analysis at the UK level remains the most relevant and this does not suggest that there will be a capacity shortfall before 2040.

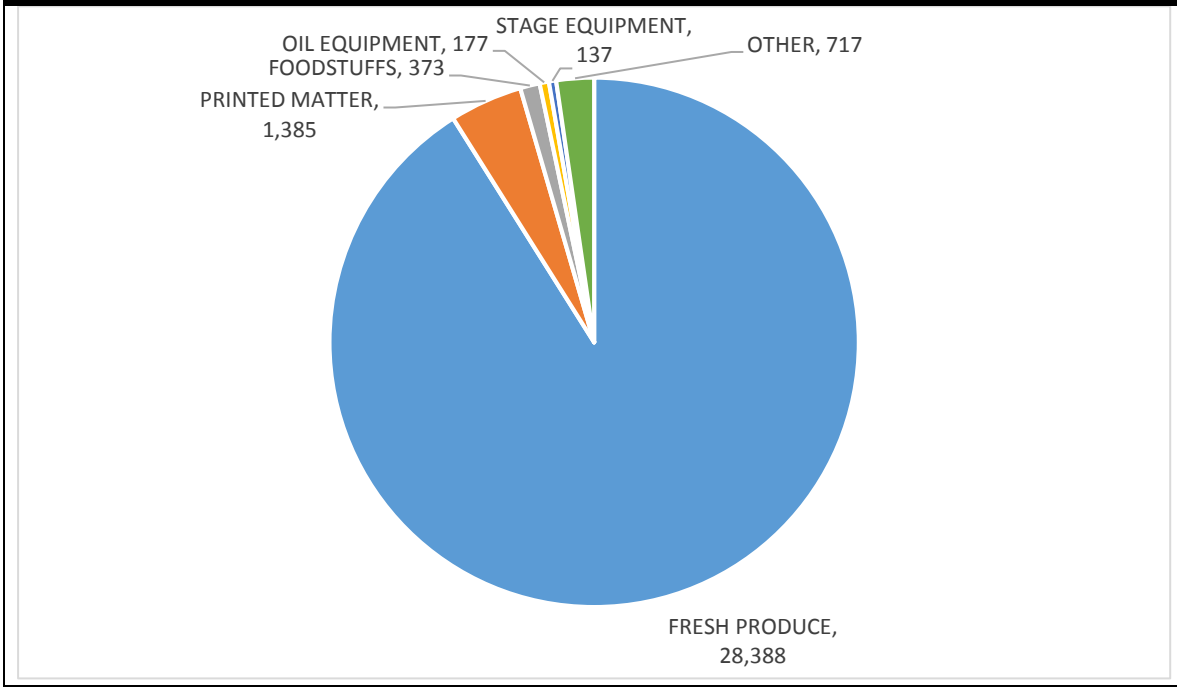
Figure 3.8: UK Air Cargo Capacity with No Third Runway at Heathrow



Source: York Aviation

3.36 An examination of the nature of cargo traffic that used Manston in the past also supports this assessment. Data provided to York Aviation by the current owner and set out in **Figure 3.9** shows that the Airport was essentially an import point for fresh produce (91% of total tonnage in 2012). This is a time critical market with associated high yields (hence allowing freighter operations) but also one that is dominated by Heathrow through its perishables hub and its bellyhold capacity to Africa. It is unlikely that Heathrow would shed significant amounts of this traffic with cargo constraints and certainly it would likely gain market share once the third runway is opened. Heathrow remains better located for the distribution of this produce to the core London market given its location inside the M25.

Figure 3.9: Air Cargo at Manston by Commodity Type in 2012 (tonnes)



Source: York Aviation analysis of Stone Hill Park data

3.37 It should also be remembered that this assessment assumes that Stansted does not accelerate its cargo development plans to meet any excess demand that is suitable for freighter activity. Indeed, we understand that the perishables activity that used to use Manston has shifted back to Stansted and that the operation at Manston was supported by low charges to the airline to compensate for the less attractive location.

Specific Air Cargo Market Forecasts for Manston Airport

3.38 Building on the analysis above, we have considered three scenarios for future cargo growth at Manston Airport. In each case, we have considered the likelihood of the scenario coming forward. It should be noted that, in the air transport market, demand is the driver of airport usage not capacity. Provision of capacity at Manston is no guarantee that airlines, shippers and passengers will use it unless there is demand and Manston represents the most efficient way for that demand to be met.

Scenario 1: Relief for Capacity Constraints in London (Highly Optimistic and very unlikely)

3.39 In this scenario, we have assumed that Manston is able to capture the excess demand that is seen in the London system in the medium term when only Freighter Business As Usual capacity is considered. It is then able to maintain its market share into the long term, even once the excess demand has disappeared with the appearance of the third runway.

3.40 We ultimately regard this scenario as highly optimistic and very unlikely to occur. We do not believe that the nature of excess demand is likely to suit freighter operations. This fits with the current market, where Heathrow is almost certainly constrained in terms of its ability to offer bellyhold capacity and yet there remains significant freighter capacity elsewhere and there has been no upturn in the demand for air freighter operations. We also feel it is highly unlikely that Manston could maintain market share in the context of the opening of a third runway at Heathrow. Even in the absence of a third runway, pure freighter capacity at Manston is not likely to be attractive for most of the freight displaced which would still choose cheaper bellyhold capacity available elsewhere in the UK and Europe.

3.41 We consider this scenario to be an upper bound to the envelope for Manston Airport. Even in this scenario, forecast tonnage only reaches around 105,000 tonnes by 2040 or around 4,470 cargo aircraft movements. The estimate of aircraft movements assumes loads similar to that of Manchester Airport's current freighter operations, growing by around 1.1% per annum. This appears to be a relatively low loading compared to Manston's previous operations[49] (hence providing a higher ATM number for any given tonnage and thus likely to overstate the number of movements).

3.42 We note that Azimuth have assumed an even lower tonnage per cargo air transport movement of under 20 tonnes, so leading to an overstatement of the number of aircraft movement at any predicted tonnage, but this does not appear realistic based on Manston's past operations nor tonnages seen elsewhere.

[49] We estimate that the number of tonnes per cargo ATM previously at Manston was 35-40 tonnes, taking into account empty aircraft backhauls.

Scenario 2: Manston Achieves Its Previous Market Share (More Likely but still with optimistic elements)

3.43 This scenario assumes that Manston essentially re-enters the market as a niche player in the key markets that it served previously, mainly fresh produce. This reflects the view that, in reality, very little has changed in the market compared to when Manston was last operational, not least that Heathrow was already suffering from runway capacity issues prior to 2014. There are no major changes that we would consider sufficient to alter Manston's attractiveness fundamentally compared to 2014. We note Azimuth's contention that Brexit will make trucking to Europe more difficult but would point out that the freight involved is most likely to be general air cargo heading for bellyhold capacity that is relatively less sensitive to time and that additional regulatory burdens are likely to be found at airports as well post Brexit. Hence, the impact on relative transit times may actually be comparatively limited. Furthermore, it is far from clear to us, from the evidence presented by Azimuth, that there were concerns regarding the quality of service offered at Manston historically sufficient to have constrained its share of the market in the past. Hence, it is not unreasonable to start from a position that its past market share was representative of what it might attain in future and that the provision of more infrastructure would not give rise to a change in the market or a higher level of underlying demand.

3.44 We regard this as the most likely of our three scenarios but it also has optimistic elements. Notably, it is highly optimistic to assume that Manston will be able to maintain market share in the face of expanded capacity at Heathrow. We would also note that the Airport was not viable at similar demand levels previously and would appear to have only been able to reach its recorded market share by 'buying' traffic through very low airport charges based on our discussions with SHP and its staff that worked at the Airport when operational. In this scenario, the Airport reaches around 47,000 tonnes by 2040 and around 2,000 cargo aircraft movements.

Scenario 3: Relief for Capacity Constraints in London (More Realistic but still with some optimism)

3.45 Scenario 3 is a variant of Scenario 1 that takes a more realistic view on how the limited excess demand in London in the medium term (allowing for pure freighter Business as Usual activities only) might be served. We would view this scenario as substantially more realistic than Scenario 1 but still with highly optimistic elements.

3.46 In this scenario, the excess demand is split as follows:

- 50% is assumed to be to diverted via truck to make use of bellyhold capacity at UK regional airports or at the continental hubs in Europe. This reflects the view that, in the majority of cases, this freight is likely to be relatively price sensitive, less time critical general air cargo for which pure freighters are not likely to be an appropriate substitute;
- the remainder is assumed to be split evenly between East Midlands, Stansted and Manston airports. This is, again, probably an optimistic assumption given the economies of scale and better proximity to markets overall offered by the other two airports compared with Manston.

3.47 Once the excess demand in London has peaked (just before the opening of a third runway), Manston is assumed to be able to maintain its market share into the future. This is again an optimistic assumption given what will be an excess of capacity in the market for much of the following period through to 2040. This scenario involves the lowest cargo throughput of the three options. By 2040, the Airport is handling only 17,500 tonnes of freight and handling around 750 aircraft movements each year.

Summary of Cargo Forecast Scenarios

3.48 The cargo tonnage and freighter ATMs associated with each of the three scenarios are set out below in **Table 3.1**.

Table 3.1: Summary of Manston Cargo Forecast Scenarios						
	Scenario 1: Relief for London (Highly Optimistic)		Scenario 2: Previous Market Share		Scenario 3: Relief for London (More Realistic)	
	Tonnes	ATMs	Tonnes	ATMs	Tonnes	ATMs
2020	7,608	402	30,359	1,605	1,268	67
2021	18,407	963	30,966	1,619	3,068	160
2022	31,758	1,643	31,616	1,635	5,293	274
2023	45,571	2,332	32,280	1,652	7,595	389
2024	59,860	3,029	32,958	1,668	9,977	505
2025	74,638	3,736	33,650	1,684	12,440	623
2026	76,205	3,773	34,357	1,701	12,701	629
2027	77,958	3,818	35,147	1,721	12,993	636
2028	79,751	3,863	35,956	1,742	13,292	644
2029	81,585	3,909	36,782	1,762	13,598	651
2030	83,462	3,955	37,628	1,783	13,910	659
2031	85,381	4,002	38,494	1,804	14,230	667
2032	87,345	4,050	39,379	1,826	14,557	675
2033	89,354	4,098	40,285	1,848	14,892	683
2034	91,409	4,147	41,212	1,869	15,235	691
2035	93,511	4,196	42,159	1,892	15,585	699
2036	95,662	4,246	43,129	1,914	15,944	708
2037	97,958	4,300	44,164	1,939	16,326	717
2038	100,309	4,355	45,224	1,964	16,718	726
2039	102,716	4,411	46,310	1,989	17,119	735
2040	105,182	4,468	47,421	2,014	17,530	745
Source: York Aviation						

3.49 Our updated analysis of the market and specific consideration of three potential scenarios for freighter growth at Manston Airport demonstrate that, even on the most optimistic assumptions, it is not likely to generate above 4,470 annual movements by air cargo aircraft. On a more realistic basis, it might attain similar levels of tonnage as seen in 2003 by 2040 but with a higher number of aircraft movements due to the assumption we have made that freighter loads would be similar to those seen elsewhere in the UK rather than the higher loads actually observed at Manston in the past. On past performance, the number of movements at Manston might well be lower. **None** of our scenarios suggest that there is a need to increase the capability of Manston Airport given our assessment in Section 4.

4 CAPABILITY OF THE SITE

4.1 Our start point for this assessment is the capability of the Airport site based on its historic and consented planning status and on the basis that the existing infrastructure could all be 'made good'. This assessment is based on the existing Lawful Use in planning terms. The existing Airport's permitted use is for civil aerodrome use, and there are no conditions limiting either passenger numbers or ATMs.

Capacity of Existing Facilities

4.2 In the first instance, it is important to highlight that Manston Airport did not operate under any form of restriction on the number of aircraft movements. The planning agreement between TDC and Manston Airport, which governed the permitted activity of the Airport, was entered into in 2000. In respect of night-time flying it sets out the limitations on such operations until a "Night-time Flying Noise Policy" is in place. Clause 1.1 of the Second Schedule states:

"The Owner agrees not to cause suffer or permit any Regular Night Flying Operations at any time (subject to Paragraph 1.4 below) before a Night-time Flying Noise Policy shall have been prepared and a copy lodged with the Council."

Further, it defines:

"Regular Night Flying Operation means Flight movements which are scheduled or programmed and which occur frequently or regularly to the same or similar patterns for the same operator during Night-time"

4.3 It is understood that the Night-time was defined as 23.00-07.00, though Manston Airport was also seeking a Night Quota Period which would have run from 23.30-06.00. In practice, there were a number of night movements which were deemed to be ad-hoc and often driven by technical delays but that were permitted to operate in any event.

4.4 We have assessed the capability of the existing infrastructure at Manston Airport assuming that the range of existing facilities, as at the time of its closure, are made good. There are three principal elements – runway, passenger and freight:

- **Runway:** for the handling of commercial passenger and freight aircraft, the runway would operate without a parallel taxiway. The current marked parallel taxiway is too close to the runway centreline to allow such aircraft to taxi independently of a runway movement. Landing and departing flights would then need to back track along the runway to and from the entry/exit taxiways. The achievable maximum runway rate with this operation might be around 20 to 24 flights per hour depending on the mix of aircraft types. This runway movement rate, even at 50% utilisation of available slots, would be capable of accommodating around 64,000 aircraft movements a year. However, we recognise that this is in excess of the capability of the passenger and freight handling facilities as existing.

- **Passenger:** the passenger apron has been designed to accommodate 4 E-Jet FK100 passenger aircraft. These aircraft types are now rare and have a wingspan that is much less, at 28 metres, than the typical low fares airline Code C type aircraft that Ryanair, easyJet and Wizzair, for example, use. These airlines typically use aircraft such as the B737-800 and A320, with wingspans of 36 metres. On this basis, the passenger apron would be able to accommodate up to 3 of these larger Code C aircraft simultaneously and could, in the alternative, be used for handling cargo flights. The terminal itself is quite compact and would have a maximum of 6 check-in desks and very small baggage make up area, and a departure lounge that could depart a maximum of 2 flights within the same 30 to 40-minute period, with an hourly capacity in total of around 250 passengers. There are more than 1,000 car parking spaces. We estimate that the passenger terminal at its current size could support around 0.7 to 0.9 mppa based on there being up to two based Code C aircraft with a reasonable number of other visiting flights across a typical day.
- **Freight:** the aircraft parking area close to the freight sheds can park up to 2 or 3 small to medium sized cargo aircraft or one large aircraft. There are two freight sheds that were originally organised to be used one for imported freight and one for export. Adjacent to these is an 'equine' handling facility for processing livestock. In practice Manston, when operational, normally handled one large freight aircraft at a time due to size and juxtaposition of the freight sheds and apron to each other and the single taxiway connecting to the runway. Whilst Manston handled up to 30,000 tonnes of freight at its peak, our understanding is that the freight facilities could have handled substantially more tonnage.

4.5 Our assessment into the capability of Manston Airport is based on the reinstatement of the runway, air traffic control, fire station, navigational aids, apron (stands) and taxiways. We have taken into account the use of both apron areas, one to the west adjacent to the cargo sheds and one to the east, adjacent to the passenger terminal. These could accommodate collectively up to 4 freight aircraft simultaneously. The assessment is also based on an 18-hour operational day (allowing for a small number of ad hoc night movements consistent with previous operations) and with a turnaround window of up to 2½ hours from the arrival to departure of each freight aircraft resulting in the capability of each stand to handle over 7 aircraft rotations a day, or over 14 cargo aircraft movements.

4.6 On this basis, across a year, this would equate to a capability for at least 21,000[50] annual air cargo aircraft movements with the existing consented infrastructure, subject only to reinstatement. This assessment is consistent with the assertion made in presentations on behalf of RSP[51], which stated that the 10,000 cargo aircraft movement threshold, necessary to pass the Section 23 test in the Planning Act 2008 (as amended), could be met by providing for 14 aircraft arrivals and 14 aircraft departures each day. As the existing infrastructure could provide for 4 cargo aircraft being handled simultaneously, this would equate to 20,440 annual air transport movements by cargo aircraft. This would be more than sufficient to accommodate any reasonable forecast of the cargo related movement demand that Manston might attract as we have set out in Section 3.

[50] Should a night time noise policy be agreed with Thanet District Council pursuant to the existing planning agreement that enabled a longer operational day and/or a number of scheduled night movements, then the capability could, in theory, be higher than 21,000 annual cargo aircraft movements.
[51] RSP, Presentations for Thanet District, Dover District, and Canterbury City Councils

4.7 We recognise that the actual usage of that capability will depend on how an airport is used in terms of the daily and seasonal pattern of movements but this does not, of itself, reduce the capability offered by the existing consented infrastructure for air transport movements. Our assessment, therefore, provides essential missing information from RSP's materials to date which is necessary for the purposes of section 23 of the Planning Act 2008 (as amended), for assessment purposes under the Environmental Impact Assessment Regulations and for consultation purposes.

Land Required to accommodate RSP's Forecasts

The RSP Master Plan

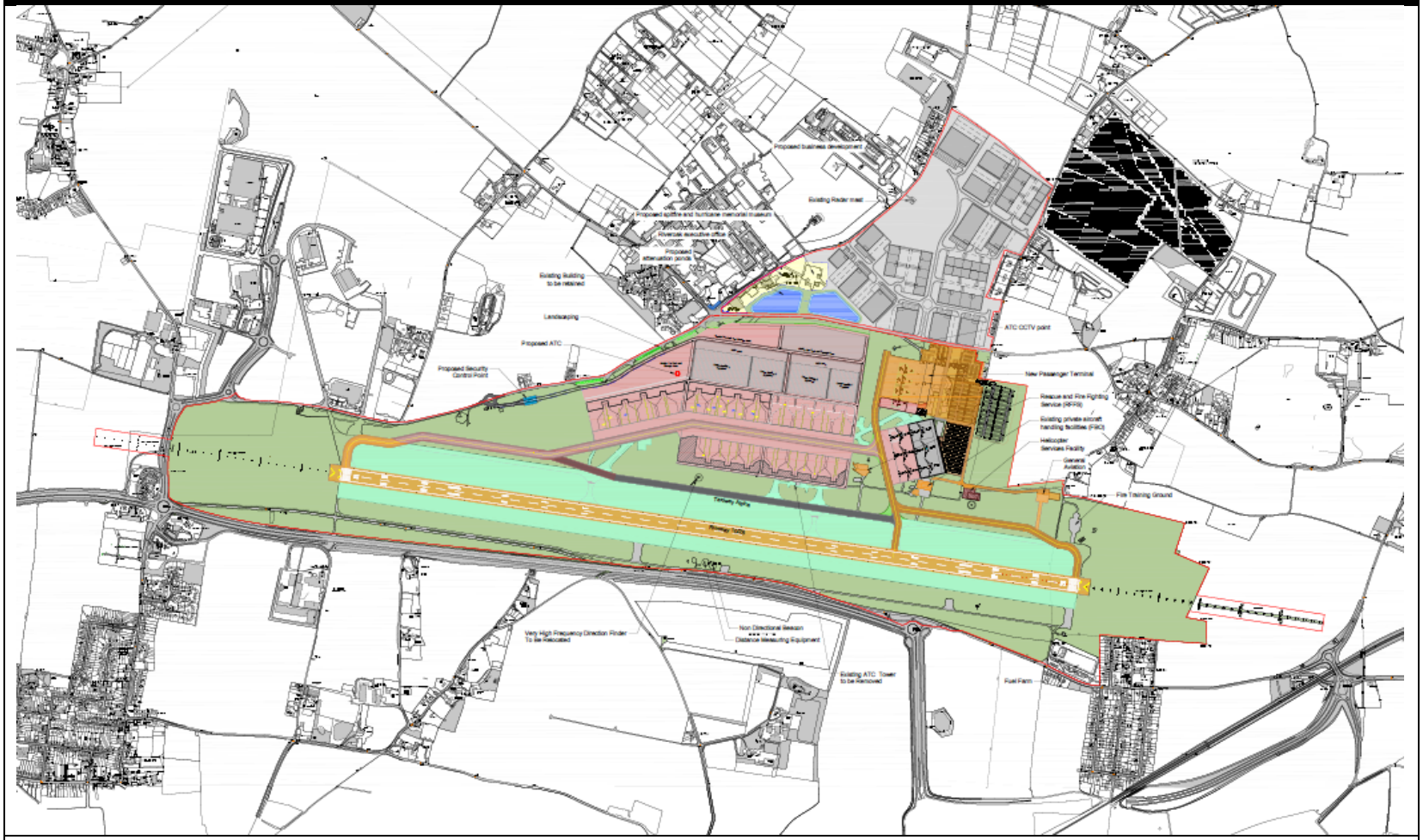
4.8 The Master Plan presented by RSP for the Manston Airport site is shown at **Figure 4.1**. It makes use of the full length of the runway and provides a full length parallel taxiway. The western side of the site is dedicated to freight handling activity and has 19 Code E aircraft stands for cargo flights and 4 large cargo sheds for the processing of freight supported by truck loading and parking areas. The eastern side of the site shows as a new passenger terminal and apron along with a MRO hangar and apron. The existing private aircraft handling facility (FBO) and fire station site is retained. We are not entirely clear how such works would be phased, although we understand that 4 phases of development are planned. RSP projects that Manston will need to be able to handle 17,171 cargo related ATMs and that 1.4 mppa of passengers will be handled by 2039. These represent the basis for the proposed DCO application and we assume, therefore, that these will be the limits on the number of movements and passengers which the site would be capable of accommodating as these form the basis for the assessment of environmental and other impacts. However, this is unclear from the consultation documentation.

4.9 We are unclear why 19 Code E stands are proposed given that the fleet mix at 2039[52] shows 85% of aircraft (at 17,171 annual cargo aircraft movements) being by aircraft smaller than Code E dimensions. Even allowing for some larger Code F types (<2% of movements), it would be possible to reduce the area of apron required for the fleet mix proposed, leaving aside whether 19 stands are required for the simultaneous parking of cargo aircraft at any one time, which we discuss further below.

4.10 To the north of the site, on the 'Northern Grasslands', a new development is shown, which appears to consist of commercial sheds and factory buildings with no obvious connection to the operation of the Airport being located entirely on the landside of the B2050. We assume that RSP's intention is to lease out these landside commercial buildings on this northern site so as to provide a rental income to cross subsidise the operation of the Airport. We discuss the need for this land further below.

[52] Azimuth Volume III, Table 2.

Figure 4.1: RSP Masterplan – Proposed Site Layout



Source: RSP

Land Required

4.11 Without prejudice to our position that we do not consider that RSP's proposals are credible in terms of the level of demand that might be attracted to Manston, we do not consider that the scale of development proposed by RSP for 17,171 cargo related movements is necessary, justifiable or reasonable, based on the principles set out at paragraph 4.5 above.

4.12 At **Figure 4.2**, we illustrate the justifiable and reasonable extent of land required at Manston Airport to support a cargo operation of 17,171 ATMs and passenger operation of 1.4 mppa (even though we do not accept that these ATMs and passenger numbers can be reached). This is based on our experience of airport operations around the world.

4.13 We recognise that there could be an opportunity for maintenance hangars for heavier aircraft maintenance activities but the need for these will not necessarily be triggered by the establishment of passenger operations. Depending on the nature of the freight and passenger carriers that set up services at Manston, the need for maintenance hangars cannot be ruled out and we have allowed for one twin bay hangar with a footprint of approximately 6,000m2 or two single bay hangars at 3,000m2 each.

4.14 It is also reasonable to expect that there will be some business and some general aviation activity. However, unless a bespoke FBO is set up, which we believe is unlikely given the distance from the main business aviation market in London and with Biggin Hill much closer to the core market, there would be very limited use by business aviation. Any small general aviation or flying school activity can be accommodated within the land area shown. These facilities, and any aircraft dismantling activity as also suggested in Azimuth's forecasts, would need to have direct airside access and so would need to be located to the south of the B2050. In other words, all of the operational facilities to support the operation of the Airport would require to be located to the south of the road and not on the 'Northern Grasslands' site.

4.15 We have clearly marked the area of land to the south of the B2050 that is not required for the defined airport operations in green on Figure 4.2. To the north of the Airport site, the 'Northern Grasslands' are marked in yellow and is not required for the scale of airport activity proposed by RSP. We discuss the potential use of this area further below. Figure 5.2 clearly shows that the extent of airport land needed to support the scale of freight and passenger activity proposed by RSP is significantly less than that proposed by the RSP. There are surplus areas of land within the core airport site as well as the 'Northern Grasslands' that are not required to support the throughput proposed.

Figure 4.2: Airport Land for 17,121 Freight ATMs and 1.4 mppa Operation – Surplus Land: Airport Land (Green), Northern Grasslands (Yellow)

Source: York Aviation

4.16 We summarise at **Table 4.2**, those facilities proposed by RSP in its Master Plan but are not, in fact, required to support essential airport operations.

Table 4.2: Classification of RSP Proposed Airport Facilities at Manston Airport

	RSP proposed airport-related development	Facilities not Essential for an Operational Cargo Airport
4	Retention & Extension of Passenger Apron	✓
11	New replacement Passenger Terminal building	✓
12	New and extended passenger car parking areas	✓
23	Relocation of the two existing museums	✓
24	Demolish old Control Tower in northern area	✓
25	Airport related businesses on Northern Grasslands	✓
26	New MRO aircraft maintenance hangars	✓
27	New FBO in refurbished business aviation terminal	✓

4.17 Although a replacement radar is shown by RSP re-using the old radar tower within the 'Northern Grasslands' area, it is not clear that a replacement radar would actually be required, although a radar service would be required. It is likely that a radar service could be procured more cheaply by buying in radar coverage from an alternative radar position rather than re-providing a radar on site. This is increasingly common practice at smaller airports. In the event that a replacement radar was required, this would not need to be located on the 'Northern Grasslands' but could be located within the airfield site to the south of the B2050.

4.18 In terms of the use of the 'Northern Grasslands', there is no particular requirement for extensive freight forwarding facilities on site as consolidation of loads is likely to continue to take place in and around Heathrow as currently. Any freight forwarding activity directly to support 17,171 cargo aircraft movements is likely to be containable within the area shown for freight warehousing within the airfield site.

4.19 No other justification is given for the extent of the commercial development shown on the 'Northern Grassland' part of the site. In our view, it is certainly not 'associated development' required to support the operational airport, other than in terms of providing a financial cross subsidy from rental income for general commercial buildings.

4.20 The need, then, for such an extensive development across the 'Northern Grasslands' cannot, in our opinion, be justified and is substantially in excess of what is seen elsewhere. The scale of supporting infrastructure proposed appears substantially greater than exists at the UK's main pure freight hub at East Midlands. We have seen no reasoned justification for the scale of facilities proposed. It appears to cover an area (c.48 hectares), which is more than double the size of the associated Pegasus Business Park area at East Midlands Airport (c.21 hectares), which currently handles virtually the same cargo tonnage as projected by Azimuth for Manston at 2039. Furthermore, it is significant that a substantial part of the East Midlands area is occupied by hotel development (3 hotels) in support of the much greater passenger throughput at that airport, a Regus office complex, and many of the other occupiers of sites within the Pegasus Business Park are not related to the activity at the Airport and include companies such as PwC, Laser Optical Engineering, Nikon Metrology UK, Medstrom Healthcare, Rail Vision and PKF Cooper Parry making use of an accessible location close to the M1. None of these activities would be essential in relation to freight activity at the airport and so would not meet the test for associated development required for inclusion with a DCO.

Realistic Requirements

4.21 Clearly, as is evident from earlier sections of this report, our opinion is that RSP's projections for the use of Manston Airport cannot be realised. Hence, the area of land required to accommodate lower levels of activity would be proportionately smaller, occupying a substantially smaller area of land to the south of the B2050 than shown on Figure 4.2.

Conclusions on Capability

4.22 The existing infrastructure at Manston Airport, if made good, would be capable of handling 21,000 annual air cargo transport movements[53]. However, the actual usage of that capability would depend on the pattern of operation and how the infrastructure was used on a day by day basis.

4.23 Without prejudice to our view that demand to use Manston is not likely to be anything like 17,171 cargo aircraft movements a year, we consider that the land required to accommodate such a number of movements would be substantially less than shown on the RSP Master Plan.

4.24 We can see no justification for the inclusion of the 'Northern Grasslands' within the DCO as associated development as there will be little requirement for the relocation of freight forwarding activity from adjacent to the UK's main cargo hub at Heathrow to Manston and any requirement could be accommodated south of the B2050. The development on the Northern Grasslands site appears to be speculative commercial development which, based on the precedent at East Midlands Airport – the UK's principal airport for pure freighter operations – would be expected to be largely for non-aviation related uses.

[53] Based on an 18-hour operational day. Should a night time noise policy be agreed with Thanet District Council pursuant to the existing planning agreement that enabled a longer operational day and/or a number of scheduled night movements, then the capability could, in theory, be higher than 21,000 annual cargo aircraft movements.

5 SOCIO-ECONOMIC IMPACT

Introduction

5.1 In this section, we examine the socio-economic benefits that are put forward by Azimuth and the flaws that are apparent in their approach. These render the socio-economic case put forward unreliable. We then move on to provide our own estimates of the socio-economic impacts of Azimuth's traffic forecasts based on more appropriate assumptions and also set out the socio-economic impacts associated with our own traffic forecasts to provide a more reasonable basis for considering the extent of the benefits that might realistically accrue from the re-opening of the Airport.

Comments on Azimuth Socio-Economic Assessment

5.2 Volume IV of the Azimuth's Report sets out the socio-economic case for the DCO for Manston. This assessment naturally relies on the traffic forecasts presented in Volume III. This means, of course, that the socio-economic assessment is rendered unreliable by the failings of the traffic forecasting approach and the incorrect inferences drawn from the assessment of the market. However, there are also substantial failings in relation to the methodology used for the socio-economic impact assessment itself, which result in significant over estimates of the impacts. We would also re-emphasise that the Airport must be commercially viable to be able to deliver these benefits, otherwise it will simply fail and no level of benefit will be delivered. RSP has not clearly demonstrated that the operation of the Airport would be viable at any level of throughput and, in the light of the conclusions of Aviasolutions in their advice to Thanet (see Section 6 of this report), viability must be in serious doubt based on our analysis of the likely usage as set out in Section 3. This renders any analysis of the socio-economic impacts to a large extent moot. Setting aside the issue that the Airport is highly unlikely to be viable and that the traffic forecasts set out are significantly overstated, we have identified below a number of key flaws in Azimuth's approach and analysis of the economic impacts.

5.3 At the outset, it is probably helpful to highlight the key area in which we agree with Azimuth's analysis and conclusions. We agree that the East Kent area is in need of regeneration. It is simply that we do not believe that Manston Airport can deliver the benefits set out. Any attempt to re-open the Airport is not likely to succeed as it is hard to see that viability could be attained with realistic forecasts of usage. Another failure of the Airport would be more likely to damage the image of Kent as a place to invest than enhance it.

5.4 Azimuth spend some time considering the appropriate employment density on which to base an assessment of direct employment. They ultimately conclude that East Midlands Airport provides an appropriate comparator (see paragraph 4.1.4 of Volume IV). This information is then used to drive large parts of the benefit calculations for Manston. York Aviation provides economic impact advice to MAG in relation to both its major freight airports, East Midlands and Stansted. From this knowledge, we would suggest that the job numbers quoted and used here are an incorrect base as they include substantial numbers of non-airport related jobs located on the business park at East Midlands Airport, discussed in the previous section. This means that the employment density used by Azimuth is far too high for genuine airport related activity. In any event, the employment at East Midlands is higher than might be anticipated anyway given the very significant employment supported at the site by DHL's UK main base of operations, which is not likely to be replicated at Manston.

5.5 We accept that it is difficult to identify an ideal comparator for a re-opened Manston in the UK but would suggest that an airport such as Glasgow Prestwick would be a much more appropriate comparator. The Airport has a low fares operation by Ryanair and has a reasonably significant pure freighter operation (although this has been substantially larger in the past). There is also detailed information on the economic impact of that airport in the public domain from work undertaken by both York Aviation[54] and SQW[55]. We have used information from this research later in this section to provide a more realistic base for assessing the economic impact of Manston.

5.6 The multipliers used by Azimuth for indirect and induced employment and economic activity in their assessment are simply inappropriate. Firstly, the multipliers adopted are for the impact at a national level. The study area for this economic assessment and the focus of Azimuth's comments is the sub-region around Manston Airport. Multipliers appropriate to this much smaller area should have been used and would have been substantially smaller. Secondly, the multiplier used (2.1) is a European average taken from research by InterVISTAS for ACI EUROPE[56]. The adoption of this Europe-wide multiplier is strange given that that the research does actually provide a specific multiplier for the UK[57], which is substantially smaller at 1.5. Use of the appropriate multiplier would, of course, have significantly reduced the job impacts suggested, even at a national scale.

5.7 There is a further issue in relation to the use of an inappropriate multiplier covering national level effects in that displacement of activity from other airports should have been taken into account. To the extent that any of the activity projected for Manston is displaced from other airports, as our analysis strongly suggests it will be, there will be a relative reduction in employment and economic activity in the vicinity of these other airports. So whilst, correctly calculated, the employment and economic effects local to Manston would be additional, the effect of displacement of activity would need to be netted off wider national or regional (South East) impact assessments.

[54] The Economic Impact of Glasgow Prestwick Airport – York Aviation (2012). http://www.evaluationsonline.org.uk/evaluations/Search.do?ui=basic&action=show&id=509
[55] Economic Impact of Glasgow Prestwick Airport – SQW (2008). http://www.sqw.co.uk/files/4413/8712/8925/99.pdf.
[56] The Economic Impact of European Airports – InterVISTAS for ACI Europe (2015).
[57] Ibid. Page 103.

5.8 As well as using a multiplier for indirect and induced impacts, a multiplier is used to assess the wider catalytic employment[58]. The multiplier used is taken from out of date research for ICAO[59] and it should be said that catalytic impacts remain a difficult area in terms of quantification. There is not sufficient detail in the ICAO report[60] that Azimuth rely on to understand how this catalytic multiplier has been derived. However, again, there are issues with the use of this multiplier. Firstly, it appears to be a global multiplier, which would again be completely inappropriate for use in considering sub-regional impacts around Manston and it has been wrongly applied to total job numbers rather than direct job numbers. In practice, the correct approach would have been to consider the specific additional connectivity that Manston Airport might provide for Kent and assess how this might relate to attracting additional business activity and tourism to the area.

5.9 In examining the employment projections presented (Section 5.1 of Volume IV), it appears that no allowance has been made for either productivity growth or returns to scale over time and as the Airport grows. While information on potential on-site productivity growth can be hard to come by, we would expect some allowance to have been made. A typical figure might be around 2% per annum based on our experience at other airports. The result of this omission is that future direct job numbers, in particular, are likely to be significantly overstated given the compounding effect of failing to account for productivity growth.

5.10 Section 7 of Volume IV discusses other socio-economic impacts. In particular, it talks about contributions to GDP. Para 7.1.1 describes GDP as *"a monetary measure of the state of a Region's or a Country's economy"*. This is not correct. It is a measure of the size of the economy. It does not comment on the state of the economy or the prosperity or wealth within it. The calculations of GDP impacts presented are based on the job numbers estimated earlier in the report. They are, therefore, likely to be significant overestimates given the flaws in the demand forecast method and the job density and multiplier assumptions.

5.11 The comments in Paragraph 7.1.7 describing how Manston could contribute significantly to Thanet's Economic Growth Strategy aspirations in terms of GVA per job and per capita are, in reality, unsupported. Given the methodology adopted, which essentially measures Manston's impact at a national level, it is actually very difficult to know what the effect might be on the Thanet economy. Undoubtedly, the Airport could support local jobs if it is re-opened but, in reality, the number of those jobs and their value has not been effectively calculated here. The aviation supply chain in the UK is heavily concentrated around the major airports, particularly in relation to air cargo. So, in practice, much of the economic benefit claimed would be realised in and around Heathrow rather than locally if Manston were to re-open. To the extent that any activity would be displaced to Manston, there would be negative economic implications elsewhere.

[58] Catalytic employment is related to additional economic activity generated in areas adjacent to an airport as a result of the additional connectivity offered by the airport.
[59] ICAO – International Civil Aviation Organisation, which is the inter-governmental body which regulates air transport globally.
[60] ICAO – Economic contribution of civil aviation: Ripples of prosperity, 2000.

The Socio-Economic Impact of the Azimuth Traffic Forecasts

5.12 Below, we have set out an estimate of the socio-economic impacts of the Azimuth traffic forecasts using more appropriate assumptions. We have retained the same basic analytical framework, which considers direct, indirect, induced and catalytic impacts, but we have used different basic assumptions in all areas:

- we have estimated the direct employment associated with the re-opening of the Airport based on employment densities observed at Glasgow Prestwick Airport during the production of our 2012 report for Scottish Enterprise[61]. This includes considering which elements of on-site employment are likely to be driven by passenger growth and which by cargo growth. Given the slightly differing approach, it is hard to provide a perfect comparison of job density. However, in Year 3, when both cargo and passenger operations begin, the York Aviation job density is around 650 jobs per million workload units, compared to around 890 assumed by Azimuth;
- we have used an indirect and induced multiplier for Kent of 0.4[62]. This is again taken from our work on Prestwick and reflects impacts of that airport in the Ayrshire economy, which would seem a sensible comparator. This multiplier is also in line with the benchmark multipliers set out in the Homes and Communities Agency Additionality Guide (2014)[63]. At this level, displacement affects do not need to be accounted for albeit they would still arise to the extent that activity at Manston displaces activity elsewhere;
- we have used catalytic multipliers for air freight taken from Steer Davies & Gleave's report on the UK Air Freight Industry for the DfT[64]. This identified national level catalytic multipliers for air freight of 3.46 and 3.76 (inclusive of the direct impact). There is no simple way to adjust these multipliers to the Kent economy. We have, therefore, reduced these multipliers by 75%. This is broadly akin the difference between sub-regional and national level multipliers for indirect and induced effects. As with all estimates of catalytic impacts, these should be regarded with some caution in the absence of a more detailed and specific assessment of the potential effects;
- we have assumed productivity growth at Manston Airport of around 2% per annum. This is typical of our experience of productivity growth rates at UK airports;
- in order to estimate the GVA impacts of the re-opening of the Airport, we have used GVA per job estimates from ONS for Kent. On-site jobs are assumed to generate GVA in line with the Transportation & Storage sector (£57,763), while jobs in the wider economy are assumed to reflect the average GVA per job for Kent (£52,623).

5.13 In **Tables 5.1** and **5.2**, we have set out our estimates of the socio-economic impact of the Azimuth traffic forecasts compared to the original estimates produced by Azimuth.

[61] *The Economic Impact of Glasgow Prestwick Airport* – York Aviation (2012).
[62] Note that this excludes the initial direct effect.
[63] See page 36.
[64] *AIR FREIGHT Economic and Environmental Drivers and Impacts* – Steer Davies and Gleave for DfT (2010). Page 106.

Table 5.1: Employment Impact of Manston Airport – YAL Socio-Economic Assumptions Comparison					
	Y2	**Y5**	**Y10**	**Y15**	**Y20**
Azimuth Impact Assumptions with Azimuth's freight + passenger forecast					
Direct	856	2,150	2,749	3,438	4,271
Indirect & Induced	1,798	4,515	5,773	7,220	8,970
Catalytic/Wider	0	8,601	10,996	13,753	17,085
Total	**2,654**	**15,266**	**19,518**	**24,411**	**30,326**
YAL Impact Assumptions with Azimuth's freight + passenger forecast					
Direct	688	1,555	1,791	2,033	2,291
Indirect & Induced	275	622	716	813	917
Catalytic/Wider	475	1,073	1,236	1,403	1,581
Total	**1,439**	**3,250**	**3,743**	**4,249**	**4,789**
YAL Total as % of Azimuth	**54%**	**21%**	**19%**	**17%**	**16%**
Source: York Aviation and Azimuth Associates					

Table 5.2: Gross Value Added Impact (£ million) – YAL Socio-Economic Assumptions Comparison					
	Y2	**Y5**	**Y10**	**Y15**	**Y20**
Azimuth Impact Assumptions with Azimuth's freight + passenger forecast					
Direct	£43	£108	£138	£173	£215
Indirect & Induced	£78	£195	£250	£312	£388
Catalytic/Wider	£0	£391	£499	£625	£776
Total	**£121**	**£694**	**£887**	**£1,110**	**£1,379**
YAL Impact Assumptions with Azimuth's freight + passenger forecast					
Direct	£41	£99	£126	£158	£197
Indirect & Induced	£15	£36	£46	£58	£72
Catalytic/Wider	£25	£61	£78	£97	£121
Total	**£82**	**£196**	**£250**	**£313**	**£389**
YAL Total as % of Azimuth	**68%**	**28%**	**28%**	**28%**	**28%**
Source: York Aviation and Azimuth Associates					

5.14 The differences between the two sets of estimates are marked. Our assumptions result in economic impacts being around a half to two thirds of those estimated by Azimuth initially. However, the gap widens over time as the impact of Azimuth's failure to allow for productivity growth and high multiplier assumptions feed through. In our view, the Azimuth estimates simply cannot be relied upon as a measure of the potential economic impacts of re-opening of Manston Airport. Not only are they infected by the errors in traffic forecasting, but the approach itself is highly flawed. A more realistic and robust assessment suggests that the local impacts within Kent, even on Azimuth's forecasts, would be substantially less than claimed and it is these lower order effects which would need to be balanced with the environmental and impacts in assessing the acceptability of the proposed development, including the loss of SHP's proposed mixed use development and the socio-economic benefits deriving therefrom.

A More Realistic View of the Socio-Economic Impacts of Manston

5.15 As we have described above, the socio-economic assessment undertaken by Azimuth was destined to fail before it started because of the failings in the traffic forecasts that feed the approach. We do not consider there is any realistic prospect of the Airport attaining 10,000 annual movements by cargo aircraft and the build up of traffic would be materially slower than Azimuth estimate.

5.16 We have, therefore, set out below an assessment of the socio-economic benefits that might be associated with re-opening Manston on the basis of York Aviation's most likely cargo forecast (that Manston is able to regain its previous market share) and our passenger forecasts, which are around half those assumed by Azimuth. Once again, we have used our socio-economic impact assumptions as described above. The resulting employment and GVA impacts are again set out compared to Azimuth's assessment of the economic impact of reopening Manston in **Tables 5.3** and **5.4**.

Table 5.3: Employment Impact of Manston Airport – YAL Forecasts Comparison

	Y2	Y5	Y10	Y15	Y20
Azimuth Impact Assumptions with Azimuth's freight + passenger forecast					
Direct	856	2,150	2,749	3,438	4,271
Indirect & Induced	1,798	4,515	5,773	7,220	8,970
Catalytic/Wider	0	8,601	10,996	13,753	17,085
Total	**2,654**	**15,266**	**19,518**	**24,411**	**30,326**
YAL Impact Assumptions with YAL's freight + passenger forecast					
Direct	216	391	409	442	486
Indirect & Induced	87	156	164	177	194
Catalytic/Wider	149	270	283	305	335
Total	**452**	**817**	**856**	**925**	**1,015**
YAL Total as % of Azimuth	**17%**	**5%**	**4%**	**4%**	**3%**
Source: York Aviation and Azimuth Associates					

Table 5.4: Gross Value Added Impact (£ million) – YAL Forecasts Comparison

	Y2	Y5	Y10	Y15	Y20
Azimuth Impact Assumptions with Azimuth's freight + passenger forecast					
Direct	£43	£108	£138	£173	£215
Indirect & Induced	£78	£195	£250	£312	£388
Catalytic/Wider	£0	£391	£499	£625	£776
Total	**£121**	**£694**	**£887**	**£1,110**	**£1,379**
YAL Impact Assumptions with YAL's freight + passenger forecast					
Direct	£13	£25	£29	£34	£42
Indirect & Induced	£5	£9	£11	£13	£15
Catalytic/Wider	£8	£15	£18	£21	£26
Total	**£26**	**£49**	**£57**	**£68**	**£83**
YAL Total as % of Azimuth	**21%**	**7%**	**6%**	**6%**	**6%**
Source: York Aviation and Azimuth Associates					

5.17 Unsurprisingly, the socio-economic impacts associated with the Airport are reduced even further on the basis of more realistic forecasts. The operation is simply of a much smaller scale. In Year 2, in generates 452 jobs, only 17% of the Azimuth estimate of 2,654. By Year 20, the differential is even larger, with the Azimuth estimates reaching over 30,000 jobs, but with our estimates at only just over 1,000. More likely, the Airport would cease operating again due to the inability to attain viable operations. In these circumstances, it becomes a moot point as there would be no jobs and economic impact over the medium to long term.

Conclusion

5.18 Once again, the evidence presented by Azimuth on behalf of RSP cannot be relied upon. It is infected with the flaws in the traffic forecasting methodology identified previously but the approach to identifying socio-economic impacts is, in itself, badly flawed. The socio-economic impacts are, as a result, massively overstated and, in any event, would not be realised if the operation of the Airport is not commercially and financially viable.

6 PEER REVIEW OF OTHER REPORTS

6.1 In this section, we set out a brief review of other reports produced on the potential for a re-opened Manston Airport.

Aviasolutions for Thanet

Commercial Viability of Manston Airport – September 2016

6.2 We note that this assessment was focussed on the likely viability of a re-opened Manston Airport. Hence the main focus was on scenarios for passenger growth as passenger operations make a significantly greater financial contribution to operating an airport given the ability to earn revenue from retail, catering and car parking as well as direct revenue from airport charges (landing, aircraft parking, passenger fees and any cargo handling fees). We note that Avia took a much more optimistic view than we do of the scope for passenger overspill from the main London airports to Manston but, to an extent, these scenarios were designed to assess whether re-opening Manston would be commercially viable rather than to assess a realistic level of demand.

6.3 Having assessed the historical performance of Manston, Avia assumed that it would be possible for the Airport to regain the broad level of cargo activity that is was handling before it closed. This is not dissimilar to our 'most likely' assumption. Significantly, Avia noted that:

"Our freight interviews indicated that the demand to use the airport for freight was very limited. This, in large parts, is due to two factors; the infrastructure investments that have already been made by the industry around Heathrow and Stansted, and the geographical location of the airport. Infrastructure, and the associated knowledge, skill and supporting industry at airports such as Heathrow and Stansted, as well as the major European hubs such as Frankfurt, and Paris, would be almost impossible for Manston to replicate. The geographic location of the airport, tucked into the corner of the UK, cannot compete with airports such as East Midlands for Integrator services that are sold as fast delivery, due to the increases in surface transportation times. The interviews did however indicate that charter services and ad-hoc freighter flights would certainly return, providing some revenue income for the airport"[65].

This accords with our view of the most likely prospects for Manston.

6.4 Overall, the Avia 2016 work concluded that Manston was not likely to be a commercially viable prospect if re-opened, certainly if it is assumed that another runway would be built at either Heathrow or Gatwick. We concur with this conclusion and, on the basis of our more realistic assessment of the level of passenger demand that the Airport might attract, commercial viability is even less likely to be attained.

[65] Aviasolutions, *Commercial Viability of Manston Airport*, September 2016, Section 8.3.

Local Plan Representations - Final Report – August 2017

6.5 This report largely deals with individual specific representations one at a time. Overall, Avia conclude that their *"opinion, based on updated market information since the publication of our previous study, is consistent with our earlier view that Manston Airport does not represent a financially viable investment opportunity under normal market conditions."*[66]

6.6 In relation to these representations, Avia state clearly that:

"The Local Plan Representations do not make a credible case, nor provide the evidence for AviaSolutions' to change its views on the financial viability of Manston Airport. We remain of the view that whilst Heathrow Airport continues to offer substantial freight capacity to a truly global network, and Stansted Airport utilises only around half of the statutory provision of air freighter movements, the London air freight market has capacity to grow without the re-introduction of capacity at Manston Airport. Freight Forwarders have invested heavily in infrastructure around these core airports, carriers have developed their networks as such, and without clear value drivers that support relocating services to Manston Airport, the case remains to be made that demand exists for a freight facility at Manston Airport. This view is reinforced by the empirical evidence of multiple failed attempts to develop profitable operations at the airport."[67]

6.7 Again, Avia's analysis concurs with our own in terms of the limited role that there would be for a re-opened Manston Airport given the evolution of the air freight market. We concur with Avia's analysis of the potential for other activities at Manston such as business aviation or aircraft dismantling and note that, in our experience, income generation from such activities would be low.

6.8 We note that, in this report, Avia correctly interpret our work for the FTA in terms of the potential for the equivalent of 80,000 air freighter movements to be accommodated away from the main London airports by 2050 in the event of no new runway being constructed. As Avia note, this demand is likely to be accommodated at a variety of other airports, including Manchester and East Midlands, with the former offering a substantial amount of bellyhold capacity by that date and the latter offering a dedicated freighter service. Displacement to regional airports is also a logical response given the amount of cargo from the regions which is currently trucked to the London airports. We have had no dialogue with Avia regarding the interpretation of our work but their interpretation of it confirms that Azimuth have simply misused headline figures from our work to support RSP's case without considering or understanding the broader meaning of our analysis in 2015 as Avia demonstrate.

[66] Aviasolutions, *Local Plan Representations - Final Report*, August 2017, Executive Summary.
[67] Ibid.

Review of Azimuth and Northpoint Forecasts for Manston – August 2017

6.9 In this report, Avia conclude that the Azimuth and Northpoint forecasts are *"highly ambitious"* and that *"the likelihood of these forecasts being realised is very low"*[68]. Avia do not, themselves present any updated forecasts of their own in this report. They make clear that neither report presents *"a credible case"* sufficient for Avia to change its view on the likelihood of viable commercial operations being attained at Manston Airport.

6.10 Avia conclude that:

"We remain of the view that whilst Heathrow Airport continues to offer substantial freight capacity to an extensive global network, and Stansted Airport offers capacity for air freighter movements, the London air freight market has capacity to grow without the re-introduction of capacity at Manston Airport. Freight Forwarders have invested heavily in infrastructure around the UK's core cargo airports and carriers have developed their networks as such. Without clear value drivers that support relocating services to Manston Airport, the case remains to be made that demand exists for a freight facility at Manston Airport.

Provision of capacity alone is no guarantee of financial success, a view reinforced by the empirical evidence of multiple failed attempts to develop profitable aviation operations at Manston Airport."[69]

This accords with our view.

6.11 Like ourselves, Avia point out[70] that provision of infrastructure is not of itself sufficient to ensure a financially viable airport at Manston and that this will depend on the demand that can be attracted. Avia conclude, like ourselves, that *"Azimuth's report does not provide sufficient evidence of demand at Manston Airport from air freight operators to support the required investment in facilities and profit generation potential to re-establish Manston Airport as a going concern."*[71] Avia, like ourselves, highlight that if there had been a market for Manston to accommodate any overflow from Heathrow, this would have been evident prior to the Airport's closure in 2014. Avia also conclude[72], in relation to the extensive interviews carried out by Azimuth, that they largely address the overall issues of airport capacity in the South East of England and do not effectively explain why Manston, at the tip of Kent, would be an attractive solution for the UK air freight sector.

6.12 Avia also note that the other activities that Manston might attract, as suggested by interviewees, such as maintenance, repair and overhaul, aircraft dismantling, a fixed based operator for business aviation and the establishment of an integrator base could have been attracted previously if there was demand at Manston but that such demand was not evident. We concur that the reports of interviews set out by Azimuth do not constitute real evidence of actual demand for such facilities or the likelihood of them locating at Manston.

[68] Aviasolutions, *Review of Azimuth and Northpoint Forecasts for Manston*, August 2017, Executive Summary
[69] Ibid.
[70] Ibid, page 9.
[71] Ibid.
[72] Ibid, page 11.

6.13 Like ourselves, Avia point out that Azimuth's freight forecasts would suggest that Manston would be a major presence in the UK air freight market from Year 2[73] and that by the end of the period would be on a par with the UK's main freight hub at East Midlands by 2039. They go on to note that the methodology adopted by Azimuth to forecast cargo movements could be acceptable, which we take to mean a 'bottom up' movement driven approach. However, they caution that the primary data used (from the interviews) *"has significant potential to exaggerate or overstate the market"*[74]. As Avia note, the aspirations of the interviewees, that as we have noted earlier were largely local interests in Kent, would need to be tempered by commercial realism and the risks attaching to the operations put forward. Avia conclude, in relation to Azimuth's freight forecasts, that *"the probability of such an outcome remains very low"*[75]. We concur.

6.14 In overall terms, Avia conclude that there is nothing in the Azimuth analysis which would give rise to them changing the conclusions set out in their earlier 2016 report.[76]

6.15 Avia then go on to consider the Northpoint report, discussed further below, which was prepared as a direct rebuttal of their 2016 report. In the first instance, they note that they do not accept that the benchmark airports[77] cited by Northpoint as comparators for what Manston could be are relevant:

There are clearly structural and geographical reasons as to why each of these airports is different to the proposal for Manston Airport. As such, suggesting these are comparable benchmarks is not realistic. In order for Manston Airport to acquire the status of these airports it would need to demonstrate key elements of development, namely; commitments from key express players (DHL / UPS / FedEx / Amazon / Alibaba); an ability to operate night operations with few regulatory restrictions; and geographical advantages from nearby cities, industrial parks, and population centres.

We agree. These benchmark airports serve different roles, principally based around their selection by large integrators/distributors as main distribution hubs for large urban conurbations. These are simply not comparable to Manston and it would be misleading to believe otherwise.

[73] Ibid, Section 2.3.2.
[74] Ibid, Section 2.3.3.
[75] Ibid.
[76] Ibid, page 15.
[77] Alliance Fort Worth in Texas, USA, Hamilton Airport in Ontario, Canada, Bergamo in Italy, Liege in Belgium and Leipzig in Germany.

6.16 In relation to air freight forecasts, Avia again note RSP's reliance on our work for the Freight Transport Association. Again, Avia correctly interpret this work as being based on the assumption that *"freight growth is bellyhold focussed"* going on to note that our *"report also questions Boeing and Airbus' forecast growth rates, which are utilised in the long term growth forecast by Dr Dixon."*[78] Avia go on to note Northpoint's use of the 55,000 air cargo movements figure from our earlier work for Transport for London (2013) and cite Northpoint's claim that we asserted that Manston was the only realistic opportunity to accommodate this level of freighter movements if they were displaced. As we have discussed at length in Section 2, this is simply a misapplication of our 2013 work. Unsurprisingly, Avia could not find these figures in the 2015 report for the FTA.

6.17 Avia also highlight Northpoint's misinterpretation of the interaction between bellyhold and pure freighter demand. We agree with their conclusions in this regard, which explain why the market for more pure freighter operations to/from the UK is limited:

"AviaSolutions' experience in the freight industry is that many bellyhold operators can, when supply exceeds demand, reduce rates to such a level as to cover the marginal cost of freight plus a margin. The business is often operated as an addition to the passenger service, and therefore its real marginal costs are low. It is simply impossible for a freighter operator to reduce its rate to match this marginal cost and operate at profitably [SIC]*. Therefore, freighters tend to operate on thick routes where the economies of scale of a freighter operation can be realised. These routes are also curtailed by a non-related market, that of passenger demand. Where large scale passenger demand exists e.g. UK to USA, a residual effect of this is large scale freight capacity, which is unmatched to demand. The reverse can be seen on routes to the East, where passenger demand is less, but freight demand, particularly inbound to the UK, is high. As such, many freighters operate on these routings."*[79]

We agree that the extensive passenger based route network and the availability of bellyhold capacity limits the need for a substantial pure freighter operation to/from the UK, in contrast with other parts of the world where passenger air route networks are less developed. This is why global data on the demand for air freighters is simply not relevant in the UK context.

Northpoint

6.18 We have largely addressed key points of Northpoint's rebuttal of the original Aviasolutions work above on the basis of Avia's most recent report. We highlight here a few other key observations on Northpoint's *"The Shortcomings of the Avia Solutions Report and an Overview of RSP's Proposals for Airport Operation at Manston"* prepared for RSP.

6.19 As with Azimuth's work, the key criticism of this work is that it is based on assertion rather than evidence or systematic analysis of the potential market for Manston. As noted above, benchmark airports in the middle of Continental Europe or adjacent to major conurbations in the US and Canada do not provide robust examples of how Manston might develop given its geographic position. Northpoint set out that:

[78] Ibid, page 17.
[79] Ibid, Section 3.1.6.

"RSP's plans are centred on a developing a strategically important air cargo operation focused dedicated freighters importing and exporting a range of perishable and high-value/time-critical goods to markets in London and across the wider south-east." [80]

And that these operations would be supplemented by a *"modest"* passenger offering, a variety of business and general aviation activities as well as maintenance, repair, overhaul and aircraft dismantling activities. However, the report does not, itself set out how the scale of such activity could be assessed and whether it would, in combination, secure a viable operation.

6.20 In terms of forecasting the volume of air freight that Manston might secure, Northpoint make an unsubstantiated leap from noting the reasons why Heathrow is dominant in the market to asserting that the key determinant for pure freighter operations is the infrastructure provided at an airport and supply driven factors, noting that it is important that these latter are *"transparent"*[81]. We have already noted the lack of transparency in relation to the air cargo forecasts produced by Azimuth upon which RSP rely. Nor are the projections set out in Northpoint's Appendix A any more transparent in terms of how the estimated tonnage to be accommodated by freighter movements at Manston has been derived.

6.21 Although lacking transparency, it would appear that Northpoint, like Azimuth, have relied on Boeing's global forecasts for freight revenue tonne kilometres as a basis for projecting UK air cargo tonnage[82]. For the reasons set out in Section 2, this is inappropriate and will lead to a material overstatement of the overall market.

6.22 Like Azimuth, Northpoint see cross channel movement of air cargo as an opportunity for pure freighter operations at Manston[83] rather than simply the natural economic response to shortage of bellyhold capacity at Heathrow. Northpoint then seek to rely on our assessment of displaced tonnage equivalent to 55,000 annual movements by air cargo aircraft in 2050 from our 2013 work for TfL as corroborating evidence of Manston's potential[84]. This is to misrepresent the conclusions from this work, which indicated clearly that, in practice, there was unlikely to be a problem even if Heathrow did not get a third runway, albeit that there might be some additional trucking costs to make use of bellyhold capacity in Europe. This would still be cheaper for shippers than the alternative use of pure freighter aircraft from Manston or elsewhere. Furthermore, in assessing the scope for airports to accommodate more freighter aircraft[85], we do not agree with their assessment in respect of Stansted for the foreseeable future and Northpoint appear to ignore the main pure freight hub at East Midlands.

[80] Northpoint, *The Shortcomings of the Avia Solutions Report and an Overview of RSP's Proposals for Airport Operation at Manston*, paragraph 1.3.
[81] Ibid, paragraph 2.4.
[82] Ibid, paragraph 2.18.
[83] Ibid, paragraph 2.21.
[84] Ibid, paragraph 2.24.
[85] Ibid, paragraph 2.30.

6.23 In dismissing the potential for these other, established airports, Northpoint seek to highlight the constraining effect of night movement restrictions on air cargo operations. By inference, then, Northpoint appear to assume that Manston will not suffer from such restrictions so making it more attractive. This appears to be corroborated at Appendix A[86] where it is claimed that the presence of a logistics centre at Manston without significant night movement restrictions would be one of the attractions and a factor in the forecasts being attainable. However, it is our understanding that night movements will at best be limited to 8 per night and could be limited further if the promises of no night movements are upheld.

6.24 In relation to the potential in the aircraft maintenance and dismantling/recycling market[87], we note that these are activities being 'chased' by many airports. There is no analysis of competition nor of the likelihood of Manston capturing any of these activities in Northpoint's report. In any event, the level of activity generated by such activities is unlikely to make the difference between the Airport being viable or not.

6.25 Overall, Northpoint present no real evidence in its Conclusions[88] to substantiate why the operation at Manston could be viable. Its forecasts of cargo movement and passenger demand are no more transparent nor based on market analysis than those set out by Azimuth and do not justify why the RSP application would meet the tests set out in Section 23 of the Planning Act 2008. In general, we agree with Avia's conclusions regarding the robustness of this report.

[86] Ibid, Appendix A, A.8.
[87] Ibid, Section 4.
[88] Ibid, Section 5.

7 CONCLUSIONS

7.1 In this report, we have examined the case for RSP's proposed development at Manston Airport. Our overall assessment is that RSP have failed to provide their own evidence of the capability of Manston Airport and the amount by which their proposals would increase that capability by (all we have are forecasts which have no credibility as explained in this report). This results in glairing omissions in RSP's consultation material. This failure means that, in our opinion, the requirements in section 23 of the Planning Act 2008 (as amended) have not been satisfied. In essence, we would have expected RSP to be able to show:

- the capability of Manston Airport of providing air cargo transport services;
- the amount by which RSP is proposing to increase that capability by and thus the "new" capability; and
- a credible forecast for why that 'new' capability is required.

None of this information is provided by RSP.

7.2 RSP's case is principally based on circumstantial evidence presented in the Volumes I to IV of *Manston – A Regional and National Asset* prepared by Azimuth Associates. Much of the material upon which Azimuth seek to rely as the basis for the case for Manston relates to the economic costs to the UK if additional passenger hub capacity is not provided in the South East of England by 2050. This is not relevant to the specific question as to whether there would be sufficient demand for pure freighter aircraft movements to be operated to/from Manston in the foreseeable future.

7.3 The analysis presented by Azimuth shows a lack of understanding of the economics of the air freight market. This leads to a misinterpretation of work by ourselves, upon which Azimuth seek to rely to support their case. Just because there could be excess freight demand in 2050 in the absence of further runway capacity at the UK's main hub, it does not follow that displaced bellyhold freight will seek a more expensive pure freighter service from a relatively nearby airport over the use of available bellyhold capacity from a more distant airport which can be provided at a lower cost to the shipper with only marginal penalty in terms of time. Our previous work simply cannot be relied on to support RSP's case.

7.4 Fundamentally, Manston's past operation was economically inefficient due to the inherent lack of viability. Hence, reopening the Airport, in the face of a limited market, has the potential to damage the productivity of the UK aviation sector overall, particularly, as we have demonstrated in our own assessment of cargo demand for Manston in Section 3 that there are more economically efficient alternatives available for any freight displaced due to specific capacity constraints at Heathrow both now and in the future.

7.5 Whilst there may be a role for Manston, on the margin, providing some niche specialist air freight operations, the market for such services is small and often ad hoc, which will impact on the prospects for a viable operation of the Airport.

7.6 Manston is too peripheral for integrator operations serving the UK. Integrators have a strong preference for locations more centrally located in the UK with good road access to all of the major markets. The availability of land for warehouses, for example as suggested in terms of the use of the 'Northern Grasslands' part of the overall airport site, is far less important than a location central to the market and the availability of good road access, neither of which are characteristics of Manston. This would apply equally to the suggestion that Amazon might locate there or that the Airport could become a base for drone operations. It is simply in the wrong place to serve the market being in the far south east at the end of a peninsular, away from the main centres of population and distribution in the UK.

7.7 In the absence of hard market evidence of the need for Manston Airport, Azimuth undertook an interview survey to supplement the need case and inform the forecasts. However, the list of interviews was small, with few national players interviewed compared to a large number of local companies with something of a vested interest in seeing Manston re-opened. Even so, if anything, the views of those interviewed by Azimuth suggest that there would, at best, be a limited role for Manston. The one airline interviewed made clear that *"success at Manston depended upon identifying a niche market and becoming known for excellence. In particular, suggestions included a perishables centre, handling of live animals, easy access for charter flights, and handling cargo that is not necessarily straightforward"*. The scale of this opportunity was never quantified by Azimuth. It is clear, however, that the realistic expectation for Manston is for a small niche operation rather than as a general 'overspill' airport for London.

7.8 The outputs from these interviews are then used by Azimuth as a basis for postulating a number of cargo aircraft movements that might operate at Manston. However, it is simply not possible to relate the proposed services to be operated with the responses by the interviewees. There is a complete absence of any explanation for or justification of the services postulated. At the very least, there is a lack of transparency in the approach that needs to be explained so that consultees can understand the basis of what is proposed and to ascertain whether there is a credible forecast for why an increase in Manston's capability is required.

7.9 In our view, the Azimuth forecasts simply lack credibility. To illustrate this lack of credibility of the forecasts, in Year 2 (the first operational year), a cargo throughput of nearly 100,000 tonnes is forecast by Azimuth. This would make Manston the 5th largest freight airport in the UK in its first year after re-opening (compared to 2016 actual throughput at the other airports). This would place it close to the scale of freight operations at Manchester Airport, which includes a substantial amount of bellyhold freight. It would make Manston the 3rd busiest airport in the UK in terms of tonnage carried on dedicated freighter aircraft. This is simply not a credible proposition. This lack of credibility is important in reaching any decision under Section 23 of the Planning Act 2008 (as amended).

7.10 We have updated and further developed our analysis of the UK air freight market from than previously undertaken for TfL and the FTA, and upon which RSP seek to rely as corroboration of their own cargo movement forecasts. When properly interpreted, our forecasts of air freight demand and capacity across the UK as a whole, taking the role of bellyhold fully into account, show that there is plenty of freighter capacity at Stansted and East Midlands to the extent that there is a need for more pure freighter capacity. Overall, we conclude from this analysis that there will be no shortage of freighter capacity in the UK before 2040 (RSP's forecast assessment year) and that overspill from other airports would not provide a rationale for re-opening Manston.

7.11 Our initial assessment of the passenger market is that the throughput might, at best, be around half of that projected by RSP and, hence, given the dependence on passenger related income for the financial viability of airport operations, this will impact substantially on the viability of the proposal. The other activities suggested by RSP, such as business aviation, maintenance, repair and overhaul, and aircraft dismantling are highly competitive markets and, to the extent that Manston might attract any such operations, this are unlikely to contribute substantially to the overall viability of the Airport.

7.12 The existing infrastructure at Manston Airport, if made good, is capable of handling 21,000 annual air cargo aircraft movements[89]. The actual usage of that capability would depend on the pattern of operation and how the infrastructure was used on a day by day basis. Our assessment, therefore, provides essential missing information from RSP's materials to date which is necessary for the purposes of Section 23 of the Planning Act 2008 (as amended), for assessment purposes under the Environmental Impact Assessment Regulations and for consultation purposes.

7.13 Without prejudice to our view that demand to use Manston is not likely to be anything like 17,171 cargo aircraft movements a year, we have considered that the land required to accommodate such a number of movements. Our assessment is that the land required would be substantially less than shown on the RSP Master Plan and that the proposed land take is excessive and without justification in terms of the compulsory acquisition of the land. Any development required to handle 17,171 annual movements by air cargo aircraft can all be accommodated to the south of the B2050 and, even allowing for passenger operations and other activities, would not require all of the airfield land to the south of the road. Obviously, on the basis of more realistic forecasts of future demand, the area required to support the ongoing operation of the Airport would be materially smaller.

7.14 We can see no justification for the inclusion of the 'Northern Grasslands' within the DCO on the basis of it being for associated development as there will be little or no requirement for the relocation of freight forwarding activity from adjacent to the UK's main cargo hub at Heathrow to Manston and any requirement to support Manston operations could be accommodated south of the B2050. The development on the 'Northern Grasslands' site appears to be speculative commercial development which, based on the precedent at East Midlands Airport – the UK's principal airport for pure freighter operations – would be expected to be largely for non-aviation related uses.

[89] Based on an 18-hour operational day. Should a night time noise policy be agreed with Thanet District Council pursuant to the existing planning agreement that enabled a longer operational day and/or a number of scheduled night movements, then the capability could, in theory, be higher than 21,000 annual cargo aircraft movements.

7.15 In terms of the socio-economic implications of the proposed development, Azimuth has shown a lack of understanding of how such impacts should properly be calculated. Leaving aside the use of inappropriate multipliers, the impacts have been assessed at a national scale and should have taken displacement of activity from other airports fully into account, reducing the impacts below those stated. Furthermore, the assessment should have considered the impact on alternative uses of the site, including SHP's proposed mixed use development and the socio-economic benefits deriving therefrom. We have set out a more realistic and robust assessment, which shows that the local impacts within Kent, even on Azimuth's forecasts would be substantially less than claimed and it is these lower order effects which would need to be balanced with the environmental and impacts in assessing the acceptability of the proposed development.

7.16 Unsurprisingly, the socio-economic impacts associated with the Airport are reduced even further on the basis of more realistic forecasts of likely usage if it re-opened. The operation is simply of a much smaller scale. In Year 2, in generates 452 jobs, only 17% of the Azimuth estimate of 2,654. By Year 20, the differential is even larger, with the Azimuth estimates reaching over 30,000 jobs, but with our estimates at only just over 1,000.

7.17 Once again, the evidence presented by Azimuth on behalf of RSP cannot be relied upon. It is infected with the flaws in the traffic forecasting methodology identified previously but the approach to identifying socio-economic impacts is, in itself, badly flawed. The socio-economic impacts are, as a result, massively overstated. In any event, these benefits would not be realised if the Airport ceases operation again due to it not being commercially viable.

7.18 As well as the Azimuth reports which form the basis of RSP's case, we have also reviewed a number of other reports on the potential for Manston. In overall terms, we agree with Aviasolutions for Thanet District Council that there is little realistic prospect of the re-opening of Manston Airport being a commercially viable proposition. We have reviewed their original report and the more recent reports and concur with their views on the overall structure of the UK air cargo market, noting that they, unlike Azimuth, have correctly understood the implications of our 2015 work for the FTA. We do not accept Northpoint's rebuttal of the Aviasolutions work. Like Azimuth, Northpoint's work is largely aspirational without any robust evidence or analysis of the market. Northpoint, too, misinterpret our previous work for the FTA and TfL.

7.19 **In overall terms, then, we do not consider that the case for the development of Manston Airport has been robustly substantiated. In any event, the capability of the existing infrastructure at the Airport, once made good in line with existing planning consents, is at least 21,000 annual air transport movements by air cargo aircraft. This means that, in practice, RSP are seeking permission to increase the number of cargo air transport movements that Manston Airport is capable of handling from 21,000 to at least 31,000 a year, well beyond the level assessed in the PEIR. Indeed, RSP's consultation material does not provide any detail as to what the increase in capability would be as a result of its proposals (i.e. the increase in capability as a result of its proposed alteration to Manston Airport). As a minimum, the increase in capability would be to 31,000 annual air transport movements by cargo aircraft, but in our view their proposals would result in a significantly higher 'new' capability which is not revealed or assessed by RSP.**

APPENDIX A

York Aviation

Transport for London

Note on Freight Connectivity

1. This note explains the approach taken to estimating the number of pure freighter air transport movements at the London airports in 2050 under three different scenarios of capacity growth:

   - ✈ Maximum use of existing capacity;
   - ✈ 2+2+2 – additional runways at each of Gatwick and Stansted;
   - ✈ New 4 runway hub.

2. The number of additional freighter movements required depends on the volume of passenger flights providing bellyhold capacity under the different scenarios. Under the constrained Max Use scenario, 48,000 pure freighter movements could be required, up from 14,000 at the London airports today. As there would be no spare runway capacity at the main London airports, this capacity would need to be provided from smaller airports serving the London area or from regional airports, with loss of economies of scale and producer efficiency, or through trucking to alternative hubs in Europe with implications for speed of transit.

3. With the provision of additional runways, increased bellyhold capacity reduces the number of additional freighter movements required to 28,000 and 21,000 respectively under the 2+2+2 and 4 runway hub scenarios. In both cases, we believe there will be sufficient runway capacity available to accommodate these freighter movements, albeit the 2+2+2 scenario will still result in dispersal of air freight capacity across a range of airports with the consequent loss of economies of scale and efficiency which could be attained at a single hub.

Freight Volumes

4. In 2012, the London airports handled 1,805,761 tonnes of freight[1]. Only 17% of this freight was flown on pure freighter aircraft. 83% was flown in the bellyhold of passenger aircraft. This may be as a result of limited capacity for freighter operations at Heathrow, where the bulk of air freight consolidation activity is concentrated. However, it may equally reflect the scale of bellyhold capacity offered at Heathrow, which reduces the need for pure freighter capacity to serve the London market as a whole.

5. Using data from ACI EUROPE[2], the volume of freight flown from the London airports is compared with that flown from other key European cities in Table 1.

[1] CAA Airport Statistics.
[2] The small discrepancy to CAA Statistics is noted but it is not considered to be material. The * against Hahn indicates estimated freight taken from airport's own website.

Table 1

	Tonnes
Heathrow	1,464,596
Gatwick	97,565
Stansted	214,904
Luton	29,637
London	**1,806,702**
Paris CDG	1,935,180
Paris Orly	94,700
Paris	**2,029,880**
Frankfurt	1,986,180
Frankfurt Hahn*	223,000
Frankfurt	**2,209,180**
Amsterdam	1,483,450
Milan MXP	405,858
Milan LIN	15,513
Milan BGY	116,733
Milan	**421,371**
Brussels	394,870
Luxembourg	614,906
Madrid	359,360
Zurich	281,683
Vienna	178,128
Dublin	102,717
Lisbon	90,264
Helsinki	176,987

6. There is no clear evidence that London is currently disadvantaged in terms of air freight capacity as the majority of freight is flown from Heathrow in the bellyhold of passenger aircraft rather than in pure freighter aircraft. To the extent that there is a need for freighter capacity, it can be provided at Stansted where there is ample spare capacity for additional movements and areas are set aside to increase aircraft parking and freight handling facilities if required. Although it is possible that limitations on bellyhold capacity at Heathrow may force greater trucking of freight to Europe, this is not evident from a comparison of overall air freight carried compared to other major European countries. In any event, the fact that freight is trucked rather than flown to Europe may have only a marginal impact on total transit times and, hence, limited economic detriment.

7. As well as the main city airports, there are a number of other specialist freight airports in both the UK and western Europe. Those handling over 75,000 tonnes in 2012 are shown in Table 2.

Table 2

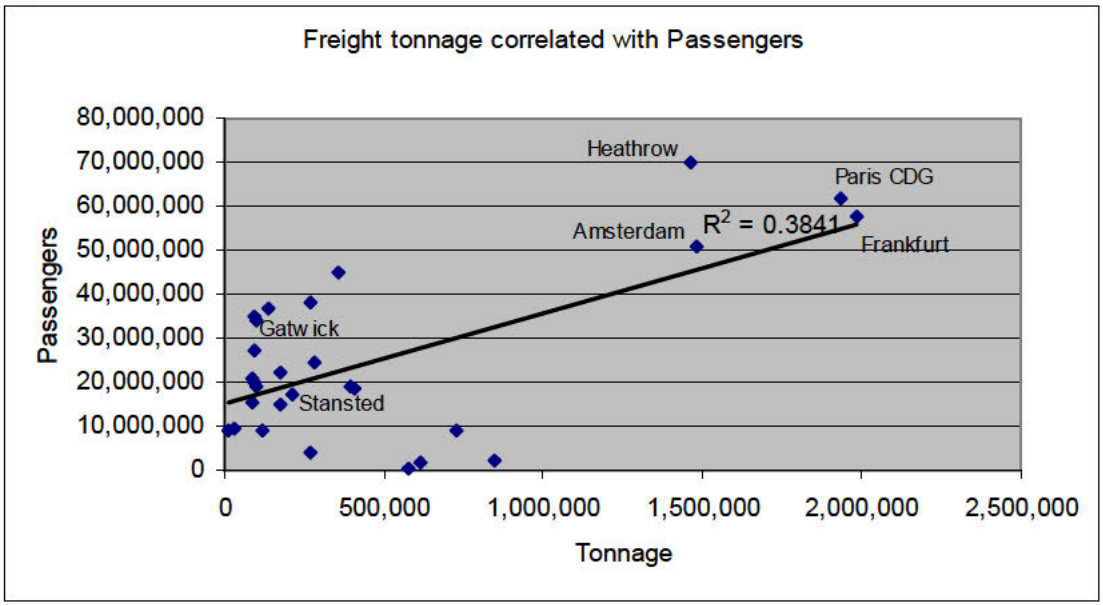
	Tonnes
Manchester	97,215
East Midlands	267,350
Cologne	730,040
Munich	272,203
Dusseldorf	86,729
Leipzig	846,086
Rome	135,777
Liege	577,226

8. Overall, on the basis of substantial air freight flows recorded by ACI EUROPE, the UK handled around 2.2 million tonnes of flown freight, France a similar amount, Italy around 600,000 tonnes and Spain around 500,000 tonnes. This does not suggest that the UK is disadvantaged in terms of freighter capacity overall currently.

9. However, the role of the low countries and Germany in acting as the major freight centre in western Europe is noticeable. In total, the main German freight airports handled almost 4.2 million tonnes of freight in 2012 which, when combined with the Netherlands and Benelux countries, amounted to 7.2 million tonnes of air freight flown. These airports have developed major and specialist air freight roles, with freight being trucked from all over Europe to feed these freight hubs. The integration of trucking with air freight should not be overlooked, even within the UK. In practice, it is unlikely that the UK could replicate this role, even with unconstrained airport capacity, due to its island location on the western edge of Europe.

10. There is some correlation between air freight flown to/from an airport and passengers carried as shown in Figure 1 below but this relates in large part to belly hold capacity. Figure 1 shows the correlation between flown freight and passengers across 29 European airports in 2012 as recorded by ACI EUROPE and which were either major airports in terms of freight handled or secondary airports serving the same cities.

Figure 1



Freighter Operations

11. The pattern of freighter operations is complex. As well as air freight carried in the bellyhold of passenger aircraft, there are freight charters for specialist and ad hoc consignments and large numbers of flights by the integrators (DHL, Fedex, UPS) etc. Obtaining detailed timetable information for freight operations is not possible as most do not publish timetables. Only scheduled freighter operations are shown in OAG and there is some uncertainty over whether this data is comprehensive.

12. Using OAG data for the week of 17th June 2013, the London airports have 49 scheduled freighter departures (98 freighter movements). According to CAA statistics for 2012, there were just over 14,000 freighter aircraft movements at the London airports or around 270 per week. This suggests that the OAG recorded movements account for only around 37% of total freighter aircraft movements to/from the London airports.

13. Similar data has been extracted for other western European airports. The table in Appendix A summarises the main pattern of freighter departures at airports with more than 30 freighter departures per week. This table also includes the principal UK freight airports and secondary airports serving major cities which in combination had more than 30 scheduled freighter departures per week in June 2013.

14. The number of scheduled freighter departures at the main freight airports is summarised in Table 3 along with the freight tonnage handled and passengers carried. It is evident that there is no clear correlation between freight tonnage handled and the weekly number of scheduled departures. This is illustrated in Figure 2. Amsterdam and Frankfurt have a high number of scheduled movements relative to the total volume of air freight whilst Paris and Heathrow handle similar volumes of air freight but with significantly fewer scheduled movements. We believe that the principal reason for these differences is in the relative importance of bellyhold freight but also the extent to which integrator activity is present; for example Fedex has its principal European hub in Paris and its movements are not recorded in OAG.

Figure 2

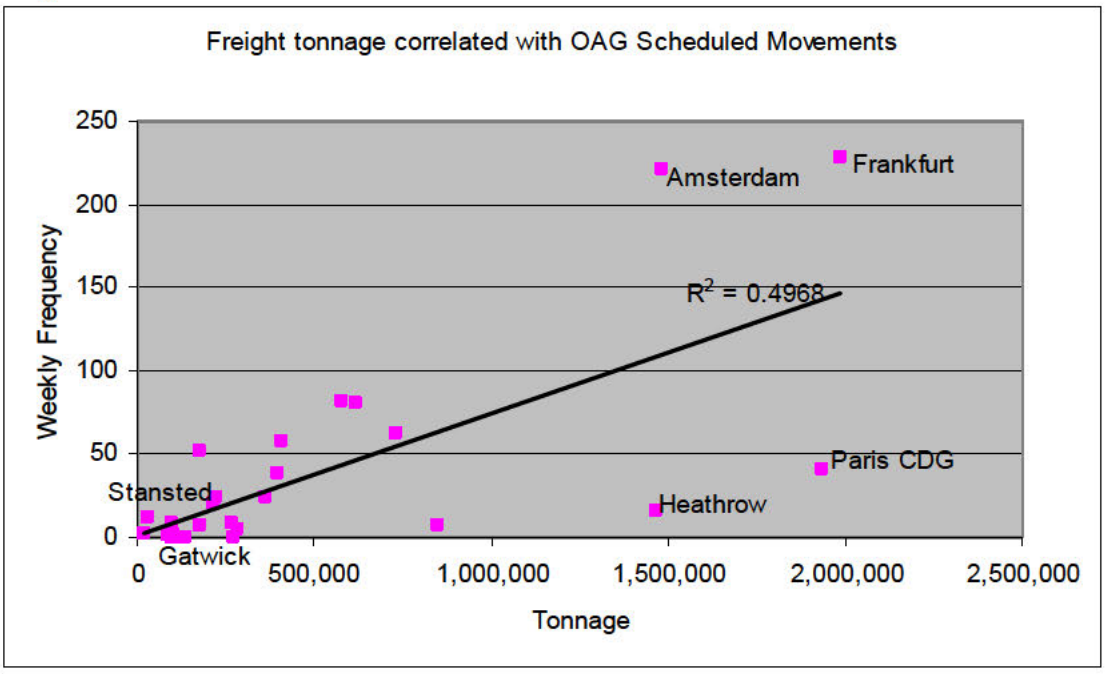


Table 3

	Freight tonnes	Pax	2013 wk freighters
Heathrow	1,464,596	70,038,804	16
Gatwick	97,565	34,222,405	0
Stansted	214,904	17,463,794	21
Luton	29,637	9,630,128	12
Manchester	97,215	19,841,747	8
East Midlands	267,350	4,086,849	9
Paris CDG	1,935,180	61,611,934	41
Paris Orly	94,700	27,232,263	0
Frankfurt	1,986,180	57,520,001	228
Frankfurt Hahn*	223,000		24
Cologne	730,040	9,280,070	62
Munich	272,203	38,360,604	0
Dusseldorf	86,729	20,833,246	1
Leipzig	846,086	2,279,221	7
Amsterdam	1,483,450	51,035,590	221
Milan MXP	405,858	18,522,760	58
Milan LIN	15,513	9,176,997	3
Milan BGY	116,733	8,888,017	0
Rome	135,777	36,980,161	0
Brussels	394,870	18,943,688	38
Liege	577,226	300,813	82
Luxembourg	614,906	1,912,806	81
Madrid	359,360	45,175,501	24
Barcelona	96,519	35,131,771	2
Zurich	281,683	24,751,649	5
Vienna	178,128	22,165,650	52
Dublin	102,717	19,096,572	1
Lisbon	90,264	15,301,236	1
Helsinki	176,987	14,859,981	7

*2011 data from airport website

15. Examination of the detailed information set out in Appendix A also shows how complex the pattern of freighter operations actually is. Few freighters, particularly those serving markets beyond Europe, operate on a strict point to point basis. Many transit more than one of the main European freight airports and a number of points overseas. Examination of arriving freighter patterns also reveals that the inbound pattern does not necessarily mirror the outbound pattern. Hence, there is already considerable flexibility to add new points if the market warrants.

16. Some freighters operate simple round trips. Others operate on a triangular basis, e.g. Lufthansa operating Frankfurt-Dallas-Detroit-Dallas-Manchester-Frankfurt. Inbound freight from the US to Manchester will be flown direct but outbound freight will transit Frankfurt. Other freighters operate effectively round the world journeys, e.g. British Airways operating Chicago-Houston-Stansted-Dammam-Dubai-Shanghai.

17. There is simply no way of knowing how much of the freight capacity on such aircraft is assigned to or used by freight originating in or destined for any airport, which may vary day by day. Freighter departures are, hence, not a reliable proxy for how much air freight capacity is available to uplift goods to and from any country or city.

18. Overall, our analysis of current freighter operations suggests that it is hard to distinguish a relationship between freighter movements and tonnage of freight carried.

19. Nor is it evident that the UK air freight capability is adversely affected today by shortage of capacity at Heathrow. There is ample spare airport capacity at Stansted for pure freight aircraft to the extent that there is demand for such aircraft operations given the amount of bellyhold capacity available at Heathrow. The volume of freight uplifted probably reasonably reflects the UK market, allowing for transit freight, and the limitations of the UK acting as a hub for freight trucked from continental Europe based on its geographic position. The principal issue is one of producer efficiency as a consequence of splitting locations, with the bulk of freight forwarding/consolidator activity being located around Heathrow and freight needing to be trucked to Stansted, Luton, or continental hubs. Whilst concentrating all freight activity at the main hub might make additional freighter flights viable by facilitating onward connections between bellyhold freight and pure freight operations, it is not clear the extent to which this would result in higher volumes of air freight being carried to/from the UK (as distinct from transit freight) as the UK does not appear to be significantly underperforming in aggregate terms compared to countries such as France, Spain or Italy.

Predicting Future Freighter Operations

20. In order to predict the volume of freighter activity in future at the London airports, we have developed a simple spreadsheet as set out in Table 4.

21. We have first projected forward total flown freight demand to and from London[3] on the assumption that it grows in line with overall passenger demand growth at 2.1% per annum in the absence of any specific forecasts of freight tonnage from DfT. We note that the DfT 2013 forecasts only give information for expected growth in pure freighter movements at 0.4% per annum but the basis of this is not clearly stated. Prima facie, this appears to understate unconstrained demand for pure freighter movements over the period to 2050.

22. In contrast, OE have identified that the expected average freight growth to and from Europe would be in the range 3.37% (Boeing) to 3.99% (Airbus). However, this would lead to substantially higher estimates of freight tonnage growth than passenger growth. Recent trends would suggest this to be unlikely so we have adopted the more cautious approach of using the same underlying growth as for passengers.

23. We have then estimated the bellyhold capacity offered at the London airports in 2050 based on the current average tonnage carried per international movement in 2012 at Heathrow, including both EU and non-EU flights, based on CAA Airport Statistics assuming average tonnes per movement increase by 0.5% per annum. This allows us to estimate the residual volume of freight under each scenario which would need to be accommodated on pure freighter aircraft.

[3] This is a simplifying assumption as it assumes the same proportion of UK regional air freight is trucked to London for uplift and the same proportion of freight is trucked to the continental freight hubs. On balance, this is likely to be a neutral assumption for the situation of unconstrained hub capacity as the proportion of regional freight flying direct from major regional airports might be expected to increase, particularly as more long haul flights develop, whilst the proportion being trucked from London to Europe might be expected to decrease with unrestricted capacity available.

Table 4

	2012	2050 Max Use	2050 2x2x2	2050 New Hub
Freighters 2012	14,123			
Freight in Freighters	310,022			
Total Freight	1,805,761	3,977,759	3,977,759	3,977,759
Tonnes per freighter	21.17	25.59	25.59	25.59
Tonnes per international bellyhold movement London	1.76	2.13	2.13	2.13
Forecast International Movements	834,725	1,051,034	1,298,981	1,375,452
Bellyhold Capacity	1,469,116	2,235,836	2,763,285	2,925,960
Freighter tonnage required		1,741,923	1,214,474	1,051,799
Freighter movement		68,077	47,463	41,106
Additional Freighters Required		53,954	33,340	26,983

24. We estimate that the number of freighters required to accommodate projected air freight demand would rise from 14,000 in 2012 to around 41,000 in the New Hub case, 47,000 in the 2+2+2 case and 68,000 in the Max Use case. In both the New Hub case and 2+2+2 case, we estimate there will be sufficient runway capacity available to accommodate these movements at 2050, at the New Hub and/or Stansted respectively. However, in the Max Use case, the London airports will, by definition, be full with passenger aircraft movements. Whilst we believe there will still be a small number of pure freighter operations accommodated in off-peak periods (as today at Heathrow), the number of freighter operations will be constrained.

25. It is reasonable to assume that around 14,000 freighters a year could still be accommodated in the vicinity of London by using capacity at airports such as Manston, which already handles some long haul freighters. However, capacity equivalent to an additional 54,000 freighter movements per year could be required to ensure demand is met, although this could be mitigated to an extent if the freighter capacity was prioritised for freight to and from the UK with less transit freight.

26. A key question is the extent to which such freighter capacity would be provided at airports such as East Midlands, Manchester and Birmingham. This could serve to reduce trucking movements from the regions to London, as take place today, with environmental benefits but it would reduce producer efficiency through split operations. In the absence of detailed data regarding freight trucking movements today, it is difficult to determine whether this would have positive or negative impacts overall..

27. In terms of the specific destinations of future freighter movements, our analysis of the existing patterns of service reveals the difficulty of defining market demand and aircraft routings. We do not believe it is sensible to attempt to determine the future geographic split by destination in either the constrained or unconstrained cases as a single freighter may serve a variety or markets as necessary. In the constrained case, it is likely that more freight would be trucked to the continental hubs as well as to UK regional points, which would potential add to shipment costs.

Conclusions

28. Overall, we have made a best estimate of the number of freighter aircraft movements likely to be using the London airports (or near London airports) under each of the capacity scenarios. These are as follows:

- ✈ Maximum use of existing capacity 14,000
- ✈ 2+2+2 – additional runways at each of Gatwick and Stansted 33,000
- ✈ New 4 runway hub 27,000

29. In the latter two cases, our assessment is that, across both bellyhold capacity and pure freighter activity, there would be sufficient capacity to meet expected demand for air freight to and from the UK. Our estimates for additional freighter capacity are substantially above those made by DfT. Hence, to the extent that our baseline is understated (although we do not believe this to be substantial) due to the current patterns of trucking freight to the continent, this will offset any overstatement as a consequence of assuming higher growth than DfT and by reductions in the amount of trucking to London from regional airports due to expected growth in their own freighter operations over the period to 2050.

30. The key difference between these two scenarios would be in terms of the efficiencies and economies of scale gained by the industry arising from the concentration of freight activity at a single hub. In both cases, the overall volume of air freight to and from the UK is expected to be broadly the same, although the actual freight carried including transit freight would be higher in the hub case. However, under the new hub scenario, savings from greater efficiency may be passed onto users, so reducing shipping costs and facilitating trade leading to higher freight volumes, but it is beyond the scope of the current exercise to assess this.

31. In the constrained, max use, case, there would be severe limitations of pure freighter movements at the London airports, which could amount to around 26% of the required air freight capacity to/from London. The extent to which this would act as a limitation on overall air freight volumes would depend on the extent to which the freight is still carried from regional airports or by truck. Clearly this would impact on the cost/efficiency of shipment, which in turn could impact on freight volumes carried. Again, it is outside the scope of the current exercise to assess these effects.

32. Overall, in assessing the economic value for air freight between the scenarios, the main difference is likely to lie in producer costs passed through to users and the impact that would have on business costs and hence output/freight generated. It would not be safe to assume that the reduction in cargo ATMs at the London airports necessarily translates to lost shipment value in its entirety.

23 May 2013

Appendix A

				Total Airport	Total City	Total Country
Heathrow	Amman	1				
	Amsterdam	1				
	Amsterdam	1	onwards to Sharjah and Singapore			
	Brussels	1				
	Copenhagen	1				
	Copenhagen	1	onwards to Sharjah and Singapore			
	Dubai	1				
	Frankfurt	1				
	Leipzig	1				
	Lisbon	1				
	Milan	1				
	Milan	2	onwards to Hong Kong			
	Paris	1	onwards to Delhi and Hong Kong			
	Seoul	2		16	49	71
Stansted	Amsterdam	1	originates in Bogota, Puerto Rico			
	Amsterdam	2	originates in Miami, Buenos Aires, Bogota and Puerto Rico			
	Cologne	1	onwards to Madrid and Johnannesburg			
	Cologne	1	onwards to Tbilisi			
	Cologne	1	onwards to Tbilisi and Delhi			
	Dammam	1	originates in Chicago and Houston, onwards to Dubai and Shanghai			
	Dubai	1	onwards to Hong Kong			
	Frankfurt	1	originates in Chicago and Atlanta, onwards to Shanghai			
	Frankfurt	2	onwards to			
	Frankfurt	1	Chicago			
	Frankfurt	1	onwards to Hong Kong			
	Frankfurt	2	originates in Seoul and Moscow			
	Frankfurt	1	originates in Atlanta, onwards to Delhi and Hong Kong			

	Frankfurt	2	originates in Moscow, onwards to Seoul			
	Luxembourg	2	originates in Hanoi and Hong Kong			
	Zaragoza	1	onwards to Bahrain and Hong Kong	21	49	71
London Luton	Frankfurt	3				
	Istanbul	1				
	Istanbul	2	originates in Paris			
	Istanbul	2	originates in Cologne			
	Milan	4		12	49	71
Manchester	Amsterdam	1	onwards to Dubai and Hong Kong			
	Brussels	1	onwards to Dubai and Hong Kong			
	Dubai	1	originates in Amsterdam, onwards to Hong Kong			
	Frankfurt	2	originates in Detroit and Dallas			
	Frankfurt	1	onwards to Dubai and Hong Kong			
	Frankfurt	1	originates in Toronto and Houston			
	Milan	1	onwards to Hong Kong	8	8	71
East Midlands	Frankfurt	1				
	Keflavik	2	originates in Liege			
	Keflavik	2				
	Liege	2	originates in Keflavik			
	Paris	1		8	8	71
Prestwick	Los Angeles	1	originates in Luxembourg, onwards to Seattle			
	Luxembourg	1	originates in New York and Houston			
	Luxembourg	1	orginates in Los Angeles and Seattle			
	Paris	2	originates in Chicago			
	Seattle	1	orginates in Luxembourg, onwards to Calgary	6	6	71
Amsterdam	Abu Dhabi	4				
	Abu Dhabi	1	onwards to Taipei			
	Almaty	2	onwards to Hong Kong, Delhi, Sharjah			
	Bahrain	1	onwards to Mongolia, Hong Kong, Chennai			
	Baku	2	onwards to Kuala Lumpur			

	Bangalore	1	onwards to Singapore
	Beijing	7	
	Beirut	2	
	Budapest	2	onwards to Moscow
	Chengdu	4	
	Chennai	1	originates Nairobi, onwards to Singapore
	Chennai	1	originates in Chicago and Atlanta, onwards to Singapore
	Chicago	2	originates in Doha
	Chicago	7	
	Chongqing	2	onwards to Shanghai
	Copenhagen	1	originates in Nairobi, onwards to Sharjah and Singapore
	Copenhagen	2	onwards to Sharjah and Singapore
	Curitiba (Br)	1	onwards to Sao Paulo
	Dacca	1	originates in Nairobi, onwards to Singapore
	Doha	1	originates in Chicago
	Doha	3	
	Dubai	2	
	Dubai	1	originates in Eldoret and Nairobi
	Dubai	1	originates in Nairobi
	Dubain	1	originates in Manchester, onwards to Hong Kong
	Entebbe	1	onwards to Nairobi
	Frankfurt	1	originates in Hong Kong
	Frankfurt	1	onwards to Mumbai and Hong Kong
	Gothenburg	3	onwards to Dubai
	Guangzhou	5	
	Harare	3	onwards to Nairobi
	Heathroiw	1	
	Hong Kong	7	
	Houston	7	

	Jeddah	2	
	Johannesburg	1	onwards to Dar-Es-Salaam and Nairobi
	Khartoum	2	onwards to Nairobi
	Kigali	1	onwards to Nairobi
	Kuala Lumpur	1	
	Los Angeles	4	
	Luxembourg	1	originates in Libreville, Brazzaville, Nairobi
	Manchester	1	onwards to Dubai and Hong Kong
	Mexico City	7	
	Miami	2	onwards to Buenos Aires, Bogota, Puerto Rico and Stansted
	Miami	1	onwards to Buenos Aires, Quito and Guayaquil
	Miami	2	onwards to Santiago, Quito, Bogota and Puerto Rico
	Miami	2	onwards to Santiago, Quitoand Guayaquil
	Milan	3	originates in Tokyo
	Milan	2	onwards to Moscow
	Milan	4	onwards to Tokyo
	Mongolia	2	onwards to Hong Kong and Chennai
	Moscow	2	
	Moscow	2	onwards to Shanghai
	Nairobi	1	
	New York	3	orginates in Bahrain
	New York	1	originates in Bahrain
	New York	7	
	Paris	1	onwards to Mumbai and Hong Kong
	Puerto Rico	1	onwards to Bogota
	Puerto Rico	2	onwards to Quito
	Riyadh	1	
	Riyadh	2	onwards to Sharjah, Singapore and Kuala Lumpur

	Santiago	1				
	Sao Paulo	2	onwards to Buenos Aires and Santiago			
	Sao Paulo	1	onwards to Curitiba and Santiago			
	Seattle	1				
	Seoul	7				
	Shanghai	21				
	Sharjah	1	originates in Heathrow, onwards to Singapore			
	Sharjah	2	onwards to Guangzhou			
	Sharjah	1	onwards to Muscat and Hong Kong			
	Stockholm	2	originates in Seoul			
	Stockholm	4	onwards to Seoul			
	Taipei	1				
	Tel Aviv	1				
	Tenerife	1	onwards to Sao Paulo, Quito and Bogota			
	Tenerife	3	onwards to Sao Paulo, Quito and Guayaquil			
	Tianjin	15	onwards to Shanghai			
	Tokyo	1	originates in Frankfurt Hahn			
	Tokyo	5				
	Toronto	4				
	Tripoli	1				
	Vienna	3	onwards to Shanghai	221	221	221
Brussels	Amman	1	onwards to Jeddah			
	Chennai	1	originates in Los Angeles and Dallas, onwards to Singapore			
	Dammam	1				
	Dubai	3	originates in New York			
	Dubai	1	originates in Frankfurt, onwards to Hong Kong			
	Dubai	1	originates in Manchester, onwards to Hong Kong			
	Heathrow	1				
	Istanbul	1	originates in Jeddah			
	Kolkata	1	originates in Los Angeles, onwards to Singapore			
	Milan	2	originates in Riyadh			

	Milan	1	originates in Jeddah			
	Mumbai	1	orginates in Los Angeles and Chicago, onwards to Singapore			
	New Guinea	1	onwards to Seoul			
	New York	1	originates in Jeddah			
	New York	1	originates in Jeddah, onwards to Houston			
	New York	6	originates in Dubai			
	Riyadh	1				
	Riyadh	1	onwards to Jeddah			
	Seoul	1	orginates in New York			
	Seoul	2	originates in New York			
	Sharjah	2	originates in Dallas, onwards to Singapore			
	Sharjah	1	originates in Chicago and Dallas, onwards to Singapore			
	Taipei	1				
	Tianjin	1	onwards to Seoul			
	Vienna	2	originates in Riyadh	36	36	118
Liege	Accra	2	onwards to Lagos and Addis Ababa			
	Addis Ababa	5				
	Bahrain	11	originates in New York			
	Bucharest	1	onwards to Tel Aviv			
	Dubai	12	onwards to Hong Kong			
	East Midlands	4	onwards to Keflavik			
	Entebbe	1				
	Istanbul	5				
	Keflavik	4				
	Keflavik	1	onwards to New York			
	Lagos	2	onwards to Addis Ababa			
	Lagos	1	onwards to Ougadougou			
	Lagos	1	onwards to Port Harcourt			

	Lome	2	onwards to Congo, Addis Ababa			
	Luxembourg	1	originates in Tel Aviv			
	New York	1	originates in Tel Aviv			
	New York	2				
	New York	5				
	Ougadougou	1	onwards to Congo			
	Shanghai	1				
	Shanghai	2				
	Siauliai Lithuania	1				
	Singapore	1				
	Tel Aviv	3	originates in New York			
	Tel Aviv	1	originates in Chicago			
	Tel Aviv	6				
	Vienna	5		82	82	118
Luxembourg	Abidjan	1	onwards to Accra			
	Abu Dhabi	1	onwards to Taipei			
	Almaty	1	onwards to Hong Kong			
	Atlanta	1	onwards to Atlanta			
	Atlanta	1	Chicago			
	Atlanta	2	originates in Doha, onwards to Houston			
	Baku	1	onwards to Almaty and Shanghai			
	Baku	1	onwards to Hong Kong			
	Baku	4	onwards to Shanghai			
	Baku	1	onwards to Singapore and Hong Kong			
	Baku	1	onwards to Singapore and Kuala Lumpur			
	Baku	2	onwards to Taipei and Bangkok			
	Beijing	1	onwards to Xiamen			
	Beirut	1	onwards to Amman and Hong Kong			

			onwards to Amman and
	Beirut	1	Istanbul
	Chicago	1	onwards to Atlanta
	Chicago	1	onwards to Los Angeles
	Congo	1	originates in Liege, onwards to Addis Ababa
	Dallas	1	
	Dammam	1	onwards to Saigon and Hong Kong
	Doha	1	onwards to Hanoi and Hong Kong
	Doha	1	onwards to Singapore and Kuala Lumpur
	Doha	1	originates in Houston
	Doha	1	originates in Chicago
	Dubai	1	onwards to Bangkok and Hong Kong
	Dubai	1	onwards to Hong Kong
	Frankfurt Hahn	3	originates in Shanghai
	Indianapolis	1	onwards to Chicago
	Indianapolis	1	onwards to Los Angeles, Calgary
	Johannesburg	3	
	Komatsu	2	onwards to Seoul
	Kuwait	2	onwards to Hanoi and Hong Kong
	Lagos	1	onwards to Port Harcourt and Kinshasa
	Libreville	1	onwards to Brazzaville
	Libreville	1	onwards to Kinshasa
	Los Angeles	1	onwards to Seattle
	Los Angeles	1	
	Mexico City	1	
	Mexico City	1	onwards to Guadalajara
	Miami	2	onwards to Houston
	Milan	1	onwards to New York and Chicago
	Milan	4	

	Ndjamena	1	onwards to Lagos			
	New York	1	originates in Tel Aviv			
	New York	1	orginates in Tel Aviv, onwards to Chicago			
	New York	1	onwards to Atlanta			
	New York	1	onwards to Houston			
	New York	1	onwards to Mexico City and Guadalajara			
	Prague	2	originates in Chengdu			
	Prestwick	1	onwards to Los Angeles and Seattle			
	Prestwick	1	onwards to Seattle and Calgary			
	Riyadh	1	onwards to Dammam and Hong Kong			
	Sao Paulo	1				
	Sao Paulo	2	onwards to Curitiba			
	Sao Paulo	1	onwards to Manaus			
	Seoul	1				
	Sharjah	1	onwards to Karachi			
	Singapore	1	onwards to Kuala Lumpur			
	Taipei	2				
	Tbilisi	2	onwards to Baku and Shanghai			
	Yerevan	1		80	80	80
Paris	Beirut	1				
	Cairo	1	onwards to Reunion			
	Chicago	5				
	Cologne	2	onwards to Istanbul			
	Delhi	1	originates in Heathrow, onwards to Hong Kong			
	Djibouti	1	onwards to Reunion			
	Hannover	4				

	Heathrow	1				
	Istanbul	1				
	London Luton	2	onwards to Istanbul			
	Mexico City	6				
	Milan	1	onwards to Delhi and Hong Kong			
	Mumbai	2	onwards to Hong Kong			
	Mumbai	1	originates in Amsterdam, onwards to Hong Kong			
	New York	1	onwards to Chicago			
	Niamey	1	onwards to Ouagadougou and Bamako			
	Njamena	1	onwards to Bangui, Brazzavile and Port Harcourt			
	Porto	1	onwards to Mexico City			
	Seoul	2				
	Shanghai	2	originates in Copenhagen			
	Shanghai	2				
	Tokyo	2		41	41	41
Cologne	Basle	4				
	Berlin	5				
	Bucharest	4				
	Bucharest	2				
	Istanbul	2	originates in Paris			
	Istanbul	2				
	Katowice	4				
	Keflavik	5				
	Ljubljana	4				
	Ljubljana	1	onwards to Zagreb			
	London Luton	2	originates in Istanbul			
	London Luton	2	onwards to Istanbul			
	Madrid	1	originates in Stansted			
	Prague	5				
	Sofia	1				
	Tblisi	1	originates in Stansted			

	Tblisi	1	originates in Stansted, onwards to Delhi			
	Tel Aviv	12				
	Zagreb	4		62	62	304
Frankfurt Hahn	Almaty	1	originates in New York			
	Almaty	6	originates in New York, onwards to Shanghai			
	Amsterdam	1	onwards to Tokyo			
	Amsterdam	1	originates in Tokyo			
	Atyrau	1	onwards to Almaty			
	Baku	3				
	Beijing	3				
	Chatearoux	1	onwards to Kabul			
	Doha	2				
	Johannesburg	2				
	Milan	1	onwards to Tokyo			
	Toronto	1	onwards to Mexico City			
	Yerevan	1		24	242	304
Frankfurt	Abu Dhabi	5				
	Almaty	1				
	Almaty	1	onwards to Guangzhou			
	Almaty	1	onwards to Hong Kong			
	Almaty	2	onwards to Shanghai			
	Amman	2				
	Amsterdam	1	originates in Hong Kong and Chennai			
	Atlanta	4				
	Baku	1	onwards to Bangkok and Kuala Lumpur			
	Baku	2	onwards to Kuala Lumpur			
	Bangalore	3	onwards to Chennai			
	Bangalore	1	onwards to Hyderabad and Guangzhou			
	Bangkok	2				
	Beijing	3	onwards to Shanghai			
	Brussels	1	onwards to Dubai and Hong Kong			

	Cairo		3		
	Chicago		7		
	Chicago		1	onwards to Los Angeles	
	Chicago		4	onwards to Mexico City	
	Chicago		2	onwards to Mexico City and Guadaljara	
	Chicago		1	originates in Stansted	
	Coventry		10		
	Dakar		3	originates in Dubai, onwards to Sao Paulo	
	Dammam		2	onwards to Sharjah and Hong Kong	
	Delhi		4	onwards to Singapore and Bangkok	
	Delhi		1	originates in Atlanta and Stansted, onwards to Hong Kong	
	Detroit		2		
	Doha		1		
	Dubai		1	originates in Lagos and Accra	
	Dubai		4	originates in Sao Paulo and Dakar	
	Dubai		3		
	Dubai		1	originates in Dusseldorf	
	Dubai		1	originates in Manchester, onwards to Hong Kong	
	East Midlands		1		
	Heathrow		1		
	Helsinki		1		
	Hong Kong		3		
	Hong Kong		1	originates in Stansted	
	Istanbul		6		
	Istanbul		1	onwards to Tel Aviv	
	Jeddah		1	onwards to Sharjah, Hyderabad and Guangzhou	
	Kabul		1		
	Krasnojarsk		1		
	Krasnojarsk		6	onwards to Beijing and Seoul	
	Krasnojarsk		1	onwards to Seoul and Shanghai	
	Krasnojarsk	y		onwards to Shanghai	

	Krasnojarsk	7	onwards to Tokyo and Osaka
	London Luton	3	
	Madrid	4	
	Malta	1	
	Milan	1	originates in Hong Kong and Dubai
	Milan	1	onwards to Dubai and Hong Kong
	Milan	1	onwards to Hong Kong
	Moscow	10	
	Moscow	2	onwards to Tokyo
	Moscow	1	onwards to Tokyo and Seoul
	Mumbai	1	
	Mumbai	1	onwards to Chennai
	Mumbai	3	onwards to Hong Kong
	Mumbai	1	onwards to Hyderabad
	Mumbai	1	originates in Amsterdam, onwards to Hong Kong
	Nairobi	5	onwards to Johannesburg
	New York	5	
	Riyadh	3	
	Riyadh	1	onwards to Dammam
	Riyadh	1	onwards to Sharjah and Hong Kong
	Sao Paulo	3	
	Sao Paulo	1	onwards to Curitiba
	Sao Paulo	1	onwards to Curitiba, Quito and Puerto Rico
	Sao Paulo	2	onwards to Manaus, Quito and Puerto Rico
	Sao Paulo	2	onwards to Montevideo and Buenos Aires
	Seoul	1	originates in Vienna
	Seoul	2	originates in St Petersburg
	Seoul	12	

	Seoul	2	originates in Atlanta and Stansted			
	Seoul	1	originates in Moscow and Vienna			
	Shanghai	1	originates in Chicago, Atlanta and Stansted			
	Shanghai	18				
	Sharjah	2	onwards to Kolkata and Hong Kong			
	Stockholm	1	onwards to Dubai and Hong Kong			
	Stockholm	4	onwards to Seoul			
	Taipei	3				
	Tel Aviv	3	onwards to Istanbul			
	Toronto	1	onwards to Houston	218	242	304
Milan	Abu Dhabi	2				
	Almaty	1	onwards to Osaka and Hong Kong			
	Baku	1				
	Dammam	1				
	Delhi	1	originates in Paris, onwards to Hong Kong			
	Doha	2				
	Dubai	2	onwards toHong Kong			
	Dubai	1	originates in Frankfurt, onwards to Hong Kong			
	Heathrow	5				
	Hong Kong	1	originates in Frankfurt			
	Hong Kong	2	originates in Heathrow			
	Hong Kong	1	originates in Manchester			
	Istanbul	1				
	Istanbul	2	originates in Lagos			
	Istanbul	1	orginates in Tirana			
	Jeddah	1				
	Luxembourg	1	originates in Chicago and Los Angeles			
	Luxembourg	4				
	Luxembourg	1	orginates in Chicago and New York			
	Madrid	1				
	Moscow	2	originates in Amsterdam			

	New Guinea	1	onwards to Seoul			
	Osaka	1	onwards to Hong Kong			
	Riyadh	1				
	Sao Paulo	1				
	Seoul	1	originates in Uzbekistan			
	Seoul	9				
	Shanghai	4				
	Tokyo	4	originates in Amsterdam			
	Tokyo	1	originates in Frankfurt Hahn	57	57	57
Vienna	Amman	1				
	Copenhagen	2	orginates Seoul			
	Frankfurt	1	orginates Seoul			
	Istanbul	2				
	Kiev	5				
	Liege	5				
	Milan	3	orginates Seoul			
	Moscow	2	orginates Seoul and onwards to Gothenburg or Frankfurt			
	Oslo	3	orginates Seoul			
	Oslo	6				
	Riyadh	2				
	Seoul	1	via Frankfurt			
	Seoul	3	via Gothenburg			
	Seoul	1	via Tel Aviv			
	Seoul	4	via Copenhagen			
	Seoul	1	originates Moscow			
	Shanghai	3	originates Amsterdam			
	St Petersburg	1	orginates Seoul and onwards to Gothenburg			
	Tel Aviv	1	orginates Seoul			
	Timosoara	5		52	52	52

Key Findings of York Aviation Report

Is a Nationally Significant Air Freight Hub a realistic prospect at Manston?

York Aviation

York Aviation is a highly experienced specialist air transport consultancy offering a range of services to airports, airlines, governments, economic development organisations, investors and other parties.

We were appointed by SHP in September 2017 to undertake an independent review of the evidence presented by RiverOak Strategic Partners (RSP) in connection with its proposal to redevelop and re-open Manston as a hub for international freight services. A summary of our report's findings is provided here (the full report is available on the Stone Hill Park website:

http://www.stonehillpark.co.uk/images/uploads/documents/SHP-York-Aviation-Summary-Report-Final.pdf)

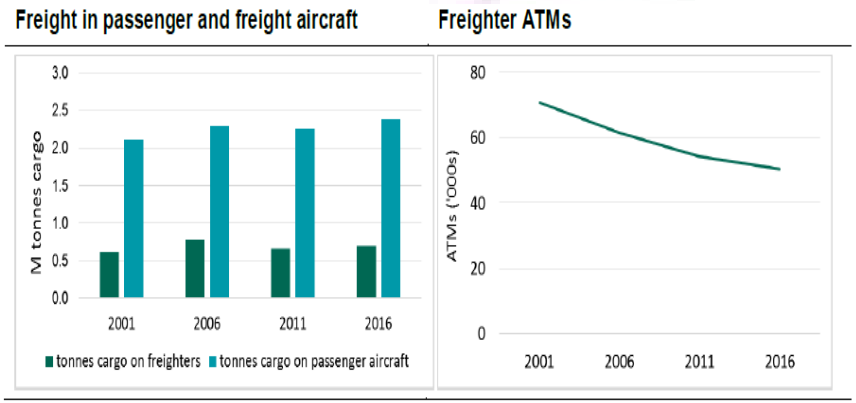


Figure 4.5 Historic freight carried at all modelled airports

Key Findings:

LACK OF UNDERSTANDING OF THE AIR FREIGHT MARKET:

- RSP rely on analysis by Azimuth Aviation of the need for more airport capacity in the South East of England. This analysis relates to the need for more passenger flights offering capacity for passengers and bellyhold freight. It does not relate to the need for more flights by freighter aircraft.
- The only freight forecasts upon which Azimuth seek to rely are those produced by York Aviation for Transport for London and the Freight Trade Association. These have been completely misinterpreted by Azimuth and do not support RSP's case for the re-opening of Manston as a freight hub.

THERE IS NO NEED FOR MORE FREIGHTER FLIGHTS TO/FROM THE UK:

- RSP is targeting the pure freighter market. In the UK, this is a niche and declining market with shippers clearly preferring bellyhold (combined passenger and freight flights) over pure freighters because of cost, flexibility and access to global route networks, even where some trucking is required as part of the journey.
- The official figures show the number of freighter flights to/from the UK has declined by over 20% over the last 15 years (see graphs on the left) and the latest Government (DfT) forecasts (October 2017) project no growth in pure freighter aircraft movements across the UK to 2050. This means that Manston would have to compete with established freight airports, such as East Midlands and Stansted, to attract any traffic at all in what is a declining market.

THE WRONG PLACE FOR A CARGO AIRPORT:

- Manston is in the wrong location to serve the freight market in any event, being located at the far south east at the end of a peninsula, away from the main centres of population and distribution in the UK.
- The key freight forwarders are all heavily concentrated around Heathrow and the main freight distribution hubs are in the Midlands.

SIGNIFICANT SPARE CAPACITY ELSEWHERE:

- There are much more efficient alternatives elsewhere for any air freight that may be displaced due to specific capacity constraints at Heathrow both now and in the future.
- There is also ample spare capacity at East Midlands, Stansted and other airports to accommodate future pure freighter activity. There is no rationale for part of the freight industry to relocate operations to Manston from better located and more efficient alternatives.

RSP'S DEMAND PROJECTIONS ARE NOT TRANSPARENT OR CREDIBLE:

- The demand projections for Manston lack any transparency there can be no confidence that they can be delivered. In the absence of any hard evidence of the need for Manston, the projections are based on information gained from a very small sample of interviewees, dominated mainly by local stakeholders with only ONE cargo airline included.
- It is simply not credible that Manston would be the 3rd busiest airport in the UK for pure freighter activity within 1 year of opening.

LACK OF VIABILITY:

- Airport operations at Manston were never viable despite investment by previous owners (including Wiggins and Infratil). More realistic forecasts of usage are that Manston might re-capture its previous niche perishables and specialist cargo business and might reach up to 2,000 such aircraft movements by 2040 (compared to the >17,000 forecast by RSP) but even growth to this level would mean regular night flights most days of the week. On any realistic projection of demand, Manston Airport is unlikely to ever be viable and would certainly not qualify for the threshold to be a DCO.

LACK OF UNDERSTANDING ON HOW SOCIO-ECONOMIC BENEFITS SHOULD CALCULATED:

- RSP's plans massively overstate the economic benefits for the area, even going so far as including in the calculations global employment where the aeroplanes are made as well as other effects arising well outside Kent or even the UK.
- Even on its own forecasts of cargo and passenger activity (which are neither robust nor credible), Manston is realistically only likely to support around 16% of the employment claimed by RSP. If the airport is not viable then the jobs supported would be zero.

CONCLUSION:

- Like Thanet District Council's own consultants, Aviasolutions, we agree that there is no realistic prospect of the re-opening of Manston Airport being a commercially viable proposition. We do not consider that the case that the re-opening of Manston Airport would constitute a Nationally Significant Infrastructure Project has been robustly made or substantiated.
- RSP's forecasts for the use of Manston lack credibility and the likely outcome would be a repeat of the previous failed attempts to establish viable airport operations.

Analysis of the Freight Market Potential of a Reopened Manston Airport

Issued: January 2018

(Analysis completed in October 2017)

Scope of the Report and Limitation of Liability

- This report contains the results of our analysis in relation to potential air cargo demand at the former Manston Airport site (the "Work"). It has been prepared for Stone Hill Park Limited ("SHP") in connection with the proposed application for a Development Consent Order by RiverOak Strategic Partners Limited and for no other purpose. The proposed application is for the redevelopment and reopening of Manston Airport for international air freight along with passenger, executive travel and aircraft engineering services ("the Project"). The proposed application would also, we understand, seek to compulsorily acquire the whole of the former Manston Airport site from SHP.
- We do not accept a duty of care to any person other than SHP in respect of this report.

ALTITUDE AVIATION ADVISORY LIMITED

January 2018

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1. Introduction

1.1. Objectives of the Study

1. This report has been commissioned by Stone Hill Park Limited ("SHP"), the owners of the former Manston Airport site. The site is currently subject to a proposed application for a Development Consent Order ("DCO") under the Planning Act 2008 currently promoted by RiverOak Strategic Partners Limited ("RSP"). The proposed application is for the redevelopment and reopening of Manston Airport for international air freight along with passenger, executive travel and aircraft engineering services ("the Project"). RSP contends that the Project is a Nationally Significant Infrastructure Project for airport development for air freight and hence, should fall within the Planning Act 2008. RSP's proposed application could also seek powers of compulsory acquisition over the site, allowing RSP to compel the purchase of the site from SHP's ownership to RSP's ownership. The report has been developed in this context.

2. To date, RSP has generated a range of submissions as part of the DCO pre-application process. These include reports commissioned from Azimuth Associates ("Azimuth")[1] and Northpoint Aviation Services ("Northpoint")[2].

3. The objective of this report is to provide a review of the Azimuth and Northpoint reports. We also review other relevant documents, including two AviaSolutions reports[3] commissioned by Thanet District Council.

4. The Azimuth and Northpoint submissions are notable for making major assertions as fact without providing relevant supporting evidence. While we have drawn on our own extensive experience in the UK and international airport sector, we have utilised published material to support our analysis. As such, we have made efforts to limit the extent to which we rely on our own opinions, assumptions and/or calculations.

5. The focus of our analysis is the air cargo sector. We provide an evidence based assessment of key issues impacting the future development of air cargo in the UK. This comprises of:

    - Review of key historic and likely future trends in the air cargo sector.
    - Assessment of the ability of existing airports to meet future freighter and bellyhold cargo demand in the UK.
    - Appraisal of the ability of the Manston Airport site (if re-opened) to support the future development of the UK air cargo sector. Specifically, we investigate whether the site has the potential to meet the objectives specified by RSP in its proposed DCO application.

6. In this report, we do not, at this stage, undertake an in-depth review of air passenger related issues.

[1] (Azimuth Associates, 2017 a), (Azimuth Associates, 2017 b), (Azimuth Associates, 2017 c)
[2] (Northpoint Aviation Services)
[3] (AviaSolutions, 2016), (AviaSolutions, 2017)

1.2. Structure of the Report

7. Later in this section (Section 1.3), we provide an overview of the air cargo sector for the general reader. This includes an explanation of some key terms used in our report and an overview of important market dynamics. In the appendices (sections 10 and 11), a fuller description is provided.

8. A brief overview of Altitude Aviation Advisory is presented in Section 1.4.

9. The next section of the report (Section 2) is the Executive Summary.

10. In Section 3, we review the introductory section of the Azimuth suite of reports. In particular, we review the stated aims of the Azimuth reports, and comment on whether the questions put forward by Azimuth are appropriate and sufficiently targeted to adequately support the proposed DCO application.

11. In sections 4 to 7, we present our own analysis of the UK and global cargo market, including historic trends and outlook. This is then referenced later in the report when we critique the Azimuth freight forecasts.

    - Section 4 – We provide an analysis of how the UK cargo sector has developed, and focus on individual airports that are relevant in the consideration of the future potential for Manston. We also provide a summary of Manston's historic performance.
    - Section 5 – We investigate if there is an overall shortage of airport freight capacity in the UK, or if shortages are restricted to Heathrow only.
    - Section 6 – We provide a review of published capacity expansion plans from existing airports. This allows us to build up a picture of freight capacity at UK airports in the period to 2050.
    - Section 7 – Our forecast for UK freight demand is presented in this section. Our forecasts are compared with other published projections. We also assess whether there is likely to be any overall imbalances between demand and supply in the period to 2050.

12. In Section 8, we provide a comprehensive review of the Azimuth freight forecasts for Manston. This includes a critique of the methodology as well as the forecast projections themselves.

13. In the appendices, background material on the air freight segment and recent trends is included. There is also a case study of two major European freighter airports and further supporting analysis for some of the material in the main body of the report. We also review other related reports by Northpoint (on behalf of RSP) and AviaSolutions (on behalf of Thanet District Council).

14. Finally, a list of figures and a list of references are included at the end of the document.

1.3. Introduction to the Air Cargo Sector

15. Generally, products that make use of air transportation are high value and/or time critical, and can be easily packaged.

16. Whilst there are many different types of *air cargo*, at a high level, most can be categorised as either *freight*[4] or *mail*. Most freight can then be defined as either *general* or *express*.

    - Mail is typically letters and parcels, delivered to final destination by the postal service of a given country.
    - Express freight is typically "next-day" shipments that are collected from the shipper by close of business and are required by the consignee by close of business the following day.
    - General freight is everything else (this category is very broad, and also includes several types of low-volume specialist products such as hazardous, valuable and live animal cargo).

[4] In this report, we concentrate on the freight segment (which is more relevant in the context of Manston). Where it is not meaningful to distinguish between freight and mail, we provide analysis of the air cargo segment overall.

17. Air cargo can be carried either in a dedicated aircraft (a *freighter* or *cargo only aircraft*), or in the hold of commercial passenger aircraft (when it is known as *bellyhold cargo*).

18. A freighter aircraft will be able to carry more cargo than can be carried in the bellyhold of a similarly sized passenger aircraft. Furthermore, freighter aircraft are able to handle larger individual pieces of cargo than can be loaded in the bellyhold of passenger aircraft.

19. With this exception, there is typically no aircraft driven preference from the customer as to whether cargo is shipped in a freighter or in the bellyhold of a passenger aircraft. Other sources of preference include:

    - Freighters may be the only option if there are no passenger flights offering bellyhold capacity (the number of unserved destinations has shrunk as the number of passenger flights has grown).
    - From an origin with both bellyhold and freighter capacity, a larger number of frequencies and destinations may be available via bellyhold, due to the generally more extensive schedules of passenger airlines than cargo airlines.
    - Bellyhold capacity on passenger aircraft is often significantly cheaper to provide than freighter capacity, as many of the largest fixed costs are assigned to the passenger business (e.g. aircraft operation, landing fees, fuel needed to fly the aircraft[5]).

20. In recent years, bellyhold has been capturing an increasing share of the overall air cargo market. This is a global development, primarily due to faster growth in passenger demand than cargo demand. Therefore, bellyhold cargo capacity has been growing ahead of cargo demand, diminishing the need for dedicated freighter aircraft.

21. The air transport of air freight is typically carried out by one of three types of operator:

    - *Cargo only airlines* (using freighters), such as Cargolux.
    - *Passenger airlines* (using bellyhold space on passenger aircraft), such as British Airways. Some passenger airlines also operate a number of freight-only aircraft (a relatively small number compared to the number of passenger aircraft they operate).
    - *Integrators*, such as DHL, use a mix of their own freighter aircraft and purchased space on passenger aircraft. A large majority of the cargo handled by integrators is express freight. Integrators have a wider role than purely air transportation; they transport freight from door-to-door using a network of vans and trucks, as well as aircraft when necessary.

22. All carriers make extensive use of trucking in order to get freight to/from an airport. *Road feeder services* use trucks to bring freight to an airport from consolidation points across the catchment region.

23. Additionally, trucks will replace flights where it makes economic sense to do so.

    - For express freight, where next day delivery is required, this typically includes destinations within ca. 500km of the airport.
    - For general freight (i.e. without next day delivery requirement), trucks may be the more economic option for any intra-regional route. Replacement of flights with trucks has become more prevalent in Europe, to the extent that Airbus comments on it in their most recent forecast.

24. In this report, we refer to the concepts of *passenger hub* and *cargo hub* airports. These are terms that can be used somewhat loosely, and on occasion can simply be used to signify a large airport. For clarity, we define here precisely what we mean by these terms.

25. First, it is useful to present the Airports Commission[6] definition of a passenger hub:

[5] Incremental fuel needed for the uplift of cargo will typically be charged to the cargo business.
[6] (Airports Commission, 2015, p. 13)

> *"Airlines and alliances route their traffic through one or more key airports ('hubs'), with feeder traffic from other airports in the network (the 'spokes') supplementing local origin and destination traffic at the hub. For passengers, the hub-and-spoke model maximises the choice of direct destinations at the hub airport and offers potential to travel to a very wide variety of destinations on one ticket."*

26. Although the UK has several large airports, Heathrow is the only major passenger hub in the UK. A significant proportion of its passengers are transfer or connecting passengers (changing flights at Heathrow). In contrast, Gatwick is not a major passenger hub, despite being the 8th largest airport in Europe in 2016. Its traffic primarily consists of passengers starting or finishing their air journey at Gatwick.

27. The concept of a cargo hub is similar to a passenger hub. Cargo is fed into the hub from a wide geographic area. This can be through cargo feeder flights generating *transhipment cargo* (cargo which is transferred from one aircraft to another at the cargo hub). The other source of cargo that feeds into a cargo hub is from road feeder services. These trucking routes play a similar role to flights in bringing freight from a large catchment into the airport, which is then transferred to a flight (or even onto another trucking service).

28. Major passenger hubs are frequently also acting as cargo hubs (due to the significant amount of bellyhold capacity available, the schedule connectivity, and the economies of scale). Heathrow is the UK's largest cargo hub, despite having a relatively small number of dedicated freighter services. Frankfurt is a leading example of a major passenger hub that also has an extensive range of freighter flights.

29. The other two cargo hubs in the UK are East Midlands and Stansted. Neither airport is a passenger hub. In both cases, cargo is almost exclusively carried on dedicated freighter aircraft. *Dedicated freighter hubs* (cargo hubs at non-passenger hub airports) typically have fairly unrestricted operating conditions (e.g. 24-hour operations, slot availability) and are centrally located. Integrators usually account for a substantial share of cargo at dedicated freighter hubs.

30. These definitions are important in the context of Manston. The location of Manston on a peninsula prevents its development as a cargo hub[7]. Even if the airport was to successfully attract high cargo tonnage in the future (which we consider unlikely), it would merely become a large cargo airport rather than a cargo hub.

31. The final term to introduce is *freight forwarders*. These are firms specialising in arranging storage and shipping of merchandise. Freight forwarders typically provide warehousing, negotiate and book aircraft cargo space, prepare documentation, arrange insurance and track progress of freight. They also consolidate cargo, where several smaller shipments are assembled and shipped together to avail of better freight rates and security of cargo[8]. Freight forwarder activity is usually concentrated at major cargo hubs (whether bellyhold or dedicated freighter hubs). This is due to economies of scale benefits.

[7] True cargo hubs are at the centre of their catchment area, with 360-degree connectivity (i.e. receiving road feeder services from all spokes of the wheel). Due to its location, Manston could only receive road feed from the west of the airport.
[8] www.businessdirectory.com

1.5. About Altitude Aviation Advisory

32. Altitude was formed in May 2013, and brings together a wide range of experience gained within the aviation sector. The two principals have worked in the aviation sector for a combined total of more than 50 years.

33. Team members have been involved in a diverse mix of strategic and commercial projects for a wide range of clients including airports, airlines, investors, debt providers, government and regulatory bodies. Our main service areas are airport transactions, business optimisation, traffic forecasting, route development and economic regulation.

34. Since 2013, we have worked directly for 10 different UK airports on a range of strategic, business planning and traffic forecast assignments. We have also provided due diligence support for various UK airport transactions covering 8 airports (all to financial close). In total, we have undertaken multiple projects across 13 different UK airports, either directly and/or as part of a transaction.

35. While the UK is our home market, the company has a global footprint. Our team experience encompasses over 150 airports worldwide. In 2017 alone, we have undertaken projects in Australia, Italy, USA, Russia, Denmark, Turkey, Belgium, Ireland, Serbia, Iceland, Hungary, Cyprus, and Portugal.

36. The Altitude team has considerable cargo experience. This includes previous employment working in the cargo division of a major airline and consultancy experience leading stand-alone cargo strategy projects in geographies as diverse as the UK, Eastern Europe, Middle East, and North America.

2. Executive Summary

2.1. Overview

37. We have undertaken an in-depth review of the Azimuth reports, and developed our own analysis of the future potential for freight at a reopened Manston Airport.

38. Manston has historically played a role as a niche air freight airport. We do not see potential for a more significant role in the future. This is in contrast to Azimuth. Azimuth's forecasts show the airport more than doubling its previous annual freight record in the first year of freight traffic returning. By year 18 of Azimuth's forecast, Manston is forecast to exceed the 2016 freight tonnage at East Midlands Airport (the largest dedicated freighter hub in the UK). This is simply not credible or likely.

39. We have identified significant weaknesses in the Azimuth analysis and forecasts. The following factors have not been acknowledged and/or adequately reflected:

- There is no overall shortage of freight capacity in the UK or South East specifically. While Heathrow is constrained, there is significant spare freight capacity at the established dedicated freighter hubs at Stansted and East Midlands.
- Cargo activity in the UK has become very consolidated on the 3 cargo hubs (Heathrow, Stansted and East Midlands). All three of these airports have plans to significantly expand cargo capacity, and they forecast strong growth in cargo tonnage. Furthermore, other established passenger airports have the capability of handling much higher cargo volumes if demand existed.
- There has been a strong trend towards bellyhold freight, with the role of dedicated freighters diminishing. The most recent (2017) Department for Transport ("DfT") forecasts to 2050 assume the number of freighter flights in the UK will remain flat at 2016 levels[9].
- Trucking is a highly integrated component of the air freight business model, and not merely a substitute for air freighter flights when airport capacity is constrained. The increasing use of truck feeder services is due to cost efficiencies and is not restricted to the UK.
- Manston is in a poor location to serve the wider South East or UK market. Other structural disadvantages include lack of critical mass, lack of a passenger hub, and night flight restrictions. These factors have limited Manston's role to that of a niche freight airport.

40. We consider the Azimuth freight forecasts to be extremely optimistic, with negligible supporting evidence. In particular:

- Historic performance is ignored (both at Manston or more generally across the UK market – the Azimuth growth forecast for Manston would be unprecedented in a UK context).
- There is a heavy reliance on qualitative techniques, with no substantive attempt to quantify the size of the markets Manston will be competing in, or how it would gain market share.
- Many of the references from published studies are too generic to be meaningful or are taken out of context.
- In making the case for Manston, Azimuth seeks to rely on reports prepared by York Aviation in 2013 and 2015. We share York Aviation's view, as set out in a parallel report commissioned by SHP, that these reports do not support Azimuth's conclusion that there would be a substantive role for Manston in the UK air freight industry.

41. Finally, we also view the Azimuth cargo air transport movement ("ATM") projections for Manston to be very optimistic and again unlikely. The projected average freight loads per flight are much lower than historic levels, and also lower than typically seen at cargo airports specialising in general freight (i.e. with

[9] (Department for Transport, 2017a, p. 33)

limited integrator presence). Even if the freight forecasts were achieved (which we consider very unlikely), we would anticipate significantly lower numbers of cargo air transport movements.

2.2. Introduction

42. Azimuth has published four reports in support of RSP's proposed DCO application. Volume 1[10] aims to answer the following questions:

> *"Does the UK require additional airport capacity in order to meet its political, economic, and social aims?*
>
> *Should this additional capacity be located in the South East of England?*
>
> *Can Manston Airport, with investment from RiverOak, relieve pressure on the UK network and meet the requirement of a nationally significant infrastructure project?"*

43. Azimuth concludes that *"the answer to each of the above questions is overwhelmingly yes"*. However, the questions conflate different issues. The first two questions provide poor context for the third question, and are not relevant to RSP's proposals for Manston.

44. We agree that the UK needs additional airport capacity, and that it should be located in the South East of England. This is not surprising given that:

- In September 2012, the Government asked Howard Davies to chair an independent Commission to identify and recommend options to maintain the UK's position as Europe's most important aviation hub[11] ("the Airports Commission").
- The Airports Commission concluded that "*a new runway in the South East is needed by 2030*". It also "*concluded that the best answer is to expand Heathrow's runway capacity*" as "*Gatwick… is unlikely to provide as much of the type of capacity which is most urgently required: long-haul destinations in new markets. Heathrow can provide that capacity most easily and quickly. The benefits are significantly greater, for business passengers, freight operators and the broader economy*[12]".
- In October 2016, the Government announced that its preferred scheme to meet the need for new airport capacity in the South East was a Northwest runway at Heathrow. This was subsequently confirmed in its revised draft Airports National Policy Statement ("ANPS"), published in October 2017. The ANPS[13] stated that "*The Heathrow Northwest Runway scheme delivers the greatest support for freight. The plans for the scheme include a doubling of freight capacity at the airport*." The draft ANPS, once ratified by Parliament, will settle the "need" case for the Northwest runway at Heathrow, but no other form of airport development.

45. However, while we agree with the positive response to the first two questions, it does not automatically lead to a "yes" for the third question. The third question covers fundamentally different issues to the first two questions.

46. There are clear distinctions between different types of airport capacity. The Gatwick option would have provided more incremental runway movements than the recommended Heathrow option[14]. However, a key reason for recommending Heathrow was that *"It delivers more substantial economic and strategic benefits than any other shortlisted option, strengthening connectivity…*[15]*"*

[10] (Azimuth Associates, 2017 a, p. I)
[11] (Airports Commission, 2015, p. 37)
[12] (Airports Commission, 2015, p. 4)
[13] (Department for Transport, 2017b, p. 31)
[14] (Airports Commission, 2015, p. 238)
[15] (Airports Commission, 2015, p. 245)

47. RSP is promoting a reopened Manston Airport on the basis of providing capacity for dedicated freighter flights:

- Bellyhold freight comprises ca. 70% of UK freight (see Figure 4), a proportion that has been growing since 2004 (see Figure 5). Azimuth's freight forecasts do not assume any bellyhold freight[16]. We agree with this Azimuth assumption, and consider that the development of bellyhold freight at Manston is extremely unlikely.
- Azimuth's forecasts passenger traffic of ca. 1.4 million by the 20th year of operation[17]. We consider these forecasts to be optimistic. However, even taking these forecasts at face value, the passenger throughput would represent less than 1% of 2016 passenger traffic at London airports.

48. Therefore, rather than asking "*Can Manston Airport, with investment from RiverOak, relieve pressure on the UK network and meet the requirement of a nationally significant infrastructure project?*", more relevant, targeted questions would be:

- Considering planned airport expansions, will there be a need for further airport capacity in the UK for dedicated freighters?
- Will the South East in particular require additional capacity for dedicated freighters?
- Would a reopened Manston be well placed to effectively serve a significant proportion of the dedicated freighter market?
- Are there other potential airport options for new dedicated freighter capacity?

49. In the rest of the Executive Summary, we address each of the sub-questions above in turn.

2.3. Need for Further Airport Capacity in the UK for Dedicated Freighters

Current Situation

50. There is no overall shortage in UK airport capacity for dedicated freighter operations. Both of the two largest freighter hubs, East Midlands and Stansted, can accommodate significantly more freighter services than they currently operate (see Section 5.3).

51. The UK does lack available dedicated freighter capacity at its major passenger hub airport, Heathrow.

- Heathrow is also the UK's largest freight airport with ca. 65% of the UK's overall throughput (see paragraph 109).
- Freight forwarder activity has consolidated around Heathrow on the strength of its extensive network of long haul passenger services. These services, typically using widebody aircraft, provide substantial bellyhold cargo capacity.
- At Heathrow, only ca. 5% of freight is carried on dedicated freighters (see Figure 4). A lack of available runway slots restricts freighter activity. In the absence of operating constraints, major passenger hubs tend to also play a role as key hubs for freighter aircraft (e.g. Frankfurt). Freighter services complement the connectively provided by passenger flights, while the cargo industry benefits from economies of scale and scope from the consolidation of activity at a hub airport.

52. Where dedicated freighter flights cannot be accommodated at Heathrow (due to capacity constraints), freight customers have the following choices:

- Operate freighter flights (or use existing freighter flights) from other UK airports where capacity is available (e.g. Stansted, East Midlands).
- Transport freight in the bellyhold of passenger flights from Heathrow (or other UK airports).

[16] (Azimuth Associates, 2017 c, p. 11)
[17] (Azimuth Associates, 2017 c, p. 16)

- Transport freight to a major European air freight hub (e.g. Liege, Frankfurt), typically by road truck.
- Use surface modes of transport (road, rail, water) for the whole journey (note that this is not a realistic option for most potential air freight consignments due to the distances involved and/or urgency of shipment).

53. Azimuth asserts that UK air freight has been constrained since 2000[18]. Furthermore, Azimuth concludes that shortage of airport capacity is leading to more trucking of freight ("*flying freight from Manston, negating the need to truck, to and from European airports for air transportation*[19]").

54. We consider that these conclusions are highly simplistic:

- As discussed above, we agree there is a shortage of dedicated freighter capacity at the UK's main passenger hub airport (Heathrow). However, freighter capacity is available at other airports. For example, both Stansted and East Midlands have expanded freighter activity significantly since 2000, and continue to have spare capacity.
- Therefore, any shortage of air freight capacity in the UK relates specifically to Heathrow hub capacity rather than a more general lack of capacity.
- Trucking is a highly integrated component of the air freight business model, and not merely a substitute for air freighter flights when airport capacity is constrained. The increasing use of truck feeder services is due to cost efficiencies and is not restricted to the UK (see Figure 32). We see no evidence that the growth in trucking is primarily driven by lack of Heathrow capacity for air freighter flights.
- In any case, even if there were significant levels of trucking caused by constraints at Heathrow, this would only be reduced by the provision of more Heathrow runway capacity. As there is already spare capacity at other airports in the UK, provision of further capacity would not make any significant difference to trucking levels. There is no reason why economic decisions to truck freight rather than fly would change in the absence of new Heathrow capacity.

Future Requirement

55. We have assessed the future demand for air freight in the UK, reflecting some notable trends:

- Increasing role of passenger aircraft in the carriage of air freight, and the relative diminishing in importance of freighter aircraft. Passenger demand has developed strongly in recent years. This has led to expansion of cargo capacity in the bellyhold of passenger aircraft outstripping growth in air freight demand (see Figure 37).
- This trend has led to cutbacks in dedicated freighter operations from leading airlines such as Cargolux, IAG, Air France-KLM and Singapore Airlines (see paragraph 425). Airbus forecasts growth of just 42 freighters in European fleets by 2036[20]. In the UK, freight tonnes carried on all-freighter aircraft peaked in 2004, and has fallen from 37% of the total air freight to 30% by 2016 (see Figure 5). The most recent Department for Transport forecasts to 2050 assume the number of freighter flights in the UK will remain flat at 2016 levels[21].
- There has also been a clear move towards consolidation of air freight activity at major passenger or freight hubs[22]. In the UK, the leading 3 airports (East Midlands, Stansted and Heathrow) have steadily grown their share of overall UK air freight tonnes on dedicated freighter services – from 41% in 1990 to 86% in 2016 (see Figure 7). The UK bellyhold market is even more consolidated,

[18] (Azimuth Associates, 2017 a, p. 8)
[19] (Azimuth Associates, 2017 a, p. 19)
[20] (Airbus, 2017a, p. 105)
[21] (Department for Transport, 2017a, p. 33)
[22] See Paragraph 24 onwards for our definition of passenger and cargo hubs. Note that the location of Manston on a peninsula prevents its development as a cargo hub. Even if the airport was to successfully attract high cargo tonnage in the future, it would merely become a large cargo airport rather than a cargo hub.

with the leading 3 airports (Heathrow, Manchester, Gatwick) achieving a combined market share of 97%+ in each year since 1996 (see Figure 11).

56. These fundamental market trends have not been recognised or have been ignored by Azimuth in its assessment of the potential for a re-opened Manston.

57. We have developed a forecast of UK air freight demand to 2050, linked to UK economic growth (see Section 7.1). We forecast a compound annual growth rate ("CAGR") 2016-40 of 2.4%, much higher than recent growth rates (e.g. CAGR 2010-16 of 0.4%, CAGR 2000-2016 of 0.2%). This results in ca. 4.2m tonnes of demand in 2040.

58. Based on published expansion plans and various prudent assumptions (see Section 6.4), we estimate that the available air freight capacity at the leading 5 UK airports alone will be around 5m tonnes per year in 2040. This is comfortably higher than the envisaged demand levels. Furthermore, the potential freighter capacity is significantly above our freighter demand forecast, and the potential bellyhold capacity is significantly above our bellyhold demand forecast.

59. Furthermore, we do not envisage overall capacity shortages in the shorter term. Only towards 2050 could capacity start to become constrained, assuming no further development of capacity from 2040 onwards. Therefore, any business that Manston could capture would primarily be at the expense of other UK airports.

Conclusion

60. The UK currently has sufficient overall airport capacity for air freight, albeit capacity at Heathrow is constrained.

61. Based on planned expansions at the existing major airports, we do not envisage a need for additional freight capacity to be developed in the period to 2040, or possibly 2050.

62. Therefore, there is not a compelling need for development of further airport capacity for freighter aircraft in the UK.

2.4. South East Requirement for Additional Dedicated Freighter Capacity

63. Cargo is less time sensitive than passengers. Therefore, an airport's cargo catchment area is typically many times larger than its passenger catchment. This is one of the key factors that leads to the high degree of consolidation seen for air cargo.

- For example, Leipzig Airport considers its catchment covers a 10-hour trucking radius (see Figure 38), while Liege sees its catchment as all areas within access of a full day trucking (see Figure 39).
- East Midlands serves the whole of England and Wales, exploiting its central location in England.
- Similarly, the extensive network of long haul flights from Heathrow means it attracts freight from the whole of Great Britain.

64. Mainly due to the hub strength of Heathrow, 78% of 2016 UK air freight was flown from airports in the South East & East of England. Heathrow and Stansted alone achieved 65% and 7% market share respectively.

65. Much of the UK's high value manufacturing is located outside London and the South East[23]. In Q1 2015, only 15% of UK manufacturing jobs were located in London and South East[24]. Clearly, a substantial proportion of air freight using Heathrow in particular will be travelling to/from other areas of the UK.

66. We do not see a need for new air freight capacity to be located in the South East specifically. New capacity would be most usefully concentrated at existing major air freight hubs, whether in the South East

[23] (Heathrow Airport, 2014, p. 19)
[24] (House of Commons Library, 2015, p. 7)

(Heathrow, Stansted) or outside (East Midlands). This would enable the air freight industry to continue to benefit from the economies of scale and scope flowing from market consolidation.

67. The Airports Commission negatively assessed the freight potential of Gatwick due to its location. It stated, "*Gatwick's position to the south of London limits its effectiveness as a national freight hub*[25]." This is consistent with our view that locations which can be accessed from a wide national catchment (whether in the South East or not) are more advantageous than locations in less accessible parts of the South East. We would also consider Gatwick to be a more accessible location than Manston.

2.5. Market Position of a Reopened Manston

68. We have argued above that there is no requirement for additional air freighter capacity in the South East, over and above developments already in the pipeline (being consented or planned) at existing airports.

69. However, even if our assessment is incorrect and further capacity is needed in the future, Manston would not be an effective solution.

70. While a re-opened Manston would contribute to overall UK freighter capacity, it clearly would not provide "hub" capacity of the type that is constrained at Heathrow.

- The inability of Manston to achieve more than 43,000 tonnes[26] in any single year in the period from 2000 until its 2014 closure highlights that the capacity provided at Manston was not a suitable substitute for Heathrow freighter capacity.
- In the same way, many other UK airports have material underutilised freighter capacity despite Heathrow constraints.

71. Manston's geographical location severely restricts its ability to develop into a national dedicated freighter hub. Were Manston airport to be re-opened at some point in future, it would likely be competing directly with East Midlands and Stansted for cargo-only flights. The outlook for the airport in this scenario is poor.

72. Firstly, the location of Manston on a peninsula physically limits the size of its catchment area.

- Within a 3-hour drive, only the South East & East of England, and a small part of the Midlands, are accessible (see Figure 17).
- In comparison, most of England and Wales can be accessed within 3 hours of East Midlands Airport, while Manston's catchment is essentially a sub-set of the Stansted catchment.
- The case studies of Liege and Leipzig, as well as the strong growth of cargo at East Midlands, indicate the importance of a large catchment area and central location. While these airports attract cargo from an extensive area, they also benefit from strong cargo demand within their immediate catchment.

73. In addition to Manston's poor geographic location, it is also relatively far from important transport infrastructure. The motorway network is not especially close (the airport is ca. 22 miles from the M2 and 38 miles from the M20). Successful freight airports in the UK and Europe have been shown to be extremely close to the national motorway network, helping to minimise the shipper/consignee to airport transport time[27].

74. Secondly, there is a consensus[28] in the air freight industry that the ability to handle night flights is critical for many types of air cargo (in particular for express freight, but also for other types of cargo).

- East Midlands and Stansted are both able to accommodate flights 24 hours per day.

[25] (Airports Commission, 2015, p. 24)
[26] Average ca. 28,000 tonnes/year for the period 2000-2013 (last full year of operation). Source: CAA airport statistics.
[27] For example, East Midlands Airport is within 3 miles of the M1 motorway. Similarly, Stansted is less than 3 miles of the M11 motorway. The Heathrow Cargo Centre is within 3 miles of the M4, ca. 5 miles from the M25 and ca. 8 miles from the M3.
[28] For a typical industry comment on this issue, see paragraph 446

- Both Liege Airport and Leipzig Airport cite the ability to accept night flights, and the support of local government in doing so, as factors in their success.
- It is unclear (in the context of historic restrictions) whether or not night flights would be allowed at Manston Airport were it to reopen. However, it does seem clear that restrictions on night flying would have severe limitations for air cargo potential at the airport.

75. Finally, as noted previously, there is a clear move towards consolidation of freight activity at a few large airports. In order to be successful, Manston would need to reverse this well-established trend. It is not apparent how this could be achieved, even with markedly lower airport charges (which in turn would compromise the financial viability of the airport).

76. Therefore, even if there was a future need for additional airport capacity for freighter activity, Manston is poorly placed in both geographic and potential operational terms to service such a requirement. Other airports are in a much better position to exploit any such future opportunities.

2.6. Other Potential Options for New Dedicated Freight Capacity

77. Azimuth concludes that "*Manston is the only real choice for the location of a freight-focused airport in the South East of England*[29]". As discussed above, we dispute the need for a new freight-focussed airport, or that any such airport would need to be located in the South East. If new capacity was needed in the South East, a more central location than Manston's position on a peninsula would be desirable.

78. Bournemouth Airport is dismissed by Azimuth on account of its location and distance from the motorway network. We agree that these are significant disadvantages but similar issues apply to Manston (with its location arguably even more compromised than Bournemouth).

- From the South West, West London and the Midlands, Bournemouth is generally more accessible than Manston.[30]
- Bournemouth Airport[31] highlights that:

> *"With ample room to grow, our thriving cargo facility is expanding to meet the demands of importers and exporters from across the UK. Accommodating a huge variety of freight and passenger aircraft, Bournemouth supports cargo logistics round the clock, with the following benefits: 2271m runway, excellent good weather record, congestion free (with no slot restrictions), experienced in handling many cargo aircraft including the AN-124 Ruslan, 'Freighter friendly' airport management."*

79. As discussed, the South East is not necessarily the best location for new freighter capacity. Outside the South East, Doncaster Sheffield Airport has a central UK location. It markets itself as "*the UK's Freighter Gateway*[32]":

> *At the centre of the UK with easy access to the M18, M1, A1M, M62 and M180 Doncaster-Sheffield is the ideal airport for freighter operations. DSA is justifiably gaining the reputation as the most effective freighter airport in the UK. The attributes that are delivering this include…. exceptional performance record, 24 hour operation, runway 2,893m x 60m, CAT III, Class "D" controlled airspace, no slot constraints/congestion, Competitive jet fuel prices, short taxiing distances, excellent cargo reception and handling, inclusive pricing, NEQ capacity up to 9,300kg Hotac."*

[29] (Azimuth Associates, 2017 a, p. 19)
[30] For example, the following distances have been sourced from Google Maps for the typical fastest routing. Bournemouth Airport to Hounslow: 90 miles, Manston Airport to Hounslow: 103 miles. Bournemouth Airport to Bristol: 70 miles, Manston Airport to Bristol: 201 miles. Bournemouth Airport to Birmingham: 167 miles, Manston Airport to Birmingham: 197 miles.
[31] www.bournemouthairport.com/about-us/doing-business-together/cargo/
[32] www.therouteshop.com/profiles/doncaster-sheffield-airport/

80. Both these airports are currently operational, and benefit from a large site with a long runway. Doncaster Sheffield operates 24 hours a day, whilst night flights at Bournemouth can be arranged with prior notice.

81. Furthermore, Birmingham and Doncaster Sheffield have longer runways than Manston, with spare capacity to develop freighter activity. Both have superior locations than Manston.

2.7. Conclusion

82. It is highly unlikely that a re-opened Manston could play any significant role in serving the needs of the UK air cargo industry. There is currently no shortage of overall capacity, and future demand growth into the long term can be met with planned expansion from the leading cargo airports in the UK.

83. The Azimuth freight forecasts for Manston are summarised below:

- In Year 2 (the first year of freight traffic), tonnage is forecast to be more than double the previous Manston peak annual value.
- By Year 11, freight throughput is forecast at similar tonnage to 2016 Stansted performance. Growth from Year 2 to Year 11 is forecast at CAGR 9.7%.
- By Year 18, Manston is forecast to exceed the 2016 freight tonnage at East Midlands Airport (the largest dedicated freighter hub in the UK).

84. We consider the forecasts to be extremely optimistic, not credible or likely, with negligible supporting evidence.

- Growth in freight at Manston would be unprecedented in a UK market context, and in complete contrast to previous historic performance.
- As discussed previously, we do not expect there to be an overall shortage of freighter capacity in the UK or South East. Even if we are wrong in this assessment, Manston and other smaller airports have shown no signs of benefiting from supposed capacity shortages in recent years. Furthermore, there is demonstrable spare capacity at Stansted and East Midlands, both better established and located.
- The rationale for why Manston will be able to achieve a massive uplift on previous performance is weak. The stated advantages of using Manston were present when the airport struggled to grow freight volumes, despite investment in infrastructure and marketing (the previous owners invested £7m on new aprons and taxiways, increasing the freight capacity to 200,000 tonnes[33] per annum). Lack of Manston capacity was not a factor.
- As well as the forecasts ignoring historic performance, they also do not reflect the very clear market trends towards consolidation of freight at major passenger and dedicated freighter hubs. UK airports outside the major three freight hubs have seen volumes fall. There is also a trend away from freighter services towards bellyhold freight.

85. Manston previously operated as a niche air freight airport. While it could theoretically regain this role in the future, its structural disadvantages (location, lack of critical mass, lack of passenger hub, night flight restrictions etc.) will severely limit its potential. Even if reinvested, relaunched and supported, we would not expect freight volumes to be materially above historic levels, and considerably below the volumes forecast by Azimuth.

86. Finally, the forecast of freighter ATMs is simply not credible.

- By year 20, ca. 17,000 freighter flights are forecast for Manston.

[33] (Wiggins Group plc, 2002, p. 16)

- This represents one-third of current UK freighter flights, in a market where the number of freighter ATMs has been contracting. This trend has been recognised by the DfT, with its 2017 forecasts to 2050 assuming the number of freighter flights in the UK will remain flat at 2016 levels[34].

87. In particular, we note that York Aviation's professional opinion[35] is that the capability of Manston Airport is 21,000 annual air cargo aircraft movements. This capacity is more than enough to accommodate any potential a re-opened Manston Airport may have.

88. In paragraph 48, we put forward four questions in relation to RSP's proposals for Manston. These are more relevant and targeted than the broader questions posed by Azimuth in its first report[36]. The answers to our questions have been developed over the course of the Executive Summary of this report. We summarise our conclusions in the table below.

Question	Response
Considering planned airport expansions, will there be a need for further airport capacity in the UK for dedicated freighters?	No, planned expansions at existing airports should comfortably provide sufficient freighter capacity until 2040 and beyond.
Will the South East in particular require additional capacity for dedicated freighters?	No, Stansted is planning significant capacity growth. A third runway at Heathrow will provide additional bellyhold capacity (putting downward pressure on freighter demand). Finally, the South East market can be well served by airports more centrally located in England.
Would a reopened Manston be well placed to effectively serve a significant proportion of the dedicated freighter market?	No, a reopened Manston would only serve a niche role, similar to its historic record. It has a poor location and operating restrictions.
Are there other potential airport options for new dedicated freighter capacity?	Yes, there are many UK airports with excess freighter capacity. For example, Doncaster Sheffield Airport has a central UK location. It markets itself as the UK's freighter gateway. It benefits from a large site with a long runway, and has 24 hour operations.

Table 1 – Summary of Analysis of Potential Future Freight Role for a Reopened Manston Airport

89. As can be seen above, when one asks more targeted questions, the outcome is very different to that presented by Azimuth. Our overall conclusion is that the RSP proposals and the Azimuth forecasts are deeply flawed. The outlook put forward by RSP / Azimuth does not reflect market realities. We would expect freight tonnage and freight ATM outturn at a reopened Manston to be considerably below the Azimuth forecasts.

[34] (Department for Transport, 2017a, p. 33)
[35] (York Aviation, 2017)
[36] (Azimuth Associates, 2017 a, p. I)

3. Review of Azimuth Reports - Context

3.1. Aims of Azimuth Report

90. This section reviews the first Azimuth report, titled "*Manston Airport: A National and Regional Aviation Asset, Volume I, Demand in the south east of the UK, March 2017*".

91. The first Azimuth report[37] aims to answer the following questions:

> *"Does the UK require additional airport capacity in order to meet its political, economic, and social aims?*
>
> *Should this additional capacity be located in the South East of England?*
>
> *Can Manston Airport, with investment from RiverOak, relieve pressure on the UK network and meet the requirement of a nationally significant infrastructure project?"*

92. Azimuth concludes that *"the answer to each of the above questions is overwhelmingly yes"*. However, the questions conflate different issues. The first two questions provide poor context for the third question, and are not relevant to RSP's proposals for Manston.

93. We agree that the UK needs additional airport capacity, and that it should be located in the South East of England. This is not surprising given that:

- In September 2012, the Government asked Howard Davies to chair an independent Commission to identify and recommend options to maintain the UK's position as Europe's most important aviation hub[38] ("the Airports Commission").
- The Airports Commission concluded that "*a new runway in the South East is needed by 2030*". It also "*concluded that the best answer is to expand Heathrow's runway capacity*" as "*Gatwick… is unlikely to provide as much of the type of capacity which is most urgently required: long-haul destinations in new markets. Heathrow can provide that capacity most easily and quickly. The benefits are significantly greater, for business passengers, freight operators and the broader economy*[39]".
- In October 2016, the Government announced that its preferred scheme to meet the need for new airport capacity in the South East was a Northwest runway at Heathrow. This was subsequently confirmed in its revised draft Airports National Policy Statement ("ANPS"), published in October 2017. The ANPS[40] stated that "*The Heathrow Northwest Runway scheme delivers the greatest support for freight. The plans for the scheme include a doubling of freight capacity at the airport*." The draft ANPS, once ratified by Parliament, will settle the "need" case for the Northwest runway at Heathrow, but no other form of airport development.

94. However, while we agree with the positive response to the first two questions, it does not automatically lead to a "yes" for the third question. The third question covers fundamentally different issues to the first two questions.

95. There are clear distinctions between different types of airport capacity. The Gatwick option would have provided more incremental runway movements than the recommended Heathrow option[41]. However, a key reason for recommending Heathrow was that *"It delivers more substantial economic and strategic benefits than any other shortlisted option, strengthening connectivity…*[42]*"*

[37] (Azimuth Associates, 2017 a, p. I)
[38] (Airports Commission, 2015, p. 37)
[39] (Airports Commission, 2015, p. 4)
[40] (Department for Transport, 2017b, p. 31)
[41] (Airports Commission, 2015, p. 238)
[42] (Airports Commission, 2015, p. 245)

96. RSP is promoting a reopened Manston Airport on the basis of providing capacity for dedicated freighter flights:

- Bellyhold freight comprises ca. 70% of UK freight (see Figure 4), a proportion that has been growing in recent years (see Figure 5). The Azimuth freight forecasts do not assume any bellyhold freight[43]. We agree with this Azimuth assumption, and consider that the development of bellyhold freight at Manston is extremely unlikely.
- Azimuth forecasts passenger traffic of ca. 1.4 million by the 20th year of operation[44]. We consider these forecasts to be optimistic. However, even taking these forecasts at face value, the passenger throughput would represent less than 1% of 2016 passenger traffic at London airports.

97. Therefore, rather than asking "*Can Manston Airport, with investment from RiverOak, relieve pressure on the UK network and meet the requirement of a nationally significant infrastructure project?*", more relevant, targeted questions would be:

- Considering planned airport expansions, will there be a need for further airport capacity in the UK for dedicated freighters?
- Will the South East in particular require additional capacity for dedicated freighters?
- Would a reopened Manston be well placed to effectively serve a significant proportion of the dedicated freighter market?
- Are there other potential airport options for new dedicated freighter capacity?

98. Over the course of this report, we address each of the sub-questions above in turn (an overview of our analysis is included in the Executive Summary).

3.2. Aviation Economic Contribution

99. Azimuth[45] refers to a study by the Centre for Economics and Business Research on the impact on trade of airport capacity shortages. Given the distinctions between different types of airport capacity[46], general references to the economic impacts of airport capacity shortages have limited relevance. More relevant is whether there is or will be a shortage of airport capacity for dedicated freighter aircraft. In Section 5, we address this issue directly.

100. On a similar basis, references to a European shortage of runway capacity[47] in Paragraph 2.2.2 are too general to be meaningful in the context of Manston Airport. Additional capacity can only contribute to alleviating shortages if it is the right type of capacity and in the right location.

3.3. RSP Vision for Manston Airport

101. The RSP vision for Manston Airport[48] also creates misconceptions. The Azimuth report states the vision is "*To revive Manston as a successful freight-focused airport*". This implies Manston was previously a successful freight airport. In analysing this, the following points are particularly relevant:

- Its throughput has never exceeded ca. 43,000 tonnes or more than 2.0% UK market share in a single year.
- The airport was also chronically loss making, with major operating losses each year from 2006 until its closure (period of data availability).

[43] (Azimuth Associates, 2017 c, p. 11)
[44] (Azimuth Associates, 2017 c, p. 16)
[45] (Azimuth Associates, 2017 a, p. 5)
[46] Passenger hub capacity, other hub capacity, freighter hub capacity, other freighter capacity, geographic location of capacity relative to demand etc.
[47] (Azimuth Associates, 2017 a, p. 5)
[48] (Azimuth Associates, 2017 a, p. 1)

- The historic volumes and financial performance clearly indicates that Manston Airport was not a viable financial proposition, despite considerable investment in freight capacity.

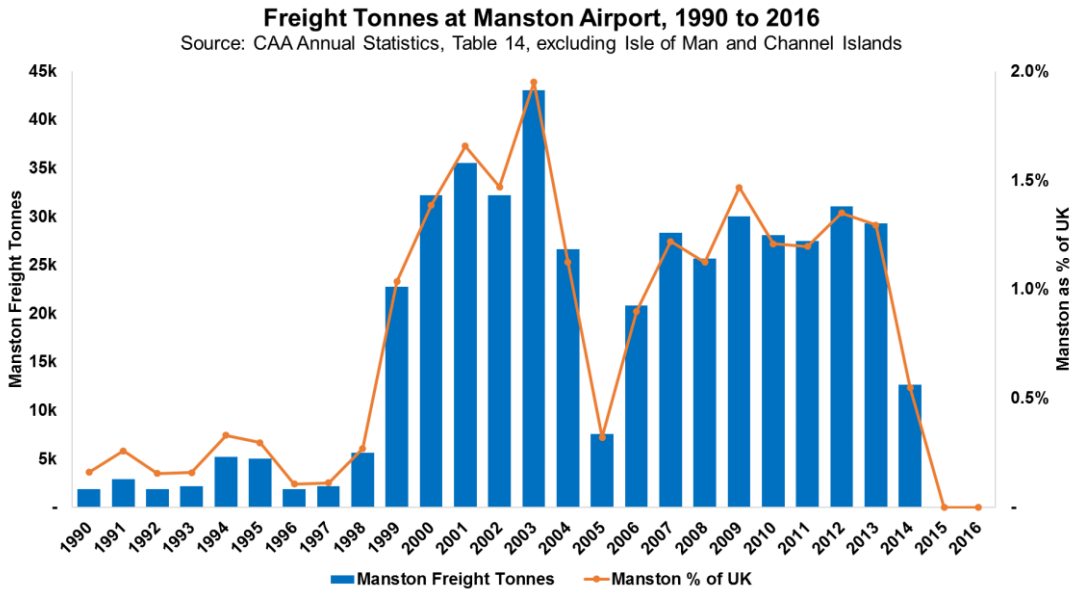

Figure 1 - Manston Airport Freight Tonnes 1990-2016

Figure 2 - Manston Airport Operating Margin (Operating Profit / Revenue) 2006-2014

102. As part of the RSP vision, it is stated that "*The only cargo hubs in the UK are East Midlands and Stansted airports, both of which focus on the integrator market. The UK needs a new hub for dedicated freighters, providing them with rapid turnaround times and the specialist security clearing ability that is currently absent at other UK airports.*"

- This description ignores Heathrow, which accounted for ca. 65% of all UK freight in 2016. It also implies, without foundation, that the focus on integrators at East Midlands and Stansted is incompatible with dedicated freighter provision.
- Furthermore, no evidence is presented to support the assertion that other UK airports are unable (either now or in the future) to support rapid turnaround times or possess specialist security clearing ability.

103. The reported vision also comments that "*The ideal location for this is close to the main market in the South East. RiverOak's long-term plan is to integrate Manston into the UK's airport network, effectively providing Heathrow with its fourth runway primarily dedicated to freighter cargo*."

- We highlight in paragraph 219 that the surface catchment area for freight is very wide, and there is no requirement for additional airport capacity for freight to be located in the South East specifically.
- The comment about Manston acting as a fourth runway for Heathrow is evidently untenable. Manston is ca. 100 miles from Heathrow, a similar distance as Birmingham Airport. Heathrow's existing two runways recorded ca. 473,000 air transport movements in 2016[49] (ca. 236,500 per runway), whereas Manston has never achieved more than 5,000 commercial air transport flights (passenger, cargo, air taxi combined) in a single year in the period since 2000.

[49] CAA Airport Statistics

4. Development of the UK Air Cargo Industry

4.1. Introduction

104. This section provides an overview of the development of the air cargo sector in the UK. The aim of this section is to highlight the key trends and the characteristics of the main airport players.

105. This analysis is then referenced in the following sections when considering the future outlook for the sector, and the role a reopened Manston could conceivably play.

4.2. UK Air Freight Development Since 1990

106. Since 1990, the UK air freight market can be divided into two distinct periods based on the growth trends seen. The period 1990-2000 was generally one of strong growth, with CAGR of 6.9% and positive annual growth in 9 of 10 years. In contrast, the period since then (2000-2016) has been one of stagnation (CAGR 0.2%, positive annual growth in only 8 of 16 years).

107. The 11th September terrorist attack in 2001, and the global financial crisis in 2008-09 coincided with particularly poor years for the UK air freight market.

108. In 2016, 2.4m tonnes of freight tonnes was handled at UK airports. This is the first year the previous 2004 peak was (slightly) exceeded.

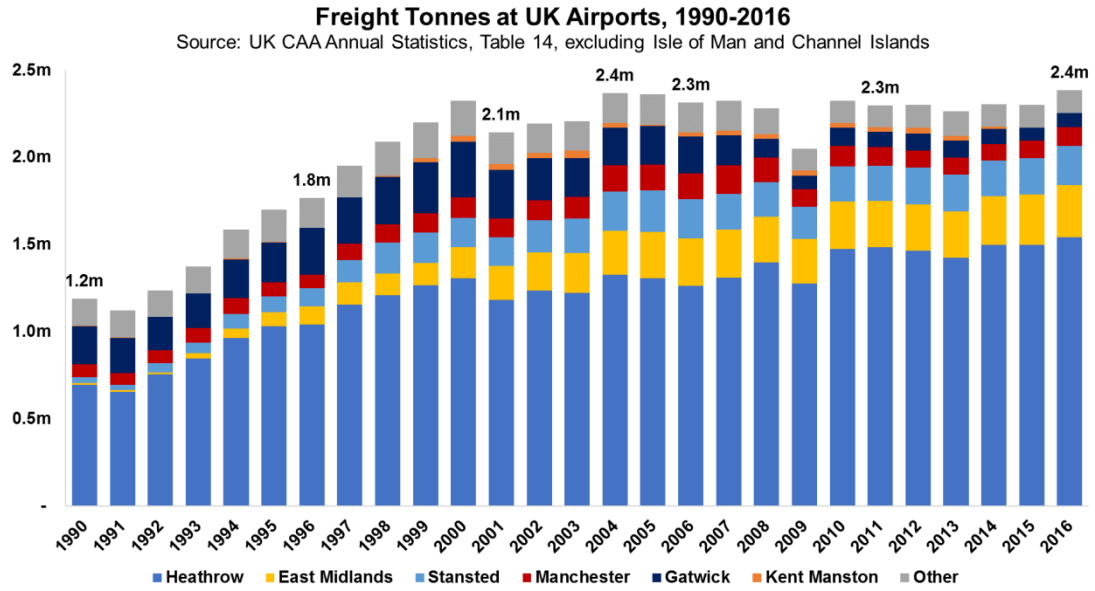

Figure 3 – Timeseries of UK freight tonnage

109. Heathrow is the airport in the UK that handles the most air freight. It has occupied this position through the entirety of the period 1990-2016. This is despite having constrained capacity (on the number of aircraft movements) through much of the period. In 2016 the airport achieved a market share of 64.6%.

110. East Midlands and Stansted are now the second and third largest airports for air freight in the UK. It has taken these airports 20+ years to reach this level, having grown from a very low market share in 1990. They had a 2016 market share of 12.6% and 9.4% respectively.

111. Manchester is the fourth largest UK airport for air freight. Note that it has grown very slowly, and continues to do so (1990-2016 CAGR of 1.6%, compared to 2.8% for UK airports excluding Manchester; 2011-2016 CAGR of 0.25%, compared to 0.77% for UK airports excluding Manchester).

112. In 2016 Gatwick was only the 5th largest UK air freight airport, having been clearly second-largest until ca. 2000.

113. Between them, these 5 airports accounted for ca. 95% of all UK air freight handled in 2016 (up from 87% in 1990).

114. Note that at no time in the period since 1990 has Manston played a significant part in the UK air freight market. Its share peaked at 2.0% in 2003, and in the 5 full years prior to its closure in 2014 (2009-13), it had an average share of 1.3%. The number of cargo ATMs only exceeded 1,000/year on a single occasion since 2000 (1,081 in 2003), averaging 462/year in the 2009-13 period (see Section 4.11).

4.3. UK Freighter versus Bellyhold Mix

115. At the top 5 airports in the UK, there are two distinctly different models of freight operation in place. At East Midlands and Stansted, virtually all freight is carried on cargo only aircraft (the low-cost carriers that operate passenger flights from these airports do not currently handle freight).

116. In contrast, at Heathrow, Manchester and Gatwick, less than 10% of freight is carried on cargo only aircraft (5.4%, 9.2% and 0.0% respectively).

- Overall, 29.7% of UK air freight in 2016 was carried on cargo only aircraft, with 70.3% carried in the bellyhold of passenger aircraft.

117. Despite Heathrow's low *proportion* of freight carried on cargo only aircraft, it continues to handle a significant share of the total UK freight carried on cargo aircraft[50].

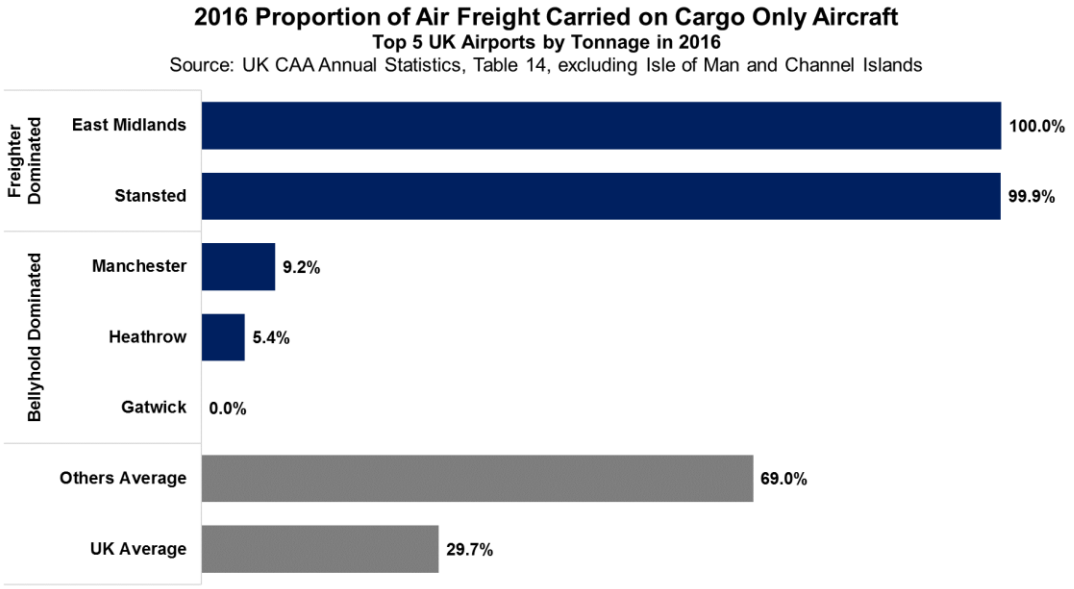

Figure 4 – Freighter/Bellyhold split at selected UK airports

[50] In 2016, Heathrow handled 12% of all UK freight carried on cargo only aircraft (a share it has broadly maintained since 2003).

118. Freight carried on all-cargo aircraft peaked in 2004, and has fallen significantly since while bellyhold freight has generally been growing. This is consistent with global trends highlighted in the appendix (Section 11.3) of this report.

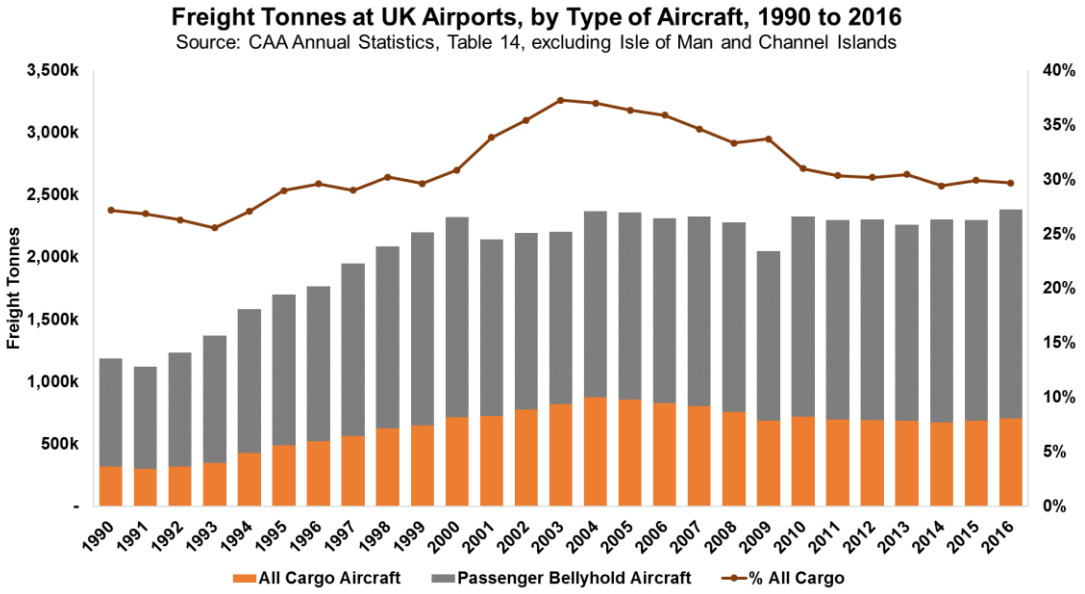

Figure 5 – Split of UK air freight between bellyhold and dedicated freighter aircraft

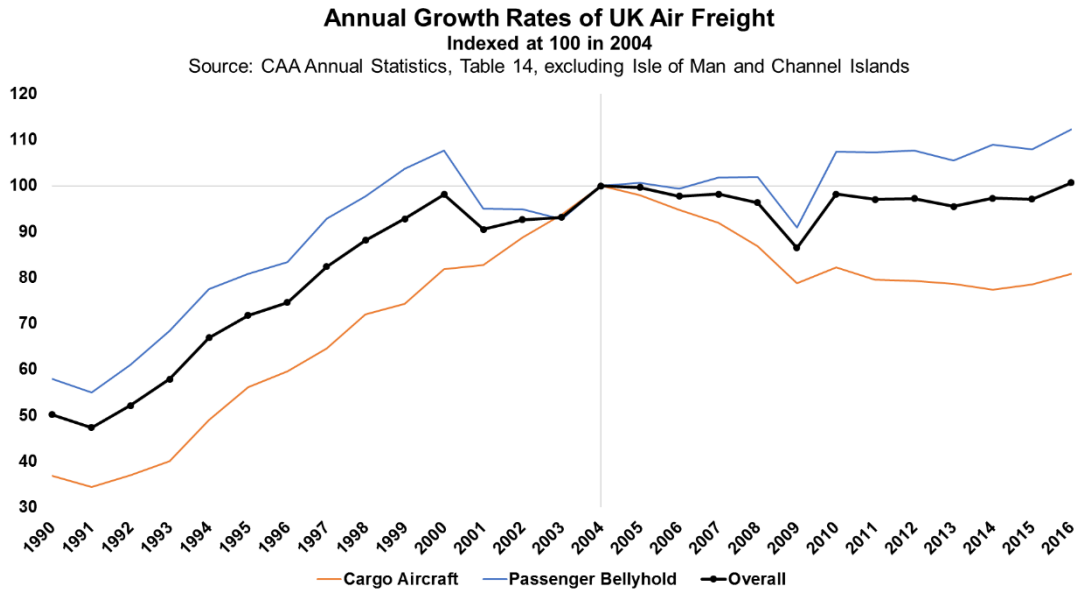

Figure 6 – Annual growth rates of UK freight

4.4. UK Freight on Cargo Only Aircraft

Airport Consolidation

119. In 1990, there were many UK airports from which carriers operated cargo only flights. Since then, there has been a very clear trend to consolidate cargo only operations at a few airports. In 2016, the three largest airports for freight (carried on cargo only aircraft) accounted for 86% of this UK market, up from 41% in 1990.

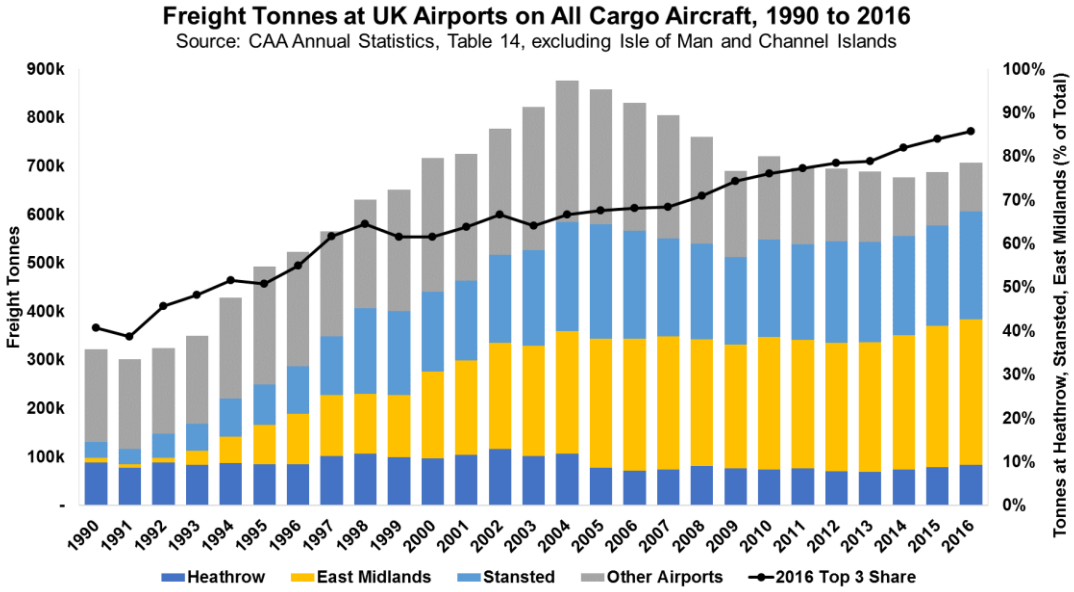

Figure 7 – Timeseries of UK freight on cargo-only aircraft

120. Historically, the following four airports have all been highly ranked in the UK for freight on cargo aircraft:

- Liverpool #5 in 1996 (peak tonnage in 1995, ca. 30,000 tonnes).
- Belfast International #4 in 2015 (ca. 38,000 tonnes in 2006).
- Prestwick #4 in 2001 (ca. 43,000 tonnes in 2001).
- Manston #4 in 2013 (ca. 43,000 tonnes in 2003).

121. However, by 2016 total freight on cargo aircraft across these airports was less than 20,000 tonnes (with Manston having shut completely).

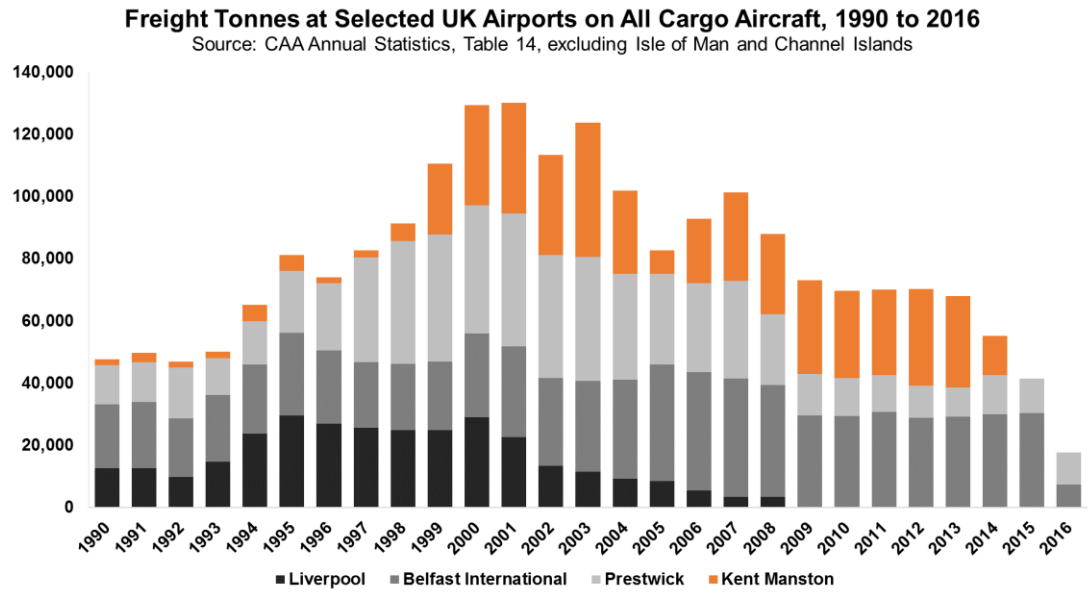

Figure 8 – Reduction of freight on cargo-only aircraft at selected airports

122. Note that none of the airports above has material capacity constraints. The trend towards consolidation of freight at a few airports is driven by cost efficiencies. It has resulted in airports which previously had significant freight volumes on all-cargo aircraft seeing their share of the market shrink/disappear.

123. In fact, of the 16 airports with more than 1,000 tonnes of freight on cargo aircraft in 1990, only 3 had higher equivalent freight volumes by 2016 (East Midlands: +290,000 tonnes, Stansted: +191,000, Luton: +4,000 tonnes, other 13 airports combined: -134,000 tonnes).

124. A similar trend can be seen when analysing the number of cargo aircraft movements; there is a sharp reduction in freighter flights from airports outside the "big three" of Heathrow, Stansted and East Midlands.

- Total freighter flights from other airports fell by almost 75% between 2000 and 2016 (from ca. 74,000 to ca. 19,000). Birmingham is the only significant cargo airport in this category that managed any meaningful growth in cargo ATMs (from 497 in 2000 to 1,184 in 2016).
- The number of freighter flights from the top 3 airports (Heathrow, East Midlands and Stansted) has varied relatively little over the same period.

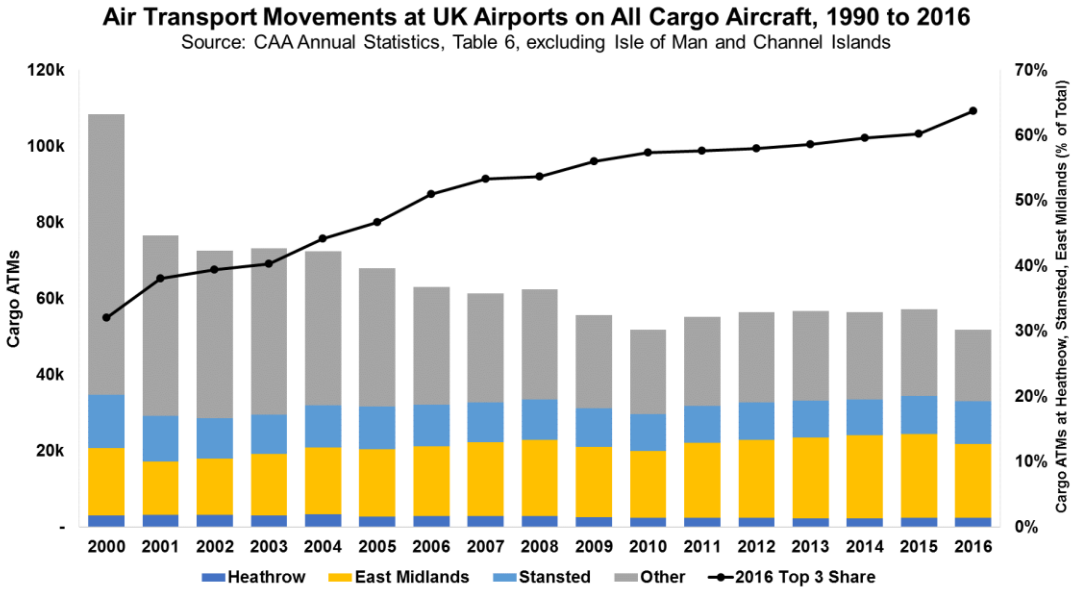

Figure 9 – Consolidation of freight on cargo-only aircraft at Heathrow, East Midlands and Stansted

125. Note that the decline in freighter movements has generally occurred at airports with limited infrastructure constraints. This indicates that airport capacity issues are not the main driver for the reduction in freighter flights at UK airports.

126. The Azimuth cargo ATM forecasts for Manston exceed 17,000 by year 20 (see Figure 25). This forecast should be seen in the following context:

- The most recent (2017) Department for Transport forecasts to 2050 assume the number of freighter flights in the UK will remain flat at 2016 levels[51].
- The Manston cargo ATM forecast is equivalent to 33% of the 2016 UK cargo ATM total, and over 80% of 2016 UK cargo ATMs if the two dedicated freighter hubs (East Midlands and Stansted) are excluded.
- After East Midlands and Stansted, Edinburgh is the next largest UK airport in terms of cargo ATMs, with 5,195 flights in 2016 (less than one-third of the projected Manston level in year 20).
- Since 2001, East Midlands and Stansted are the only UK airports to surpass 10,000 cargo ATMS in any single year.

[51] (Department for Transport, 2017a, p. 33)

Cargo-only Growth at a Regional Level

127. The change over time in the volume of freight carried on cargo only aircraft differs significantly by UK region. This is at least partially due to the locations of the larger airports at which freight has tended to consolidate since 2003.

128. For example, freight on dedicated cargo aircraft has grown substantially in the Midlands region, where East Midlands Airport has steadily developed into a major base for cargo only operations (in particular, express cargo). In contrast, freight on dedicated cargo aircraft has fallen in recent years in both the South East & East of England region and the Other UK regions.

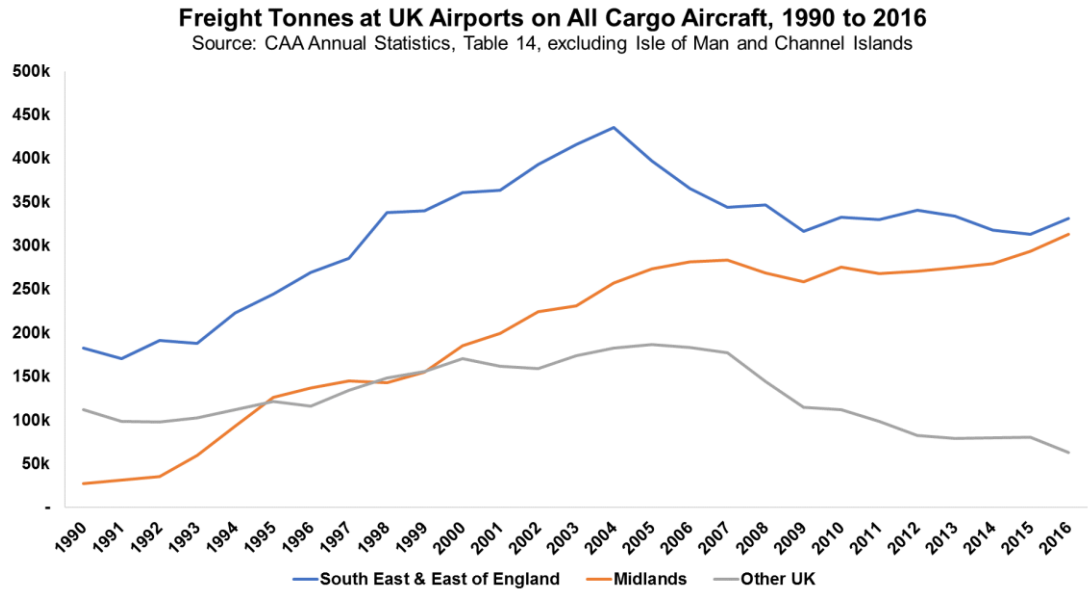

Figure 10 – Breakdown of UK freight on cargo-only aircraft, by region.

129. This reduction in freight on dedicated cargo aircraft in the South East & East region is sometimes attributed to shortage of suitable airport capacity. However, this does not explain the similar decline seen in the Other UK regions. Nor does it explain why this decline has not continued at the South East & East of England region airports through the period 2009-16 (through which the same constraints existed, and the decline continued at Other UK regional airports).

4.5. UK Bellyhold Freight

130. Heathrow handled 87% of all UK bellyhold freight in 2016. Manchester and Gatwick are the only other airports with significant bellyhold freight; in 2016, they had bellyhold market share of 5.9% and 4.7% respectively. These three airports have been the largest three airports for bellyhold freight since 1990, and have held a bellyhold market share of 96-98% over this period.

131. Heathrow dominates this segment as a result of its extensive long-haul network operated by wide body aircraft, which have significant cargo capacity. Freight tonnage on passenger aircraft has continued to grow at Heathrow (CAGR 2006-16 2.0%) despite the airport effectively operating at full runway capacity.

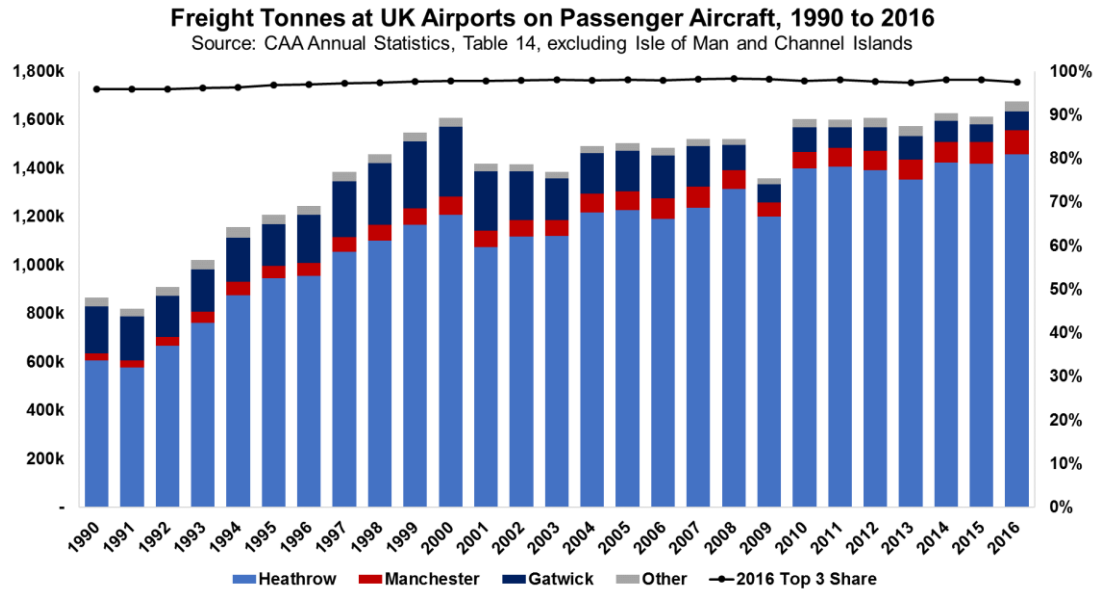

Figure 11 - Timeseries of UK freight on passenger aircraft

4.6. UK Air Mail

132. Mail is a relatively minor component of overall UK air cargo (ca. 200,000 tonnes in 2016 compared to 2.4m tonnes of air freight). For completeness, we include a brief overview of the UK air mail sector.

133. While volumes have fluctuated year on year, there has been no sign of sustained growth since the turn of the century (consistent with the widespread adoption of electronic communications).

134. As with air freight, air mail is concentrated on a small number of airports (Heathrow, East Midlands, Stansted, Edinburgh), with similar consolidation trends. Royal Mail has focussed on a small number of airports for night mail flights.

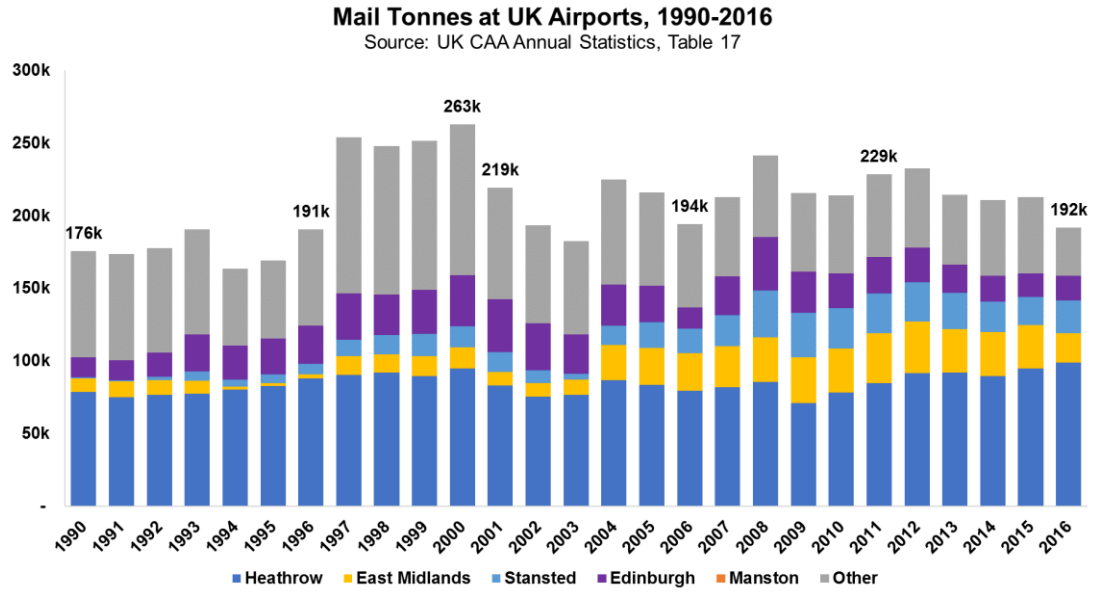

Figure 12 – Timeseries of UK Mail tonnage

4.7. Heathrow

135. As previously noted, Heathrow is the largest freight airport in the UK by some margin (as well as the largest passenger airport and only major passenger hub). It dominates the UK bellyhold segment and has a significant share of UK freight carried on dedicated freighters[52].

136. Despite operating very close to its air transport movement (ATM) limit for a number of years, Heathrow has managed to grow the volume of freight it handles faster than the overall UK market. It has had a higher annual growth rate than the average of other airports in the UK in 7 of 11 years over the period 2006-16, and also has a higher CAGR over that period (+2.0% compared to -2.2% at other UK airports).

137. It is likely that Heathrow cargo capacity has also been increasing through the adjustment of its mix of aircraft. There are two aspects to this:

- An increase in the proportion of ATMs allocated to widebody long haul flights, instead of narrow-body short-haul flights;
- The tendency for new long haul aircraft types (with the notable exception of the A380) to have more space for cargo than previous models.

138. We analyse each of the above factors in turn in the following paragraphs.

Widebody Share of Overall Flights

139. Data from OAG shows that the widebody share of Heathrow annual ATMs has risen from 34.0% in 2007 to 38.8% in 2017. Only two years in the ten-year period 2007-17 have seen this proportion fall. The airport stated in 2016 that "*fleet size at Heathrow has not fully matured and there is further potential to upsize / densify*"[53].

Cargo Capacity for Newer Aircraft Types

140. In general, older aircraft types have a lower cargo capacity than their newer equivalents. Of the older aircraft, the B747-400 is the most common in the UK. Likely replacements for this aircraft all have significantly higher cargo volume (given the payload available, volume is likely to be the constraining factor in the majority of markets to/from the UK). For example, the B777-9X has indicative cargo capacity of 109m^3 compared to just 71m^3 for the B747-400.

141. Further, industry sources reinforce the view that newer aircraft have a beneficial impact on cargo capacity. For example, American Airlines has commented:

> *"The introduction of the 787-9 brings another more fuel-efficient aircraft type with even greater cargo capacity into the American Airlines fleet…. On routes where we operate the aircraft, our cargo customers will see notable capacity improvements"*[54]

142. An exception to the trend for newer aircraft to have more cargo capacity is the A380, which has less cargo capacity than a B747. However, there are no indications that there will be any material increase in the prevalence of this aircraft in the UK[55].

143. Further analysis is provided in the appendices (see Section 13.1).

[52] The number of cargo ATMs operated at Heathrow is fairly low (ca. 2,500 in 2016) but average loads are high.
[53] (Heathrow Airport, 2016a, p. 8)
[54] (Vance, 2016)
[55] See Section 13.2 in appendix

144. The following charts, based on UK CAA data, shows that Heathrow has generally been successful at increasing its average freight tonnage per ATM, helping to maintain growth despite operating near its ATM limit.

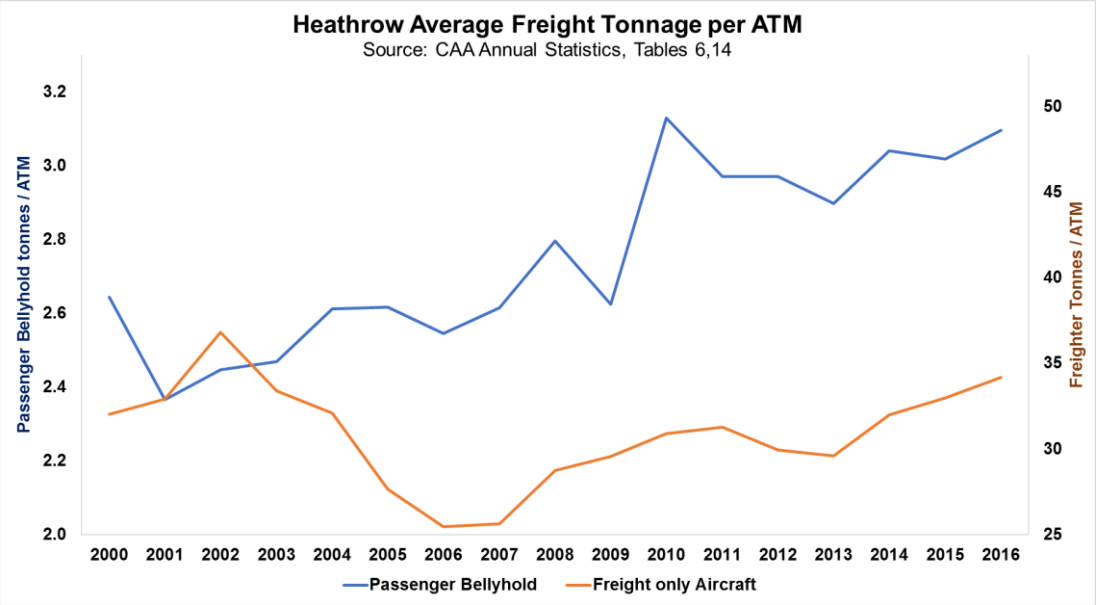

Figure 13 – Change over time of average tonnage per ATM at Heathrow

4.8. East Midlands

145. East Midlands Airport has a significant freighter operation. Since 2000, it has been the largest airport in the UK for cargo-only operations by tonnage handled (circa 300,000 tonnes of freight and ca. 20,000 tonnes of mail in 2016). The number of cargo ATMs in 2016 was ca. 19,000.

146. Almost all the freight handled by the airport is carried on cargo-only aircraft[56]. Bellyhold freight represents a tiny minority of tonnage at the airport, as most passenger flights are operated by low-cost carriers, which do not currently carry freight.

147. The type of freight handled at East Midlands Airport is predominately express cargo, a sector of the air freight market that has shown strong growth over the past decade. East Midlands is also a significant mail handling airport in the UK[57]. The airport states:

> *"DHL is the largest operator with services to key hubs in the USA and in Europe. UPS also link to their hubs in the USA and Europe and TNT have a smaller operation with a link to Europe"*[56]

148. Several of these integrators have invested significantly in operations at East Midlands Airport. For example, DHL invested £90m on infrastructure at East Midlands Airport in 2014[58].

149. The appeal of East Midlands Airport to the integrators is linked to the airport's location in the centre of England, where it is well placed to serve the whole of the UK. The ability to operate night flights is a key advantage. The airport states:

> *"The express freight operators provide an international next-day delivery service. This relies on the excellent surface access connectivity (90% of England and Wales is within a 4*

[56] (East Midlands Airport, 2015, p. 57)
[57] (East Midlands Airport, 2015, p. 16)
[58] (DHL, 2014)

hour (55mph) truck drive away from East Midlands Airport) along with the ability to operate aircraft at night"[57]

150. For express freight in particular, it is important to minimise trucking time between the shipper/consignee and the airport. As such, the location of an airport relative to warehouse locations is important. The map below highlights locations of large warehouse facilities in the UK[59]. A large number are seen to be near to East Midlands Airport, or on the motorway network with quick access to East Midlands Airport.

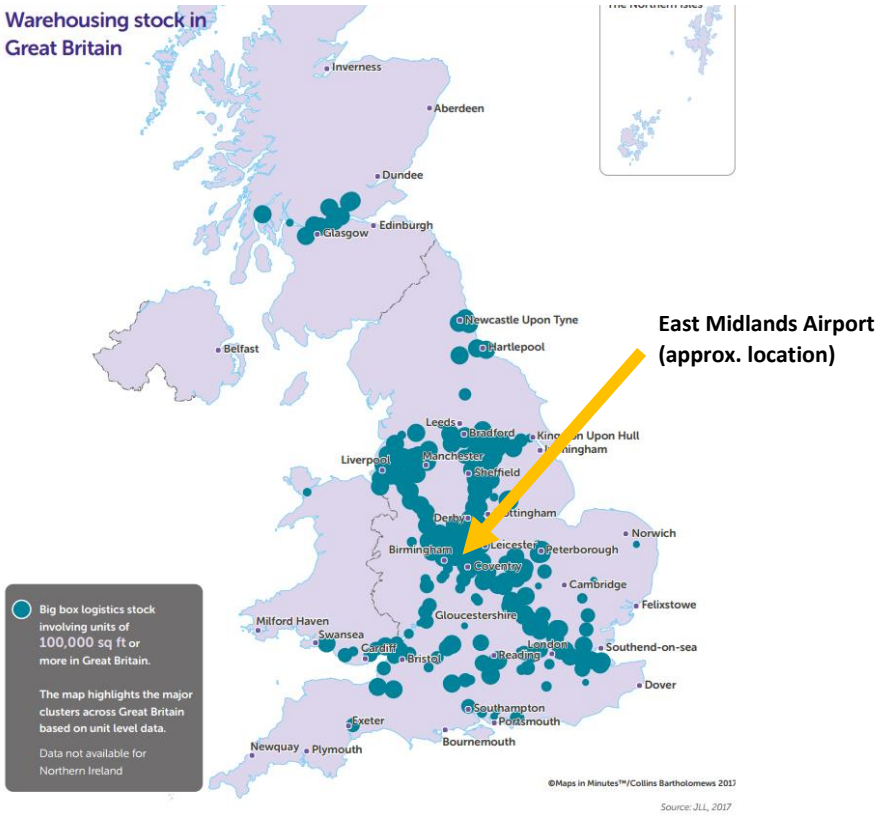

Figure 14 – Locations of large warehousing units in the UK, Source: Freight Transport Association

151. Regarding accessibility of the airport, East Midlands Airport states:

"There are in the region of 500 HGV movements to and from East Midlands Airport every day. However because of the nature of the freight hubs at East Midlands Airport, with pure-freight aircraft flying overnight, the vast majority of these vehicle movements take place very late at night (normally after 9pm) and very early in the morning (between 2am and 5am) and as such have no impact on peak motorway traffic levels"[57]

152. This pattern of utilisation fits with the airport's traffic being weighted heavily toward express freight. By implication, we can say that the vast majority of truck movements to/from East Midlands are not impacted by peak motorway traffic levels (as they are not using the motorway network at these times).

153. The "*East Midlands Gateway*", a project consisting of new warehousing and a rail freight station, is currently in development at a site next to East Midlands Airport. It is planned that the first warehouses will be occupied by September 2018. Construction of the rail station is due to begin after December 2019[60].

[59] (Freight Transport Association, 2017, p. 74)
[60] http://slp-emg.com/wp-content/uploads/2017/05/New-branding-A3.pdf

154. The importance of night flights to express freight has been stated before in this document, and is emphasised again by the breakdown of East Midlands ATMs, showing that ca. 64% of cargo ATMs in 2014 were at night (17,029 of 26,681)[61].

4.9. Stansted

155. Stansted has developed to become the main airport in South East & East region for freight on all cargo aircraft. It handled ca. 223,000 tonnes of freight in 2016, with further ca. 23,000 tonnes of mail (the number of cargo ATMs in 2016 was ca. 11,000). Amongst the London airports, it handled the highest volume of dedicated freighter traffic, and was also "*the most significant hub for express freight"*[62].

156. On express freight, the airport adds: *"The airport's express freight market, anchored by key operators such as FedEx and UPS, is the second biggest in the UK"*[62] (behind East Midlands Airport). TNT and around ten other companies also operate weekly services from the airport.

4.10. Others (excluding Manston)

157. Other airports that are significant for freight in the UK are Manchester, Gatwick and Birmingham. Together with the three airports discussed above, they accounted for 96% of UK air freight (by tonnage) in 2016. As an airport in the south of the country, Gatwick is worthy of more detailed examination.

Gatwick

158. In 2016, Gatwick handled 3% of the UK's air freight (ca. 80,000 tonnes). This was all in the bellyhold of passenger aircraft. However, it has previously had a share of the UK market as large as 18.5% (in 1990).

159. The proportion of Gatwick freight carried on cargo-only aircraft was between 6% and 25% over 1990-2006. In 2007, freighter share at Gatwick dropped to 1.4%, before falling close to 0% from 2012 onwards.

160. In 2008, a revised air traffic rights agreement between the UK and the USA meant that a significant number of long-haul UK-US operations switched from Gatwick to Heathrow. The loss of widebody capacity at Gatwick saw bellyhold freight fall by ca. 40% in 2008. It remained around the 2008 level in 2016.

161. Gatwick is operating reasonably close to its ATM capacity. This limits the growth potential for freight through additional passenger or freighter flights.

162. As of 2017, fewer than 10% of existing ATMs at Gatwick are used by widebody aircraft[63]. Thus, there is significant scope for Gatwick to increase its cargo capacity by increasing the share of widebody aircraft using the airport. To some extent this will happen naturally as passenger demand increases. Widebody share has risen in every year since 2014 (from 7.3% in 2014, to 9.4% in 2017[63]).

163. On routes where widebody capacity is in place at Gatwick, there is every indication that demand for freight is at least as strong as its closest competitor Heathrow; Gatwick Airport cites examples such as Emirates, Continental and Delta achieving *higher* freight tonnage per ATM at Gatwick than at Heathrow[64].

164. Freight volumes at Gatwick have grown strongly in 2016 and 2017 so far. This is driven by the rapid expansion of long haul routes by a number of airlines, including Norwegian, British Airways, Cathay Pacific and WestJet. We would expect this trend to continue as more slots are deployed for long haul flights, increasing bellyhold freight capacity.

[61] (East Midlands Airport, 2015, p. 111)
[62] (Stansted Airport, 2015b, p. 6)
[63] (OAG)
[64] (Gatwick Airport, 2015)

4.11. Manston

Historic Freight

165. Freight at Manston has accounted for an average of 0.8% of the UK total in the period 1990-2014 (prior to closure). Its peak share of the UK market occurred in 2003, when it reached 2.0%.

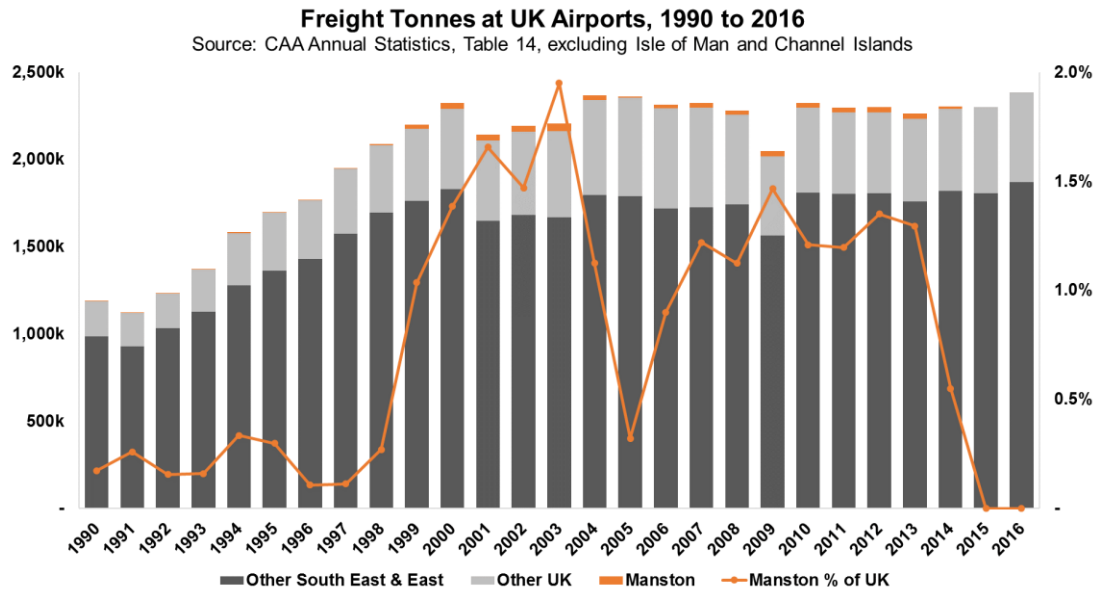

Figure 15 – Timeseries of UK freight, including that handled at Manston

166. The total number of cargo air transport movements at Manston averaged ca. 550 per year in the period 2000-14. This is equivalent to less than one aircraft rotation per day on average (peak year in 2003 was 1.5 rotations per day). Manston's share of UK cargo ATMs briefly peaked at 1.5% in 2003. In every year since 2005, Manston cargo ATMs have accounted for less than 1% of the UK total.

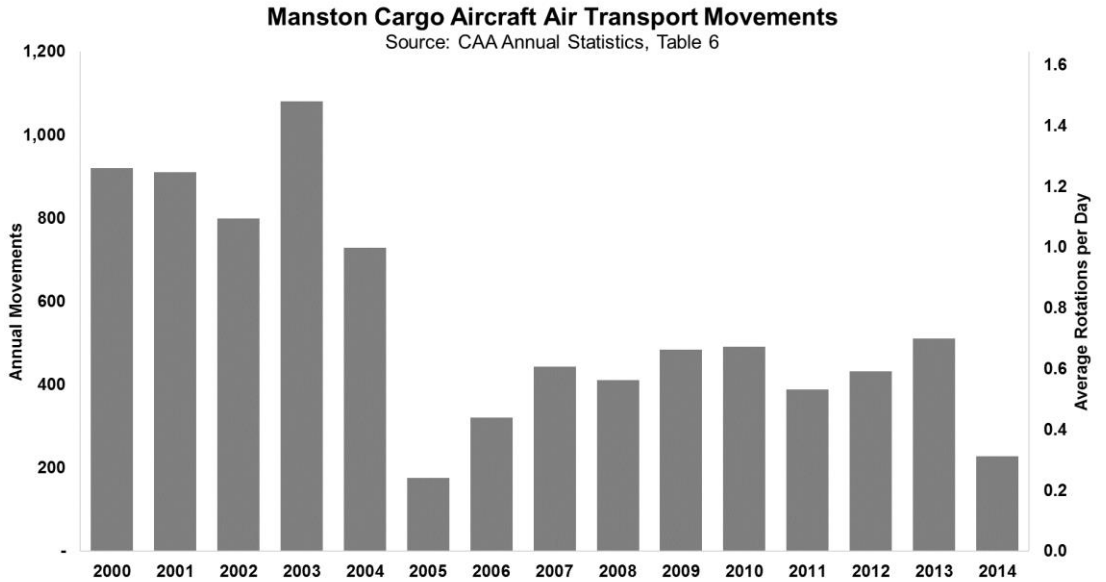

Figure 16 – Manston cargo-only aircraft movements

167. The hypothesis has been put forward that Manston previously was unsuccessful as it lacked the infrastructure to handle additional flights. However, with a peak of 1.5 rotations[65] per day, it seems certain that higher numbers of flights per day could have been handled if market demand was there.

168. As noted previously, the previous owners invested £7m on new aprons and taxiways, increasing the freight capacity to 200,000 tonnes[66]

Competitiveness of a Reopened Manston

169. Were Manston airport to be re-opened at some point in the future, it would likely be competing directly with East Midlands and Stansted for cargo-only flights. The outlook for the airport in this scenario is poor.

170. Firstly, the location of Manston on a peninsula physically limits the size of its catchment area.

- Within a 3 hour drive, only the South East & East of England, and a small part of the Midlands, are accessible.
- In comparison, most of England and Wales can be accessed within 3 hours of East Midlands Airport, while Manston's catchment is essentially a sub-set of the Stansted catchment.
- The case studies of Liege and Leipzig (Section 12), as well as the strong growth of freight at East Midlands, indicate the importance of a large catchment area and central location. While these airports attract cargo from an extensive area, they also benefit from strong cargo demand within their immediate catchment.

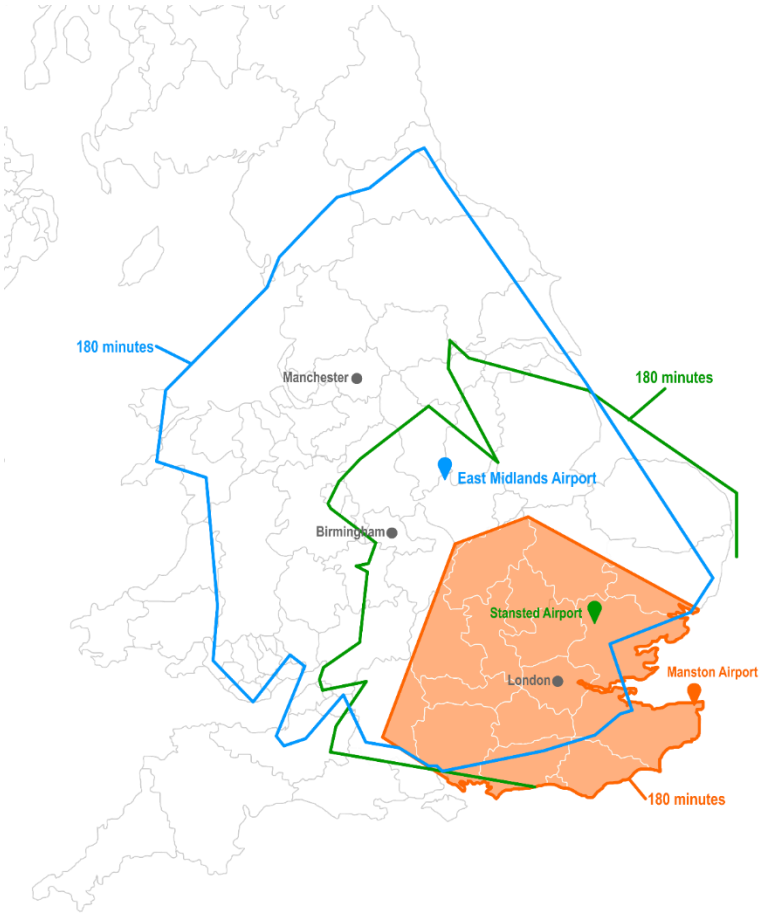

Figure 17 – 3-hr catchment region of Manston in comparison with those of East Midlands and Stansted
Source: Altitude analysis, Google Maps (truck speed set at 55 miles per hour)

[65] A rotation is an aircraft turnaround at an airport, representing an arrival and a departure flight.
[66] (Wiggins Group plc, 2002, p. 16)

171. In addition to Manston's poor geographic location, it is also relatively far from important transport infrastructure. The motorway network is not especially close (the airport is ca. 22 miles from the M2 and 38 miles from the M20). Successful freight airports in the UK and Europe are extremely close to the national motorway network, helping to minimise the shipper/consignee to airport transport time.

172. Secondly, there is consensus in the air freight industry that the ability to handle night flights is critical for many types of air freight (in particular for express freight, but also for other types of freight).

- East Midlands and Stansted are both able to accommodate flights 24 hours per day.
- Both Liege Airport and Leipzig Airport cite the ability to accept night flights, and the support of local government in doing so, as factors in their success (see appendices, Section 12).

173. It is unclear (in the light of historic restrictions) whether or not night flights would be allowed at Manston Airport were it to reopen. However, it does seem clear that restrictions on night flying would have severe limitations for air freight potential at the airport. Observations at other freight hubs such as East Midlands, a significant volume of freight activity takes place during night time hours, including onward (or inward) road haulage taking advantage of road capacity overnight to move freight outside of peak traffic periods. Manston's local road network is not ideally placed to accommodate large volumes of HGV traffic arriving in quiet hours

174. Finally, as noted previously, there is a clear move towards market consolidation of freight activity at a few large airports. In order to be successful, Manston would need to reverse this well-established trend. It is not apparent how this could be achieved, even with markedly lower airport charges (which in turn would compromise the financial viability of the airport).

175. Therefore, even if there was a future need for additional airport capacity for freighter activity, Manston is poorly placed to service such a requirement and better existing operational alternatives are available.

5. Current Freight Demand vs Supply at UK Airports

5.1. Context

176. Azimuth asserts that UK air freight has been constrained since 2000[67]. Furthermore, Azimuth concludes that shortage of airport capacity is leading to more trucking of freight ("*flying freight from Manston, negating the need to truck, to and from European airports for air transportation*[68]").

177. We consider that these conclusions are highly simplistic. They do not recognise the operational needs and behaviours that underpin the freight market:

- As discussed below, we agree there is a shortage of dedicated freighter capacity at the UK's main passenger hub airport (Heathrow). However, freighter capacity is available at other airports. For example, both Stansted and East Midlands have expanded freighter activity significantly since 2000, and continue to have spare capacity.
- Therefore, any shortage of air freight capacity in the UK relates specifically to Heathrow capacity rather than a more general lack of capacity.
- Trucking is a highly integrated component of the air freight business model, and not merely a substitute for air freighter flights when airport capacity is constrained. The increasing use of truck feeder services (see Figure 32) is due to cost efficiencies and is not restricted to the UK. We see no evidence that the growth in trucking is primarily driven by lack of Heathrow capacity for air freighter flights.
- In any case, even if there were significant levels of trucking caused by constraints at Heathrow, this would only be reduced by the provision of more Heathrow runway capacity. As there is already spare capacity at other airports in the UK, provision of further capacity would not make any significant difference to trucking levels. There is no reason why economic decisions to truck freight rather than fly would change in the absence of new Heathrow capacity.

178. In the remainder of this section of our report, we provide an analysis of current UK airport capacity for freight, and whether this has constrained demand. In the following section (Section 6), we investigate the outlook for future airport capacity for freight at UK airports.

5.2. Literature Review

179. As noted above (see paragraph 176), Azimuth asserts that UK air freight has been constrained since 2000. Its case for Manston relies heavily on this assertion, yet no evidentially supported and reasoned justification is provided. Three references are provided.

180. The first document cited is the Air Transport White Paper from the Department for Transport[69]. We have not found references to air freight being constrained in this document, which in any case dates from 2003.

181. The second document is by Oxford Economics[70]. This report is a technical note which examines how increased airport capacity (or conversely the lack of additional new capacity) could affect air freight and the economy. The study was undertaken for Transport for London / Mayor of London, promoters of the new Thames Estuary hub airport scheme.

[67] (Azimuth Associates, 2017 a, p. 8)
[68] (Azimuth Associates, 2017 a, p. 19)
[69] (Department for Transport, 2003)
[70] (Oxford Economics, 2013)

182. References in the Oxford Economics report to existing capacity constraints focus on Heathrow, and its forward-looking analysis is primarily in the context of the potential benefits of the proposed new hub airport. For example, on Page 8:

> *"Capacity constraints at Heathrow, however, set in as early as 2005 and future cargo growth is threatened by the inability of London area airports to keep up with demand. A new hub airport for London, with enough capacity to meet demand for the next 30 to 40 years, would be particularly important for the growth of bellyhold cargo."*

183. The Oxford Economics report also notes the divergent trends between short haul and long haul cargo in the UK. On Page 14, the factors that could explain the decline in short haul air cargo are explored.

> *"In all likelihood, short-haul cargo may have fallen due to both capacity constraints at Heathrow and freight forwarders substituting road or rail transport for short-haul destinations. In addition, the cost of air cargo is higher on short-haul routes because a larger portion of the trip is spent on the ground and more time in the air is spent climbing and descending. Lastly, the lack of widebody planes on short-haul journeys make bellyhold cargo less attractive at those distances to begin with."*

184. On Page 16, the Oxford Economics report goes on to state:

> *"The fact that volumes have fallen so dramatically could be due to both capacity constraints at Heathrow and also to the substitution of air cargo on short-haul distances with rail or truck transport. Which phenomenon is more important? The opening of the Channel Tunnel in 1994 between the UK and France has made it faster and cheaper to transport cargo by road between continental Europe and the UK. In terms of truck transport, it is estimated that 97,000 tonnes of air freight actually crosses the English Channel by truck per year, as compared to 87,000 tonnes flown on bellyhold. In fact, the volume of short-haul cargo peaked around the time the Channel Tunnel opened and has declined ever since. Therefore, this hints that much of the decrease in short-haul volumes may be due to the relatively lower cost of truck transport to continental Europe rather than capacity constraints at London area airports. In other words, the generalised cost of surface transport (relative to air transport) has decreased, spurring a modal shift on short-haul routes."*

185. The final reference is to rankings of European Union countries for the quality of air transport infrastructure[71]. This appears to relate to overall air transport infrastructure, and is not specific to freight. In any case, the UK is ranked reasonably highly in the most recent results (#7 out of 28 EU countries for 2015/16).

186. To summarise, the three studies quoted by Azimuth do not provide any meaningful support for the assertion that UK airport capacity for freight has been constrained for many years. The Oxford Economics study identifies constraints at Heathrow and hub capacity specifically but also highlights other factors for recent freight trends. The 2003 Air Transport White Paper and the European Union infrastructure ranking study do not address the issue directly.

187. In the next subsection of our report, we show that there is no overall shortage in UK airport capacity for dedicated freighter operations (the type of capacity a reopened Manston would potentially provide as identified by RSP).

188. In paragraph 235, as part of our review of the Azimuth forecasts for Manston, we highlight how results from a York Aviation study have been applied incorrectly.

[71] https://ec.europa.eu/transport/facts-fundings/scoreboard/compare/investments-infrastructure/quality-airports-infrastructure_en#2015-2016

5.3. Analysis of Current Freight Demand vs Supply at UK Airports

189. There is no overall shortage in UK airport capacity for dedicated freighter operations. Both of the two largest airports, East Midlands and Stansted, can accommodate more freighter services than currently operating (sufficient to meet demand). Many other airports in the UK have spare capacity for freighter services.

190. In this sub-section of our report, we examine the current freight capacity at UK airports. In the following section (Section 6), we analyse future UK airport freight capacity.

East Midlands Airport

191. East Midlands Airport does not require slot coordination[72]. It is designated as a Level 2 airport, with the UK slot coordinator (Airport Coordination Limited) only providing data collection services[73]. IATA[74] defines a Level 2 airport as one "*where there is potential for congestion during some periods of the day, week or season, which can be resolved by schedule adjustments mutually agreed between the airlines and facilitator*". In other words, the airport cannot be considered as facing significant capacity constraints.

192. The airport does not appear to have any limit on the number of overnight ATMs it can operate. Note that it *does* have limits on the amount of noise any given aircraft can make at night. There is a limit on the land area that is exposed to noise above a certain threshold, as well as a rule preventing operation of the noisiest aircraft types between 23:00 and 07:00 (as per many other UK airports including Heathrow, Gatwick, Stansted).

193. The airport appears to have established a common position with the local authority which supports operation of the airport. For example:

> *"The Council will provide for the operational growth of East Midlands Airport whilst having regard to its impact on local communities and the wider environment…. Noise-sensitive development, particularly housing, will be resisted where it can be demonstrated that the noise levels associated with the airport would be detrimental to the occupiers or users of any such development"*[75]

194. The airport's runway[76] is long enough to handle the typical large cargo aircraft flying today, including the B747-400, B747-8F and the AN-225. It can also handle the A380, which could be relevant if older examples of that model are converted to a cargo aircraft in future[77].

Stansted Airport

195. Stansted is designated as a Level 3 coordinated airport. A process of slot allocation is required whereby it is necessary for all airlines to have a slot allocated by a coordinator. Therefore, Stansted is facing some capacity constraints in peak periods.

196. Nevertheless, there remains significant capacity available at most times of day, as shown below for the Summer 2017 scheduling season.

[72] Allocation of airport "slots" to airlines by an independent body. A slot provides permission for an airline to arrive or depart an airport for a specific time at a specific weekday and for a specific period applied for.
[73] https://www.acl-uk.org/faqs/
[74] (IATA, 2017c, p. 22)
[75] (East Midlands Airport, 2015, p. 69)
[76] East Midlands Airport runway length is 2,893m, compared to ca. 2,750m for Manston Airport.
[77] (East Midlands Airport, 2015, p. 73)

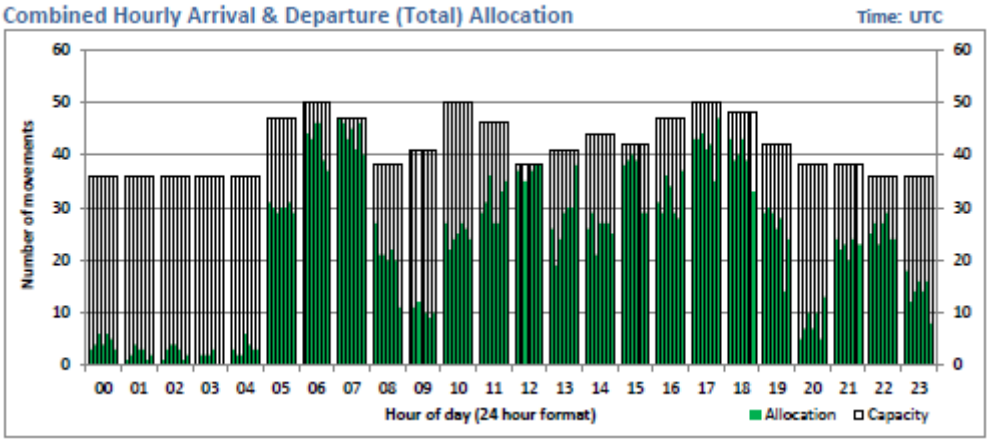

Figure 18 - Peak Week, Hourly Runway Allocation, Stansted Airport, Summer 2017. Source Airport Coordination Limited[78]

197. The number of cargo ATMs grew by ca. 13% in 2016 (source: Altitude analysis of CAA data), indicating that capacity constraints are not severe for freighters.

198. The airport is more tightly regulated than East Midlands Airport. Stansted's annual number of ATMs is limited. Currently, these limits stand at 243,500 passenger aircraft ATMs and 20,500 cargo aircraft ATMs[79]. These limits compare to 2016 movements of ca. 153,000 passenger ATMs and ca. 11,000 cargo ATMs. The airport considers the ultimate capacity of the runway to be 285,000 ATMs[80].

199. Separately, there is a quota on the overall number of ATMs allowed between the hours of 23:30-06:00 (7,000 ATMs in the summer season and 5,000 in the winter season). In 2013, the airport reports there were ca. 9,300 night ATMs in total, and that cargo aircraft ATMs take up a "*sizeable proportion*" of the quota[80].

Heathrow Airport

200. The UK does lack available dedicated freighter capacity at its only major passenger hub airport, Heathrow.

- Heathrow is also the UK's largest freight airport with ca. 65% of the UK's overall throughput (see paragraph 109).

201. Freight forwarder activity has consolidated around Heathrow on the strength of its extensive network of long haul passenger services. These services, typically using widebody aircraft, provide substantial bellyhold cargo capacity to a wide range of destinations.

202. At Heathrow, only ca. 5% of freight is carried on dedicated freighters (see Figure 4).

- If more capacity for freighter services existed at Heathrow, we would anticipate much greater levels of dedicated freighter activity.
- In the absence of operating constraints, major passenger hubs tend to also play a role as key dedicated freighter hubs (e.g. Frankfurt). Freighter services complement the connectivity provided by passenger flights, while the cargo industry benefits from economies of scale and scope from the consolidation of activity.

203. Where dedicated freighter flights cannot be accommodated at Heathrow (due to capacity constraints), freight customers have the following choices:

[78] (Airport Coordination Limited, 2017, p. 11)
[79] (Stansted Airport, 2015a, p. 9)
[80] (Stansted Airport, 2015b, p. 29)

- Operate freighter flights (or use existing freighter flights) from other UK airports where capacity is available (e.g. Stansted, East Midlands).
- Transport freight in the bellyhold of passenger flights from Heathrow (or other UK airports).
- Transport freight to a major European air freight hub (e.g. Liege, Frankfurt), typically by truck.
- Use surface modes of transport (road, rail, water) for the whole journey (note that this is not a realistic option for most potential air freight consignments due to the distances involved and/or urgency of shipment).

204. The capacity constraints at Heathrow also limit the number of passenger flights that can be operated. This in turn will have an impact on the bellyhold capacity that is available. However, it is not clear whether this is a substantial issue in relation to potential freight volumes.

- Heathrow continues to dominate the long haul passenger segment (72% of UK passengers in 2016[81]).
- Where demand is available, it is typically more economic to use constrained Heathrow slots for long haul flights (compared to short haul). Heathrow's share of overall UK long haul passengers has actually grown since 2002 (from 70% to 72% in 2016). In comparison, its share of short haul passengers has dropped from 24% to 17%. This indicates that short haul services are being squeezed out of Heathrow to accommodate long haul growth (due to current capacity constraints)[82].
- Air freight is focussed on long haul markets. Less than 10% of Heathrow freight in 2016 was to/from UK and Europe[83], despite accounting for 62% of passenger flights[84].
- Therefore, the extent to which constraints on Heathrow passenger flights are limiting bellyhold freight at Heathrow is difficult to establish from current publicly reported information.

205. Note that AviaSolutions[85] has undertaken analysis that suggests that average cargo loads at Heathrow are markedly lower than average cargo capacity.

> *"At Heathrow with a significant number of wide-bodied aircraft (35%), we estimate the average belly-hold freight capacity to be 7 tonnes per ATM at LHR (2015), significantly higher than the actual freight per ATM of 3 tonnes".*

206. This indicates there is excess bellyhold capacity at Heathrow. However, capacity may nevertheless be insufficient for demand on certain routes, directions of travel or at particular times of year, etc.

Other Airports

207. In addition to spare capacity at East Midlands and Stansted, other South East and regional airports could also accommodate significant freight volumes if the demand was there. This is true for both freight on dedicated freighter aircraft or bellyhold freight.

208. Bournemouth Airport[86] highlights that:

> *"With ample room to grow, our thriving cargo facility is expanding to meet the demands of importers and exporters from across the UK. Accommodating a huge variety of freight and passenger aircraft, Bournemouth supports cargo logistics round the clock, with the following benefits: 2271m runway, excellent good weather record, congestion free (with*

[81] Source CAA airport statistics, Altitude calculations
[82] Source CAA airport statistics, Altitude calculations.
[83] (Heathrow Airport, 2017, p. 5)
[84] CAA airport statistics
[85] (AviaSolutions, 2016, p. 31)
[86] www.bournemouthairport.com/about-us/doing-business-together/cargo/

no slot restrictions), experienced in handling many cargo aircraft including the AN-124 Ruslan, 'Freighter friendly' airport management."

209. Bournemouth Airport has some disadvantages due to its coastal location and distance from the motorway network. However, similar issues apply to Manston (with its location arguably even more compromised than Bournemouth, given its position on a peninsula). From the South West, West London and the Midlands, Bournemouth is generally more accessible than Manston[87].

210. Outside the South East, Doncaster Sheffield Airport has a central UK location. It markets itself as "*the UK's Freighter Gateway*[88]":

"At the centre of the UK with easy access to the M18, M1, A1M, M62 and M180 Doncaster- Sheffield is the ideal airport for freighter operations. DSA is justifiably gaining the reputation as the most effective freighter airport in the UK. The attributes that are delivering this include…. exceptional performance record, 24 hour operation, runway 2,893m x 60m, CAT III, Class "D" controlled airspace, no slot constraints/congestion, Competitive jet fuel prices, short taxiing distances, excellent cargo reception and handling, inclusive pricing, NEQ capacity up to 9,300kg Hotac."

211. Both of these airports are currently operational, and benefit from a large site with a long runway. Doncaster Sheffield operates 24 hours a day, whilst night flights at Bournemouth can be arranged with prior notice.

212. Finally, there are a range of other UK airports (currently in use) that previously carried significant volumes of freight, and would be able to do so again if demand returned.

- Prestwick handled ca. 42,000 tonnes of freight in 2001, compared to only ca. 11,000 in 2016. We are not aware of any reasons why Prestwick would be unable to handle similar or higher volumes in the future (assuming demand existed).
- Similarly, Liverpool had negligible freight throughput in 2016 but has handled as high as ca. 30,000 tonnes in 1995. Again, we would assume the airport has the capacity to accommodate similar or higher volumes in the future.
- Gatwick bellyhold freight volumes have been as high as ca. 290,000 tonnes in the past, compared to ca. 80,000 tonnes in 2016. As more long haul routes are added at the airport, freight throughput is once again growing. In the 12 months ending September 2017, Gatwick added ca. 15,000 tonnes of cargo (+20.3%)[89].

213. Taking all UK airports combined, the difference between peak year and 2016 freight tonnes was ca. 225,000 tonnes (freight on dedicated freighters only)[90].

- This excludes airports which have closed (e.g. Manston, Plymouth), where commercial activities have been downsized (e.g. Blackpool, Coventry) and London airports (where pressure on slots may reduce the ability to recover to historic volumes should dedicated freight demand return).

[87] For example, the following distances have been sourced from Google Maps for the typical fastest routing. Bournemouth Airport to Hounslow: 90 miles, Manston Airport to Hounslow: 103 miles. Bournemouth Airport to Bristol: 70 miles, Manston Airport to Bristol: 201 miles. Bournemouth Airport to Birmingham: 167 miles, Manston Airport to Birmingham: 197 miles.
[88] www.therouteshop.com/profiles/doncaster-sheffield-airport/
[89] http://www.mediacentre.gatwickairport.com/press-releases/2017/booming-global-connections-drive-gatwick-to-record-september.aspx
[90] CAA airport statistics.

5.4. Conclusion

214. We conclude that there is no overall shortage of freight capacity at UK airports, whether for dedicated freighters or bellyhold freight.

- The two largest dedicated freight airports have spare capacity.
- There is significant excess capacity at a range of other UK airports that are currently in use. These airports have seen demand reduce due to trends towards consolidation at major airports and switch to trucking.

215. We acknowledge that there is a shortage of freighter capacity at Heathrow. Slot constraints could also be having some impact on the bellyhold market, although the impact may be relatively moderate.

216. However, it is important not to conflate Heathrow constraints with the wider capacity situation. We see no evidence to support the assertion that there is a long-standing shortage of overall UK airport capacity for freight. Indeed, the evidence is to the contrary, given the reductions in freight throughput experienced by many UK airports.

217. There would be substantial benefits to adding freight capacity at Heathrow, the UK's only major passenger hub airport. It can also be argued that freight capacity at a proposed new hub airport in the Thames Estuary would also generate strong benefits if it could be delivered. This option, though, was emphatically ruled out by the Airports Commission.

218. Therefore, it is difficult to see what benefit would accrue from adding freight capacity at non-hub airports, as there is already sufficient supply at advantageous geographic locations. In particular, freight volume at Manston has never exceeded ca. 43,000 tonnes in any single year. This is despite the supposed shortage of UK airport freight capacity and despite a previous owner investing to increase Manston's capacity to 200,000 tonnes per annum.

219. From a freight perspective, we do not consider it meaningful to focus on the South East alone as a separate market. Freight is less time sensitive than passengers. Therefore, for major airports, the freight catchment area is typically many times larger than the passenger catchment area. This is one of the key factors that leads to the high degree of market consolidation seen for air freight.

- East Midlands serves the whole of England and Wales, exploiting its central location in the UK.
- Similarly, the extensive network of long haul flights from Heathrow and its hub operation means it attracts freight from the whole of Great Britain.
- For Europe's major freight hubs, the catchment can be even wider. For example, Leipzig Airport considers its catchment covers a 10-hour trucking radius (see Figure 38), while Liege sees its catchment as all areas within access of a full day trucking (see Figure 39). The catchment areas for these two airports are particularly wide, as a result of their wide range of air services.

220. Mainly due to the hub strength of Heathrow, 78% of 2016 UK air freight was flown from airports in the South East & East of England. Heathrow and Stansted alone achieved 65% and 7% market share respectively.

- Much of the UK's high value manufacturing is located outside London and the South East[91]. In Q1 2015, only 15% of UK manufacturing jobs were located in London and South East[92].
- Clearly, a substantial proportion of air freight using Heathrow in particular will be travelling to/from other areas of the UK.

221. More important is the type of airport capacity. Freight has consolidated around the three major air freight airports (Heathrow for bellyhold, while freighter activity is concentrated on East Midlands, Stansted and

[91] (Heathrow Airport, 2014, p. 19)
[92] (House of Commons Library, 2015, p. 7)

Heathrow). This enables the air freight industry to benefit from the economies of scale and scope flowing from consolidation. These cost efficiency pressures are unlikely to reverse.

6. UK Capacity Outlook

6.1. Context

222. In the previous section, we demonstrated that there is currently no overall shortage of freight capacity at UK airports.

223. In this section of the report, we analyse the scope for developing freight capacity at existing airports, in order to meet future demand.

- We focus on the published expansion plans of the three major freight airports.
- We consider the spot years of 2029 (prior to assumed new runway opening at Heathrow in 2030), 2040 (medium term planning horizon) and 2050 (long term planning horizon).

224. We also review comments in the Azimuth report in relation to the future role of individual airports.

6.2. Review of Individual South East Airports

Heathrow Airport

225. In its final report, the Airports Commission[93] "*unanimously concluded that the proposal for a new Northwest Runway at Heathrow Airport… presents the strongest case*." Heathrow is working on a timeline of a 2025 opening[94]. However, we consider that an assumed opening date of 2030 is more prudent, given the complexity of the planning and construction process. This aligns with the Airports Commission's stated need for one additional runway to be in operation in the South East of England by 2030.

226. Heathrow is developing its infrastructure to increase its cargo handling capability. The airport states:

> *"We are developing proposals for a complete overhaul of our cargo facilities as part of our expansion plans for an additional runway. Redevelopment of the airfield will provide an opportunity for the first time to expand the site and create new efficiencies*[95]

227. The airport has commented on the factors that currently reduce its competitiveness for cargo, and has developed a strategy to address these issues:

> *"Our customers have told us about the bottlenecks caused by some of the infrastructure, inefficient facilities and processes that are slower and more arduous than those of our European competitors. Our stakeholders rate us as poor for our facilities and value for money"*[96]

228. In its 2016 document 'Heathrow Cargo Strategy', Heathrow states:

> *"Our cargo strategy will lift freight volumes to 3 million tonnes a year by 2040"*[97]

229. Based on UK CAA data for 2016, this represents CAGR of 2.7% over 2016-40. Documentation from the airport indicates that growth is likely to come from additional bellyhold capacity rather than freighter ATMs:

> *"This will provide capacity at Heathrow for freight and cargo to be carried in the belly hold of passenger flights"*[98]

[93] (Airports Commission, 2015, p. 9)
[94] https://www.heathrowexpansion.com/local-community/important-dates-information/ (retrieved 19th October 2017).
[95] (Heathrow Airport, 2014, p. 20)
[96] (Heathrow Airport, 2016b, p. 2)
[97] (Heathrow Airport, 2016b, p. 2)
[98] (Heathrow Airport, 2014, p. 20)

230. Azimuth[99] discusses Heathrow in its first report.

231. Azimuth states that "*Indeed, more than 99% of air freight at Heathrow is carried in the bellyhold of passenger aircraft*". This is incorrect. Since 2010, the proportion of bellyhold freight at Heathrow has consistently been around 95%. A CAA report seems to be incorrectly attributed by Azimuth as a source for this figure.

232. It is also suggested that:

> *"The addition of a third runway at Heathrow is unlikely to resolve the capacity issues for dedicated freighters. Since Heathrow's passenger market has been constrained for some years, it is likely that the new runway will be used to meet this pent-up demand".*

- This is a pessimistic viewpoint. Heathrow's runway capacity in 2016 was 99% utilised[100]. With ca. 50% additional capacity on opening of a third runway, we would envisage some opportunities for additional freighter flights. Despite severe slot constraints, the number of freighter movements at Heathrow has remained stable since 2010[101].
- Therefore, there is some prospect of more freighter traffic at Heathrow after the opening of the third runway. Nevertheless, we do not dispute that there will be ongoing constraints on freighter activity at Heathrow, especially in the very long term.
- Of course, the major expansion of passenger flights following the new runway opening will lead to a substantive uplift in bellyhold capacity. As previously discussed, for most types of general freight, there is no inherent market preference for bellyhold or freighter carriage (with cost often the key deciding factor, which generally favours bellyhold). Therefore, the new Heathrow runway will add a significant amount of new cargo capacity into the UK market.

233. The Azimuth report also speculates that:

> *"Should Low Cost Carriers, who do not carry belly-freight for operational reasons, fill much of the additional runway capacity, Heathrow's freight handling, in terms of tonnes per year, is unlikely to increase substantially."*

- We view the references to low cost carriers as not relevant. Even if low cost carriers switch to Heathrow (which may depend on the level of airport charges after the new runway opens), this will have limited impact on bellyhold capacity.
- The full service short haul carriers operating at Heathrow currently contribute very little in terms of freight tonnage. Less than 10% of Heathrow freight is to/from UK and Europe[102], compared to 62% of passenger flights[103].
- There are several factors that cause this. In general, air freight is less competitive than trucking for shorter distances. Furthermore, the cargo carrying capacity of short haul aircraft (typically narrowbody types) is limited. Finally, air freight that is flying short distances tends to be express cargo, which is more likely to use dedicated freighter aircraft.
- Therefore, whether low cost carriers operate a significant proportion of Heathrow short haul services in the future will not have a significant impact on bellyhold availability. Similarly for long haul low cost, as these airlines typically carry bellyhold cargo (e.g. Norwegian).

[99] (Azimuth Associates, 2017 a, pp. 15-16)
[100] 474,963 ATMs compared to cap of 480,000 (source CAA airport statistics).
[101] Cargo ATMS at Heathrow since 2010 were 2010: 2,414; 2011: 2,456; 2012: 2,378; 2013: 2,347; 2014: 2,332; 2015: 2,388; 2016: 2,452; (source: CAA airport statistics).
[102] (Heathrow Airport, 2017, p. 5)
[103] In 2016 Heathrow handled 477,614 aircraft movements. 295,605 of these flew Domestic or European routes [source: CAA airport statistics, Altitude analysis].

234. Azimuth also compares Heathrow processing times unfavourably to Manston Airport. We noted above (see paragraph 227) that Heathrow has a strategy to improve its process efficiency. However, the broader point is that this is not a meaningful comparison.

- Using a dedicated freighter at an unconstrained airport should nearly always be the fastest way of transporting air freight, assuming equivalent trucking time to reach the airport[104].
- However, for the majority of general cargo, the time-sensitivity is in the order of days rather than hours. A bellyhold freight consignment through a major hub will typically be much cheaper. Freight can be consolidated with other freight consignments. The incremental cost of carriage for bellyhold is relatively low, meaning that rates charged are typically much more competitive than for freighters – especially if there is not enough volume to fully utilise freighter capacity.

235. Finally, Azimuth[105] refers to a York Aviation study, in the context of Heathrow:

> *"York Aviation figures show, there will be a shortfall of slots for dedicated freighters, likely to be in the region of 45,000 by 2050".*

- This is an incorrect reading of the York report, which York Aviation rebut in detail in its November 2017 report commissioned by SHP[106].

236. In summary, the Azimuth analysis substantially underplays the potential for freight growth at Heathrow.

Stansted Airport

237. The airport has outlined infrastructure improvements to facilitate cargo traffic growth, including the potential for more cargo handling facilities to be built, and increasing the number of stands for cargo aircraft from 16 to 24[107].

238. Stansted Airport also published a 'Sustainable Development Plan' document in 2015 detailing the future demand it expects to handle:

> *"There is potential for cargo goods volume at the airport to increase on the single runway, potentially doubling the current throughput of cargo on dedicated aircraft to around 400,000 tonnes per annum….. Further growth can be expected from belly hold cargo as the range of airlines and destinations operating from the airport increases. The current modest amount carried in the belly hold of passenger aircraft could increase to around 60,000 tonnes a year"*[108]
>
> *"There is potential that cargo movements could rise to make full use of the current movement limit, however this needs to be considered against growth in passenger movements and the night quota. For planning purposes we have assumed that the number of cargo movements will be in the range of 15,000 and 18,000 per annum…. The majority of the cargo movements are expected to operate during the late evening and at night. Cargo aircraft will continue to operate during the off-peak periods between passenger movement peaks"* [109]

239. Note, the document is vague regarding the timescales relating to its forecast; it never states the year in which it expects demand to reach the forecast level. An assumption that the figure of 460,000 tonnes per annum is achievable by 2040 results in a CAGR of 2.7%[110].

[104] Although for most parts of the UK, trucking time to Heathrow will be significantly shorter than to Manston.
[105] (Azimuth Associates, 2017 a, p. 16)
[106] (York Aviation, 2017)
[107] (Stansted Airport, 2015b, p. 36)
[108] (Stansted Airport, 2015b, p. 26)
[109] (Stansted Airport, 2015b, p. 29)
[110] We believe this is a reasonable assumption, as both Stansted and East Midlands forecast are owned by MAG; MAG produced both forecast documents in the same year and using the same formatting and template; 2040 is the stated forecast year for East Midlands.

240. A plan for 15,000-18,000 cargo ATMs, when there is currently a limit of 12,000 overnight ATMs in total, possibly indicates growth of general cargo is expected.

241. Azimuth[111] argues that freighter services at Stansted will be forced out by passenger services.

> *"However, the airport is under pressure from Ryanair to increase the number of passenger flights. Ryanair is the dominant carrier at Stansted Airport and, since the LCC model is based on fast turnarounds, the airline will not tolerate interference from cargo handling. Ryanair is increasing their offering to more distant destinations including Turkey, North Africa, Cyprus and the Middle East. For the airline to maintain four rotations per day to maximise the profitability of each aircraft, late evening and night time slots will be required. Freight carriers have traditionally used these night slots."*

242. Azimuth continues:

> *"Since the airport also has a limit on total movements, this may mean Stansted has to choose between increasing passenger movements or retaining its freight. In this case, it seems likely that Stansted's management will preference passenger movements."*

243. There is no foundation for a number of the points raised above. Taking the various points in turn:

- No supporting evidence is provided for the statement that Ryanair is applying pressure on the airport to increase passenger flights (especially the implication that this would be at the expense of cargo flights). The Summer 2017 peak week runway profile (Figure 18) clearly indicates significant capacity for Ryanair to expand operations.
- We do not see any reason why handling freight from dedicated freighters would have any impact on the turnaround time of Ryanair aircraft.
- Azimuth appears to have limited understanding of the low cost carrier sector. We estimate that Ryanair averaged less than 2.5 rotations per aircraft per day across its network in FY17 (based on an analysis of its financial accounts).
- Ryanair operate from airports with night curfews or with night restrictions. Across 2017, an analysis of OAG schedule data for Stansted suggests that less than 3% of Ryanair flights operate in the night time period. Stansted Airport expects that cargo aircraft will continue to operate during the off-peak periods between passenger movement peaks (see paragraph 238).
- Stansted Airport has a separate movement cap for cargo and passenger ATMs. There is also an overall ATM cap[112], which is the sum of the separate passenger and cargo ATM caps. Therefore, the suggestion that Stansted will need to prioritise passenger flights over cargo flights is misplaced.
- Finally, no acknowledgement seems to have been made by Azimuth that Stansted Airport has stated that it is planning to grow freight tonnage alongside developing the passenger business (see paragraph 238).

Gatwick Airport

244. As discussed in paragraph 212, Gatwick has previously carried bellyhold volumes of ca. 290,000 tonnes (ca. 210,000 higher than the 2016 outturn). Gatwick had lost freight volumes as traffic mix has changed, in particular following the loss of long haul services after changes to traffic distribution rules in 2008.

245. Freight volumes have been growing rapidly since 2015, helped by the recent expansion of long haul services (many by low cost carriers). As more long haul services are added at the airport, we would expect continued growth.

[111] (Azimuth Associates, 2017 a, pp. 14-15)

[112] www.acl-uk.org/wp-content/uploads/2017/07/STN-Local-Rule-4-1.pdf . Note that the airport also has an overall movement cap, which comprises of passenger ATMs + cargo ATMs + 10,000 other movements.

246. Azimuth[113] only comments briefly on Gatwick:

- "*It has increased its annual tonnage from only 3,000 in 2014 to 73,000 tonnes in 2015*." This is a somewhat surprising statement. Growth of this scale would merit more than a passing mention. However, the true freight tonnage in 2014 was ca. 89,000 tonnes, not 3,000 tonnes (source: CAA airport statistics).
- "*Gatwick is not a serious competitor in the freight market*." We note that current freight throughput (year ending September 2017) was almost 90,000 tonnes, more than double the peak annual value achieved by Manston in its entire existence. It was the 5th largest UK freight airport in 2016.

Other South East Airports

247. Azimuth[114] discusses the potential of other South East airports. As noted previously, we do not believe there is requirement for new freight capacity in the South East specifically. Therefore, we only briefly comment on the potential of other airfields.

- Bournemouth is only fleetingly considered by Azimuth. As highlighted in paragraph 208, we consider there to be some potential for freight development from this airport, a view shared by the airport itself.
- We also note that in its analysis of Southampton, Azimuth wrongly states that it handled 185,000 tonnes in 2015 (the correct figure is 185,000 kilogrammes or 185 tonnes). The short runway at Southampton constrains its ability to serve the freight market.

6.3. Review of Individual Regional Airports

East Midlands Airport

248. East Midlands is the UK's leading airport for dedicated freighter activity. Its central location enables it to serve a wide catchment, encompassing England, Wales and Scotland.

249. This is acknowledged by Azimuth[115]. However, it argues that the airport is not in a good position to serve the South East.

> *"At present the airport serves a wide catchment area as shown in Figure 2. However, surface access to these geographically distant businesses, of which many are concentrated in the South East, is hampered by congestion on the UK's road network. Therefore, total time taken to deliver from origin to final destination increases, particularly around the bottlenecks on some of the major motorways. Figure 2 clearly shows the number of businesses located in the South East, within the Manston catchment area.*

250. Earlier in the report (see paragraph 170 onwards), we provide a comparative analysis of the accessibility of East Midlands versus Manston. Given the wide catchments areas for cargo (see paragraph 219), we consider that the East Midlands is very accessible for the South East market. The M25 orbital motorway can be reached in just over 1.5 hours.

251. East Midlands Airport notes that the vast majority of vehicle movements to/from the airport take place very late at night or very early in the morning (see paragraph 151). Therefore, motorway bottlenecks alluded to by Azimuth should have a limited impact, as journeys will not be taking place during peak hours. In any case, congestion on the UK motorway system will affect all UK airports (including a reopened Manston).

[113] (Azimuth Associates, 2017 a, p. 16)
[114] (Azimuth Associates, 2017 a, pp. 18-19)
[115] (Azimuth Associates, 2017 a, pp. 17-18)

252. East Midlands has a benign planning environment (see paragraph 192 onwards). Despite the relatively low level of restrictions, the airport acknowledges sensitivity to developments that will impact on night time noise:

> *"Any further consideration or development at the airport related to night flights will require the application of stringent controls over night-time noise."*[116]

253. East Midlands Airport has land available for development of additional cargo facilities in order to support growth:

> *"The DHL Hub building opened in 2000 and it was always intended that the site would be developed in phases. Land continues to available for phased development on the western side of the building"*[117]

> *"Land will be reserved for the development of an integrator hub at Cargo East on land between the Pegasus Business Park and the runway/taxiway. This will enable the development of additional apron to serve the new hub operation. The building will be of a significant scale and will provide for the sortation systems required by the integrated carriers and also landside vehicle access for vans and for HGV's"*[117]

> *"Opportunities will be identified for incremental redevelopment and improvements to the existing Transit Sheds in Cargo East. A site for new cargo development, to the east of the current Royal Mail hub, will also be reserved. These development schemes will be made on a case by case basis and in response to operators' requirements"*[118]

254. As noted in paragraph 153, a rail interchange adjacent to the airport is in development, further strengthening its market position.

255. In the 'Sustainable Development Plan' document referenced previously, East Midlands Airport also publishes a demand forecast for the airport.

256. This forecast assumes that freight at East Midlands continues to be carried on freight-only aircraft, and that the type of freight carried by integrators (primarily express) will grow faster than that carried by other types of carrier.

> *"The forecast for future cargo tonnage is for some 618,000 tonnes in 2035 and some 700,000 tonnes in 2040…. by 2040, the number of cargo movements could grow to around 42,600. This reflects the growth of the integrated carriers and that the average freight load per cargo aircraft movement is predicted to increase from 14.4 tonnes in 2012 to 17.9 tonnes at 2040"* [119]

> *"The future split of day and night movements is expected to be similar to that of today"*[120]

257. Note that the airport does not include in its forecast any significant growth of mail (as it expects "*structural changes to the mail market. This is as a result of the shift from letters to parcels*"[119]).

258. In addition to stating its forecast demand, East Midlands Airport made clear statements on its future capacity in its 'Sustainable Development Plan' document. It does not believe it will be constrained by 2040:

> *"There are therefore no plans for the development of a second runway within the planning horizon covered by this Master Plan (2040) …. The capacity of the East Midlands Airport*

[116] (East Midlands Airport, 2015, p. 69)
[117] (East Midlands Airport, 2015, p. 79)
[118] (East Midlands Airport, 2015, p. 80)
[119] (East Midlands Airport, 2015, p. 61)
[120] (East Midlands Airport, 2015, p. 111)

runway is estimated to be between 34-36 runway movements per hour. This provides the airport with sufficient runway capacity for the foreseeable future and will be more than sufficient to accommodate an airport of a scale to handle 10 million passengers and 1.2 million tonnes of cargo annually" [121]

"the Land Use Plan identifies the land, the uses and the facilities required to support the operation of an airport capable of handling 10 million passengers annually and 1.2 million tonnes of cargo"[122]

"there will need to be a minimum of seven additional cargo stands provided including the ability to regularly park aircraft up to Code F (Boeing 747-8F) size"[123]

Other Regional Airports

259. There are a range of other regional airports with spare freight capacity which could play a larger role in the future.

- Doncaster Sheffield (see paragraph 210).
- Manchester Airport is the largest passenger airport outside the South East. It operates a two-runway system (the only UK airport with two runways except Heathrow). It has previously handled substantially more freight than currently handled.
- Similarly, Liverpool and Prestwick have previously handled much higher freight volumes than currently. Both airports have significant spare runway capacity and a large site to develop cargo infrastructure (Prestwick already has the facilities to handle specialist cargo). While Prestwick may be too far north to effectively serve the South East market, it could relieve pressure on other UK airports by capturing a larger share of freight demand to/from Scotland and the North of England. Liverpool is well connected to the UK motorway network, and the airport is owned by the operators of Liverpool Port.

6.4. Overall Capacity Outlook to 2040

260. We have projected the overall airport capacity for freight in 2040. For the three largest freight airports, future capacity has been sourced from the published plans described in the previous sub-section.

- While Heathrow and Stansted do not explicitly state their maximum expected future cargo capacity, we can assume each airport will have at least enough capacity to serve its predicted demand[124].
- The Heathrow figure assumes the opening of the planned third runway.

261. For other airports, we assume the following:

- Gatwick has handled ca. 0.2m annual tonnes of freight as recently as 2006. We assume it has the capability (demand permitting) to handle similar volumes in the future.
- Manchester handled ca. 0.17m annual tonnes of freight in 2007, and in its 2006 Masterplan, the airport forecast cargo tonnage of 0.25m tonnes by 2015[125]. We assume that the airport will be able to accommodate freight up to its masterplan forecast (0.25m tonnes).

[121] (East Midlands Airport, 2015, p. 73)
[122] (East Midlands Airport, 2015, p. 9)
[123] (East Midlands Airport, 2015, p. 75)
[124] Documentation from these airports indicates they have identified and made provision for developments of ground facilities (warehouses, stands etc…) to accommodate the forecast demand. Only Heathrow requires development of runway capacity.
[125] (Manchester Airport, p. 29)

- We assume that the remaining UK commercial airports (which are still fully operating) can handle freight tonnage at the level of previous peak year throughputs. This provides an assumed capacity of ca. 0.3m tonnes.
- Finally, we assume that by 2040, an additional 0.1m tonnes could be handled at airports with large sites but limited historic freight throughout (e.g. Doncaster Sheffield). This is likely to be a conservative assumption.

262. Total UK air freight capacity in 2040 is estimated to be ca. 5.4m tonnes per annum (including the impact of a new Heathrow runway). Of this, ca. 65% could be bellyhold capacity, with ca. 35% from freighters. Capacity at the three main cargo airports (Heathrow, East Midlands and Stansted) is estimated to be ca. 4.6m tonnes.

Airport	Estimated 2040 Capacity (m tonnes)	Possible Utilisation	
		Freighter	Bellyhold
Heathrow	**3.00**	0.09	2.91
East Midlands	**1.10**	1.08	0.03
Stansted	**0.46**	0.40	0.06
Manchester	**0.25**	0.03	0.23
Gatwick	**0.20**	0.00	0.20
Other UK	**0.39**	0.30	0.09
Total UK	**5.40**	**1.89**	**3.51**

Table 2 – Summary of estimated 2040 air freight capacity at UK airports
Source: Heathrow Airport, East Midlands Airport, Stansted Airport, Manchester Airport, UK CAA, Altitude analysis and assumptions

6.5. Capacity Outlook Prior to New Runway at Heathrow (2029)

263. We have also considered the potential capacity available prior to the third runway at Heathrow (assumed to open in 2030). There is limited information on the phasing of future capacity developments in the period to 2040, so this estimate has a greater reliance on our assumptions.

264. We have modelled the potential UK air freight capacity in 2029 at ca. 3.6m tonnes. This is based on the following prudent assumptions:

- No additional passenger or cargo ATMs at Heathrow compared to 2016. We assume that the airport will be able to accommodate freight growth at half the achieved annual growth rate for bellyhold tonnes/ATM recorded from 2006-16.
- We assume that the current Stansted and East Midlands capacity is at least 20% above 2016 freight outturn. We then model that the incremental capacity to be added by 2040 will be brought onstream at a constant rate.
- We model that Manchester is able to handle freight that was forecast for 2015 in its 2006 masterplan (same as 2040 assumption).
- For all other existing commercial UK airports, we assume the airports can handle historic peak values.

265. This is a deliberately cautious approach. Neither Stansted nor (especially) East Midlands face substantial freight constraints currently, and should be able to handle much higher freight volumes in the coming years.

6.6. Post 2040 Capacity Outlook

266. In the long term, there is the possibility of additional runway capacity in the South East. The Airports Commission stated in its final report:

> *"Even with a third runway at Heathrow, capacity in the London and South East system could be highly constrained by the 2040s and, as the Commission noted in its Interim*

Report, there would be likely to be sufficient demand to justify a second additional runway by 2050 or, in some scenarios, earlier"[126]

267. The regulatory environment, particularly with regard to noise and night flying, looks likely to be a key determinant as to the overall capacity that might be available for cargo movements post-2040.

[126] (Airports Commission, 2015, p. 334)

7. UK Demand vs Supply Outlook

7.1. Our Forecast for the UK Market

Context

268. We have assessed the future demand for air freight in the UK, reflecting some notable trends:

- Increasing role of passenger aircraft in the carriage of air freight, and the relative diminishing in importance of freighter aircraft. Passenger demand has developed strongly in recent years. This has led to expansion of cargo capacity in the bellyhold of passenger aircraft outstripping growth in air freight demand (see Figure 37).
- This trend has led to cutbacks in dedicated freighter operations from leading airlines such as Cargolux, IAG, Air France-KLM and Singapore Airlines (see paragraph 425). As of Q4 2016, 15% of widebody freighter capacity globally was in storage (see Figure 36). Airbus forecasts growth of just 42 freighters in European fleets by 2036[127]. In the UK, freight tonnes carried on all-freighter aircraft peaked in 2004. Since 2004, its share of total air freight has fallen from 37% (ca. 876,000 tonnes) to 30% by 2016 (ca. 708,000 tonnes, see Figure 5).
- There has also been a clear move towards consolidation of air freight activity at major passenger or freight hubs. In the UK, the leading 3 airports (East Midlands, Stansted and Heathrow) have steadily grown their share of overall UK air freight tonnes on dedicated freighter services – from 41% in 1990 to 86% in 2016 (see Figure 7). The UK bellyhold market is even more consolidated, with the leading 3 airports (Heathrow, Manchester, Gatwick) achieving a combined market share of 97%+ in each year since 1996 (see Figure 11).
- Cargo ATMs across UK airports have contracted, from ca. 108,000 in 2000 to ca. 52,000 in 2016. The most recent (2017) Department for Transport forecasts to 2050 assume the number of freighter flights in the UK will remain flat at 2016 levels[128].

269. We expect these trends to continue into the long term. These fundamental market developments do not appear to have been recognised by Azimuth, or have been ignored, in its assessment of the potential for a re-opened Manston.

Forecast Approach

270. Air cargo forecasting is complex, with a wide variety of factors influencing long-term demand. These include:

- High-level economic factors (such as overall GDP growth of the producer and consumer countries, and exchange rates) as well as low-level economic factors (e.g. business rates and import/export taxes).
- The state of global relations and the proliferation of protectionist trade measures.
- The mix of products being traded (remembering that generally only high-value items are suitable for air freight).
- The rate of product miniaturisation (which reduces air cargo volumes/tonnages).
- Development of entirely new products (e.g. iPhone and the global uptick in air freight when a new model is released).
- Technological advances enabling mode shift to or from air freight.

[127] (Airbus, 2017a, p. 105)
[128] (Department for Transport, 2017a, p. 33)

- Fuel prices impacting the competitiveness of air freight relative to other modes (while some products must travel by air, for others this is a preference, which is influenced by price).

271. It is also reasonable to suggest that there is less of a global focus on air cargo forecasts than, for example, air passenger forecasts. As such, there is less detailed, less well-defined, and less-robust data available upon which to base air cargo forecasts.

272. In the interests of simplicity and transparency, we have adopted a very high level econometric approach.

- Future freight growth has been linked to projections of future UK GDP growth.
- We use the UK Office for Budgetary Responsibility long term predictions of UK GDP[129]. In real terms, UK GDP is anticipated to grow by CAGR 2.2% in the period 2016-40 (CAGR 2016-29: 2.2%, 2029-40: 2.3%) with CAGR of 2.4% for period 2040 to 2050.

Forecast Results – Base Case

273. We project the size of the UK air freight market in 2040 to be ca. 4.2m tonnes per annum. This breaks down as ca. 3.1m tonnes of bellyhold demand and ca. 1.1m tonnes of freighter demand. We also project that:

- 2029: ca. 3.3m tonnes (of which ca. 0.9m tonnes of freighter demand).
- 2050: ca. 5.1m tonnes (of which ca. 1.2m tonnes of freighter demand).

274. Key assumptions made in generating our base case forecast include:

- Low growth experienced in the last decade will not continue, with future demand elasticities only slightly below historic long-term observed ratios.
- Future demand elasticities will decline slightly with time (also due to increasing market maturity).

275. We forecast the 2016-40 growth rate to be 2.4% CAGR. This is slightly behind the level of growth seen in the long-term historic data (between 1990 and 2016, CAGR was 2.7% CAGR). Nevertheless, we view our forecast as relatively optimistic. Our forecast growth rate is well ahead of the level of growth seen in more recent years (e.g. 2010-16 CAGR of 0.4%).

276. Our forecast growth rate is behind global forecast growth by Airbus (CAGR 2016-36 of 3.8%). This is not unexpected given that the UK is a relatively mature market, and that our forecast is for a longer period. Note also that our forecast is for tonnage, compared to flown tonne-kilometres for Airbus (as such, changes in the average sector length would influence the Airbus forecasts).

Forecast Results – Scenario with lower demand elasticity

277. We have also produced a scenario in which we lower our forecast demand elasticities to be in line with observed ratios from the four most recent historic years (i.e. 2013-16, over which UK air freight tonnage has grown at 1.8% CAGR). GDP growth in this scenario is as per our base case.

278. This scenario results in a UK demand of 3.6m tonnes of air freight in 2040 – significantly lower than our base case forecast (see Figure 19). This highlights the strength of the market recovery we are assuming in our base case.

[129] (Office for Budget Responsibility, 2017, January)

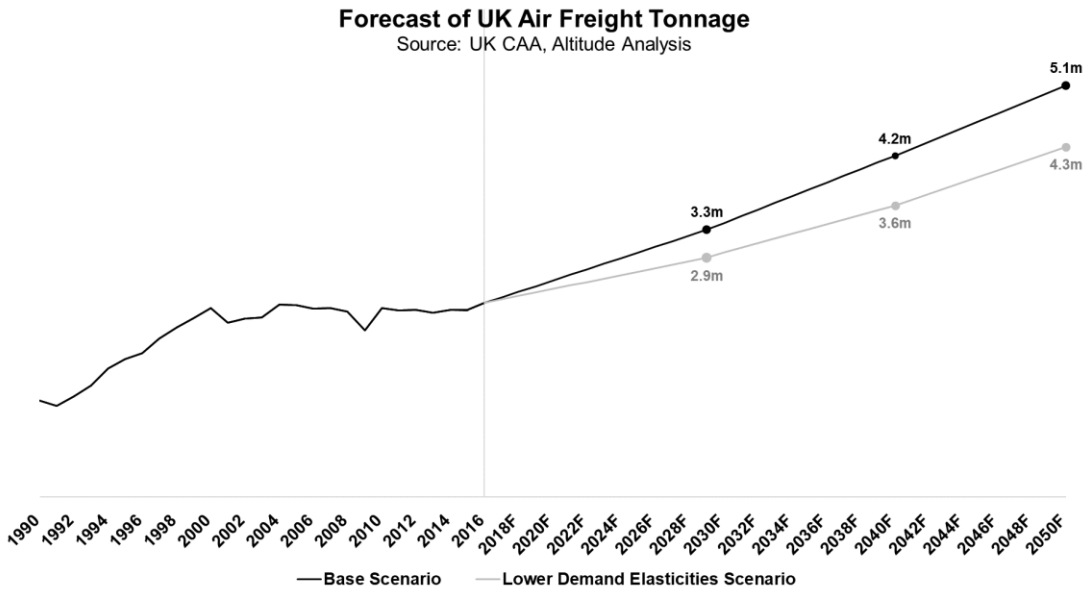

Figure 19 – Altitude forecast of UK air freight demand to 2050

7.2. Other UK Market Forecasts

East Midlands Airport UK Market Forecast

279. In its 2015 'Sustainable Development Plan' document, East Midlands Airport has published its assumptions for the size of the UK market in 2040. It predicts total demand of 4.4m tonnes per annum:

> *"A review of the airport's cargo forecasts has also been carried out. This assumes growth in the UK's total air freight demand, doubling from 2012 levels (2.3 million tonnes) to 4.4 million tonnes by 2040 (combined annual growth rate of 2.3%)"*[130]

280. This gives an average growth rate that is similar to our forecast but from a starting point of 2014 rather than 2016. Growth in the period 2014-16 was significantly lower than 2.3%, explaining the minor differences in the 2040 projections.

York Aviation London Airports Forecast

281. York Aviation published a report in 2015 for the Freight Transport Association and Transport for London. The report included a prediction of the volume of air freight demand in London in 2050. Note the final year of outturn data upon which this forecast is based appears to be 2013.

282. York Aviation's forecast air freight demand at London airports is 4.2m tonnes per annum by 2050[131]. Using the report's stated figure for 2013 freight tonnage at London airports (1.8m tonnes), the forecast CAGR 2013-50 is 2.3%.

283. However, while the growth rate is similar to our UK wide forecast growth, there are again differences in the starting point (achieved growth in the period 2013-2016 was lower than the average growth rate of the whole forecast period).

[130] (East Midlands Airport, 2015, p. 16)
[131] (York Aviation, 2015, p. 19)

7.3. Future Requirement for Freight Capacity at UK Airports

284. As indicated previously, we have compared our forecast demand with our assumed airport capacity for three spot years:

- Prior to new Heathrow runway (2029, last year before assumed new runway opening).
- Medium term planning horizon (2040).
- Long term planning horizon (2050).

285. For the period to 2040, the potential air freight airport capacity in the UK is comfortably higher than the volume of demand we forecast for the UK as a whole.

- In 2029, we forecast base case demand of 3.3m tonnes, compared to a conservatively modelled airport capacity of 3.6m tonnes. In practice we would anticipate that both Stansted and East Midlands capacity could be significantly higher than we have assumed. Therefore, we do not see any overall capacity shortage prior to the third runway at Heathrow.
- By 2040, we forecast demand of 4.2m tonnes, compared to assumed airport capacity of ca. 5.4m tonnes.

286. Furthermore, the potential freighter capacity is significantly above our freighter demand forecast, and the potential bellyhold capacity is also ahead of our bellyhold demand forecast.

287. By 2050, if there is no further capacity development, demand levels are projected to approach capacity provision. This may lead to capacity constraints at preferred airports for the freight sector.

288. Based on planned expansions at the existing major airports, we do not envisage a need for additional freight capacity to be developed in the period to 2040, and possibly not until 2050.

289. Therefore, there is not a compelling need for development of further airport capacity for freighter aircraft in the UK (other than that already in the pipeline or at operational airports with identified potential future capacity).

8. Review of Azimuth Freight Forecasts

8.1. Context

290. In this section, we assess the Azimuth freight forecasts for Manston. As part of this assessment, we review in turn:

- Arguments put forward by Azimuth in Volume 1 in relation to the future potential of Manston. These arguments are then deployed later on in the Azimuth study in support of its freight forecasts.
- The discussion of forecasting approaches put forward by Azimuth in Volume II.
- The research Azimuth undertook (interviews) and their findings and conclusions (Volume II).
- The methodology adopted by Azimuth in its freight forecasts for Manston Airport, set out in Volume III.
- The Manston freights forecasts that have been developed by Azimuth (Volume III).

291. Note that there is a degree of repetition across the various Azimuth reports. To avoid excessive duplication, we review similar points only once.

8.2. Supporting Arguments (Volume I)

292. In this sub-section, we review the key arguments for Manston that Azimuth[132] deploy in Volume I of its report. We critique these points in the same order as they appear in the Azimuth report.

General

293. In Table 2 (P11), Azimuth outlines the leading European airports for freighter movements. In relation to the table, on Page 10 it comments that:

> *"The figures highlight the reliance on belly-freight at most of the UK's airports…. As the UK progresses with negotiations to exit the EU, the Country will find it advantageous to have sufficient capacity at airports that can handle dedicated freighters, without the need to truck to airports in mainland Europe."*

294. We make a couple of observations:

- By Year 5 of the Azimuth[133] forecasts, the predicted freight throughput of Manston is already ahead of the 2014 volumes of some of the leading European airports in the table (Dublin, Rome, Frankfurt Hahn). This highlights the scale and speed of the freight growth that is forecast for Manston by Azimuth.
- The non-UK airports in the table are predominantly major passenger hubs or large passenger airports (typically primary capital city airports). The only exceptions to this are the major integrator hubs at Leipzig and Liege, and Frankfurt Hahn (one of the smaller freight airports in the sample, with lower throughput than envisaged for Manston in Year 4 of the forecasts). This illustrates the importance of "hub" capacity for freighter operations, where wide body long haul passenger flights complement dedicated freighter operations. Manston would not provide this type of capacity.

295. Azimuth also quotes Oxford Economics, Transport for London and York Aviation studies highlighting freight capacity shortages (Volume I, P1-13). We reiterate our previous comments that we do not believe there is an overall shortage of freight capacity. Azimuth ignores the context of these studies, and does not distinguish between hub capacity and freighter capacity at other airports. We refer to the November

[132] (Azimuth Associates, 2017 a)
[133] (Azimuth Associates, 2017 c, p. I)

2017 report by York Aviation[134] which clearly explains how Azimuth misrepresents the studies relied upon to the extent that York Aviation make clear that *" the York Aviation work relied upon by RSP does not, and cannot be taken to, support RSP's proposed alteration to Manston Airport and, therefore, cannot be relied upon by RSP, the Planning Inspectorate, the Secretary of State and any future appointed Examining Authority (should RSP submit the application and the Secretary of State accepts the application)".*

296. Therefore, it does not follow, as stated on Page 13, that "*It is clear from the figures presented here that the capacity available at Manston Airport is vital to the continued competitiveness of the UK.*"

297. Azimuth acknowledges the importance of integrators and freight forwarders on Page 14:

> *"The RiverOak vision is to encourage integrators and freight forwarders to locate in the Manston area, have a competitive pricing structure, and build on the previous excellent cargo handling service provided by the airport."*

298. However, both integrators and freight forwarders consolidate activity at major hubs. It is not clear why they would relocate to the peripheral location of Manston. Heathrow is the major consolidation point in the South East. Even under the highly optimistic Azimuth forecasts, Manston freight throughput would remain a fraction of the Heathrow outturn volumes.

299. Page 14 of the Azimuth report outlines various advantages that Manston apparently benefits from. However, these stated advantages were insufficient to enable the airport to be viable when it was operational.

300. Page 22 raises concerns about the number of destinations served from Heathrow.

> *"The Aviation Policy Framework indicates the Government's concerns over the falling number of destinations served by Heathrow Airport and the impact on connectivity. Profitable routes are operated at higher frequencies, reducing the number of destinations served (DfT, 2013, p. 28). This reduces the possibility of using bellyfreight to those destinations no longer served from Heathrow and indicates the need for dedicated freighters on those routes."*

- It is not clear that the number of destinations served from Heathrow is falling (recent trend is inconclusive).
- As discussed in paragraph 204, capacity constraints have primarily impacted short haul routes, which are less relevant for bellyhold freight. The freight tonnage per flight has been increasing at Heathrow in recent years (see Figure 13).

BREXIT and Security Issues

301. Section 5.2 (P22-23) discusses the potential effect of BREXIT on UK aviation. We agree with the comment that "*There are many unknowns at this stage*". However, only positive outcomes (in relation to Manston) are considered. Some major assertions are made that are based on conjecture and lack logic.

302. For example, on Page 23, it is speculated that:

> *"Friction at the borders between EU countries and the UK, particularly at the Channel ports, is likely to increase to meet the demands of security checks and ensuring tariffs are paid where necessary. This may serve to switch transport away from trucking to air freight, avoiding congestion at the Channel Crossings."*

[134] (York Aviation, 2017, p. 9)

303. Two major assumptions are made. Firstly, that any border issues will be significant and of a permanent nature. However, this will not necessarily be the case. A news report in the Guardian[135] interviewed the chief executive of the Belgian port of Zeebrugge.

> *"Gridlock at the border, vast motorway car parks and jobs lost: British ports have been vocal about the risks of a hard Brexit. In case Conservative MPs missed the message, the Port of Dover advertised at the party conference, warning that an extra two minutes on lorry inspections could lead to queues of 17 miles at Dover and similar "chaos in Calais and Dunkerque".*
>
> *Across the North Sea, continental ports are worried about the great unknowns of Brexit. One of the most exposed is the Belgian port of Zeebrugge, which does 45% of its trade with the UK. "We are vulnerable if something happens to the trade from the UK to the continent," said port chief executive Joachim Coens. "So what I mainly hope is that we could continue having a good trade relationship with the UK… as we have been doing for centuries."*
>
> *However, Zeebrugge is less concerned about the resumption of customs checks – "I think we can handle that," says Coens. The Belgian port could even take business from Calais, he suggests, because it specialises in people-free freight – "roll on, roll off" in industry jargon – removing problems about drivers having to clear UK border controls.*
>
> *Meanwhile, Zeebrugge is fast-tracking the development of apps and scanners to further reduce paperwork. It is developing a UK-specific programme for every stage of the logistics chain, which would allow goods to clear customs even when lorries are miles from the port."*

304. The second major assumption is that customs checks would not have a similar impact on processing times for air freight. As air freight is much more time sensitive than trucked freight, the addition of an hour (say) to processing time would have a much greater impact on air freight than trucking.

305. Even if BREXIT was to negatively impact trucked freight from Europe into the UK, it could equally impact trucked freight in the other direction. Therefore, there could be less flown freight into the UK for onward trucking distribution to other parts of Europe.

306. Azimuth continues:

> *"It is also likely that increased trade will occur between Britain and more geographically distant countries. Trucking of goods to these countries will not be an option thus increasing the need for air freight, making the capacity Manston can provide nationally significant to the Nation's airport infrastructure*".

- This outcome is a possibility.
- It is also plausible that the UK could lose trade with other parts of the world. For example, if Japanese car manufacturers relocated assembly plants from the UK to locations within the single market, this would have a negative impact on trade and freight.

307. In summary, the impact of BREXIT is essentially unknown. No business decision or planning application can be made based on such an unknown.

308. Also on Page 23, Azimuth speculates on the impact of increasing passenger security at airports, following terrorism attacks at Brussels and Istanbul airports.

[135] https://www.theguardian.com/politics/2017/oct/07/zeebrugge-brexit-braced-for-tariffs-trade-loss

> *"Airports are not designed to security check all visitors as they enter the airport. If required, it will cause huge delays and require passengers to arrive many hours (almost certainly at least three) before their flight. These delays impact belly-freight, making a switch to dedicated freighters more likely."*

309. We do not see the logic in this assertion. If passengers need to arrive at the airport earlier, this will not impact aircraft turnarounds or the loading or unloading of freight. These are independent processes. Therefore, it is difficult to see how such a development would have any impact on bellyhold freight.

310. The potential positive impact of e-commerce development is discussed on Page 24. The analysis of the opportunity is anecdotal. No consideration is given to how e-commerce may be replacing other types of freight.

Previous Manston Performance

311. Finally, on Page 26, there is some discussion on why Manston was unsuccessful, despite an efficient cargo product:

> *"Manston established a reputation for speedy handling of perishable cargo, with unloading and throughput times much faster than competitor airports."*

312. Azimuth goes on to state:

> *"Since Manston suffered from a severe lack of investment, and constraints on the ground are likely to have resulted in capacity restrictions that prevented growth past the figures for cargo shown in Table 4. With only one cargo stand, aircraft were unable to exit to the runway if another aircraft taxied into the cargo area behind it. The airport had limited storage, had not invested in up-to-date handling equipment, and closed their Border Inspection Post. In spite of the lack of investment, there was considerable growth in Manston's cargo market from 2010 until 2013. This growth strongly indicates that Manston, with the investment required would have a strong future."*

313. We understand that there was significant investment from previous owners. In 2002, it was reported that £7m had been invested on new aprons and taxiways, increasing the freight capacity to 200,000 tonnes[136]). It seems unlikely that the low level of freighter activity was due to lack of capacity.

- The report states that Manston had 2,073 ATMs in 2013, its last full year of operation. This was also the busiest year for ATMs since 2005. However, CAA data indicates that only 511 fights were cargo related.
- This is equivalent to an average of less than 1 rotation per day in its final full year. If demand was there, we would expect that the airport should have been able to handle much greater levels of freight activity.

314. The Azimuth conclusion (see above) that a reopened Manston would have a strong future is based on the "*considerable growth in Manston's cargo market from 2010 until 2013*". The actual growth was 1,203 tonnes (CAGR 1.4%). In fact the airport did not achieve significant growth at any stage in the last decade of operations, with the 2013 outturn only 2,680 tonnes ahead of the 2004 value.

[136] (Wiggins Group plc, 2002, p. 16)

8.3. Approach to Forecasting (Volume II)

315. In Volume II of its reports, Azimuth[137] discusses at some length air freight forecasting literature and its own research methodology.

316. In the interests of brevity, we do not provide detailed comment on Azimuth's literature review. In general, we find the review is very broad, with much of the material of limited relevance (e.g. use of game theory). The approach is also somewhat academic, with minimal practical application.

317. Azimuth[138] concludes that:

> *"…in the case of Manston Airport, closed for several years and lacking investment for many more, this approach is not appropriate. Any attempt to build an econometric model would have to establish criteria whereby a proportion of the total predicted UK air freight traffic was 'diverted' to Manston. However, deciding upon the proportion to divert to Manston raises significant problems.*
>
> *Therefore, instead of providing a mathematical forecasting model, this review of the literature suggests a qualitative approach that aims to predict human and organisational behaviour. Indeed, the DfT (2014, p. 3) place a heavy reliance on an understanding of human behaviour in achieving realistic outputs. A qualitative approach that gathers the opinions of industry experts would allow areas of potential demand for Manston Airport to be identified. It is this type of approach that has been selected in the case of Manston Airport."*

318. We disagree with the conclusion that a purely qualitative methodology is appropriate. While qualitative approaches can be useful, they are most robust as a complement to a quantitative approach. Furthermore, qualitative approaches are typically only adopted for relatively short term forecasts.

319. The issues with a purely qualitative approach in the context of Manston Airport are:

- Assumptions are subject to bias, lack transparency and are impossible to independently verify.
- Does not identify current market size for relevant segments.
- Forecasts do not reflect historic traffic patterns.

320. In particular, we would have expected some attempt at quantification of the overall UK market size for the different freight segments assumed in the Azimuth forecasts. Otherwise, it is extremely difficult to gauge what level of market share for Manston is implied in each freight niche.

321. In describing its research methodology, Azimuth[139] state that:

> *"It should be noted that a comparative case study approach was not deemed possible, as no airports in sufficiently similar circumstances were identified."*

[137] (Azimuth Associates, 2017 b, pp. 6-25)
[138] (Azimuth Associates, 2017 b, p. 20)
[139] (Azimuth Associates, 2017 b, p. 22)

322. While no two airports are exactly alike, there are various airports with similar characteristics to Manston prior to its closure. For example, Prestwick Airport is an airport with modest passenger volumes that also accommodates dedicated freighter flights. Its peak annual freight tonnage was ca. 43,000 tonnes, almost identical to the equivalent value for Manston (source: CAA airport statistics).

- Prestwick Airport[140] has "*the ability to handle large pieces of specialist cargo*".
- It has invested in the "*latest security screening technology which ensures even long and heavy pieces of cargo can be processed quickly and securely*".
- A dedicated sales team has been established, "*targeting high yielding and specialist areas, whilst still delivering a high quality and cost effective service to routine loads". Furthermore, the "management team also continues to promote the airport as a major UK cargo hub at key global events and trade shows and is doing significant work on evaluating the potential for the airport to become a handling consolidation point for Scotland's perishable export industry and the local aerospace industry*".

323. Despite this investment, the airport's current freight throughput is well below historic levels (ca. 11,000 tonnes in 2016, source: CAA airport statistics). The airport identifies the following challenges:

- "*… the dedicated freighter only aircraft market that the Company has specialised in has been in global decline*".
- "*However, income per tonne has remained static over the last 3 years primarily because of the static market, increasing belly hold capacity and the overall competitive nature of the business*".

324. We note there are many similarities to Manston. The proposed strategy for a reopened Manston has some notable areas of commonality with the current Prestwick strategy. Prestwick incurs substantial financial losses, as did Manston for many years before its closure.

325. Clearly there are some differences. The demand in Scotland will not be as strong as in the South East. However, the level of airport competition is much stronger in the South East.

326. It should also be noted that Azimuth[141] is forecasting ca. 341,000 tonnes of freight on dedicated freighters within 20 years of reopening. This is higher than current freighter tonnage at any UK airport. Therefore, clearly there is no equivalent case study that supports the Azimuth growth forecasts.

[140] (Glasgow Prestwick Airport Limited, 2016)
[141] (Azimuth Associates, 2017 c, pp. 11-12)

8.4. Expert Interviews and Discussion (Volume II)

327. The qualitative forecasts by Azimuth[142] were informed by interviews with 24 different parties.

- Only a minority of the parties interviewed appear to be airlines or freight forwarders. Many of the interviewees seem to be of limited direct relevance.
- It is not clear how much air cargo to/from the UK is transported by interviewees. With the notable exceptions of DHL and FedEx, most operators interviewed appear to be relatively small. Azimuth[143] comment that "*there was a wide range between 90 tonnes and 20,000 tonnes per year for the smaller shippers to vast amounts for the integrators.*"
- There is limited visibility on how much cargo these operators used to fly through Manston when it was open.

328. There is also a lack of information on the following points:

- Which airports would a re-opened Manston be capturing cargo from?
- Why do operators not use East Midlands or Stansted, given stated concerns with Heathrow?
- What are the relative economics of using Manston versus bellyhold freight at Heathrow, freighters at alternative UK airports or trucking?

329. Not all the comments support the RSP case for Manston:

- Page 30: *"… it's not going to work if you can only fly between 10.00 and 21.00".* This suggests the airport would need to accommodate night flights to be viable.
- Page 41: "*Integrators monopolise the freight-friendly airports such as East Midlands (DHL) and are reluctant to change their operations, preferring to cope with slot restrictions at Heathrow rather than moving to other more cost effective airports (DHL, FedEx). The explanation for this is the focus on associated fixed costs and the resources involved to make a move to another airport (FedEx)*". This confirms that integrators (and associated high freight tonnage) will be unlikely to move to Manston. The remaining opportunities discussed are mainly in niche areas.

330. We question some of the responses from interviewees:

- On Page 42, Frankfurt is highlighted as an example of a successful cargo airport which does not have 24 hour operations. This is not a relevant comparison in the context of Manston. Frankfurt is one of Europe's leading passenger hubs (over 60m passengers in 2016), with dedicated freighter flights complementing bellyhold provision.
- On Pages 43/44, it is hypothesised that "*With London being a major economy and with scant landing slots available for cargo, a portion of Frankfurt cargo is likely being transported from Frankfurt to London by truck. Manston could readily handle this business in a more cost effective and timely manner, with less environmental impact than trucking from Frankfurt to the UK.*". There is simply no supporting evidence for this assertion, or consideration of the possibility that trucking may be more cost effective (and environmentally friendlier) than flying.
- On Page 46, there is speculation of the impact of Brexit. "*With the UK's exit from the EU, more stringent border control procedures can be expected… Given increased friction at the border crossings, this market is more likely to consider moving to airfreight*". We address this issue from paragraph 302 onwards.

[142] (Azimuth Associates, 2017 b, pp. 25-46)
[143] (Azimuth Associates, 2017 b, p. 26)

331. In the discussion section of the Azimuth[144] report, a range of market opportunities for Manston are put forward. We have commented on many of these areas in depth earlier in our report. On Page 58, Azimuth discusses how future preferences may shift away from bellyhold freight.

> *"Whilst the UK air freight market is currently dominated by belly-hold rather than dedicated freighters, this is the reverse of the situation in the rest of Europe. Several factors may contribute to a change to this dominant model. These include reduced capacity on aircraft such as the A380, the LCC model, which generally focuses on rapid turnarounds, which preclude the carriage of freight. In addition, many interviewees talked of freight being bumped from passenger aircraft and the negative impact this has on their business. If the market was to move away from belly-freight and towards the use of more dedicated freighters, Manston would be well placed to attract this growing market".*

332. We disagree with this assessment:

- Trends in the UK and globally have been strongly towards bellyhold (due to passenger demand and hence belly hold capacity outstripping air cargo demand, see Appendix Section 11.3).
- The A380 is the exception. In general, newer widebody aircraft types have more bellyhold capacity than predecessors (see paragraph 140 onwards).
- There is limited freight uplift from full service passenger airlines operating short haul routes. Therefore, increased penetration of low cost carriers in this segment will not have a major impact (see paragraph 233).

333. On Page 64 of the Azimuth report, it is speculated that Manston could act as a base for Amazon, including the development of a drone hub. No supporting evidence is provided. For the locational reasons highlighted previously, Manston does not seem an obvious choice to host such activity.

[144] (Azimuth Associates, 2017 b, pp. 56-66)

8.5. Methodology Used in Manston Forecasts (Volume III)

334. Volume III of the Azimuth[145] report provides freight forecasts for the first 20 years of Manston Airport (after assumed reopening).

335. In the preamble, Azimuth once again seeks to justify its qualitative approach (Page 3).

> *"The second option was to take a qualitative approach focused on collecting market data. This allows base data to be derived from a method that takes account of how commodities are currently transported and how they are likely to be transported in the near future. This approach is particularly applicable in the Manston case since the airport is not currently operational. Indeed, in the short-term, any useful forecast needs to be built from the likely behaviour of potential airport users.*
>
> *This method is confirmed by the ACI-North America, who represents local, regional and state governing bodies that own and operate commercial airports in the United States and Canada, and recommends deriving customised inputs from a detailed market assessment. This assessment should be informed by carriers, their business partners and other supporting entities in the air freight community (ACI-NA, 2013, p. 3)."*

336. We do not believe that the ACI[146] study provides sufficient rationale for the Azimuth forecast approach. The same ACI study states on Pages 46/47:

> *"The best source of customized inputs in a forecast derives from a detailed market assessment. Carriers, their business partners, and all of the supporting entities in the air cargo community can provide meaningful input to ensure that the forecast is anchored in reality and adds clarity to the planning requirements."*
>
> *"Use the most reliable and current data – A correct and solid traffic basis is essential. If not available, different data sources should be consulted to establish the best possible estimates."*
>
> *"Typically, at least two forecast scenarios are developed to provide a range of potential future activity levels. The baseline forecast represents a continuation of the airport's current role in the region and in the national transportation system. The baseline forecast represents the most likely scenario and will be used for future planning. An alternative scenario(s) can be used as a sensitivity analysis to assess the ability of the airport to respond to optimistic demand factors that depart from the baseline forecast."*

337. Therefore, ACI is not advocating a completely qualitative approach.

- The Azimuth study does not provide a detailed market assessment (rather, anecdotal evidence about the size of selected niches).
- Interviews only covered a small selection of current UK operators.
- No attempt has been made to establish a solid traffic base (from which Manston could seek to capture market share).
- The ACI study suggests that historic traffic performance should inform baseline projections, rather than be disregarded. Alternative scenarios are more appropriate for the types of optimistic demand factors incorporated in the Azimuth forecasts.

[145] (Azimuth Associates, 2017 c)
[146] (Airports Council International - North America, 2013)

338. The ACI study (Page 50) goes on to highlight the different demand data that should be considered, including segmenting tonnage by origin/destination, commodity, desired level of service[147] and shipment size.

339. Key factors to consider are summarised on Page 52, including regional demographics, regional employment and production, regional industrial location patterns, shifts in commodity demand and shifts in distribution practices and patterns.

340. A more balanced assessment of the ACI guidelines is that both qualitative and quantitative methods play an important role in the development of air cargo forecasts. It is not our reading that ACI proposes that a purely qualitative approach is sufficient.

341. On Page 3 of its report, Azimuth makes reference to the Airport Commission:

> *"The Airports Commission also recommends using the Delphi Method, pointing out that relying on, "a single, central-point forecast would be a risky approach" (Airports Commission, 2013, p. 8)."*

- The Airports Commission developed multiple scenarios in its traffic forecasts.
- However, despite this, only one scenario is presented in the Azimuth projection.

342. Volume III also refers to York Aviation and Transport for London analysis (Page 1). As highlighted previously and as supported by York Aviation themselves (see paragraph 235), Azimuth makes incorrect interpretations from the studies.

343. Azimuth also quotes selected secondary data in support of its forecasts. On Page 4, it quotes a one month snap shot of global freight volume growth from November 2016. In the context of long term forecasts for Manston, this is meaningless.

344. Boeing and Airbus freight forecasts are also highlighted.

- Boeing and Airbus are both leading industry bodies which regularly publish air cargo forecasts.
- Boeing on a bi-annual basis (most recent in 2016).
- Airbus, annually (most recent in 2017).
- Note that both forecasts are in units of flown tonne-km – a combination of the tonnage of cargo flown and the distance it is flown for (as such, changes in the average sector length would affect the forecasts). The tonne-km forecasts include both bellyhold and cargo carried on dedicated freighters (though these are not separated in the projections).

345. Global Airbus projections are then used as the source for a simplistic annual growth for Manston for years 11-20 of the Azimuth forecast.

- There are obvious difficulties in comparing growth rates for tonnage at a UK airport (in a mature market) with global freight tonne-km projections (which include forecast growth in faster growing economies).

346. We have undertaken a more in-depth review, outlined in the paragraphs below.

347. In its latest forecast, Boeing predicts air cargo growth of 4.2% CAGR over the period 2015-35[148]. The most recent Airbus forecast, for the period 2016-36, gives a CAGR of 3.8%[149].

[147] Trade-off between the cost and the quality of service as determined by transit time, reliability and security, often compared to the same characteristics for available surface options.
[148] (Boeing, 2016, p. 2)
[149] (Airbus, 2017a, p. 101)

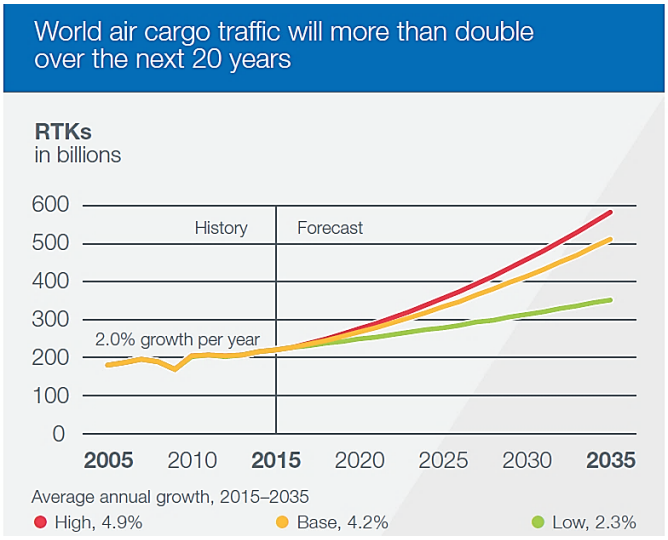

Figure 20 – Global 20-year air cargo forecast - timeseries of high, base and low forecasts

Source: Boeing

348. Boeing also provides a regional breakdown of expected growth rates[150]. For the flows involving Europe, most are below the global average CAGR. Growth of intra-Europe air cargo is forecast to be the lowest of any regional flow shown (2.2%). This indicates global growth projections need to be treated with caution in the context of the UK market.

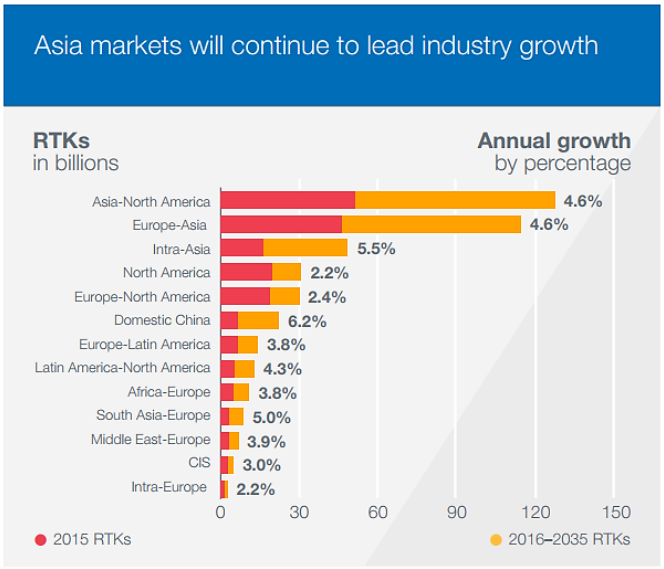

Figure 21 –Global 20-year air cargo forecast – size, and growth rates, of key flows

Source: Boeing

349. While Airbus and Boeing forecast strong growth in tonne-km in future years, it should be noted that only limited growth in freighter aircraft is envisaged for European based airlines. Airbus forecasts growth of just 42 freighters in European fleets by 2036[151] (Boeing does not appear to provide an equivalent number).

350. History shows that Airbus and Boeing forecasts tend to be optimistic. Boeing has reduced its 20-year forecast of growth in every iteration since at least 2010/11, while Airbus has reduced forecast growth in

[150] (Boeing, 2016, p. 16)
[151] (Airbus, 2017a, p. 105)

every iteration since at least 2012. This has resulted in lower tonne-km at the end of each forecast e.g. the 2017 version forecasts lower tonne-km for 2036 than the 2015 version forecast for 2034.

351. Similarly, the number of dedicated freighter aircraft Airbus expects to be in operation by the end of its 20-year forecast has been reduced by around one third, from ca 3,000 (based on the 2012 forecast[152]) to ca, 2,000 (based on the 2017 forecast[149]). We note this downgrading of freighter outlook has not been mentioned in the Azimuth reports, notwithstanding its use of Airbus cargo projections.

- Note the drop of one third in the number of freighters expected to be operating in future is greater than the drop in its cargo tonne-km CAGR forecast, implying increasing dependence on bellyhold capacity to meet air cargo demand. This is consistent with historic trends, highlighted previously in this report.

352. Alongside the figures discussed above, Boeing publishes high and low forecasts. These show global air cargo CAGRs of 4.9% and 2.3% respectively. Notice that the downside (-1.9ppts) is significantly larger than the upside (+0.7ppts). Notwithstanding the differences in geography and forecast units highlighted previously, our projections for the UK sit within this range (CAGR 2.5% for same time period as Boeing projection).

353. Both the consistent reductions of the forecast numbers with each new iteration, and the large potential downside (relative to upside), indicate some uncertainty for the sector in the future.

8.6. Manston Air Freight Forecasts (Volume III)

354. Given the lack of transparency in the Azimuth forecasts, it is not possible to undertake a detailed critique of the forecast building blocks / assumptions. The only breakdown provided is by imports and exports. There is no segmentation by carrier type, commodity type etc.

355. The freight forecasts for Manston are summarised in the chart below.

- In Year 2 (the first year of freight traffic), tonnage is forecast to be more than double the previous Manston peak annual value.
- By Year 11, freight throughput is forecast at similar tonnage to 2016 Stansted performance. Growth from Year 2 to Year 11 is forecast at CAGR 9.7%.
- By Year 18, Manston is forecast to exceed the 2016 freight tonnage at East Midlands Airport (the largest dedicated freighter hub in the UK).

[152] (Airbus, 2012, p. 137)

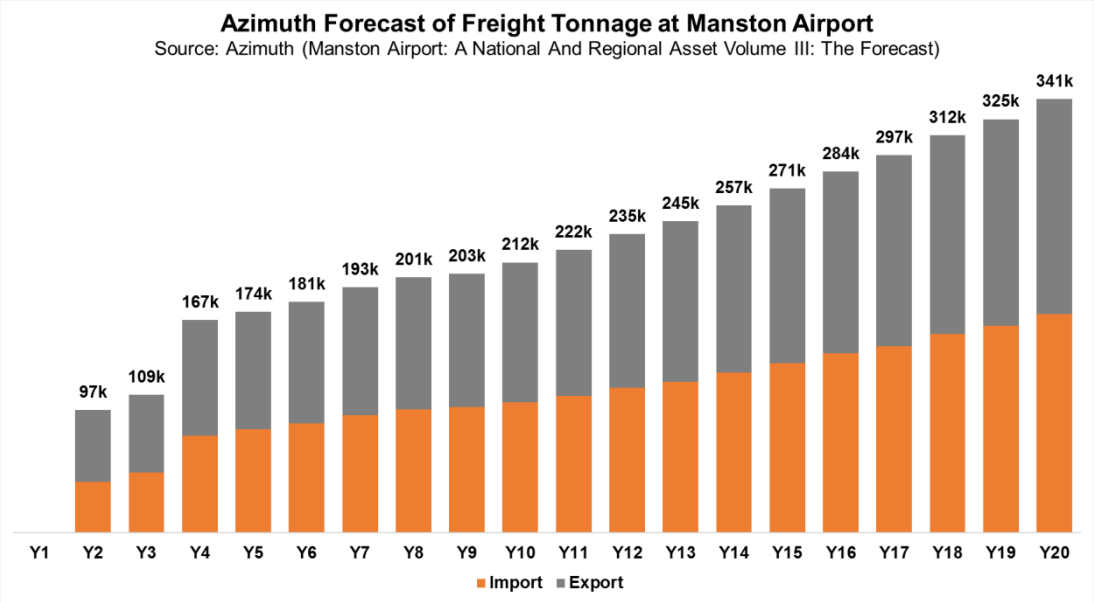

Figure 22- Azimuth Forecast of Freight Tonnage at Manston Airport

356. We have contrasted the projected air freight growth with historic Manston growth, historic UK growth and our base case demand projections for the UK.

- By year 20 of the Azimuth forecasts (assumed to be 2039), Manston freight throughput is forecast to have grown by almost 12 times the 2013 outturn (the last full year of operations). The equivalent CAGR from 2013 is 9.9%.
- This compares to our projected demand growth for the UK market of 2.3% over the same period.

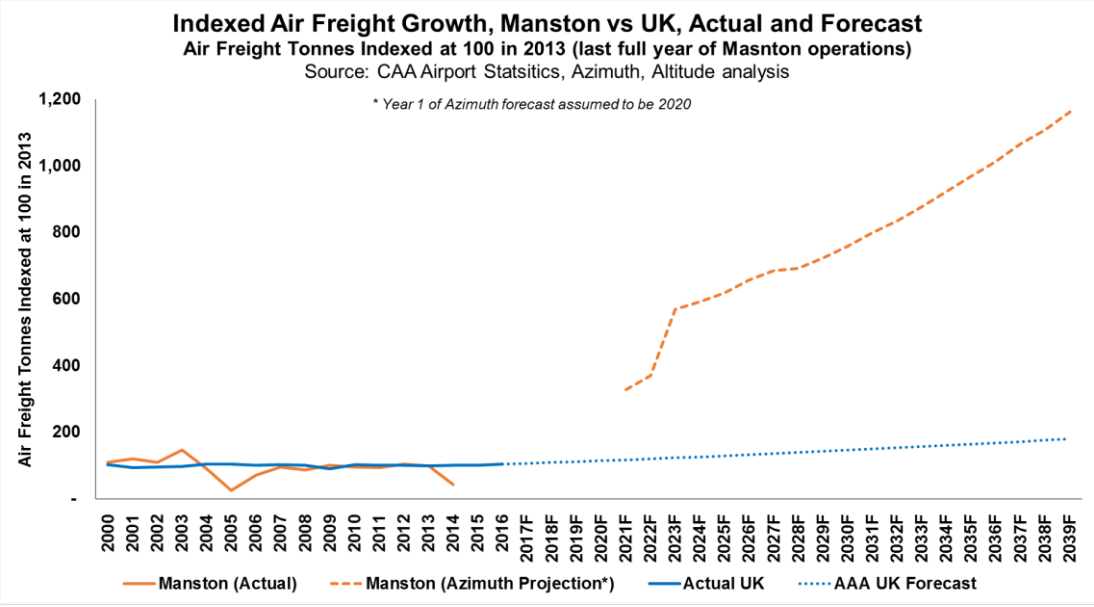

Figure 23- Azimuth Forecast Compared to Historic Growth and UK Forecast

357. We have also compared the Azimuth projections for Manston to the 2016 performance at the leading air freight airports in the European Union.

- The projected volumes for Manston by year 5 would see it comfortably within the top 20 EU airports in 2016.
- By year 20, Manston's projected volumes would be higher than all but the 12 largest EU airports in 2016.
- 19 of the airports in the top 20 are either major/large passenger hubs or major integrator hubs. The one exception is Luxembourg, the home base of Cargolux, which is one of the largest all cargo airlines in the world with a fleet of 27 freighter aircraft[153]. Given that Manston is not expected to develop into either a passenger or an integrator hub, this shows the level of ambition in the Azimuth projections.

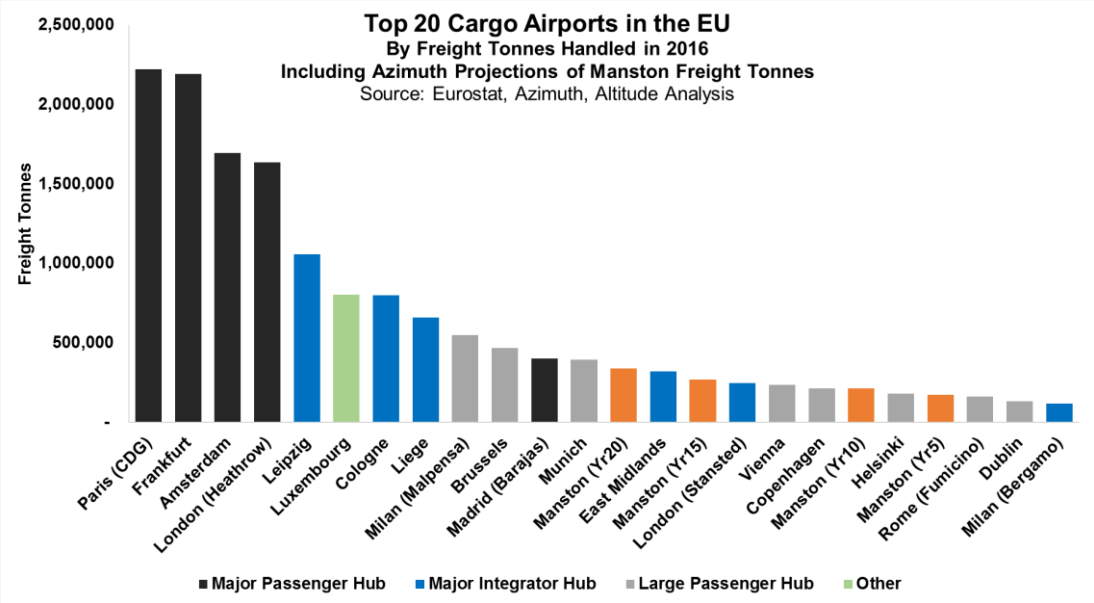

Figure 24- Azimuth Forecast Compared to EU Air Freight Benchmarks

358. Not surprisingly, we consider the forecasts to be not credible, given their extreme optimism and the negligible supporting evidence.

- Growth in freight at Manston would be unprecedented in a UK market context, and in complete contrast to previous historic performance at Manston.
- We do not expect there to be an overall shortage of freighter capacity in the UK or South East. Even if we are wrong in this assessment, Manston and other smaller airports have shown no signs of benefiting from supposed capacity shortages in recent years.
- The rationale for why Manston will be able to achieve a massive uplift on previous performance is weak at best. There is no evidence that bellyhold will not continue to dominate the UK market. The stated advantages of using Manston were present when the airport struggled to grow freight volumes, despite investment in the airport. Lack of capacity was not a material factor.
- As well as the forecasts ignoring historic performance, it also does not reflect the very clear market trends towards consolidation of freight at major passenger and dedicated freighter hubs. UK airports outside the major three freight airports have seen volumes fall.

[153] Ranked the 9th largest cargo airline in the world in 2016 (source: aircargonews). Source for Cargolux fleet is the Cargolux website.

359. There also seems to be a discrepancy between the methodology description and the long term forecast results. On Page 7 it is stated:

> *"Therefore, from Years 11 to 20 an annual percentage growth has been applied to the figures derived for Year 10."*
>
> *"However, to be conservative, and in line with the Airbus forecast, a 4% uplift on the Year 10 figures has been applied to extrapolate the long-term forecast for Manston Airport. "*

360. We therefore expected that long term growth for Manston (Year 11 onwards) would be 4%. The Year 10 to Year 20 CAGR is 4.8% (adding ca. 25,000 tonnes by Year 20, compared to a 4.0% CAGR).

361. As highlighted previously, there are significant issues with using a simplistic annual growth uplift based on global manufacturer forecasts for global tonne-km. Further issues are:

- The manufacturer forecasts have a track record of optimism, and have consistently been revised down in later iterations.
- The Airbus forecast referenced has since been updated, with growth of CAGR 3.8% (lower than the forecast used by Azimuth).
- There is significant variation in growth rates for different parts of the world, with the European market more mature than average. Within the European context, the UK is one of the more mature markets. Therefore, use of a global figure is likely to significantly overstate demand growth in the UK and is not an appropriate tool for looking at demand in the UK market.
- While Airbus and Boeing forecast strong growth in tonne-km in future years, it should be noted that only limited growth in freighter aircraft is envisaged for European based airlines. Airbus forecasts growth of just 42 freighters in European fleets by 2036[154] (Boeing does not appear to provide an equivalent number). Therefore, demand in the most relevant segment for Manston is likely to be lower than the overall average.

362. We are also surprised to see imports and exports almost entirely balanced in the Azimuth forecasts.

- Exports were a minority of overall freight before Manston was closed. Exports accounted for between 6.0% (2010/11) and 24.3% (2004/05) in the last 11 years of operation. The average export percentage in the period 2002/03 to 2013/14 was 12.6%.
- The UK is generally an import rather than an export market for goods. HMRC[155] data indicates that exports accounted for 37.5% of total UK air freight to/from non-EU countries by weight in 2016.
- Therefore, the assumption that flights will be equally loaded for both inbound and outbound operations seems very optimistic.

[154] (Airbus, 2017a, p. 105)
[155] www.uktradeinfo.com/Statistics/BuildYourOwnTables/Pages/Table.aspx

8.7. Manston Cargo ATM Forecasts (Volume III)

363. The Azimuth forecasts also include freighter ATM projections, summarised below.

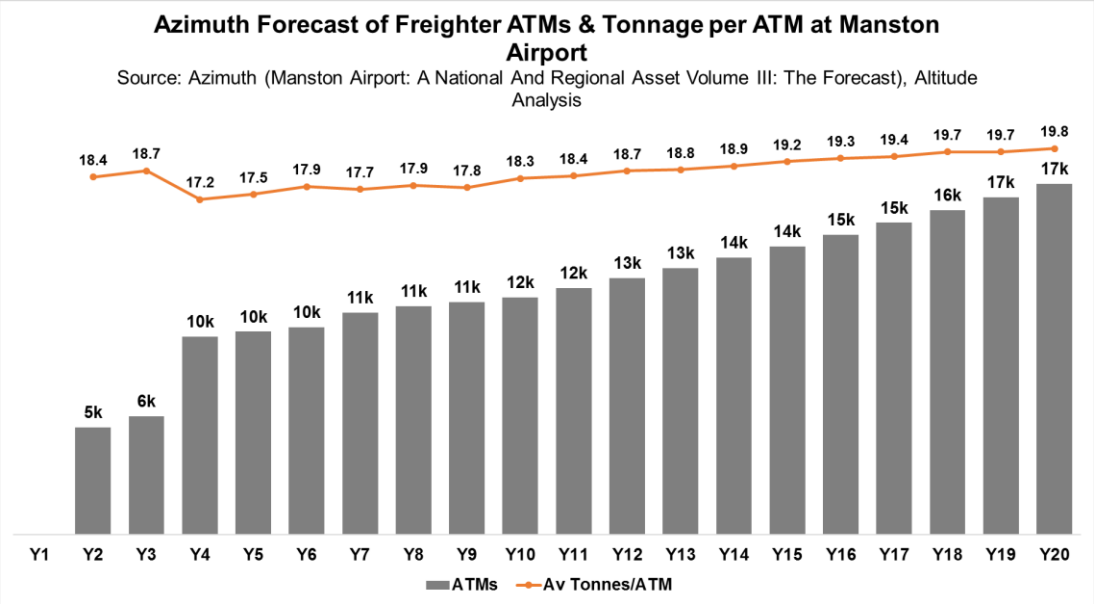

Figure 25- Azimuth Forecast of Freighter ATMs & Tonnage per ATM at Manston Airport

364. The tonnes per ATM forecast figure (ca. 17-20 tonnes) is very low compared to historic levels at Manston. In the last full 5 years of operation, the airport recorded an average of 63 tonnes per cargo ATM.

- The low figure is driven by an assumption that the most predominant cargo aircraft at Manston will be smaller Code C and Code D aircraft. We understand that this differs to the historic pattern, explaining the difference in average loads.
- The projected average load is slightly above current Stansted levels. However, given the lack of integrator operations at Manston, we would have expected the average load figure to be higher.
- As an illustration, if the average load in Year 20 was consistent with historic levels, the same forecast freight tonnage (340,000 tonnes) could be handled by ca. 5,400 cargo flights.

365. We note that York Aviation's professional opinion[156] is that the capability of Manston Airport is 21,000 annual air cargo aircraft movements. This figure is higher than the Azimuth's Year 20 freighter ATM forecast for Manston.

- This is despite very optimistic cargo tonnage projections and average cargo per ATM assumptions that are much lower than historic values.

[156] (York Aviation, 2017)

366. The cargo ATM forecasts have also been compared to leading European airports. This emphasises the extremely challenging nature of the Azimuth forecasts. By year 20, the projected cargo ATMs at Manston are higher than achieved by all but 6 EU airports in 2016. Again, it is noticeable that the leading EU airports for cargo ATMS are either major/large passenger hubs or major integrator hubs, which are not the business models proposed (or that would be realistically achievable) for Manston.

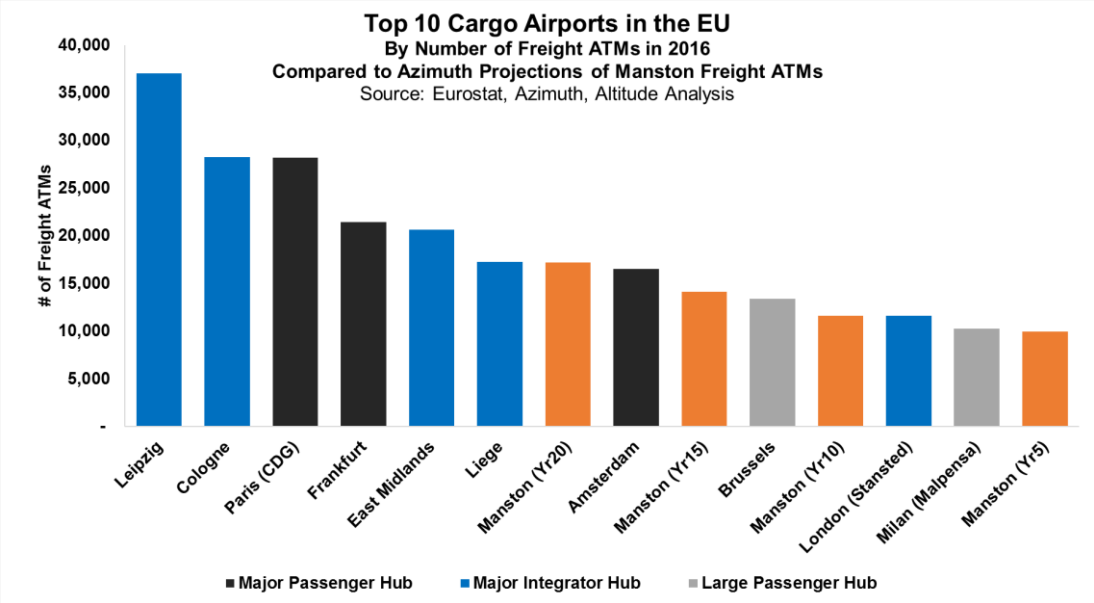

Figure 26- Azimuth Forecast Compared to EU Freighter ATM Benchmarks

367. Finally, we also compare the average air freight tonnes per cargo ATM projected for Manston with leading EU benchmarks. Note that the air freight total includes bellyhold as well as freighter cargo.

368. The projections for Manston indicate low average loads compared to the leading EU airports, with the exception of some integrator hubs (which have a higher proportion of smaller aircraft for short haul flights, reflecting the nature of the express market). This sheds further doubt on the validity of the Azimuth projections for cargo ATMs. If the average loads were higher, this would result in lower cargo ATMs for the same air freight tonnage.

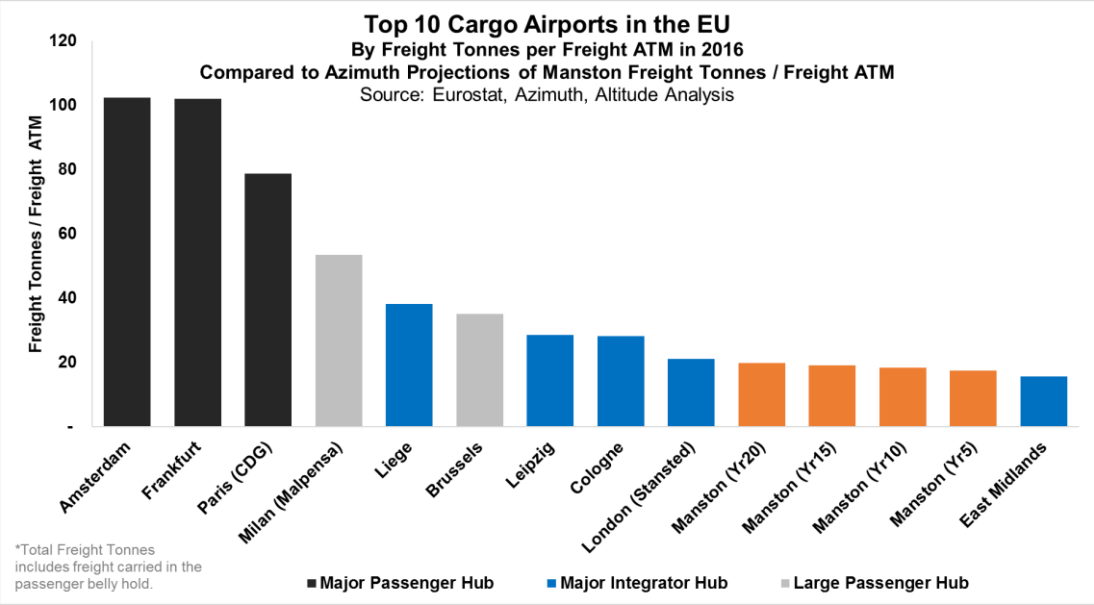

Figure 27- Azimuth Forecast Compared to EU Air Freight Tonnes per Freighter ATM Benchmarks

8.8. Conclusion

369. It is highly unlikely that a re-opened Manston could play any significant role in serving the needs of the UK air cargo industry. There is currently no shortage of overall capacity (beyond that identified specifically at Heathrow), and future demand growth into the long term can be met with planned expansion from the leading cargo airports in the UK.

370. Manston previously operated as a niche air freight airport. While it could theoretically regain this role in the future, its structural disadvantages (location, lack of critical mass, lack of passenger hub, night flight restrictions etc.) will severely limit its potential.

371. Our overall conclusion is that the RSP proposals and the Azimuth forecasts are deeply flawed. The outlook put forward by RSP / Azimuth does not reflect market realities. We would expect freight tonnage and freight ATM outturn at a reopened Manston to be considerably below the Azimuth forecasts. We see no realistic prospect that Manston could ever develop to reach the threshold required of a Nationally Significant Infrastructure Project, namely to increase cargo ATMs by at least 10,000/year compared to the existing capability.

9. Overall Conclusion

372. It is highly unlikely that a re-opened Manston could play any significant role in serving the needs of the UK air cargo industry. There is currently no shortage of overall capacity, and future demand growth into the long term can be met with planned expansion from the leading cargo airports in the UK.

373. The Azimuth freight forecasts for Manston are summarised below:

- In Year 2 (the first year of freight traffic), tonnage is forecast to be more than double the previous Manston peak annual value.
- By Year 11, freight throughput is forecast at similar tonnage to 2016 Stansted performance. Growth from Year 2 to Year 11 is forecast at CAGR 9.7%.
- By Year 18, Manston is forecast to exceed the 2016 freight tonnage at East Midlands Airport (the largest dedicated freighter hub in the UK).

374. We consider the forecasts to be extremely optimistic and not credible, with negligible supporting evidence.

- Growth in freight at Manston would be unprecedented in a UK market context, and in complete contrast to previous historic performance at Manston.
- We do not expect there to be an overall shortage of freighter capacity in the UK or South East. Even if we are wrong in this assessment, Manston and other smaller airports have shown no signs of benefiting from supposed capacity shortages in recent years. Furthermore, there is demonstrable spare capacity at Stansted and East Midlands, both better established and located.
- The rationale for why Manston will be able to achieve a massive uplift on previous performance is weak. The stated advantages of using Manston were present when the airport struggled to grow freight volumes, despite investment in infrastructure and marketing (the previous owners invested £7m on new aprons and taxiways, increasing the freight capacity to 200,000 tonnes[157]). Lack of Manston capacity was not a factor.
- As well as the forecasts ignoring historic performance, they also do not reflect the very clear trends towards consolidation of freight at major passenger and dedicated freighter hubs. UK airports outside the major three freight hubs have seen volumes fall. There is also a trend away from freighter services towards bellyhold freight.

375. Manston previously operated as a niche air freight airport. While it could theoretically regain this role in the future, its structural disadvantages (location, lack of critical mass, lack of passenger hub, night flight restrictions etc.) will severely limit its potential. Even if reinvested, relaunched and supported we would not expect freight volumes to be materially above historic levels, and nowhere close to the volumes forecast by Azimuth.

376. Finally, the forecast of freighter ATMs is not credible.

- By year 20, ca. 17,000 freighter flights are forecast for Manston.
- This represents one-third of current UK freighter flights, in a market where the number of freighter ATMs has been contracting. This trend has been recognised by the Department for Transport, with its 2017 forecasts to 2050 assuming the number of freighter flights in the UK will remain flat at 2016 levels [158].

377. In particular, we note that York Aviation's professional opinion is that the capability of Manston Airport is 21,000 annual air cargo aircraft movements. We would envisage that freighter ATMs at Manston would

[157] (Wiggins Group plc, 2002, p. 16)
[158] (Department for Transport, 2017a, p. 33)

be only a fraction of the level required under Section 23 of the Planning Act of 2003 (being at least 10,000 ATMs/year above the existing capability).

378. In paragraph 48, we put forward four questions in relation to the RSP proposals for Manston. These are more relevant and targeted than the broader questions posed by Azimuth in its first report[159]. The answers to our questions have been developed over the course of this report. We summarise our conclusions in the table below.

Question	Response
Considering planned airport expansions, will there be a need for further airport capacity in the UK for dedicated freighters?	No, planned expansions at existing airports should comfortably provide sufficient freighter capacity until 2040 and beyond.
Will the South East in particular require additional capacity for dedicated freighters?	No, Stansted is planning significant capacity growth. A third runway at Heathrow will provide additional bellyhold capacity (putting downward pressure on freighter demand). Finally, the South East market can be well served by airports more centrally located in England.
Would a reopened Manston be well placed to effectively serve a significant proportion of the dedicated freighter market?	No, a reopened Manston would only serve a niche role, similar to its historic record. It has a poor location and operating restrictions.
Are there other potential airport options for new dedicated freighter capacity?	Yes, there are many UK airports with excess freighter capacity. For example, Doncaster Sheffield Airport has a central UK location. It markets itself as the UK's freighter gateway. It benefits from a large site with a long runway, and has 24 hour operations.

Table 3 – Summary of Analysis of Potential Future Freight Role for a Reopened Manston Airport

379. As can be seen above, when one asks more targeted questions, the outcome is very different to that presented by Azimuth. Our overall conclusion is that the RSP proposals and the Azimuth forecasts are deeply flawed. The outlook put forward by RSP / Azimuth does not reflect market realities. We would expect freight tonnage and freight ATM outturn at a reopened Manston to be considerably below the Azimuth forecasts. We see no realistic prospect that Manston could ever develop to reach the threshold required of a Nationally Significant Infrastructure Project, namely to increase cargo ATMs by at least 10,000/year compared to the existing capability.

[159] (Azimuth Associates, 2017 a, p. I)

10. Appendix - Overview of the Cargo Industry

10.1. Modes of Transport for Transportation of Cargo

380. Air cargo makes up only a small proportion of global cargo (by tonnage). Seabury estimated that in 2016, air cargo had a share of just 1.5% of containerised air and sea trade[160]. For international transit in particular, sea is the dominant mode of cargo transport.

381. In many cases, cargo reaches its destination using a mix of modes. Road and rail are commonly used to collect cargo from many different shippers across a large geographic area, and bring it to a central hub for consolidation, before onward shipping by air or sea (with a similar process occurring at the other end of the air/sea journey in order to distribute cargo to consignees).

382. The different modes of transport each have inherently different costs associated with them, usually related to speed of transit and quantity of product being moved. Air (a relatively fast and relatively low-quantity mode) is more expensive than sea (a relatively slow mode capable of moving vast quantities of product at a time). Generally, products that make use of air transportation are high-value and/or time critical, and can be easily packaged.

383. Transportation of high value items by air helps businesses maximise profits by minimising the time for which its inventory is tied up in supply chains. For high value items, the benefits of being able to quickly realise the value of product inventory and reinvest can outweigh the additional cost of air transport. As such, the proportion of global trade that travels by air is much greater when measured by value (ca. 35%[161]), than when measured by tonnage.

384. For time critical products, the trade off between a) the cost of transport, and b) the deterioration in the value of the product with time, can be a key factor in determining what mode (or modes) to use. Products such as flowers, newspapers and some pharmaceuticals have no value if they are not available to consumers a short period after they are shipped. For these products, air is often the only viable mode of transport.

385. The nature of the cargo, or its physical size, may also influence mode choice (for example heavy plant machinery may be too large for air transport, while air transportation of many substances is restricted or prohibited).

[160] (Seabury, 2017, p. 4)
[161] (IATA, 2017a, p. 5)

10.2. Types of Air Cargo

386. Whilst there are many different types of air cargo, at a high level, most can be categorised as one of general freight, express or mail.

- Mail is typically letters and parcels, delivered to final destination by the postal service of a given country.
- Express cargo is typically 'next-day' shipments that are collected from the shipper by close of business and are required by the consignee by close of business the following day.
- General freight is everything else (note that general freight is a very broad category which also includes several types of low volume specialist cargo such as hazardous, valuable and live animal freight).

387. The air cargo market is served by various different business models. These include:

- Cargo-only airlines, such as Cargolux, which operate aircraft carrying only cargo.
- Integrators, such as DHL Express, which facilitate cargo transportation from shipper through to consignee, and typically own/lease and operate the vehicles necessary to achieve this (and which carry only cargo). Integrators tend to have a focus on express cargo.
- Traditional airlines such as British Airways, which carry cargo on their passenger flights (known as bellyhold cargo). These carriers may additionally operate cargo-only flights (in which case they are known as combination carriers).
- Couriers and road hauliers, which move cargo between the shipper/consignee and the airport hubs.
- Freight forwarders, which typically help shippers to organise the transport of freight, but do not take part in actually moving it.

388. Steer Davies Gleave was commissioned by the UK Department for Transport to improve its understanding of the UK air cargo industry. Its report, 'Air Freight: Economic and Environmental Drivers and Impacts' provides a breakdown of the UK air cargo market in 2008, by type of cargo and type of carrier – see below. General cargo and specialist products accounted for 75% of the market, express for 18% and mail for 7% (all by tonnage)[162].

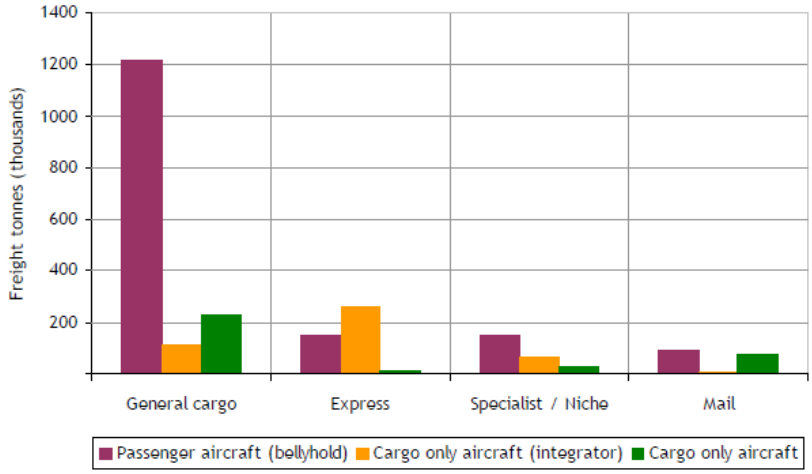

Figure 28 - UK air cargo in 2008 by type of cargo and type of carrier

Source: Steer Davies Gleave [2010], AIR FREIGHT Economic and Environmental Drivers and Impacts

[162] (Steer Davies Gleave, 2010, p. 47)

Bellyhold Cargo

389. A commercial passenger aircraft has a considerable amount of space underneath the passenger cabin, used to store the checked baggage of passengers. The checked baggage generally does not utilise all this space, and some airlines choose to generate additional revenue by filling it with cargo.

390. The routes operated, the aircraft used, and flight timings are typically determined by passenger demand. However, passenger demand does not always align with cargo demand. Some routes may have very little cargo demand, while others may have much more than can be accommodated.

391. The revenue generated from bellyhold cargo can be a significant minority of overall revenue. Furthermore, carrying bellyhold cargo does not substantially increase costs (for example, the aircraft itself and the crew, the landing fees etc are incurred with or without the cargo).

392. Bellyhold cargo can therefore offer an airline a significant revenue upside opportunity, with little downside risk (as long as the airline is careful to price cargo to cover the incremental cost of carriage e.g. increased fuel burn).

393. Loading and unloading cargo from the aircraft can make very short turnaround times impossible to achieve. Therefore short haul low cost operations, which rely on very high aircraft utilisation to achieve profitability, typically do not to carry bellyhold cargo.

394. The capacity available for cargo in the bellyhold of passenger aircraft is difficult to estimate. It depends on many factors, including how many passenger and crew bags there are to accommodate (and how heavy they are, and how efficiently a given airport's staff loads those bags), the volume of fuel needed, the temperature and altitude of the departure airport, the type of engines etc. Many of these factors vary significantly from departure to departure, even if the exact same aircraft hull is used.

395. Complicating matters is that the limiting factor on the amount of cargo that can be uplifted depends on its density. One flight may depart with a bellyhold that is physically full but with spare weight capacity. Another may depart with space available in the bellyhold but not able to carry more weight. Reporting of air cargo load factor typically states only the weight used versus the overall available weight.

Cargo Carried on Cargo Aircraft

396. A cargo aircraft (or freighter) is operated purely for cargo, and carries no commercial passengers. Most of the aircraft used are very similar to commercial passenger aircraft, with the exception that all seats and overhead storage, carpets, toilets, galleys etc. are removed from the space that is normally the passenger cabin; this space is then filled with cargo. Additionally, as there is no checked baggage, all space underneath the passenger cabin is available for cargo. For example, a 747-400 cargo aircraft can carry multiple times more freight than a 747-400 passenger aircraft.

397. As there are no commercial passengers on a freighter aircraft, the size of aircraft operated, the routes and the timings are all chosen to fit cargo demand.

398. IATA highlights the higher average yield from freight carried on cargo-only aircraft in comparison with that carried in the bellyhold of passenger aircraft:

> *"At an aggregate industry level, cargo-only services have exhibited a greater sensitivity to fuel price changes. Cargo only services on average earned a premium of 10% in 2014 over belly hold services"*[163]

399. Note that the yield premium of freighters is not a comparison on a like for like basis. It will include, for example, the impact of freighters serving different markets.

[163] (IATA, 2015, p. 5)

400. The absence of commercial passengers also means that all costs must be covered by the revenue from cargo only. The impact of this on profitability (in comparison with bellyhold cargo profitability) is demonstrated in the following illustrative example (from a 2015 Seabury presentation on air cargo trends).

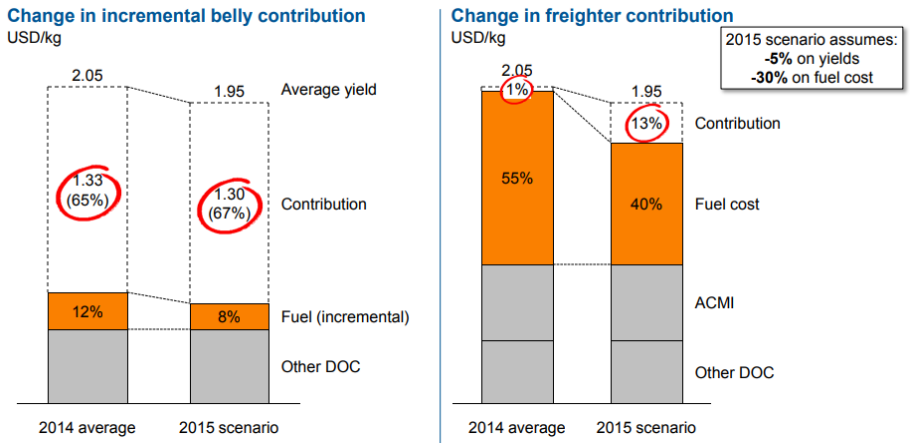

Figure 29 - Freighter vs bellyhold profitability, and impact of fuel price

Source: Seabury [2015], 'Air Cargo 2015: Recent trends and impact on air cargo industry'

401. In 2015, when carrying an item on a freighter, only 13% of revenue goes to profit. Carrying the same item at the same price, but as bellyhold cargo, results in 67% of the revenue going to profit[164].

402. Furthermore, it is seen that freighter profitability is more sensitive to fuel price than bellyhold cargo (fuel price reduced by 30% between 2014 and 2015; illustrative contribution increased by 12 percentage points ("ppts") on the freighter, but only by 2ppts for the bellyhold cargo)[164].

403. Whilst the current low fuel price environment means freighter profitability has increased, it also means future increases in fuel price could significantly reduce the profitability of freighter operations.

404. Another challenge for operators of freighter aircraft is that, unlike passenger demand, cargo demand can be highly directional. A freighter may be full on one sector, and carry very little on the return journey. Long haul freighters may operate circuitous routes with multiple stops (taking them literally all around the world in some cases), in order to minimise flying on sectors with low cargo demand.

405. Freighters may be scheduled (the flight operates regularly to a published timing and route), or charter services (a flight operated on a one off basis to meet irregular/unusually large demand e.g. moving Formula 1 race equipment between one race location and the next).

Trucking

406. The air cargo industry primarily uses trucking in one of two ways. There are road feeder services, operated to move cargo between the shipper/consignee and the airport hub, and there are trucks operated between airport hubs in place of flights.

407. According to Boeing, the use of road feeder services enables carriers to "*extend their networks and add scheduling flexibility*"[165].

408. Integrators generally operate their own road feeder services, while cargo-only and traditional airlines may use third parties (as well as accepting cargo from independent hauliers and couriers).

[164] (Seabury, 2015, p. 7)
[165] (Boeing, 2016, p. 31)

409. The book 'Moving Boxes by Air: The Economics of International Air Cargo' states that trucks operate between airport hubs in place of flights where and when "*the lower unit cost of operating trucks*"[166] makes it sensible to do so. For express freight, this can often be the case on shorter routes, as described by the Steer Davies Gleave report[167]:

> *"for distances of 400 – 500km, cargo will generally go by road. For distances above this, flights will be used, except at weekends, where many packages are only required on the Monday and so can be trucked. The circa 500km cutoff is a function of the integrators next day delivery guarantee."*

410. On such routes, relatively low aircraft utilisation (air transport of express freight is typically required overnight, but not through the day) combined with the lower time benefit of air transport, makes trucks a preferable option in many cases.

411. Regarding less urgent general cargo, the same report states[167]:

> *"Users of air freight with a requirement to send a consignment over 500 kilometres within Europe but without the need for next day delivery, will be likely to purchase a modal option other than air freight".*

412. The lower time benefit of air transport on short routes is derived from the high proportion of the total journey time that is taken up by sorting/handling and ground-based distribution; globally, the average air cargo flight accounts for just 33% of the average air cargo shipment time[168]. On routes with below-average flight times, this percentage falls even lower.

[166] (Morrell, 2011)
[167] (Steer Davies Gleave, 2010, p. 66)
[168] (IATA, 2017a, p. 7)

11. Appendix - Air Cargo Global Market Trends

11.1. Air Cargo Share of Global Cargo

413. While air freight had a share of 1.5% of the world's total air and sea freight in 2016, this share has been dropping during the period since 2000 (when air freight had a share of 2.5% of the global market). This is illustrated in the chart below[169]. Note that over the period 2013-16, air share of the global market has stabilised at ca. 1.5%.

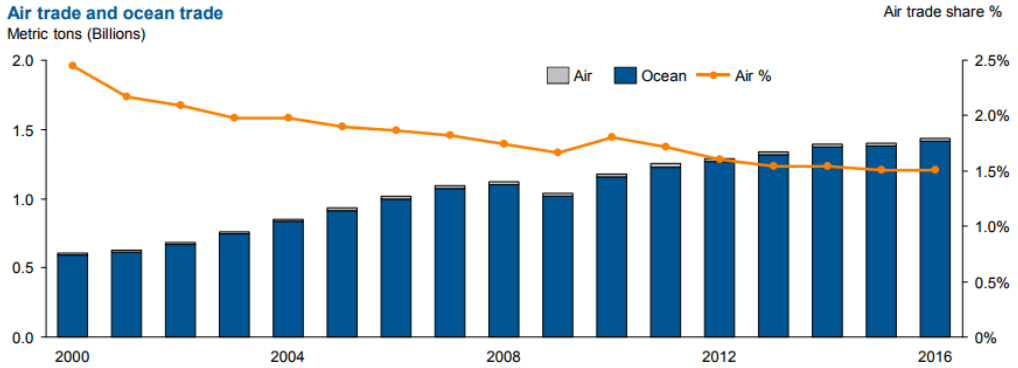

Figure 30 – Evolution of air and ocean freight tonnage with time

Source: Seabury

414. The 2008 financial crisis appears to have marked a shift in the nature of global trade. Before this point, sea and general air freight were growing strongly. In the period since 2008, growth of both has reduced dramatically (sea from 8.9% to 2.5% CAGR, general air freight from 4.3% to 0.9% CAGR). Conversely, the period since 2008 has seen rapid growth of express and mail air freight, as well as China-Europe rail (although these are from a much smaller base, particularly China-Europe rail)[170].

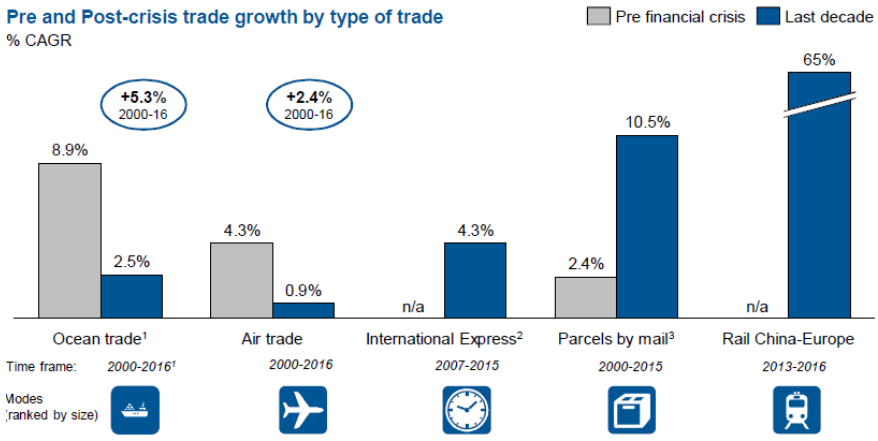

Figure 31 – Cargo growth rates by mode (pre- and post- financial crisis)

Source: Seabury

[169] (Seabury, 2017, p. 4)
[170] (Seabury, 2017, p. 23)

Trucking

415. Within Europe, the past decade has seen an increase in the use of trucking as a substitute for air transport. Referring to Europe, Boeing provides the diagram below, and states[171]:

> *"Since 2006, airport pairs of truck flights grew 3.1 percent on average per year. Weekly frequencies of truck-flights grew 14.3 percent on average per year between 2006 and 2013, but the growth has been at pause since 2013"*

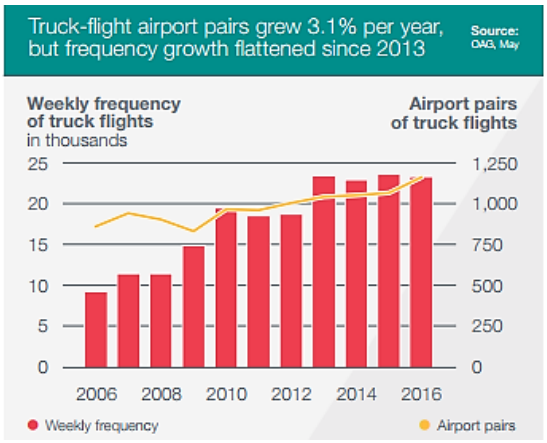

Figure 32 – Example of the growth of trucking within Europe

Source: Boeing

416. The same source also refers to a rise in 'long haul truck-flight operations in Europe', claiming "*their dramatic rise over the past decade has clearly contributed to a decline in growth of scheduled freight carried by air*". Steer Davies Gleave provides data showing a similar trend over the period 2002-07[172]:

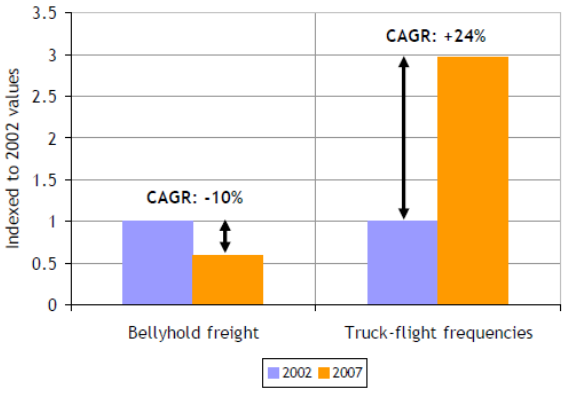

Figure 33 – Comparison of bellyhold airfreight tonnage and truck-flight frequency growth

Source: Steer Davies Gleave (2010), AIR FREIGHT Economic and Environmental Drivers and Impacts

[171] (Boeing, 2016, p. 32)
[172] (Steer Davies Gleave, 2010, p. 7)

11.2. Air Cargo Mix

417. Within air cargo, the low growth of general freight and the rapid growth of express and international mail is shown explicitly in the chart below[173]: Note that a significant proportion of the growth in general freight since 2008 occurred in 2010-11, and that growth of general freight since then has been lower (or even negative).

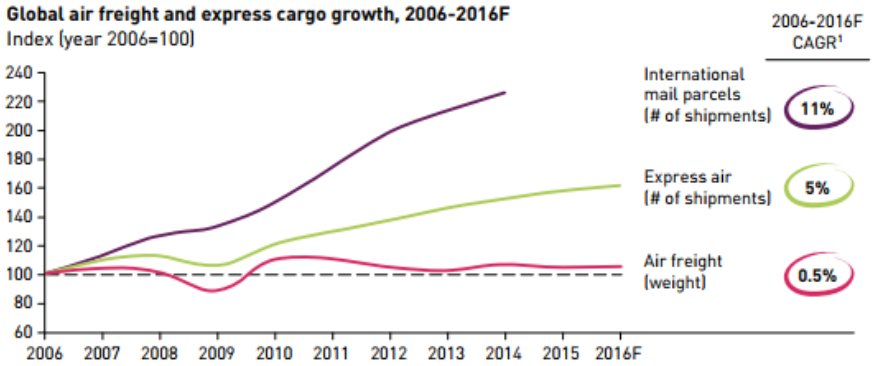

Figure 34 – Air cargo growth rates by type of cargo

Source: Seabury

418. Boeing confirms the relatively fast growth of express cargo[174]:

> *"International express traffic continued to grow faster than the average world air cargo growth rate, expanding 7.2 percent in 2014 and 3.6 percent in 2015".*

419. Within general freight, evolution of certain commodities has hurt air cargo volumes. For example, due to the miniaturisation of electronics, a modern laptop is significantly smaller and lighter than a personal computer from 1995, and so takes less space and weight to ship.

[173] (Seabury, 2016, p. 45)
[174] (Boeing, 2016, p. 7)

11.3. Bellyhold and Freighter Capacity versus Demand

420. In recent years, air cargo capacity has increased dramatically. This has been driven primarily by increased passenger demand resulting in an increase in the number of passenger aircraft (and therefore an increase in bellyhold capacity). Boeing states "*lower-hold capacity increased 27 percent from 2010 to 2015… the number of large freighters in service increased by 8 percent over this same period*"[175]. A similar trend is seen in the chart below from CAPA[176]:

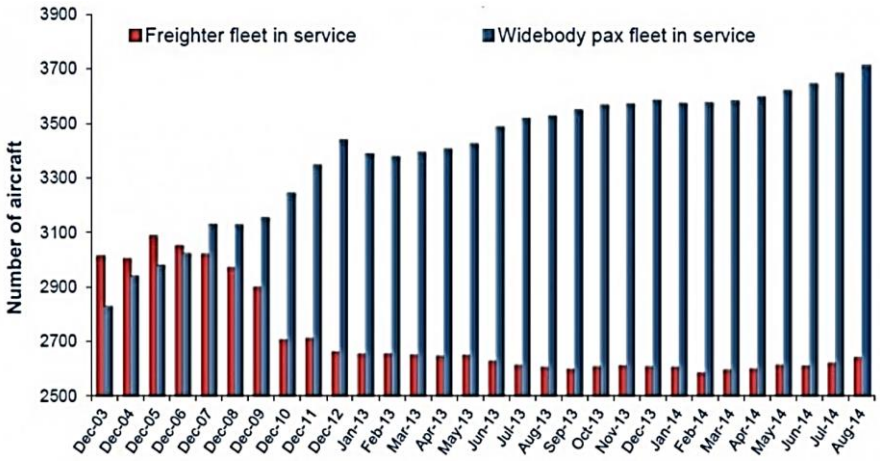

Figure 35 – Number of freighters and widebody passengers aircraft in service globally, Source: CAPA

421. The global financial crisis in 2008 had a significant impact on freighter numbers, while high fuel prices in the period 2011-14 is likely to have been a factor that kept freighter numbers depressed (see paragraph 400).

422. Whilst cargo capacity has been growing rapidly, cargo demand has not kept pace. This is illustrated by the fact that, as of Q4 2016, 15% of widebody freighter capacity globally was in storage[177].

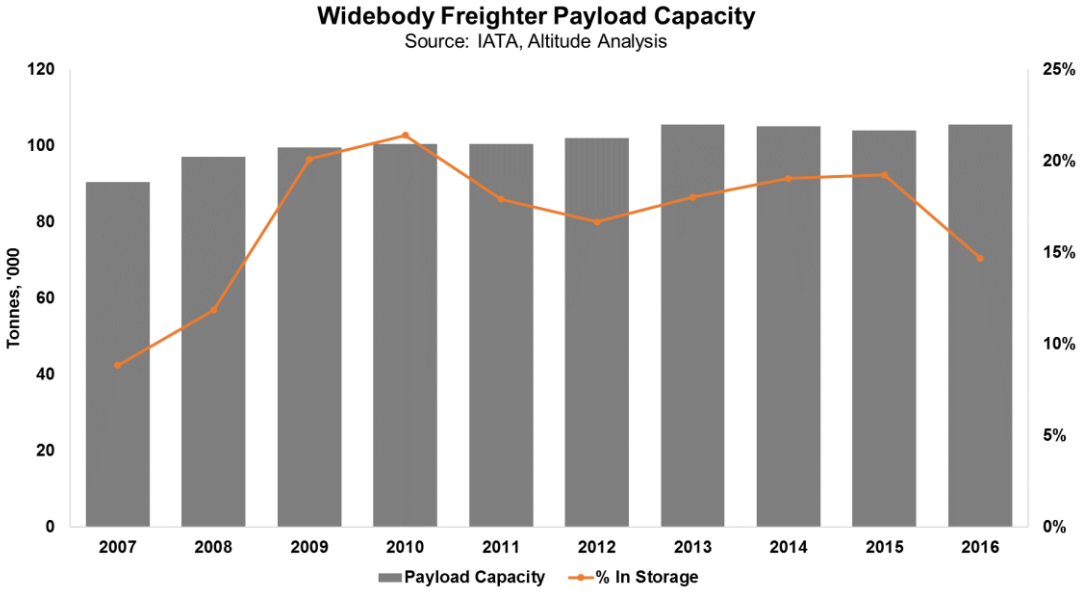

Figure 36 – Change in widebody freighter payload capacity with time

[175] (Boeing, 2016, p. 3)
[176] (CAPA, 2014c)
[177] (IATA, 2016, p. 3)

423. Additionally, the global average load factor achieved by airlines carrying cargo in the first 6 months of 2017 was just 45%[178]. Referring to bellyhold capacity, Airbus states that "*cargo load factors, on average, do not exceed 30 to 40% on international routes*"[179].

424. The chart below from IATA[180] shows the growth of both passenger and freight demand; since 2008, growth of passenger demand has far exceeded growth of cargo demand. This illustrates why growth of bellyhold capacity has outstripped that of freighters, why a number of freighters are being kept in storage, and why there remains significant amounts of unused cargo capacity.

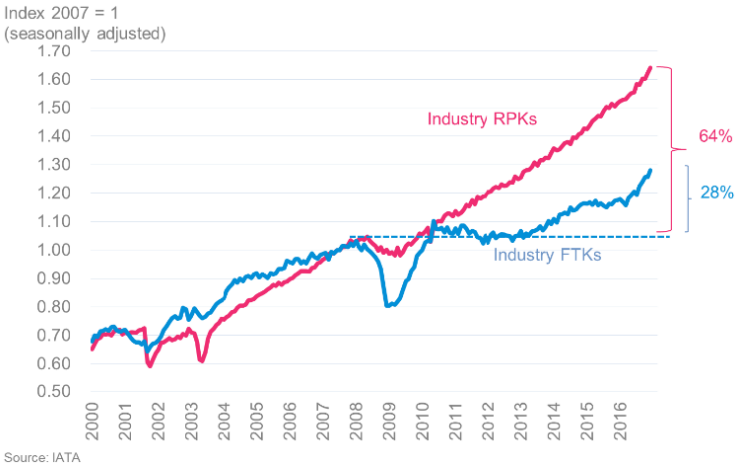

Figure 37 – Passenger growth compared with air freight growth, Source: IATA

11.4. Global Market Outlook

Outlook from Selected Carriers

425. The trend towards a reduced role for dedicated freighter aircraft (see Section 3.3) is reinforced by airline developments. In the text below, we provide selected examples of airlines cutting back on usage of freighter aircraft.

426. Luxembourg based dedicated freighter operator Cargolux (also in the world's top 10 air cargo carriers), acknowledges in its 2016 annual report the challenging operating environment it faces. The annual report also raises the possibility that dedicated freighter operators will not be viable in the future:

> *"There is clearly a current oversupply of capacity in the markets, which makes for a more challenging environment for cargo operators that have to achieve a healthy level of sustainable profitability…. There has been a modal shift from air freight to sea freight over the years whilst rail freight between Asia and Europe is an additional competitive challenge…. I also do not believe that it will be beneficial for shippers and forwarders if dedicated air freight operators were to disappear from the market."*[181]

[178] (IATA, 2017b)
[179] (Airbus, 2014, p. 35)
[180] (IATA, 2016, p. 3)
[181] (Cargolux, 2017, p. 7)

427. In 2014, the largest UK based combination carrier, IAG Cargo, decided to cease long haul flying using its own dedicated freighter aircraft (which had operated from Stansted).

> *"IAG Cargo CEO Steve Gunning said the carrier's dedicated cargo operations "made no profitable contribution" and the end of its freighter services will make the carrier "financially stronger""*[182]

428. Several other leading airlines are cautious about the prospects for the freighter segment. The following quotes are from a selection of combination carriers, all in the world's top 10 carriers of air cargo:

> *"Air France-KLM Martinair Cargo is pursuing its restructuring within a difficult economic environment. Air freight is being impacted by the situation of structural industry overcapacity…. the business is progressively retiring a portion of its full-freighter fleet to refocus most of its activity on the bellies of passenger aircraft. Within the framework of the Perform 2020 plan, this full-freighter fleet will thus be progressively reduced to five aircraft by 2017"*[183]

> *"Air France-KLM said freighters would become a "niche product" as cargo markets face continued overcapacity. Air France-KLM executive VP Erik Varwijk said slowing demand and greater belly capacity on scheduled passenger services made exclusive freighters redundant"*[184]

> *"Emirates VP cargo commercial operations Duncan Watson said the airline does not plan to add more freighter aircraft in the foreseeable future"*[185]

> *"Singapore Airlines Group subsidiary SIA Cargo faces another challenging year as conditions in the cargo market remain unfavourable. SIA Cargo has been unprofitable for seven of the past eight years, with losses further widening in recent quarters. Cargo capacity has been relatively flat since 2009, with additional belly space from passenger aircraft offsetting freighter reductions…. SIA Cargo is cutting its 747-400 freighter fleet in 1QCY2017, to only seven aircraft. At its peak in 2007 SIA Cargo operated 16 747-400 freighters. SIA will need to decide within the next few years whether to cut its freighter operation entirely or start investing in 747 replacements"*[186]

[182] (CAPA, 2014b)
[183] (Air France-KLM Martinair Cargo, 2017)
[184] (CAPA, 2014a)
[185] (CAPA, 2016)
[186] (CAPA, 2017)

12. Appendix - Case Studies of Leading European Cargo Airports

12.1. Context

429. In assessing the future potential of a re-opened Manston Airport, we have undertaken a review of Leipzig and Liege airports. Both are leading airports for all-cargo operations (rather than passenger hubs providing bellyhold capacity).

430. We have identified some of the key attributes that have helped Leipzig and Liege develop major roles within the European air cargo sector.

12.2. Leipzig

431. Leipzig Airport handled more than 1.0m tonnes of cargo in 2016. This throughput made it one of the top 5 cargo airports in Europe[187].

432. Leipzig is located in eastern Germany, ca. 100km from the Czech border and ca. 160km from the Polish border. Regarding its location, the airport states:

> *"[it is] located at the very heart of the central German logistics region…. [it is] an ideally located alternative to enter the growing markets in East Europe and Asia…. Besides outstanding infrastructural connections, the region is characterised by its motivated and qualified workforce and a high level of potential with regard to available space and investment"*[187]

Figure 38 - Trucking isochrones from Leipzig; 6hrs (dotted), 8hrs (solid-medium) and 10hrs (solid-thick)

Source: Leipzig Airport[188]

433. Leipzig Airport markets its proximity to eastern Europe as a benefit due both to the increasing economic power of this region, as well as the reduced flight time to Asia (compared with airports further west).

434. The airport has published a document stating trucking times to locations in eastern and western Europe. Only one of the ten examples given is within the 500km radius often considered as the realistic limit for express cargo. Three of these trucking destinations are over 1000km from Leipzig[189]. This gives some indication as to the possibilities for trucking of general cargo.

[187] (Leipzig Airport, 2017)
[188] (Leipzig Halle Airport)
[189] (Leipzig Halle Airport, 2014, p. 10)

435. Leipzig Airport has direct access to the European motorway network, and also has direct access to the rail network making rail-air transhipment possible.

436. The airport has two 3,600m runways, and operates cargo flights 24 hours a day. It has support from politicians at several levels for 24-hour operations. For example, the President of Saxony has said:

> *"Leipzig is in the second position of all hubs in Germany and this is why the state government and the city of Leipzig are convinced that 24 hours a day air traffic is necessary"*[190]

437. Note that this support appears to have been hard-won; the airport is reported to have spent ca. €100m on a noise control system, and is also said to be in regular communication with relevant stakeholders regarding noise[190].

438. DHL is one of the Leipzig Airport's largest customers. It decided to make the airport its European hub in 2004, began operations there in 2008, and now handles "*an average of 1,600t of cargo every day*"[191]. As of October 2016, DHL's total investment on its Leipzig hub was €655 million[192].

439. DHL Chief Executive Frank Appel said of Leipzig:

> *"It is in an excellent location, strategically positioned in the heart of Europe and is also in an excellent position to reach Asia and that is why we decided to expand our capacities here"*[190]

440. DHL's Leipzig hub manager is reported as adding other reasons for choosing Leipzig, including:

> *"the excellent road and rail connections, unrestricted night flights and a pool of skilled workers"*[190]

441. DHL operations support two of the airport's largest operators of scheduled cargo flights: EAT Leipzig is a wholly-owned subsidiary of DHL (it operates DHL's parcel and express flights, as well as providing adhoc charter services), while AeroLogic is a joint venture between Lufthansa and DHL (primarily operating long haul cargo-only flights for DHL).

442. The airport is also home to Ruslan Salis, a leading air charter company offering heavy lift services for large items of freight. A relatively large number of other carriers also operate charter cargo flights from Leipzig (34 are listed on the Leipzig Airport website). This indicates the airport is able to offer a competitive proposition for a wide range of different types of air cargo.

[190] (Air Cargo News, 2016a)
[191] (Saxony Economic Development Corporation, 2017)
[192] (Cargo Forwarder Global, 2016)

12.3. Liege

443. The airport handled 660,000t of freight in 2016, making it the 8th largest cargo airport in Europe (bigger than both East Midlands and Stansted). The majority of freight was general freight (ca. 56%), with express accounting for ca. 25%. Freight handled at Liege has grown at an average rate of 5.6% CAGR over the 4-year period 2013-16[193].

444. Liege's proximity to major population centres of northern Europe means that there are "*around 400 million consumers*"[193] within easy reach of the airport. This advantageous position means that 66% of all European freight transits through the region[193].

445. It has direct access to the motorway network. The airport states:

> *"Motorway transport is now the solution preferred by major logistics players and those specialised in the transport of goods in Europe…. The Flexport® is less than one day by truck from the largest European cities, thus reaching around 400 million consumers. It offers the advantage of an excellent, uncongested motorway network"*[193]

Figure 39 - ½ day & full-day trucking isochrones from Liege airport

Source: Liege Airport[193]

446. Whilst Liege benefits from an advantageous geographic location, the regulatory environment in which it operates is also conducive to air cargo; the airport operates 24-hours per day, 7 days per week:

> *"The other advantage at Liège is genuine 24 hour operations, an increasing rarity in Europe…. This does not just mean that the runway operates through the night but that there are no limits of any kind on the number of night slots that can be offered, and no extra charge for landing then…. This has been guaranteed by local government for 30 years and it is backed up by positive action, including purchasing and demolishing some houses under the flight path and spending heavily on noise insulation for others"*[194]

447. Note that when trying to construct a viable slot pair where one end of the route is a constrained airport, the ability to land at any time of day at the other airport can be particularly valuable. As more and more airports become constrained, 24-hour operation may therefore become increasingly important.

448. TNT is the main customer at Liege. Despite a recent buyout of TNT by FedEx, there appears to have been little loss of traffic to FedEx's handling facilities at other airports. This perhaps indicates that integrators are reluctant to shift location once their infrastructure investment has been made.

[193] (Liege Airport, 2017)
[194] (Air Cargo News, 2016b)

449. Other customers with significant tonnage at the airport include CAL, Ethiopian Cargo, Qatar Cargo, El Al Cargo and Icelandair Cargo. Similar to Leipzig, the diverse customer mix is indicative of the competitive proposition the airport offers.

450. The main runway is 3,690m long meaning many kinds of large cargo aircraft can take off at full capacity[195]. Whilst this is typically not necessary for express cargo carriers operating short-haul flights, it may be a key enabler for some long haul freighter operators.

451. Freight-only carriers also get advantages at Liege that they do not find at many other European airports. VP Commercial Steven Verhasselt said in 2016:

> *"The general trend is towards belly cargo but when you are operating a freighter, you want to fly into an airport dedicated to helping that type of cargo…. If we can save you a block hour from not having to taxi or wait for passenger airlines to land first, than [sic] that is a real cost saving and more important than cheaper landing or parking rates"*[196]

452. TNT and CAL both switched from Cologne to Liege in the 1990's "*attracted by Liege's strategy to focus on air freight in general and on the express business specifically*"[197], and are now amongst the largest of the airports customers.

453. The airport continues to expand its cargo handling facilities, with a new €4 million, 6,000m^2 cargo terminal due to open in 2017. It is also taking a role in the development of the 100+ hectares of land around the airport.

- For example, by forming a partnership – Land In Liege – with the land owner, which aims to "create synergies between the airport development and the development of the areas surrounding it"[198].

12.4. Conclusions

Leipzig and Liege airports are typical – albeit leading – integrator hubs. The airports are structurally different from Manston in many regards. There is no realistic prospect for Manston to develop a similar business model. However, without the cargo volumes associated with an integrator hub (or a major passenger hub), Manston will find it very challenging to generate significantly higher cargo throughput than historically achieved.

Liege / Leipzig Feature	Situation at Manston
Located close to motorway network, maximising catchment size.	Located on an A-road, ca. 40 miles from the motorway network (M20).
Catchment contains many of Europe's largest population centres.	Catchment is limited by the English Channel / North Sea.
24-hour operation.	Not clear but likely to be restricted.
Runway length of at least 3,600m, enabling largest aircraft to take off with full payloads.	2,750m runway, potentially limiting take-off payload for largest aircraft.
Significant investment in noise control measures.	Not clear.
Significant investment in cargo handling facilities.	Not clear.
Support from regional government.	Not clear.

Table 4 – Liege/Leipzig Structural Features vs Manston, Source: Altitude

[195] (Liege Airport, 2017)
[196] (Air Cargo News, 2016b)
[197] (Cargo Forwarder Global, 2017)
[198] (Land In Liege, 2017)

13. Appendix – Supporting Material

13.1. Assumptions made to calculate indicative cargo bellyhold capacity

454. Despite the difficulties in stating a cargo capacity for an aircraft type (see paragraphs 394-395), by making some assumptions[199] it is possible to generate estimated like-for-like comparison of the potential cargo capacity of different aircraft types.

Aircraft	Typical Passenger Capacity (#)	Indicative Cargo Capacity Volume (m^3)	Indicative Cargo Capacity Mass (kg)	2017 ATMs, UK-World (excl Europe)
Newer Aircraft Types				
B777-300	350-400	116	24,000	15,000
A350-1000	350-400	112	25,000	-
B777-9X	350-400	109	30,000	-
B787-10	300-350	105	21,000	-
A350-900	300-350	95	20,000	2,100
B787-9	250-300	91	22,000	12,000
A330-900neo	250-300	84	15,000	-
B787-8	200-250	71	15,000	11,000
A330-800neo	250-300	64	22,000	-
A380	400+	57	34,000	12,000
Older Aircraft Types				
A340-600	350-400	109	26,000	2,000
A330-300	300-350	84	15,000	6,000
B777-200	300-350	77	22,000	3,000
B747-400	400+	71	25,000	12,000
A340-300	300-350	71	15,000	500
A330-200	200-250	64	22,000	6,000
B767-300ER	150-250	46	23,000	9,000

Note there are additional ATMs where the precise aircraft model is not known: B777: 18,000, B787: 2,000, A330: 500

Table 5 – Indicative cargo capacity of selected aircraft types
Source: Boeing, Airbus, British Airways, JAL Cargo, Qatar Cargo, Qantas Cargo, OAG, Altitude Analysis

455. The following set of assumptions are intended to enable comparison of the cargo capacity (weight and volume) of different aircraft types on a basis that is as close to like-for-like as possible.

456. They do not result in a cargo capacity that is directly comparable with airline or manufacturer stated capacities, nor with cargo capacities actually achieved by the aircraft operators in the real world.

- Seat capacity as stated by the aircraft manufacturer. Where more than one configuration is listed, the highest capacity 2- or 3-class version is assumed (single-class configurations are possible but not common for widebody aircraft, and therefore not representative of the likely average configuration).
- Passenger load factor of 100%.
- A passengers to crew ratio as close to 20 as possible (with the number of crew and the number of passengers as whole numbers).
- Passenger and crew average weight of 85kgs per person.
- An average of 1.1 hold bags per premium (F/J/W) class passenger, and 0.8 hold bags per economy (Y) class passenger/crew member.
- Average premium bag weight of 21kgs and average economy bag weight of 20kgs.
- An allowance of 1500kgs for miscellaneous items (e.g. cabin baggage).
- The maximum possible weight available for passengers/crew/bags/misc./cargo is equal to the difference between the Empty Operating Weight and Minimum Zero Fuel Weight stated by the

[199] See Appendix section 13.1 for detail of these assumptions

aircraft manufacturer. Where the manufacturer defines multiple weight variants, the highest MZFW version is used.

- Average bag volume of 0.18m^3.
- LD3 container volume of 4.5m^3, and pallet volume of 11.4m^3 (Source: Boeing).
- Average LD3 packing factor of 95% for passenger/crew baggage.
- Assumption that no LD3 container will contain both F/J passengers bags and W/Y passenger bags (note no similar assumption is made for transfer/OD bags).
- The hold will be configured with enough LD3 containers to fulfil the passenger/crew baggage requirement (and no more), while adhering to the publicly-known allowable hold configurations (Boeing, Airbus, Qantas Cargo, JAL Cargo, SIA and Scoot]). Note: Available cargo volume is mathematically larger if the number of LD3 units in the hold is maximised. However, the LD3 is less useful for cargo than a pallet (it is smaller, so the maximum dimensions of the freight it can hold is lower; it has a small opening through which freight must be loaded; LD3s are smaller than pallets and are not cuboids; hence they have worse volume utilisation than pallets). In our experience, airlines do not typically use a max-LD3 hold configuration, despite the reduced mathematical cargo volume inherent in substituting LD3s for pallets.
- Bulk hold volume is not included in our cargo volume estimate[200].

13.2. Outlook for A380 in the UK Market

457. We do not believe the A380 will significantly increase in prevalence in the UK market, for the following reasons:

- The only UK airline with outstanding orders for the type is Virgin Atlantic (6 aircraft on order). However, Virgin has continually deferred this order (since 2006) and it is widely considered unlikely that deliveries of these aircraft will ever be made (a Forbes article from 2016 states "Virgin Atlantic's ever-deferred order for six is basically dead"[201]).
- The other major UK carrier (British Airways) currently has no outstanding A380 orders.
- There are currently outstanding orders of just 97 aircraft; 46 of these are for a single airline, Emirates, which is not based in the UK (but serves the UK market).
- Additionally, just 2 new orders globally have been made for the aircraft since 2015[202].

[200] The bulk compartment is typically around 10-15m^3, capable of storing loose-loaded items. At IAG Cargo, this space was primarily used for blankets and newspapers for passengers, with around 2-4m^3 typically made available for mail bags/express cargo. Use of this space may vary significantly airline by airline.
[201] (Forbes, 2016)
[202] (Airbus, 2017b)

14. Appendix – Review of AviaSolutions Report

14.1. Introduction

458. AviaSolutions was commissioned by Thanet District Council to investigate the commercial viability of Manston Airport. Its report[203], dated September 2016, is briefly reviewed in this section of the appendix.

459. The AviaSolutions report has a fairly wide scope, including a review of the site development options, analysis of passenger potential, airport financial projections and asset condition reports. Consistent with our overall scope, we focus only on the aspects of the AviaSolutions report addressing cargo potential.

460. Northpoint was subsequently retained by RSP to critique the AviaSolutions report. We review the Northpoint report[204] and the subsequent response from AviaSolutions[205] in the next appendix section (Section 15).

14.2. Potential Development Scenarios

461. AviaSolutions[206] outlines various potential scenarios for cargo activity at Manston. It states that:

> *"In the past, Manston Airport was able to attract a certain level of cargo activity, and a potential future role would be for it to again serve this market. In our assessment, we assume as a minimum that Manston attracts this previous freight, totaling 30,000 tonnes per annum."*

462. Given cargo consolidation trends and competition from more established airports, we consider it possible that a reopened Manston may not be able to achieve historic tonnage. However, as a modelling assumption, we consider this to be reasonable.

463. AviaSolutions then puts forward two possible reasons why the scale of activity in the future could exceed historic levels:

> *"The selection of the East Kent area by a major multinational manufacturing (e.g. an Asian electronics or white goods company) or retail group (e.g. Amazon) as the location of its distribution network. Such location decisions can have a significant impact on freight volumes. However the UK's planned exit from the EU leaves makes this less likely.*
>
> *As a consequence of their lower sensitivity to airport location, freighters are generally amongst the first category of traffic to be 'squeezed' out of busy airports. With the pressure on runway capacity in the South East of England, it is possible that freighters currently operating through the London airport systems might seek to move to an alternative airport."*

464. In relation to the first possible reason, we are not aware of any firm or proposed development that would have a significant impact on freight demand. Therefore, while this a theoretical possibility, the same could apply to any location in the UK. Any future such development would be heavily contested between different UK regions, with more established and more central distribution locations likely to have an advantage.

465. The second reason suggested by AviaSolutions is investigated further in subsequent sections of the AviaSolutions report. We comment on this analysis later in this appendix.

466. AviaSolutions continues, commenting on the potential for integrator services at Manston:

[203] (AviaSolutions, 2016)
[204] (Northpoint Aviation Services)
[205] (AviaSolutions, 2017)
[206] (AviaSolutions, 2016, p. 15)

> *"We also considered the role of integrators in the air freight market. Whilst general cargo traffic tends to be more flexible about the location of the airport it uses than passenger traffic, this does not apply to the major integrated freight operators. The business model of operators such as DHL, FedEx and UPS is based on a hub and spoke principle involving both aircraft and road feeder services: the surface element of the network has a greater requirement for a central location within the market being served. We consider the geographic location of Manston precludes it from being a suitable base airport for an integrator in particular when compared to UK competitors such as East Midlands Airport."*

This assessment of the potential for integrators is consistent with our view.

14.3. Cargo Analysis

467. In Section 6 of the AviaSolutions report, more detailed analysis of the cargo market is undertaken. In assessing the key airport dynamics of the UK market[207], AviaSolutions draws similar conclusions to our analysis:

> *"The busiest airport for freight has consistently been Heathrow, responsible for two thirds of the country's air freight. This position owes much to the very considerable cargo capacity in the holds of the wide-body aircraft providing the many long haul passenger services from the airport. In contrast, East Midlands' position as the second busiest freight airport is due to its role as the centre of the UK distribution network of the integrated cargo carriers, especially DHL but also UPS and Royal Mail. Stansted is preferred by FedEx and is also used by the cargo operations of a number of airlines. These included British Airways before it discontinued its all-freighter operations in April 2014 and switched to the freighter operations of Qatar Airways.*
>
> *It has been argued by, for example, York Aviation on behalf of the Freight Transport Association that the stagnation of growth in UK air freight market since 2000 has been caused by a lack of airport capacity in the London area and specifically at Heathrow. Whilst the lack of ATM growth at Heathrow has undoubtedly hampered the development of the national air freight market, it is also true that over this period there was adequate airport capacity available at both Stansted and Manston to support additional dedicated freighter movements. Freighter movements at Stansted decreased over the period, while Manston closed. This strongly suggests that the stagnation of UK airfreight is not a consequence of capacity constraints given the excess capacity at Stansted and Manston."*

468. In particular, the highlighted distinction between Heathrow freighter capacity and overall UK or South East freight capacity is key. AviaSolutions further explores the dynamics of bellyhold versus freighter:

> *"It is important to note that, in the UK market, only 30% of airfreight is carried on dedicated freight aircraft. This is substantially less than the global average, where approximately 56% of RTK's are transported on freighters. In part, this disparity is due to the excellent belly-hold networks available from UK airports and in particular from Heathrow.*
>
> *As passenger demand increases additional belly-hold capacity will enter the market. This capacity growth is unhooked from the demand scenario for belly-hold cargo and can result in excess capacity in the market. As a result airlines will often sell this belly-hold capacity using a marginal cost pricing structure. This pricing structure does not need to account for the high cost of the aircraft and must only meet the additional marginal cost that each kilogram of cargo incurs. Through the application of this pricing in the key structure, belly-*

[207] (AviaSolutions, 2016, p. 27)

hold cargo often undercuts the minimum price that can be charged on dedicated freighter operations.

As a result of this market dynamic, an airport focused on airfreight carried by dedicated freighters may be overly exposed to a declining or stagnant total market, or at best to a market that is not exposed to strong potential."

469. Again, this view of the market aligns with ours. One area of difference is in relation to the bellyhold capacity of newer aircraft. AviaSolutions asserts that:

"However, there are some elements of the market that appear to be limiting the increase in belly-hold capacity. These include

- *Some of the newer aircraft types have a smaller bellyhold cargo capacity than the aircraft they replace; and*
- *Low Cost Carriers (such as easyJet and Ryanair) are gaining market share but generally ignore the freight market."*

470. As we argue in our report, most newer aircraft types have higher cargo capacity than their predecessors (see paragraph 140). Furthermore, short haul passenger flights contribute a small minority of overall freight, regardless of whether operated by full service or low cost carriers (see paragraph 233).

471. AviaSolutions undertook interviews with freight industry representatives[208]. The list of interviewees was not extensive, with 4 people from the air cargo sector. However, compared to the stakeholders interviewed by Azimuth, there interviews are more relevant for analysing the potential for Manston to play a national role in the UK freight sector.

472. The conclusions from the interviews are summarised below:

"We conclude therefore that there is limited interest from the cargo industry in using a re-opened Manston Airport for air freight. The larger scheduled freighter operators are unlikely to relocate their services to the airport, particularly if the airport does not have a unique product offer. We believe it is more likely that were Manston Airport to re-open, the most likely role would be to serve smaller freight operators and the larger operators on an ad-hoc basis. There is no compelling reason to believe that the airport would be able to generate appreciably more freight activity than previously, other than in the context of a shortage of airport capacity in the London area."

473. This summary is consistent with our assessment of the potential market for Manston.

14.4. Potential Future Freight Operations - Model

474. The next stage of the AviaSolutions report[209] investigates potential demand versus supply imbalances in the South East. Not enough detail of the assumptions/workings is provided to be able to undertake a comprehensive review.

475. The approach differs from ours in some important respects:

- Demand growth rates based on trend analysis rather than linked to GDP.
- Future capacity based on assumed average loads for bellyhold and freighter flights at different airports. Future freight capacity expansion plans for airports do not seem to be explicitly taken into account.

[208] (AviaSolutions, 2016, p. 29)
[209] (AviaSolutions, 2016, p. 30)

- Focus on South East airports rather than national demand/supply.

476. Nevertheless, despite the different methodology, the conclusions are broadly similar to our analysis.

- Demand can be fully accommodated up to 2045 in the Heathrow third runway case.
- In all runway scenarios, demand can be fully accommodated up until 2040.

477. AviaSolutions then provides its modelling assumptions on the potential capture by Manston of unaccommodated demand:

> *"For the purposes of our assessment and in recognition of RiverOak's stated intention to develop Manston as a freight airport, we have assumed that half of the remaining unaccommodated demand is flown via Manston, with the other half going to other UK regional airports, potentially led by East Midlands and Manchester."*

478. We consider this a generous assumption, given the strength of alternative options at established airports or from a highly developed trucking network.

479. Later in the AviaSolutions document (Section 7.3.1), the Manston freight forecasts for the Heathrow third runway scenario are presented. Freight tones are modelled at 30,000 from 2018 to 2045, before growing to 100,00 tonnes in 2050. Appendix C (Section 11.1.1) of the AviaSolutions report provides the Manston freight forecasts for the no new runway scenario (the most favourable for Manston). Again, the forecast is for 30,000 tonnes from 2018 to 2040, but growing to 80,000 tonnes in 2045 and 140,000 tonnes in 2050.

480. These figures look reasonable for the short to medium term, with some potential for modest outperformance in a growing market. In contrast, we consider the forecasts to be on the high side in the long term. Even if South East capacity by 2050 is more heavily constrained than we assume, we consider it likely that centrally located regional airports will benefit to a much greater extent than Manston.

14.5. Conclusions

481. Section 8 of the AviaSolutions report provides its overall conclusions for the freight potential at Manston:

> *"Our freight interviews indicated that the demand to use the airport for freight was very limited. This, in large parts, is due to two factors; the infrastructure investments that have already been made by the industry around Heathrow and Stansted, and the geographical location of the airport. Infrastructure, and the associated knowledge, skill and supporting industry at airports such as Heathrow and Stansted, as well as the major European hubs such as Frankfurt, and Paris, would be almost impossible for Manston to replicate. The geographic location of the airport, tucked into the corner of the UK, cannot compete with airports such as East Midlands for Integrator services that are sold as fast delivery, due to the increases in surface transportation times. The interviews did however indicate that charter services and ad-hoc freighter flights would certainly return, providing some revenue income for the airport. In summary, we conclude that freight would return to the airport in limited quantities, not dissimilar to the tonnage previously processed at the airport."*

482. These conclusions are substantially in line with our conclusions (see Section 2.7).

15. Appendix – Review of Northpoint Report

15.1. Introduction

483. In the main body of our report, we have reviewed the reports issued by Azimuth on the potential for freight development at a reopened Manston. RSP also commissioned Northpoint to review the Azimuth forecasts, the original AviaSolutions report and more generally the RSP proposals. Northpoint's analysis was issued in a report titled *"The Shortcomings of the Avia Solutions Report and an Overview of RSP's Proposals for Airport Operation at Manston"*.

484. In this appendix, we briefly review the Northpoint report.

- Where the Northpoint report covers similar ground to the Azimuth reports, we do not repeat our commentary from the main body of our report.
- Furthermore, our focus is on areas of the Northpoint report relating to freight. Other areas, including passenger development and financial viability, are not covered at this stage.
- Finally, we restrict our commentary to the key issues of substance. For example, Northpoint expresses strongly worded opinions on the AviaSolutions approach. While we believe this criticism is misplaced, we have separately reviewed the AviaSolutions report, and do not see the need for further comment in this appendix.

485. Our review of the Northpoint report has been undertaken in chronological order (the same order issues appear in the Northpoint report).

15.2. Manston Airport Benchmarks

486. Northpoint describes the business model for a reopened Manston as a "*mixed use airport offering air cargo, air passenger links and aircraft servicing and recycling*[210]". Northpoint then highlights that this would be:

> *"…in line with the business models of successful benchmark airports such as Alliance Fort Forth in Texas, USA; Hamilton Airport in Ontario, Canada; Bergamo in Italy; Liege in Belgium; and Leipzig in Germany."*

487. There is no explanation of what characteristics these airports may have in common with Manston, or why these airports would be more relevant than UK examples of mixed use airports such as Prestwick.

- See paragraph 322 onwards for a review of Prestwick Airport and similarities to Manston.

488. In the appendices (Section 12), we have provided case studies of Leipzig and Liege airports. The case studies demonstrate very clearly that these airports have very little in common with Manston, and cannot be considered as relevant benchmarks using objective criteria.

489. AviaSolutions[211] subsequently reviewed all the airports put forward by Northpoint and concludes:

> *"There are clearly structural and geographical reasons as to why each of these airports is different to the proposal for Manston Airport. As such, suggesting these are comparable benchmarks is not realistic. In order for Manston Airport to acquire the status of these airports it would need to demonstrate key elements of development, namely; commitments from key express players (DHL / UPS / FedEx / Amazon / Alibaba); an ability to operate night operations with few regulatory restrictions; and geographical advantages from nearby cities, industrial parks, and population centres."*

[210] (Northpoint Aviation Services, p. 1)
[211] (AviaSolutions, 2017, p. 16)

490. We agree with this assessment. The catchment, location and regulatory framework are all much less favourable at Manston, rendering any comparisons between the airports meaningless.

15.3. Air Cargo Forecast Methodology

491. In Section 2 of its report, Northpoint puts forward its approach to air cargo forecasting and critiques the AviaSolutions approach. The Northpoint methodology appears to be similar to the Azimuth approach, which is reviewed in Section 8 of this report. We focus our assessment of the Northpoint approach on selected key points not covered in the Azimuth forecast review.

492. Northpoint[212] downplays the importance of location for freight, stating that *"In order to forecast where future freight capacity might optimally be developed, it is therefore not appropriate to rely on the geography of consignee demand"*. Instead, the importance of supply side issues is stressed:

> *"The effect of this is to push freight forecasting away from typical neo-classical demand/price mechanism models and any use of airport specific progression, towards supply driven modelling particularly requiring transparency about the supply factors that are used. So, for example, freight operations will be attracted either to where there is a large volume of network carriers flying international services or to where there are few night time restrictions because these are important for express freight operations, or in the case of dedicated freighters where there are no restrictions on slot availability and there is sufficient space to create efficient apron based loading and unloading operations alongside specialist handling facilities such as refrigerated storage, bonded warehouses and major logistics sheds."*

493. Northpoint then argues that *"In the south east of England this points to a relatively small number of airports being suitable for any large-scale freight operations."* Northpoint[213] sees this as an opportunity for Manston, stating that *"…there are few alternatives other than for Manston to cater for non-belly freight movements at south-east airports."*

494. There is an inconsistency in this argument. If the geography of demand is of secondary importance, Northpoint's focus on airport capacity in the South East is misplaced. In any case, South East airports already attract a disproportionate share of the UK's freight demand (see Section 2.4).

495. On Pages 4 and 5 of its report, Northpoint makes a number of assertions, in support of its forecasts, which we dispute:

- *"Based on long-term growth trends in the sector, this report contends that freight capacity in the south-east will need to expand by over 100% in the next 25 years."* No further explanation is provided for such a sweeping statement. As we have highlighted, there is spare freight capacity in the South East currently (see Section 5.3). Furthermore, the focus on South East airports only is not justified (see paragraph 219).
- "*… the expansion for Stansted and Luton for passenger services, primarily of a low-cost nature, means that there will be very few spare slots during the day and more importantly at night, that can be used by express freight carriers for dedicated freight operations*." This assertion ignores the plans of Stansted to grow its freight volumes and to expand its freight infrastructure. It also does not consider the separate planning cap for freight flights (see paragraph 237 onwards).
- *"In this context, and keeping in mind the need for basic infrastructure requirements such as a substantive runway, good road connections and sizeable areas available for apron and shed development, there are few alternatives other than for Manston to cater for non-belly freight movements at south-east airports."* As noted previously, we disagree with a narrow focus on the South East market. Even so, there are other options. In addition to the substantial expected freight

[212] (Northpoint Aviation Services, p. 4)
[213] (Northpoint Aviation Services, p. 5)

capacity growth at Heathrow and Stansted, other airports such as Gatwick and Bournemouth could play a larger role in the future.

- *"Indeed, I anticipate existing volumes at Luton, Stansted and Gatwick will continue to fall as slots and space become increasingly valuable."* The implication that volumes are falling at Stansted and Gatwick is incorrect. Both airports have enjoyed strong growth since 2015 (Gatwick especially, see paragraph 212).

496. On Page 5, Northpoint then outlines the perceived benefits of Manston:

> *"Manston, in contrast, will have no foreseeable slot restrictions, an established reputation for efficient handling and if RSP's proposals are approved, a substantial apron capable of handling several large aircraft concurrently all with excellent airside support facilities and access to dual carriageway roads to London, the M25 orbital and in the foreseeable future to a new Dartford crossing improving access to ports in Essex and in East Anglia. It is even well positioned for trans-shipping freight to trucks, which can then use Dover port or the Channel Tunnel to access the near continent."*

497. We disagree with this assessment of the potential for Manston:

- As discussed previously (Section 4.11), Manston's location is poor.
- The infrastructure advantages are not unique to Manston, while the potential night flight restrictions at Manston are not mentioned.
- We are unconvinced by the potential of improved access to ports. For example, Liverpool Airport currently has very limited freight volumes despite common ownership with Liverpool Port.
- Similarly, it is not clear what advantages could accrue from trans-shipping freight to trucks for onward cross-channel travel. The directional flows where this would make economic sense are not articulated.

498. In referring to the Northpoint forecasts, it is stated on Page 5 that *"They nevertheless demonstrate that, under a range of scenarios, Manston is strongly placed to attract surplus demands in the South East by offering an attractive supply side solution to the air freight industry."* As far as we can see, only one (very optimistic) scenario is presented by Northpoint.

499. Northpoint then provides a wide range of comments on the AviaSolutions forecast methodology (Pages 6-7). AviaSolutions[214] refutes many of these in its follow up report. We make the following observations:

- Northpoint promotes the use of global historic trends and manufacturer forecasts in the context of Manston projections. As we also comment in relation to the Azimuth forecasts (see paragraph 361), the simplistic application of global manufacturer projections to a UK airport is problematic. The divergent freight trends in different markets caution against the application of global metric.
- Northpoint appears to suggest that, for Manston, global forecasts are more relevant than national projections. We find this puzzling. While freight is an international business, UK demand characteristics should not be disregarded.
- Northpoint also seems to argue that bellyhold capacity at Heathrow is constrained, and set to diminish due to newer aircraft types having lower bellyhold capacity than predecessors. However, as we show in Section 4.7, the average freight load for both bellyhold and freighter flights at Heathrow has been growing significantly. This suggests that spare capacity exists and/or average capacity per flight is improving. In the same section, we also highlight that – with the exception of the A380[215] – newer passenger aircraft typically have higher bellyhold capacity than legacy aircraft.

[214] (AviaSolutions, 2017)

[215] As at 31st October 2017, 217 A380 aircraft were in operation with outstanding orders for a further 100. This compares to 1,744 A330/A340/A350 family aircraft in operation, plus a further 1,057 outstanding orders (source: Airbus website). In addition, there is a large

500. The Northpoint report then addresses the issue of cross-channel transhipments (Page 7 onwards). Its argument is that lack of airport capacity in the South East has led to a major increase in trucking from the UK to European airports. As we noted previously, there is not (nor has been) any overall shortage of airport capacity for freight in the South East or the UK more generally (Section 5). Furthermore, the increasing use of truck feeder services is due to cost efficiencies and is not restricted to the UK (see Figure 32).

501. AviaSolutions[216] also correctly points out that:

> *"It is important though to note that a reverse flow also exists with continental European freight being trucked across the Channel to be flown into and out of UK airports. A lack of verifiable data on these flows hinders quantitative analysis, although the practice has existed for many years and despite this the freight industry chose not to use Manston Airport when it was open."*

502. On Page 9, Northpoint draw inappropriate conclusions from York Aviation studies. Our comments on this in relation to Azimuth also apply here. Similarly, we find Northpoint comments on Brexit impacts speculative and one-sided.

503. Northpoint then devotes Pages 10-14 on *"The Availability of Substitutable Bellyhold Capacity"*. We disagree with the following assertions:

- "*However, Avia adduces no evidence on comparative charging rates between bellyhold and freighter carriers and therefore with Heathrow known to be one of the most expensive airports in the world, we remain sceptical that this is a material factor that would drive the re-allocation of consignments from freighters to bellyhold aircraft."* As we illustrate in Section 4.7, Heathrow has grown its share of the UK freight market despite its relative expense. Despite high airport charges, we understand that the incremental costs of cargo carriage at Heathrow are fairly low. Therefore, where excess bellyhold capacity exists, it makes economic sense for airlines to try to fill that capacity with competitive charges for freight customers.
- *"First, just under 50% global air cargo is shipped bellyhold; the comparative figure in the UK is 70%. Since the economies of the UK's main EU competitors are not materially different from our own, there is no logical explanation for this difference other than the shortage of slots available to integrator aircraft or dedicated freighters …"*. There is available airport capacity for integrators / dedicated freighters (see Section 5). A much more credible explanation for the high proportion of bellyhold in the UK is Heathrow, which is Europe's largest passenger hub airport. Heathrow provides an extensive schedule of widebody passenger flights to many of the world's most important air freight markets. Furthermore, the geographical position and island status of the UK make it a less suitable location for freighter flights serving the wider European market (compared to say, Germany). This is especially true for flows to/from Asia.
- *"Second, there are many types of freight (e.g. time critical, heavy, large or live) for which bellyhold capacity cannot provide an acceptable substitute to dedicated freighters*." It is correct that some types of freight are unsuitable for bellyhold. However, this segment of the market is very small and is accommodated at existing airports such as Stansted.
- *"Third, Heathrow's principal attraction for freight forwarders, namely the range of international destinations it serves directly, is also its potential Achilles heel, because that network may not be sufficiently concentrated on certain 'thick' freight routes to be able to cope with the underlying demand – in other words the more complex the passenger network, the greater the likelihood it may not match the required pattern of freight distribution flows."* We do not follow the logic of this. At any airport, there will be some routes where freight demand exceeds bellyhold supply.

backlog of Boeing widebody orders (ca. 1,200 as at October 2017) in addition to aircraft already in operation. Therefore, the A380 is not overly significant in relation to overall bellyhold capacity.

[216] (AviaSolutions, 2017, p. 18)

This is not a new phenomenon, and we are not aware of any suggestions that there will not be an ongoing role for freighter aircraft in the future. Therefore, it is unclear how this factor will be a negative for Heathrow going forward.

- *"Fourth, new aircraft tend to have less bellyhold capacity than older ones and Heathrow and Stansted are the two airports where these new aircraft are most likely to be introduced."* This point is incorrect and was addressed earlier with regards to Heathrow earlier in this section (paragraph 499). The comment is relation to Stansted is irrelevant, as Stansted bellyhold freight is negligible.
- *"And finally, it is very likely that a sizeable chunk of the available runway capacity at both airports will be taken up by Low Cost Carriers (i.e. Ryanair at Stansted and easyJet at Heathrow), and as with most Low-Cost Carriers, carrying freight does not form part of their business model."* We have previously argued that the airline mix is much less important than the route mix. Short haul full service airlines only generate a small fraction of bellyhold freight, so any differences in airline mix within the short haul sector will have minimal impact (see paragraph 233).
- *"Hence, in the medium to long term it is hard not to see the average freight capacity per aircraft arriving at Heathrow diminishing, even if with the new runway, the total number of aircraft that can operate there increases."* This would require a reversal of historic trends – as discussed above, the average loads per flights have been growing strongly. We would anticipate this trend to continue in the future.

504. We have a very different view of the freight outlook, both generally and specifically for Manston. No credible evidence is presented by Northpoint in support of its assessment. There are major flaws in key lines of argument, with its study exhibiting many of the same fundamental issues as the Azimuth reports.

15.4. Manston Air Freight Forecasts

505. Northpoint present summary air freight forecasts in Appendix A of its report. The forecasts are even more ambitious than the Azimuth forecasts, with 472,000 tonnes projected by 2040. This figure is equivalent to two-thirds of all tonnage on freighter aircraft in the UK in 2016.

506. The building blocks to the forecast are not easy to follow. However, the following assumptions appear highly suspect:

- Stansted to see freight volumes reduce dramatically, in contrast to the airport's own forecasts and expansion plans. It appears all this "spilled" freight is expected to divert to Manston, rather than more established UK competitors.
- Similarly, spill from Gatwick and Heathrow, despite growing long haul services at Gatwick and a new runway at Heathrow. Again, it seems all spill is expected to be captured by Manston.
- There is also a major assumption that a substantial proportion of freight can be "clawed back" from European airports. By 2040, it appears that this factor contributes 100,000 tonnes to Manston in the Northpoint forecasts. The assumption is unfounded and ignores market economic reality.

507. In Section 8.6, we concluded that the Azimuth forecasts were extremely optimistic and therefore not credible. The Northpoint forecasts are even more ambitious. Therefore, we draw similar conclusions in relation to their credibility.

508. As with the Azimuth forecasts, we also note the Northpoint cargo flight projections are high, even taking into account the projected freight tonnage.

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Dear Sir/Madam

Consultation on RiverOak Strategic Partners' Proposals for the Former Manston Airport Site, Kent

We write on behalf of Stone Hill Park Ltd (SHP), the owners of the former Manston Airport site. This letter sets out comments on the June 2017 Statutory Consultation documents produced by RiverOak Strategic Partners (RSP) regarding their intention to seek a Development Consent Order to acquire and develop the site as a cargo airport.

Our principal comment is that in our opinion the consultation material fails to demonstrate that the proposed development is deliverable, on the following principal grounds:

1. There is no evidence of RSP's ability to fund the proposed development;
2. The Outline Business Case and suggested 'market opportunity' is fundamentally flawed and not credible;
3. RSP does not own the land that it proposes to develop, and does not present a credible means of acquiring it;
4. The level of detail provided in the Preliminary Environmental Report (PEIR) is inadequate to reach even a preliminary view on the likely environmental effects of the proposed development, or the scope of mitigation necessary to make it acceptable; and
5. There is no evidence to demonstrate a genuine ability/intention to deliver the proposed development.

We further note that the level of consultation with the landowner and other statutory consultees in the formulation of these proposals has been lacking, particularly bearing in mind that compulsory purchase powers are likely to be sought.

We expand on each of these points in further detail below:

1. No Evidence of RSP's Ability to Fund the Proposed Development

The Outline Business Case confirms that the delivery of the proposed development will require investment of at least £300 million on essential capital works, plus site acquisition costs (para 25-28). The consultation documents confirm that securing the funds for this investment is a necessary precursor, without which the proposed development cannot be delivered:

"…Manston Airport, with the high level of investment proposed by RiverOak, its geographic location and airspace position, is capable of handling air freight at least to the volumes required by the DCO process" ("Manston Airport – a Regional and National Asset, Volumes I-IV" Executive Summary pg. II, emphasis added)……"This requires an operator and investor with the resources to take a long-term view of the airport as an investment and not expect an instant return" (Overview Report, pg. 13, emphasis added).

Despite acknowledging the necessity of significant, committed investment over the lifetime of the project and the certainty of operating losses which will be incurred over the short-long term, no credible information is provided in the consultation material in respect to the source, commitment, or capability to fund the works set out in Part A-M (para 6) and A-D (para 9) of the OBC or the costs to acquire the land, all of which RSP confirm are fundamentally required in order to deliver the scheme. Nor is there any evidence that the project will be viable and self-sustaining over the long-term, an assurance the Secretary of State and any investment partner will surely require bearing in mind the airport has never made a profit over the course of all of its years of private ownership.

The description of how the project will be funded consists of four paragraphs (the shortest section of any document submitted for consultation) and asserts meekly that "*RiverOak's consortium of investors has a history of investment in and development of major capital projects and they have combined assets in excess of £1 billion*". This sentence is the extent of RSP's evidence of financial resource and funding structure to date, which we consider to be fundamentally inadequate.

RSP themselves have no track record in the development of major capital projects and have no known investors capable of providing or willing to provide over £300m towards this project. Nor is any information provided on the composition of the alleged "consortium" of investors.

This glaring gap in the consultation material supports our continued opinion that RSP's putative proposals to reopen the airport are entirely speculative. History has shown that despite considerable investment and concerted efforts from numerous capable owners throughout the duration of Manston's 15 years under private ownership, the airport consistently underperformed, never made a profit, and cost investors a total of over £100m (see Enclosures 1 & 2). No evidence has been presented in the consultation material to suggest that RiverOak's proposals will be any different.

In light of the above, we must conclude that on the basis of the consultation material RSP's proposals are not financially viable or deliverable.

2. The Outline Business Case and Suggested 'Market Opportunity' is Fundamentally Flawed and Not Credible

As per (1), this point is explored in detail in the paper at Enclosure 3, with the key points considered below:

The Outline Business Case is academic and provides no evidence of the commercial deliverability of the proposal. The assumptions contained therein are flawed and the conclusions are not credible. The absence of a comprehensive business plan incorporating a detailed financial/investment appraisal supported by recognised institutionally acceptable investment advisors, as would be normally be expected for a project of the scale, is missing in RSP's consultation material.

The business case relies entirely on the purported existence of 'insufficient capacity' in cargo capacity within the South East, and their assertion that their proposals will be a commercial success simply by virtue of this capacity shortfall. This alone is clearly not a credible business case.

Furthermore, RSP's 'vision' for Manston as a cargo hub to serve the South East of England is not unique. Freight formed a core component of the airport's strategy for growth from 1989 until its closure in 2014. Over this period, three private owners of the airport (all of whom had experience in operating airports) made consistent, sustained and significant efforts to promote the airport as an

alternative to London and increase freight and passengers services to an extent that would make the airport's operation viable (see Enclosures 1 & 2).

In 2001, Wiggins Group projected that the airport would process 100,000 tonnes of freight by 2004, doubling to 200,000 by 2005. Annual CAA statistics show that actual freight levels during this period peaked at 43,026 tonnes in 2003, less than half levels projected. Following the significant financial losses incurred during ownership, the owner went into administration in 2005 and the site was sold by administrators to Infratil, an infrastructure investment company with previous experience of owning airports.

In 2009, Infratil published a masterplan for the airport, which included strategies to help it realise growth potential in both passenger and freight services. Again, congestion in London airports and the perceived deficiencies/shortfall in capacity in the South East was considered one of the key drivers for growth and success. It envisioned gradual increases in freight tonnage per annum, combined with step changes in provision as existing operators at other airports in the South East relocated to Manston to access available capacity. The masterplan included plans for additional infrastructure to achieve receive freight dislocated from congested London airports and achieve this growth. The anticipated growth in freight was initially projected to grow starting from 31,600 tonnes in 2010, to 107,000 by 2014, 167,500 tonnes by 2018 and eventually reaching 401,000 tonnes by 2033. Again, the airport only ever achieved a fraction of projected growth, with freighter traffic peaking at 31,078 tonnes in 2012.

SHP's in-house experts have reviewed the aviation evidence supplied by RSP and have found fundamental flaws in RSP's assessment of the existing and projected demand and supply for freight capacity which they use to underpin their proposals (see Enclosure 3). Total air volume of freight in the UK has been broadly flat since the year 2000 and freighter flights, outside Heathrow, Stansted and East Midlands have fallen by almost 75% between 2000 and 2016. Forecast expansion capacity at Heathrow, East Midlands and Stansted is already more than sufficient to meet expected operational needs and there appears to be more than enough capacity within the system to meet all expected demand.

Even if there was existing or projected demand for additional airport freight capacity in the South East (which we do not accept), the mere existence of demand is not a sufficient reason to conclude that it could be fulfilled by Manston. The key characteristics of Manston would remain unchanged irrespective of any significant investment RSP promise (albeit without a demonstrable funding source): Its peripheral location and the lack of strategic infrastructure connecting it to the wider UK supply network means that other airports will continue to be preferable for existing operators. Investment cannot change this.

3. RSP Does Not Own the Land That it Proposes to Develop, and Does Not Present a Credible Means of Acquisition

RSP does not own the land that it proposes to develop.

The development proposals being consulted on are not capable of being implemented unless it acquires the land.

The current landowner does not intend to sell the land, as it has its own development plans that are supported by the emerging development plan for the area and bring with them very considerable public benefits with the certainty of an ability to deliver.

The consultation materials suggest that in order to overcome this, RSP intends to seek powers as part of a DCO application (under the 2008 Planning Act) for the compulsory acquisition of the land. No detail is provided in terms of which specific CPO powers are to be used and no detail is provided on RSP's proposed grounds to justify a CPO. It is our view that there is no case to justify the granting of compulsory purchase powers. We explain this position below:

General principles underpinning compulsory purchase legislation confirm that powers should only be used as a last resort and that the 'bar' to satisfy the relevant tests is set very high. As per s.122 of the Planning Act (2008), a DCO may only authorise compulsory acquisition if the Secretary of State is satisfied that:

- The land is required for the development to which the consent relates, or is required to facilitate, or is incidental to, the development, or is replacement land given in exchange under s.131 or 132; and
- There is a compelling case in the public interest for compulsory acquisition.

The 2013 Communities and Local Government Guidance (the '2013 Guidance') relating to the compulsory acquisition of land (under the 2008 Act) makes it clear that applicants must be prepared to justify their proposals for CPO powers. It is our view that the consultation material provides no such justification, which we explore further below:

Extent of Land Required

The consultation material does not consider reasonable alternatives nor provide a robust explanation to justify why the acquisition of the whole site is necessary to fulfil the purposes of the CPO that is to be sought.

Ability to Deliver

The 2013 guidance is clear that for s.122 to be satisfied, the applicant should be able to demonstrate that there is a reasonable prospect of the requisite funds for acquisition becoming available (para. 9). It goes on to state that any application must include an explanation of how it will be funded, which should provide as much information as possible about the resource implications of both acquiring the land and implementing the project (para. 17). This Funding Statement must contain sufficient information to enable the Secretary of State to be satisfied that, if it were to grant the compulsory acquisition request, the proposed development is likely to be undertaken and not be prevented due to difficulties in sourcing and securing the necessary funding. This must include details of the full funding structure to secure the full scope of the project, and the cost of acquiring the site must reflect its capitalised value as a residential development site, consistent with the alternative scheme promoted by SHP and supported by the site's proposed allocation within the emerging Thanet Local Plan.

As discussed in (1) above, the consultation material provides no evidence of RSPs ability to fund the proposed development nor the acquisition of the site.

Furthermore, achieving the purposes of a CPO would be dependant on the proposed development being implemented. As discussed later in this letter, there is insufficient evidence provided in the consultation material to offer any confidence that RSP has the capability or intention to deliver their development proposal within a reasonable timescale (and therefore we question whether it would be capable of achieving the purposes of any CPO granted).

Compelling Public Interest Case

The 2013 Guidance explains that for the compelling public interest condition to be met, the Secretary of State will need to be persuaded that there is compelling evidence that the public benefits that would be derived from the compulsory acquisition will outweigh the private loss that would be suffered by those whose land is to be acquired. This position is backed-up by parliamentary decisions.

The consultation material provides what can be reasonably described as initial indications of the likely social, economic, and environmental benefits of the proposed development. However, it fails to consider the public dis-benefits that would occur if SHP's plans were prevented from being implemented, which would be the consequence if the land was compulsorily acquired and is a key consideration in reaching a balanced judgement on both the planning and compulsory purchase case for RSP's proposals.

The public benefits associated with SHP's proposals for the site are set out in detail in their planning application (ref. 16/05550), however we set out headlines below.

- It will deliver up to 2,500 new homes, including a range of types, sizes, and tenures (including affordable homes). This will help satisfy a chronic shortage of housing in the district and wider housing market area, fuelled by significant under-delivery of new housing over recent years and a shortage of alternative suitable deliverable housing land in the district;
- It will also deliver community facilities (including two new primary schools, health centre, and community hall), sports facilities, education, and retail spaces;
- It will support an estimates 2,075 full time equivalent (FTE) direct jobs, and additional indirect jobs through construction, alongside opportunities for education/training;
- It will open up a site which has been closed to public access for many years, providing new pedestrian and vehicular connections (including strategic links necessary to support wider growth in the district), and substantial areas of managed high quality open space and green infrastructure, including significant contributions to biodiversity habitat;
- It will deliver new regionally significant leisure facilities (including a wave garden and swimming pool) which are currently not provided in the region, and therefore help increase tourist attraction in the local area; and
- It will result in direct financial benefits to Council in form of New Homes Bonus (£28.3m) and annual tax receipts (£4.7m) (estimates).

The above comprise significant public benefits. These potential benefits will be lost if the site is compulsorily acquired by RSP, as proposed by this consultation.

On the basis of the above, and having regard to the essentially speculative nature of RSP's proposals, it is our view that there is no compelling public interest case

Conclusion

It is clear to us that there is no case to underpin the granting of compulsory purchase powers.

Without such powers RSP will not be able to acquire the land.

This is a significant in-principle flaw in the proposition being consulted on – it is fundamentally not deliverable without land ownership rights.

4. The Level of Detail Provided in the PEIR is Inadequate to Reach Even a Preliminary View on the Likely Environmental Effects of the Proposed Development, or the Scope of Mitigation Necessary to Make it Acceptable

In our opinion, the level of detail provided in the PEIR is insufficient to reach an informed view on the likely potential environmental effects of the development. Either it is incomplete, or is lacking in scope/depth.

While we recognise that it is only necessary to provide preliminary details at this stage, in the absence of more substantive information the consultation materials fail to demonstrate that the proposed development is deliverable in environmental policy terms.

We enclose a detailed review of the PEIR at Enclosures 4-6 which has been undertaken by SHP's consultants (WSP, Aecom, and Planit), however our headline comments are as follows:

- It is silent on trans-boundary effects (despite this being a requirement of the Secretary of State's Scoping Opinion);
- Insufficient regard is had to the need for approvals under other consenting regimes including how these will be dealt with in the EIA;
- No detail is provided on operational traffic generation nor flight paths, therefore the PEIR is not capable of providing any meaningful consideration of human health, noise, air quality, climate change, or transport impact issues;
- It has not been informed by any baseline on-site species specific ecological surveys (other than a Phase1 Habitat Survey), accordingly is not able to offer any meaningful consideration of ecological matters;

- It has not been informed by any baseline on-site intrusive archaeological surveys, accordingly is not able to provide any meaningful consideration of archaeological matters;
- Details regarding transport matters are very limited. No consideration is given to impacts on junction capacity – it is therefore impossible to form an opinion as to whether the proposal could be accommodated on the highway network even if highway improvements are brought forward; and
- The landscape and visual impact assessment is at preliminary stage only.

5. There is No Evidence to Demonstrate a Genuine Ability/Intention to Deliver the Proposed Development

At the date of writing RSP have an unknown and unproven financial capacity and is 90% owned by anonymous shareholders who are registered via a Belize holding company. There is no transparency whatsoever with respect to the identities of all parties involved, and the sources and commitment of any funding available. This brings into question the Bona Fides of the intended DCO applicant in our opinion (which is particularly important due to the compulsory purchase powers are being sought).

Our research into RSP indicates that it has no experience of owning, developing or operating an airport anywhere in the world. Accordingly, we have doubts over RSP's genuine intentions for the site.

We note that the known individuals affiliated with RSP were also involved with Riveroak Investment Corporation's (ROIC) multiple attempts to demonstrate to Thanet District Council that they had sufficient financial strength and transparency to act as an indemnity partner in support of a proposed CPO process in relation to the airport. In these efforts they failed repeatedly. We consider that the continued and consistent lack of clarity on the sources and availability of the necessary funding to deliver what is proposed to be a £300m investment in the project remains as fundamental an issue now as it was for TDC in their consideration of the suitability of ROIC as an indemnity partner.

Without evidenced availability of the necessary £300m investment proposed and expressed investor appetite from identified funders who have the capacity to meet long term operational losses there can be no credibility given to RSP's proposals. The consultation docs now issued by RSP, while very carefully worded, fall a long way short of providing this evidence or any certainty of funding.

Bearing this in mind, and notwithstanding our strong view, as expressed throughout this document, that there is no case to support a successful DCO application nor the proposed compulsory acquisition of the site, should RSP continue to progress a DCO application (including CPO powers) we will push for a Crichel-Down type requirement to be inserted into any Order granted. In principle, this would require RSP to offer back the site to the current landowners if it is not developed for the use proposed within a period of 3 years and/or if a planning application is submitted for any part of the site for non-aviation development.

Consultation

The level of consultation with the landowner and other statutory consultees in the formulation of these proposals has been inadequate. There has been no formal engagement between RiverOak Strategic Partners Limited and Stone Hill Park Limited with regard to site acquisition since RSP's formation in July 2016. Indeed, it only became apparent to stakeholders during direct questioning by SHP's QC at the change of use inquiry in March 2017 that the entity now pursuing a DCO application is an entirely different and unconnected entity to ROIC, the US company who had initiated discussions regarding the DCO. It has since emerged that ROIC actually withdrew from the DCO process on 15th December 2016 for reasons that remain unknown. While there is some commonality of individuals in the historic ROIC and current RSP teams there is no linkage, contractual, commercial or otherwise, between the two entities. It is now evident that RSP was

initially set up as a stand-alone Special Purpose Vehicle (SPV) solely to step into ROIC's DCO interests.

With respect to consultation more generally, we note that Section 42(1) of the Act requires an applicant for a DCO to consult various statutory bodies in the preparation of its application. Section 4 of the Interim Consultation Report prepared by RSP summarises the consultation which has taken to date, which since April 2016 comprises:

- Four meetings with the EA;
- Two meetings with Southern Water;
- Two meetings with Natural England (the most recent of which was in November 2016);
- One joint meeting with Historic England and the Kent County Council Heritage Conservation Group; and
- One introductory meeting with Kent Council which took place in April 2016.

We are surprised that this is the extent of consultation with statutory bodies which has taken place over the course of the previous 15 months by RSP in the formulation of their proposals. We also question the deliverability or feasibility of a scheme which has not had input from any of the following bodies (all of which are absent from RSP's Statement of Community Involvement):

- Thanet District Council (the Local Authority);
- Any of the multiple Parish Councils;
- Civil Aviation Authority;
- Gas/electricity providers; and
- Police Authority.

We also question what steps RSP have taken (if any) to inform local stakeholders of the change of the DCO sponsor, as any consultation undertaken in 2016 would have been undertaken by ROIC, who are no longer involved in the project.

Summary and Conclusions

We have reviewed the material that forms part of RSP's July 2017 consultation. Our principal comment is that in our opinion the consultation material fails to demonstrate that the proposed development is deliverable and does nothing to allay concerns about the bona fides of RSP.

SHP firmly objects to the development proposals that RSP is consulting on. This includes objection to the compulsory acquisition of the site.

Yours faithfully

[redacted]

GVA
For and on behalf of GVA Grimley Limited

Enclosures:

1. History of Efforts to Keep Manston Airport Open
2. History of Manston's Commercial Performance
3. Critique of Outline Business Case and Aviation Evidence
4. Critique of PEIR (Transport)
5. Critique of PEIR (Environmental/Technical)
6. Critique of PEIR (Landscape and Visual Impact)

Enclosure 1
History of Efforts to Keep Manston Airport Open

History of Efforts to Keep Manston Airport Open

1998-Present

Wiggins Group/ renamed as Planestation (owner)

Period: 1998-2005

Wiggins bought the airport in 1999 for £4.75 million and operate the site as a commercial civilian-only airport branded as 'London Manston Airport'.

In April 2001 Wiggins Group published a 'Strategic Masterplan' for Manston. This stated that the airport would double its cargo traffic from 36,000 tonnes per annum to a profitable rate of 100,000 tonnes per annum within twelve months (by April 2002). Annual CAA statistics from 2002 to 2005 (when the airport was sold) show that actual freight levels peaked in 2003, at 43,026 tonnes (less than half projected).

In January 2004, Wiggins renamed itself Planestation. Later that year they bought 30% of the airline company EUJet, a budget airline. Subsequently, Planestation made a statement that the airport would break even if it were to achieve delivery of 70,000 tonnes of cargo per annum. This was not achieved, with freight in 2004 totalling 26,626 tonnes per annum.

In September 2004 EUJet started to operate passenger flights from the airport to destinations across Europe and in its busiest month in early 2005 the airport carried 62,709 passengers. An application was approved for a 2000 space car park for the passenger terminal, of which 1,100 spaces were delivered. By July 2005 all EUJet operations were suspended along with all non-freight operations including MK Airlines, Manston's main cargo customer, who left the airport for another site in Europe. Planestation went into administration in 2005, following the significant financial losses incurred during ownership.

Sources:
KCC Position Statement 2015.
Wiggins' company accounts (1999-2002).
CAA Data on Amount of freight in tonnes delivered per annum at Manston (2000-2014)
Wiggins Group "A Strategy for Success" as summarised in Rail, Airports and Ports Select Committee. Airports Interim Report (September 2002)
http://www.airportwatch.org.uk/uk-airports/manston-airport-kent-international/
Transport Select Committee, 2015.

Infratil Limited (owner)

Period: 2005-2013

Infratil Limited acquired Manston Airport from administrators in August 2005 for £17m and re-commenced passenger and freight transport operations. Various upgrades were made to the airport, including airfield radar, high and low voltage electricity systems, back-up electricity generators, airfield ground lighting, rescue fire equipment, etc.

Infratil published and consulted on a Draft Airport Master plan for the site from October to December 2008. The Vision was based on the contention that the airport has a large catchment area, that the South East has insufficient capacity to accommodate predicted growth and that the airport will provide an increasingly

attractive alternative for airlines and passengers as congestion increases. The masterplan sought growth in both freight and passenger numbers. The anticipated growth in freight was projected to grow annually starting at 107,000 tonnes in 2010 and reaching 507,000 by 2033. To achieve this, the masterplan proposed:

- Additional freight aprons
- Provision of general aviation/fixed base Operator operations south of the passenger terminal.
- Bulk fuel installation
- Fuel facility development
- Improved parallel taxiway
- Enlarged passenger aprons, terminal and additional parking spaces

In November 2009, Infratil published the final Kent International Airport Masterplan, which sets out Infratil's vision on how they planned to grow both passenger and freight services. The Masterplan considered that growth forecasts were realistic and achievable because:

- The catchment for the airport was large;
- People within the catchment travel regularly used other airports in the South East;
- The South East had insufficient capacity to accommodate predicted growth over the forecast period;
- The airport would provide an increasingly attractive alternative for airlines and passengers as congestion increases;
- The predicted growth was similar to demonstrated patterns at other airports serving similar size regions; and
- Although EU Jet was commercially unsuccessful, it provided valuable insight into the potential of the market.

With respect to freight, the Masterplan forecast gradual increases in freight tonnage of around 6% per annum, combined with step changes as existing operators at other airports relocate to the airport to access available capacity. The final masterplan suggested the airport would achieve around 401,000 tonnes per annum by 2033 (a reduction from the Draft version of the same document).

The Masterplan summarised the additional infrastructure that would be provided to achieve this growth (see list above). This included additional freight handling facilities and areas, which were considered to be a key component to allow the airport to receive freight dislocated from congested London airport.

Despite Infratil's plans, during their ownership of the site, the airport never achieved more than 31,000 tonnes of freight per annum, falling well short of the previously stated 'break-even' point of 70,000-100,000 tonnes per annum. At this time, Infratil regularly declared Manston airport as a specialised freight handler making a substantial contribution to the UK's air-transport freight capacity. However, we understand that these statements were significantly exaggerated, and Manston actually only contributed approximately 1.3% of national freight tonnage.

Likewise, actual passenger numbers experienced at the former airport were significantly lower than forecast. Passenger numbers failed to exceed 50,000 between 2006 and 2014 when the airport finally closed. Infratil's peak passenger year was 2011 when 48,450 passengers used the airport which represented 0.02% of the UK total.

Infratil incurred substantive annual losses (reported to be in excess of £3m per annum) sold the airport and associated liabilities in 2013 for £1.

<u>Sources:</u>
UK Parliament Transport Committee, Case Study 3: Manston
CAA, Airport Statistics, 2016).
KCC Position Statement 2015.

Manston Skyport Limited (owner)

Period: Dec. 2013-May 2014

Infratil Kent Airport Limited and Infratil Kent facilities Limited were acquired from Infratil Airports Europe on 29th November 2013 by Manston Skyport Limited, changing their names, respectively, to Kent Airport Limited and Kent Facilities Limited. The companies were capitalised with £4.75m to fund the airport's ongoing operating costs post-acquisition.

At the point the acquisition became certain, an experienced turnaround management team was appointed by Manston Skyport Limited to create a business plan for the airport, based on continuing aviation operations, and to recruit their permanent successors in due course.

The interim CEO appointed was considered eminently suitable for the role, having had recent direct experience in successfully turning around a loss making regional airport and had demonstrable and positive experience of working with all relevant stakeholders to achieve this. He also had strong commercial contacts with passenger and cargo airline operators.

The interim CFO had extensive finance experience and was required to take a forensic view of the cash flow and internal controls at the airport. He was also required to undertake detailed analysis of the various business streams, and opportunities with a view to assessing their commercial viability and potential.

The interim executive team then commenced a "root and branch" review of the airport's potential and prepared a very detailed "base case" business plan reflecting the operations as they were found. This was subsequently adjusted to reflect the loss of the Saudi Cargo activity, with the airline advising that it would cease its twice weekly rotations at the end of March 2014.

The "base case" projections revealed a "cash burn" of c. £10,000 per day on trading activities alone, with further funds being required to finance essential capital expenditure. As there was only limited capacity to reduce costs losses could only primarily be reduced by increasing revenues.

Various revenue enhancing opportunities were explored. This included discussions with a number of airlines about the case for either relocation of existing services to Manston or the initiation of new services from Manston. These potential services had the potential to be significant revenue generators for the airport. Of the number of airlines approached/considered, the key prospects included the relocation of BA World Cargo from Stansted (this prospect died when BA chose to exit the dedicated freighter market); potential services by easyJet (this was not an option as Manston did not fit their business strategy) and Ryanair, who had initially been interested in the potential of Manston, chose to focus their strategy on airports better suited to business users closer to major centres of population.

Additional discussions were also had with various other established and start up cargo operators about increasing their utilisation of Manston and potentially basing aircraft at the airport, leading to increased warehousing revenues. Notwithstanding that the revenue potential and indeed its delivery was materially uncertain these were assumed to be delivered in the business plan. The potential to increase income further by leasing unused land to a solar farm operator was explored as it was believed that additional revenue could be generated without impacting aviation.

Discussions were had with the market leading aircraft breaker, Air Salvage International, about operating from Manston but the feedback was that they would only consider Manston if the use of a Hanger to the company free of charge. The conclusion of this work was that recycling would not deliver any meaningful revenues (generating £230k of revenue by year 4) – although the forecast was included in the plan. Consideration was given to the prospect of increased use of Manston as a training centre for both commercial and business aviation.

Even with an optimistic application of revenues attaching to all these initiatives, an assumption that Saudi Cargo reinstated their services, forecast increases in warehouse rents, landing charges and £400k of

anticipated annual cost efficiencies a break-even position could not be achieved and no sustainable business model identified. Hence, in the absence of a viable business plan that could deliver a break even position, even in the medium term, the Board concluded that it had no alternative but to close the airport.

Source:
Greyfriars Investment

Thanet District Council

Period: December 2013-December 2016

Dates	Actions	Source
December 2013- May 2014	TDC explored the possibility of using Compulsory Purchase Order (CPO) to acquire the former airfield as a means of re-commencing airport use. Searches yielded a small number of interested parties (including RiverOak Investment Corporation) who expressed interest. On 11th December 2014 TDC Cabinet considered and rejected the possibility of making a CPO on the basis that the Council had not identified any suitable expressions of interest that fulfilled the requirements for a CPO indemnity partner and did not have the financial resources to pursue a CPO in its own right.	Cabinet Report 11th December 2014
May 2015	TDC Cabinet agreed to review its position in relation to the potential to acquire the former airfield and authorised specialist legal and financial advice to determine whether RiverOak were a suitable indemnity partner.	Cabinet Report 29th October 2015
October 2015	TDC Cabinet concluded for a second time that no further action would be taken on a potential CPO, on the basis that RiverOak did not fulfil the Council's requirements for an indemnity partner.	Cabinet Report 29th October 2015
June 2016	TDC Cabinet considered the results of further soft market testing to identify potential interest from third party indemnity partners for a potential CPO. The report concluded that "*the market cannot deliver on the Council's requirements for a CPO; there is no established market which is able to deliver, or an adequate number of operators; the market has no capacity to deliver the requirements and there is no cost or other benefits in taking this matter further*" (Committee Report, paragraph 3.4). TDC Cabinet noted the results of the report and – for a third time - decided to take no further action on a potential CPO.	Cabinet Report 16th June 2016

October 2016	TDC published the results of an independent report by AviaSolutions commissioned to form part of the evidence base for the emerging Local Plan. AviaSolutions is a leading global aviation advisory firm, acquired in 2012 by GE Capital Aviation Services, the world's leader in aviation financing and leasing and part of General Electric. The report considers whether viable airport operations could be re-instated on the former Manston airport site. It concluded that "*airport operations at Manston are very unlikely to be financially viable in the longer term and almost certainly not possible in the period to 2031*" (paragraph 2.5).	AviaSolutions Report
December 2016	TDC Cabinet approved public consultation on proposed revisions to the 2015 Preferred Options Local Plan to reflect the conclusions of the up-to-date evidence base (including the AviaSolutions Report). This included a policy to allocate the former airfield site (including the appeal sites) for mixed-use development. Consultation on the Proposed Changes to the draft Local Plan ended on 17th March 2017.	Cabinet Report 8th December 2016

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July 2017

Enclosure 2
History of Manston's Commercial Performance

GVA

An APLEONA company

History of Manston Airport's Commercial Performance (Actual vs. Projected), 1995-Present

Owner	Year	Freight (tonnes)			Passengers			Operating Profit/Loss
		Projection	Actual	Difference	Projection	Actual	Difference	
Wiggins (Planestation)	1995	n/a	5,073 (0.29% of UK total)	-	n/a	2,523	-	n/a
	1999	n/a	22,784 (1.03% of UK total)	-	n/a	1,511	-	**-£1.1m**
	2000	n/a	32,239 (1.39% of UK total)	-	n/a	7594	-	**-£3.6m**
	2001	n/a	35,521 (1.66% of UK total)	-	n/a	5921	-	**-£3.9m**
	2002	36,000	32,240 (1.47% of UK total)	**-3,760 (-10%)**	n/a	52	-	Figures consolidated with other airports. In 2004 Planestation reported overall (losses) of **-£73m**
	2003	70,000	43,026 (1.95% of UK total)	**-26,974 (-39%)**	n/a	3582	-	
	2004	100,000	26,626 (1.12% of UK total)	**-73,374 (-73%)**	n/a	101,233	-	

Owner	Year	Freight (tonnes)			Passengers			Operating Profit/Loss
		Projection	Actual	Difference	Projection	Actual	Difference	
Infratil Ltd.	2005	200,000	7,612 (0.32% of UK total)	**-192,388 (-96%)**	n/a	206875	-	n/a
	2006	n/a	20,841 (0.9% of UK total)	-	n/a	10167	-	**-£3.4m**
	2007	n/a	28,371 (1.22% of UK total)	-	n/a	16180	-	**-£3.0m**
	2008	n/a	25,673 (1.12% of UK total)	-	n/a	11657	-	**-£4.0m**
	2009	n/a	30,038 (1.47% of UK total)	-	-	5574	-	**-£5.2m**
	2010	31,600	28,103 (1.2% of UK total)	**-3,497 (-11%)**	<50,000	25,813	-	**-£3.6m**
	2011	45,200	27,495 (1.2% of UK total)	**-17,705 (-39%)**	50,000-100,000	48,450	**-1,550 (-3%) to -51,500 (-52%)**	**-£4.8m**
	2012	57,300	31,078 (1.3% of UK total)	**-26,222 (-46%)**	206,000	8,595	**-197,405 (-96%)**	**-£4.4m**
	2013	62,500	29,306 (1.3% of UK total)	**-33,194 (-53%)**	295,000	40,391	**-254,609 (-86%)**	**-£3.6m**

Owner	Year	Freight (tonnes)			Passengers			Operating Profit/Loss
		Projection	Actual	Difference	Projection	Actual	Difference	
Manston Skyport	2014	107,000	12,696 (0.5% of UK total)	**-94,304 (-88%)**	527,000	12,508	**-514,492 (-98%)**	**-£5.4m**
	2015	350,000-400,000 (Wiggins)	-	**-400,000 (-100%)**	n/a		-	
		138,400	-	**-138,400 (-100%)**	1,268,000		-	
-	2018	167,500	-	**-167,500 (-100%)**	2,286,000	-	-	-
-	2033	401,200	-	**-401,200 (-100%)**	4,752,000	-	-	-

Sources:
Projections for 2002-2005,2015: Wiggins Group "A Strategy for Success", 2001.
Projections for 2010-2033): KIA Airport Masterplan, 2009. Unless otherwise stated.
Data of actual air freight and passengers: CAA.
Operating profit/loss: company accounts, unless otherwise stated.

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July 2017.

Enclosure 3
Critique of Outline Business Case and Aviation Evidence

Critique of Outline Business Case and Aviation Evidence

Consultation on Riveroak Strategic Partners Proposals for Former Manston Airport

July 2017

Exec Summary

Demand

- Total air volume of freight in the UK has been broadly flat since the year 2000.
- Bellyhold cargo has grown at the expense of dedicated cargo aircraft. The cost and connectivity benefits of bellyhold are hard for dedicated freighters to compete with.
- Global freight projections used by RSP are not relevant for UK airports.
- The future growth in demand for air freighters forecast by the Government is materially lower than that assumed by RSP.
- Freighter flights, outside Heathrow, Stansted and East Midlands have fallen by almost 75% between 2000 and 2016. This is not a growth market.

Supply

- Forecast expansion capacity at Heathrow, East Midlands and Stansted is already more than sufficient to meet expected operational needs even without any other airports being used. There appears to be more than enough capacity within the system to meet all expected demand. Comfortably.
- In 2016 the three largest freighter airports had 86% of the market compared with only a 41% share in 1990. This is a trend that is repeated around the world and reflects the economics of the sector.
- Globally market forces are pushing the dedicated freighter market to consolidate around fewer airports that provide better connectivity. Realistically Manston cannot supply this nor assist in this evolution.
- There is already significant un-utilised capacity available in the system at airports that are minded and funded to pursue any growth in demand at minimal marginal cost.

Manston

- During its 15 years of operations under private ownership Manston never made a profit and cost investors over £100m.
- It failed to secure any meaningful level of freighter traffic even though that was a core strategy at the airport.
- No visibility has been provided by RSP as to their ability to access and commit the £300m required for investment over the term of project.
- Air freight is increasingly concentrated in consolidators who already have extensive warehousing, logistic, operational and financial ties to their existing bases in Stansted and the East Midlands. There is no logical reason for them to adopt a base on the edge of the country that puts them at a competitive disadvantage.
- Manston's peripheral location and lack of existing infrastructure mean many other airports can better serve these needs of the UK's logistics sector.

Introduction

It is our strong view, supported by historic fact, multiple reports from various aviation consultants produced over a number of years, evidence of a failed global sales process and the advice of our current aviation consultants, that the projections submitted by RSP in support of their quest to prove that Manston can be deemed a Nationally Significant Infrastructure Project and thus qualify for a DCO are deeply flawed and are not deliverable in the real world.

This is a real world where UK freighter flights outside the "big 3" of Heathrow, Stansted and East Midlands, fell by almost 75% between 2000 and 2016.

More relevantly, there is no credible business plan being presented by RSP or its sponsors that has sufficient detail on the potential sources of revenues to persuade any investors of the long-term viability of Manston as an airport. It is our view that the economic and commercial analysis provided by RSP in support of the proposals does not have the pedigree or balance to convince investors to commit a potential £300m of capital to a project (2/3 of which would be required within the first 5 years to ramp up capacity in line with demand forecasts according to George Yerall's evidence to change of use inquiry) in the hope of resurrecting a failed asset.

Nor has RSP presented any evidence that they have the funding capacity to deliver on the project that they propose or access to investors who are prepared to fund ongoing and long term operating losses. This is a key and critical missing in RSP's proposals as throughout its period of private sector ownership the airport has never made a profit and has been a serial destroyer of shareholder value.

This is clearly illustrated by the table below that shows Manston's P&L over the period of Infratil's ownership to the last year of operations. This shows that in addition to accumulating over £37m of operating losses and losing £55m of shareholder funds in total, the airport never even came close to covering its cost of sales. Alongside the losses suffered by other owners during its period of private ownership the aggregate loss of investor's funds at Manston is in excess of £100m.

These losses fail to include the substantial public funds which were applied to support directly and indirectly the operations of the airport.

Kent Airport Limited	**Year Ended 31st March**								
	Audited								
	2006	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
	£'000	**£'000**	**£'000**	**£'000**	**£'000**	**£'000**	**£'000**	**£'000**	**£'000**
Turnover	2,111	6,564	6,863	5,569	5,467	4,823	9,121	7,024	8,898
Cost of Sales	(4,725)	(9,750)	(10,387)	(9,312)	(8,897)	(9,306)	(13,073)	(9,991)	(13,211)
Gross Loss	(2,614)	(3,186)	(3,524)	(3,743)	(3,430)	(4,483)	(3,952)	(2,967)	(4,313)
Operating Expenses	(667)	(1,057)	(945)	(1,442)	(193)	(273)	(430)	(650)	(1,075)
Other Operating Income		1,286	430						
Operating Loss	(3,281)	(2,957)	(4,039)	(5,185)	(3,623)	(4,756)	(4,382)	(3,617)	(5,388)
Interest Receivable	4								
Interest Payable	(76)	(1)	(1)	(1)	(3)	(4)	(7)	(5)	(18)
Loss on Ordinary Activities Before Tax	(3,353)	(2,958)	(4,040)	(5,186)	(3,626)	(4,760)	(4,389)	(3,622)	(5,406)

If Infratil (a £1bn company with significant experience of airport operations and infrastructure investments) cannot make an airport work at Manston it's hard to see how a start-up, standalone airport on the geographic fringe of the county, with no evident competitive advantage can ever become a compelling investment in what remains a very competitive UK market. Particularly where competing airports have vested interests to protect and the means, capability and appetite to do so.

It should be remembered that PWC spent 2 years marketing the airport for sale across the globe, with strong local government support including providing additional land to operators, granting financial assistance from the Regional Growth Fund and providing a Route Development Fund to support traffic. All this was ultimately to no avail and Infratil had to settle for a price of £1 on the basis that no other buyers expressed any interest in the asset.

In parallel with the recent history of Manston it is also informative to consider the subsequent performance of Prestwick Airport, the other UK airport sold by Infratil at that time, post its acquisition by the Scottish Government for £1. Notwithstanding a high level of political support for the development and success of the airport the Scottish Government has now committed £40m of public money to sustain airport operations and support its increasing operating losses. Passenger throughput at the airport has fallen from 1.145m in the year of nationalisation to 673k passengers in 2016 and annual losses have risen to £7m. There is no visibility as to when or indeed if the airport can be returned to profitability.

Of specific relevance to the cargo focussed business plan now pursued by RSP is this quote from Prestwick's most recent set of annual accounts.

"Air cargo movements in the UK have remained relatively stable over the last 10 years although **the dedicated freighter only aircraft market that he Company has specialised in has been in global decline**." *Prestwick Airports Financial Statements 2016*

This Representation

This representation and the attached appendices summarises SHP's position in relation to the assertions on the project proposed by RSP's aviation advisors (Azimuth Associates and Northpoint Aviation). These are all themes that will continue to be developed in conjunction with our aviation team if RSP decides to move forward with a DCO.

Appendix A: Review of recent trends in the UK freight market

Appendix B: Review of competitiveness of Manston in the UK freight market

Appendix C: Discussion on potential future developments in the freight sector

Appendix D: Critique of Azimuth / Northpoint documents in relation to freight viability at Manston

Appendix E: Brief review of Azimuth / Northpoint documents in relation to passenger viability at Manston / Other

Appendix F: Extracts From 2013 Department For Transport's UK Aviation Forecast

Airport Viability

RSP's entire case for the future viability of Manston as an airport as opposed to its historic failures as a commercial venture stems from their belief that massive demand pressures on the London system of airports (Heathrow, Gatwick, City, Stansted and Luton) will push dedicated freighters into Manston. For this to be the correct view three things would have to happen (i) freighters would have to be pushed out of the London system, (ii) if they were they would have to choose to shift

operations to Manston rather than anywhere else in the UK and (iii) there would have to be a massive increase in underlying demand for cargo in dedicated freighters.

We feel that these views and the conclusions drawn from them are wrong and should be put in context with the current size of the UK air freighter market, its evolution since the turn of the century and the latest Department for Transport ("DfT") projections for its growth.

Freighter Demand

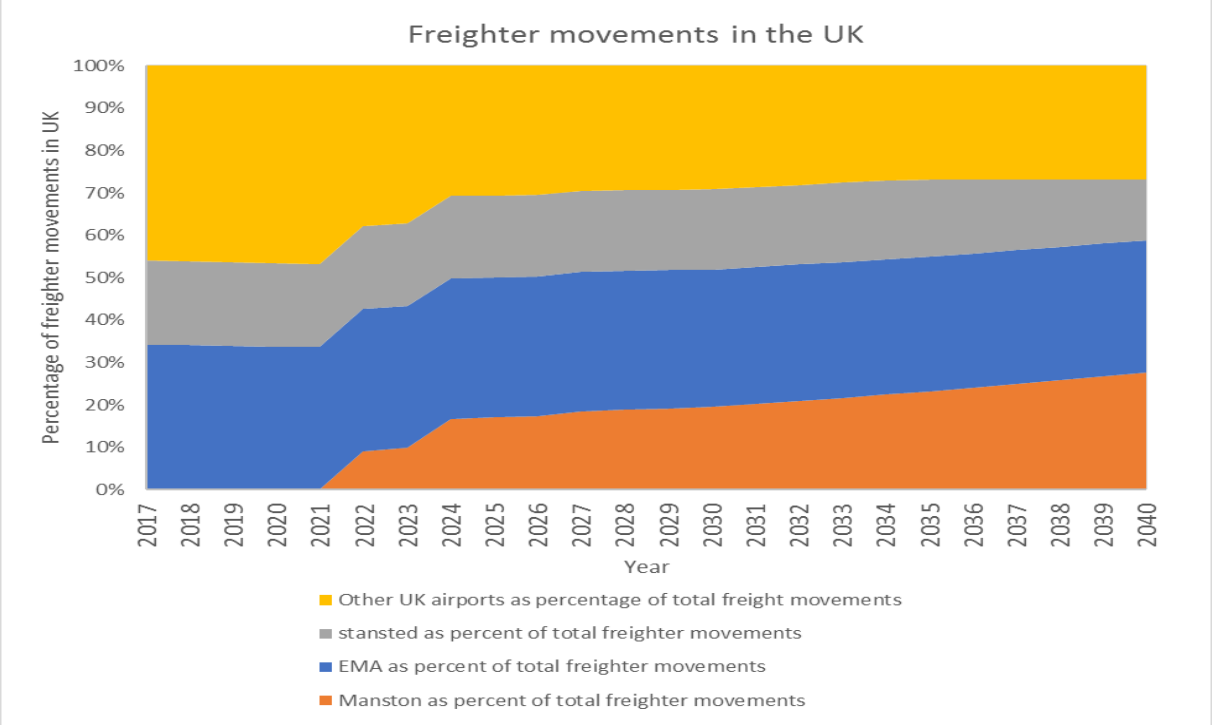
It is well recognised that the shift of cargo from dedicated freighter to belly hold will continue to be a key factor in the industry, driven the by the increasing connectivity stemming from hub airports and real cost advantages to users. This is an element of the air freight market that Manston has never competed in and could never hope to do so. It simply does not have the necessary connectivity.

Hence of the 2,384,375 tonnes of air freight in the UK in 2016 70.3% was carried in the belly hold of passenger planes and thus Manston can only ever have access to compete for a small subset of the overall freight market.

In 2016 there were 51,839 dedicated cargo flights in the UK (down from 76,626 in 2000). The most recent Department for Transport forecast (2013) envisages growth in UK freighter Movements of 0.4% per year from the levels achieved in 2011 (55,238) until 2050. When compared to the implications of this forecast the actual 2016 numbers are **already** 4,512 lower annually than forecast by the DfT. These UK Government growth forecasts are substantially lower than the c4% p.a. growth that has been adopted by RSP to support their projections. RSP's choice of using global growth figures, which are in no way relevant to a mature aviation market such and the UK and demand forecasts prepared for the primary purpose of selling more air freighters serve to undermine the creditability of their projections.

This was previously recognised in the York Aviation report prepared for the freight Transport Association in 2015 who stated that "organisations such as Boeing and Airbus produce global freight forecasts. However, these typically present an optimistic view of the market which is not specific to the UK"

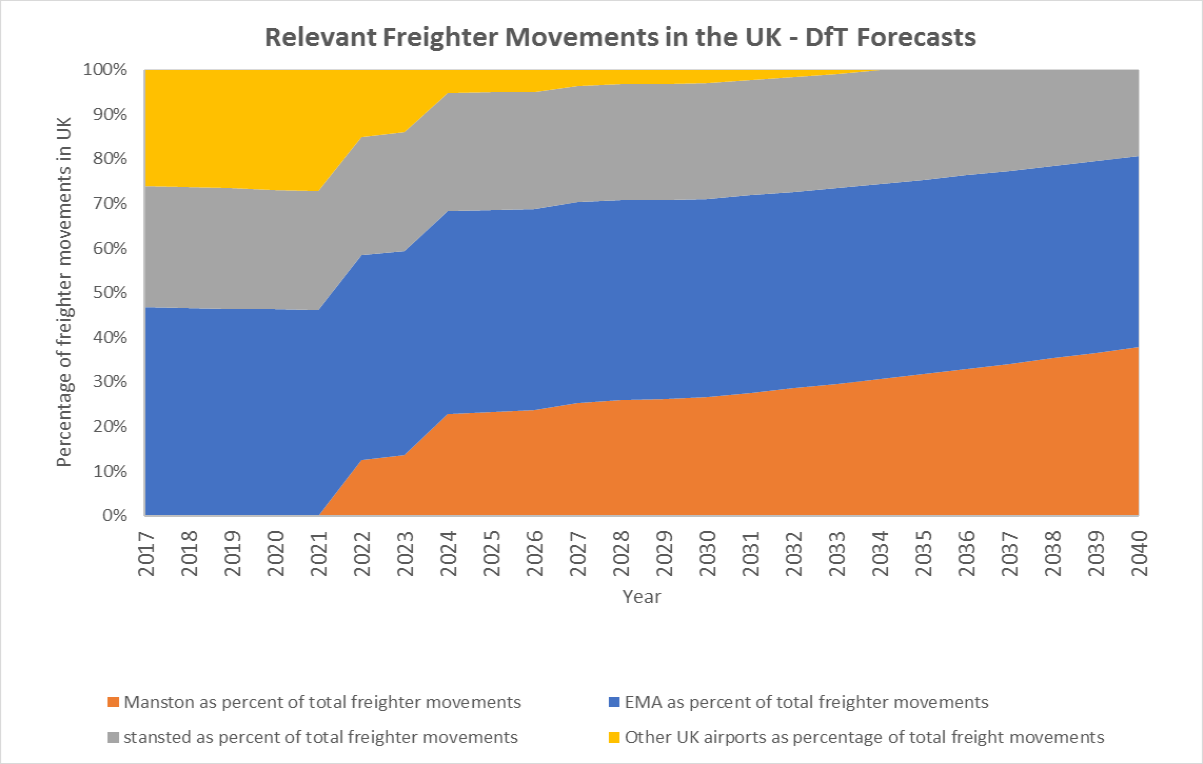
The implications of RSP's forecasts for Manston on the UK dedicated freight sector, as forecast by the Department for Transport, are shown in the table below. Prudently we have assumed that there is no growth in the usage of either Stansted or East Midlands airport from current (2016) levels over this period and all the growth forecast by the DfT is delivered outside these airports. Not a circumstance we consider likely as both have firm plans to substantially grow cargo volumes; but it highlights that RSP believe that Manston will quickly overtake Stansted and by 2040 would be supporting a greater number of freighter flights than all **other airports (i.e. excluding Stansted and East Midlands) in the UK combined**.



However, a proportion of all UK freighter flights are in no way relevant for the Manston discussion (island flights, Scottish and Northern Irish airports etc) so we believe a more relevant 2016 freighter flight number for comparison purposes should be 40,379 flights in remainder of the UK (down from 56,746 in 2000). Of these numbers, East Midlands Airport provides 48% of the freighter flight volumes with Stansted providing a further 28%. This would be Manston's true "competitive set" from which it would have to secure business.

Of these airports there are actually only 5 which have achieved any significant growth in freighter traffic, i.e. in excess of 6 ATM's, since the turn of the century (Stansted, Birmingham, East Midlands, Doncaster/Sheffield and Newcastle) and the growth in East Midlands accounts for 67% of this. All of these airports are performing below their historic maximum freighter ATM levels.

If the DFT forecasts are then applied to this more accurate subset of UK airports that Manston could realistically compete against the implications of RSP's Manston forecasts for the UK freighter sector become even starker and serve to illustrate their underlying excessive optimism. Using the same assumptions as before (i.e. flat usage of Stansted and East Midlands) then Manston would absorb all other freighter traffic in the UK by 2035 and start to cannibalise Stansted taking 2,400 flights of them by 2040. Again, a potential circumstance that is frankly absurd.



Indeed, in reality the actual element of even this reduced market that could be available for Manston to compete for is materially smaller even than this as much of these flights are in fact freight consolidators (DHL, Fedex etc) who have substantial financial and operational investments in their existing bases of operations and are thus unlikely to be willing to leave a long established and successful cargo ecosystem to rebase their existing operations, which are at the heart of the country, to a less optimal location that puts them at a competitive disadvantage.

In the London system of airports there were 15,476 cargo flights in 2016 (down from 19,780 in 2000) and of these 73% were at Stansted. Tellingly during the period between 2000 to Manston's last full year of operations in 2013, i.e. when the airport was fully open for business and aiming to increase its freight volumes as a core part of its strategy there was a decline of 2,253 freighter ATM's at Gatwick. None of which appear to have made the decision to transfer operations to Manston.

Night Flight Impact

The potential market that could be targeted by RSP at Manston is even further constrained by their apparent primary focus on day time flights (given the evidence of massive local opposition to night flights at Manston). This is diametrically opposed to the demands of the freight sector which seeks untrammelled night flights to support the demands of their users. The quotes below from Stansted and East Midlands Airports make the point clearly.

"As the express freight operators' product is next-day or guaranteed delivery, in the UK packages are generally collected at the end of the business day for delivery early the following day. For this schedule to succeed, the main part of the delivery and transportation process needs to take place during the night. Night flights will always be vital to UK express freight services and this is provided at Stansted Airport."

Stanstead's sustainable development plan

"There are in the region of 500 HGV movements to and from East Midlands Airport every day. However, because of the nature of the freight hubs at East Midlands Airport, with pure-freight aircraft flying overnight, the vast majority of these vehicle movements take place very late at night (normally after 9pm) and very early in the morning (between 2am and 5am) and as such have no impact on peak motorway traffic levels."

East Midlands Airport Sustainable development plan

"In 2015 East Midlands had 20,500 cargo ATMs. 12,000 of these were night flights……..Cargo ATMs account for 59% of dedicated cargo movements"

No Night Flights quoting East Midlands Airport Consultative Committee from 4th March 2016

Demand In Context

RSP's forecasts for Manston envisage that it will secure of 10,144 freighter ATM's in its sixth year of operations. For context this represents 66% of the current London freight ATM's (90% of Stansted's freight flights) and 25% of the UK relevant freight ATM's.

Simplistically, for this outcome to be credible one of two things has to happen:

1. Stansted would have to shut its doors to dedicated air freight and all existing freight users would then have to migrate to Manston; or
2. In the short term, the demand from the air freight industry for dedicated flights in the UK would have to increase by 40% in the London area with all that additional demand only being ever satisfied by Manston.

While the above statements are designed to be simplistic and for effect they conveniently ignore any supply side issues at other airports they do serve to illustrate how fundamentally unlikely RSP's projections are in a competitive landscape where the parent company of Stansted also owns East Midlands Airport and would be unlikely to cede any customers to Manston willingly. Freight consolidators will not move from locations at the heart of the country and the overall air freighter volumes in the UK are in long term decline.

Supply Side Issues

Absent any compelling drivers or evidence that sustained increasing demand for freighter use would support RSP's projections, it is appropriate to review the supply side of the equation in case that would provide convincing evidence that an airport such as that which is proposed at Manston is needed to satisfy displaced demand.

However, the facts simply do not bear out RSP's thesis. In contradiction to RSP's expressed view that freight will get pushed out of the South East by rising passenger demand both Stansted and Heathrow have retained freight at the heart of their long term development plans. Stansted has a stated ambition to double its dedicated freighter capacity to 400,000 tonnes and Heathrow has an ambition to grow its cargo throughput, both belly hold and dedicated freighter to 3m tonnes annually.

With East Midlands also aiming to increase its throughput to 700,000 tonnes by 2040 the aspirations of these 3 airports alone would collectively have capacity to ship 4.1m tonnes of freight annually which is significantly more than the 2.384m tonnes of air freight that was shipped across the UK as a whole in 2016. All that capacity is without tapping into the additional potential, that is

available at Birmingham, Gatwick, Manchester and even Bournemouth. Amongst many other airfields in the UK.

The following quotes extracted from the strategic plans for each of the 3 key freight airports in the UK highlights that they all have cargo/freight at the core of their strategic plans and see it as a focused area of their growth.

"There is also potential for the cargo goods volume at the airport to increase, potentially doubling the current throughput of cargo on dedicated aircraft to around 400,000 tonnes per annum."

Stanstead's sustainable development plan.

"A review of the airport's cargo forecasts has also been carried out. This assumes growth in the UK's total air freight demand, doubling from 2012 levels (2.3 million tonnes) to 4.4 million tonnes by 2040 (combined annual growth rate of 2.3%). It also assumes that East Midlands Airport's cargo throughput is continued to be carried on dedicated freight aircraft, and also that the integrated freight market will grow at a faster rate than the traditional freight market. The forecast for future cargo tonnage is for some 618,000 tonnes in 2035 and some 700,000 tonnes in 2040."

East Midlands Airport Sustainable development plan

Indeed, in his response to the Airports Commission final report, Andy Cliffe, East Midlands Airport's Managing Director went even further than this when he commented on 1st July 2015 "East Midlands Airport, as the largest pure freight airport in the UK, has been recognised by Sir Howard Davies as a national strategic asset for freight ……. Our ambitious plans, as set out in our Sustainable Development Plan, show the potential for East Midlands Airport and how we intend to grow the airport to … 1 million tonnes of freight within the next 10 – 15 years, which clearly demonstrates the available capacity right here in the heart of the UK."

"Our cargo strategy will lift freight volumes to three million tonnes a year by 2040"

Heathrow Cargo Strategy May 2017

Conclusion

RSP's freighter projections for Manston are predicated on the combination of long term, above trend growth in freighter demand, coupled with a restriction of both runway capacity and the normal rules of economic competition between other airports. Frankly we can see no compelling evidence nor underlying logic to support these projections.

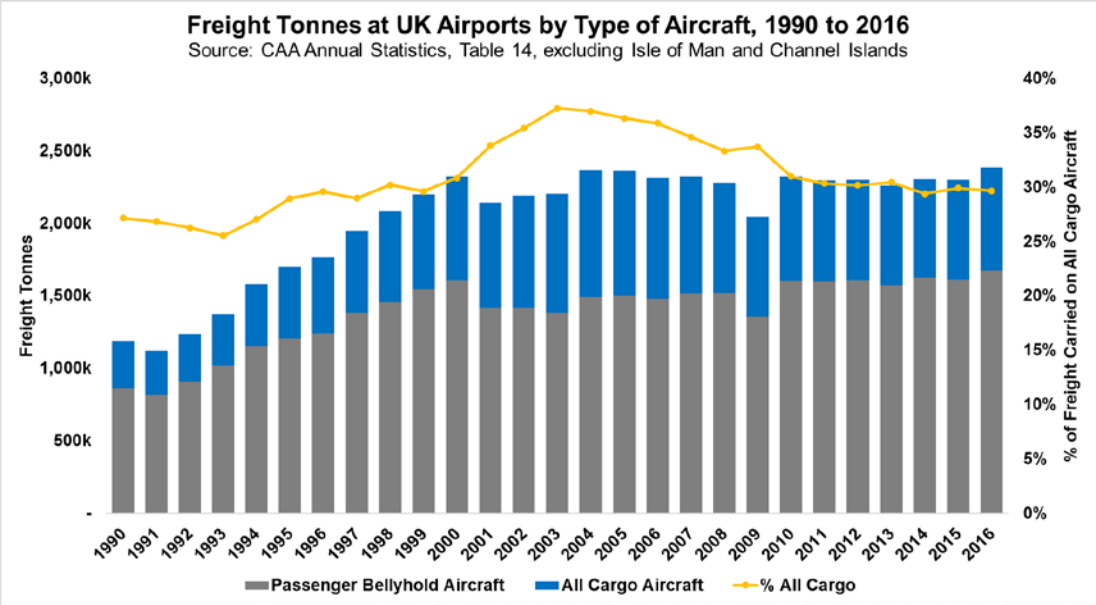
We think Parsons Brinkoff summarised Manston's position accurately in their 2012 report in relation to potential Night Flights at the airport.

"MIA, whilst only 50 minutes from the M25 at junction 2, is not strategically positioned for freight to be dispatched anywhere other than the far South East of England".

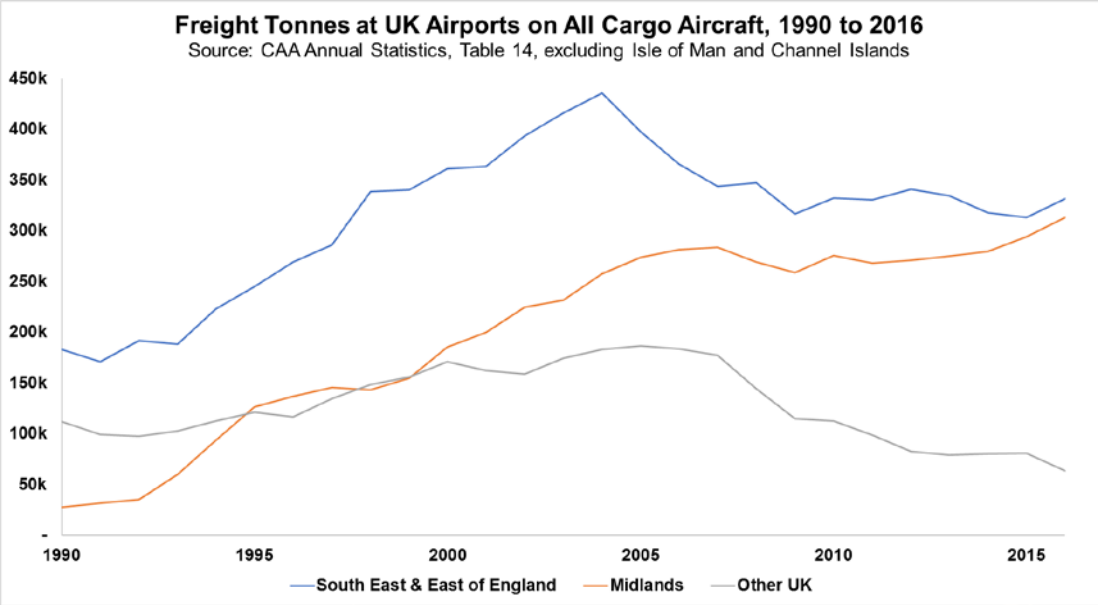
Markets can and do change but geographies do not. It may be possible to operate an airport at Manston but has proven impossible, for anybody to make any money from doing so. Ever.

Appendix A. Review of recent trends in the UK freight market

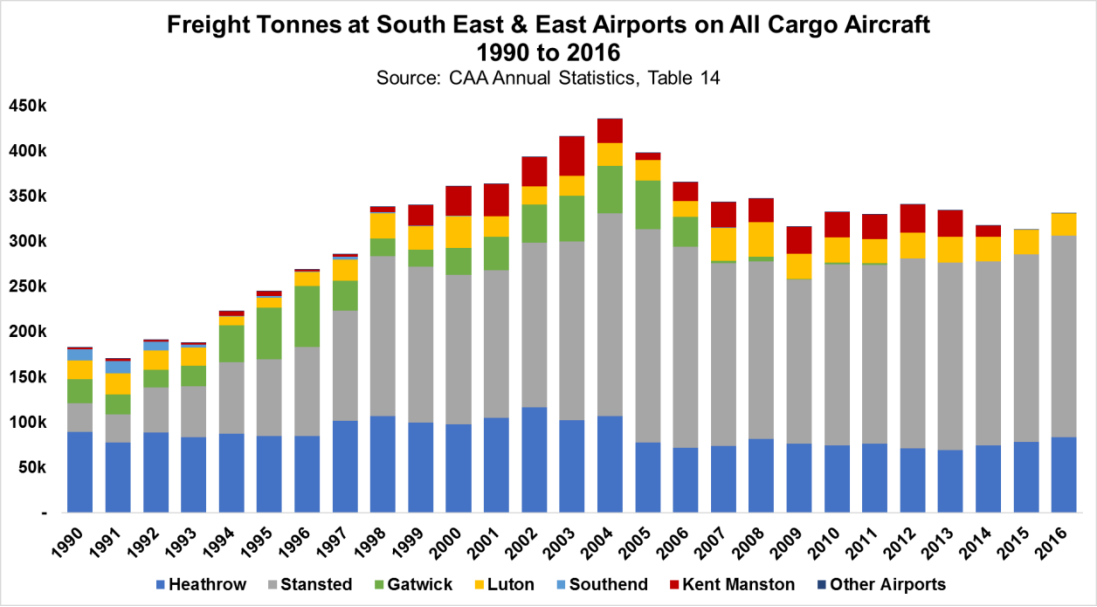
1. Freight tonnes at UK airports reached 2.38m tonnes in 2016. This was the first year the previous peak (from 2007) has been exceeded, with freight traffic negatively impacted by the global financial crisis. Freight tonnes grew by CAGR 6.9% from 1990-2000, but have been broadly flat since (CAGR 2000-16 0.2%).
2. The percentage of freight carried on cargo aircraft has fluctuated but was not significantly different in 2016 compared to 1990 (30% in 2016 compared to 27% in 1990, with peak of 37% in 2003).



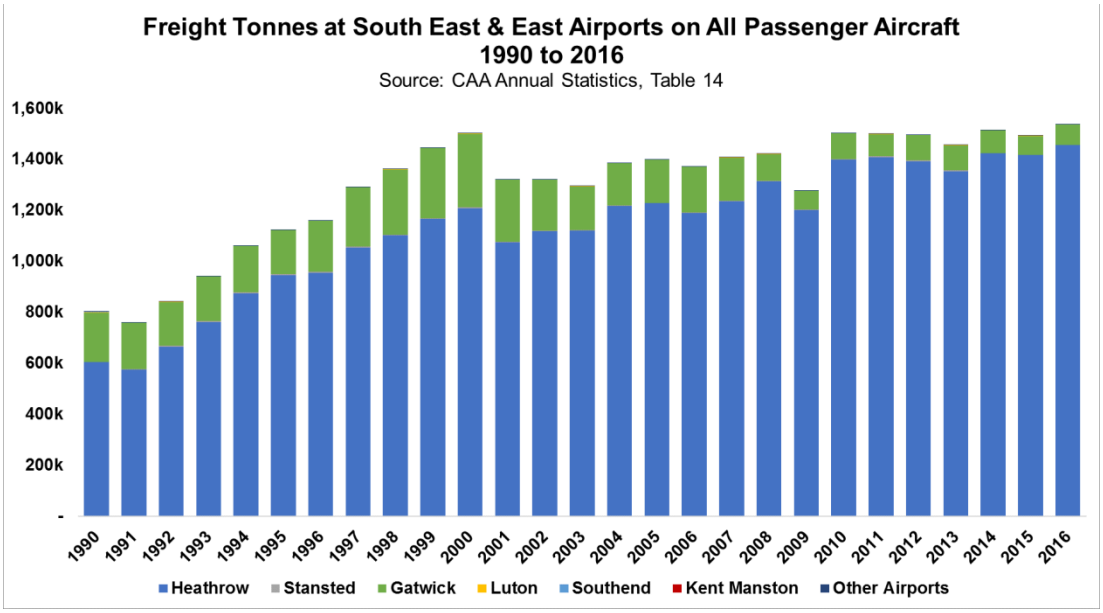
3. The growth in freight carried on cargo aircraft has differed significantly by UK region. Freight on all cargo aircraft has grown massively in the Midlands region, driven by the development of East Midlands Airport as a major hub for cargo only operations (in particular, express cargo). In contrast, freight on all cargo aircraft has fallen in recent years in both the South East & East of England and the rest of the UK. While the reduction in South East & East freight on all cargo aircraft is sometimes attributed to shortage of suitable airport capacity, this does not explain the similar decline for the rest of the UK.



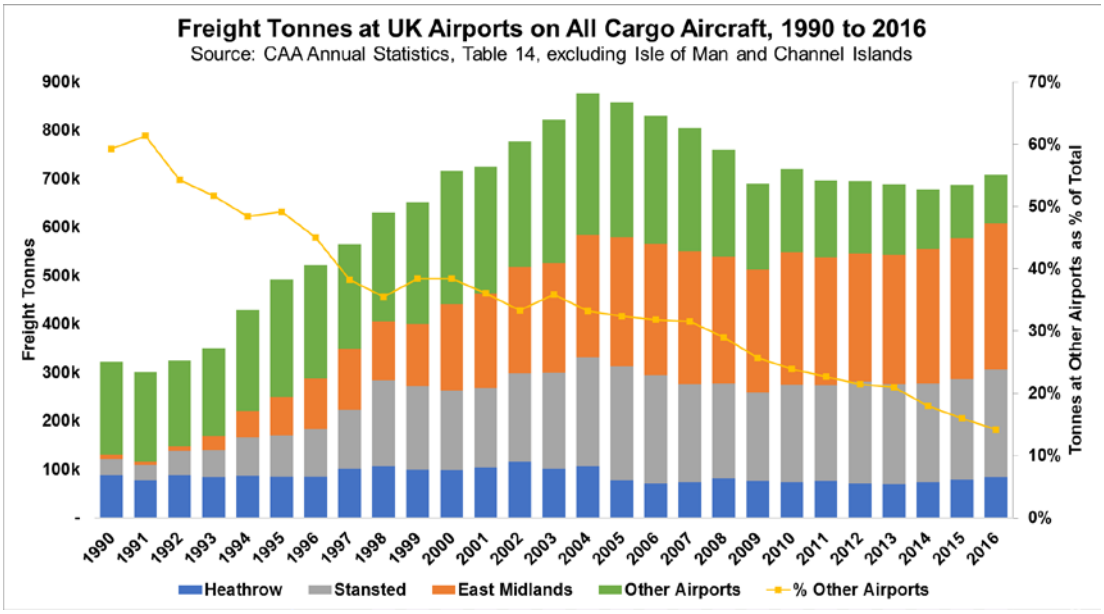
4. Focussing on the South East & East, Stansted has developed to become the main airport for freight on all cargo aircraft. Despite severe capacity constraints at Heathrow, it has retained a significant volume of freight on cargo aircraft.



5. However, in the South East and East, a clear majority of freight is carried in passenger aircraft. Heathrow dominates this segment, as a result of its extensive long-haul network, operated by wide body aircraft with significant cargo capacity. Cargo on passenger aircraft has continued to grow at Heathrow despite the airport effectively operating at full runway capacity (CAGR 2006-16 2.0%).

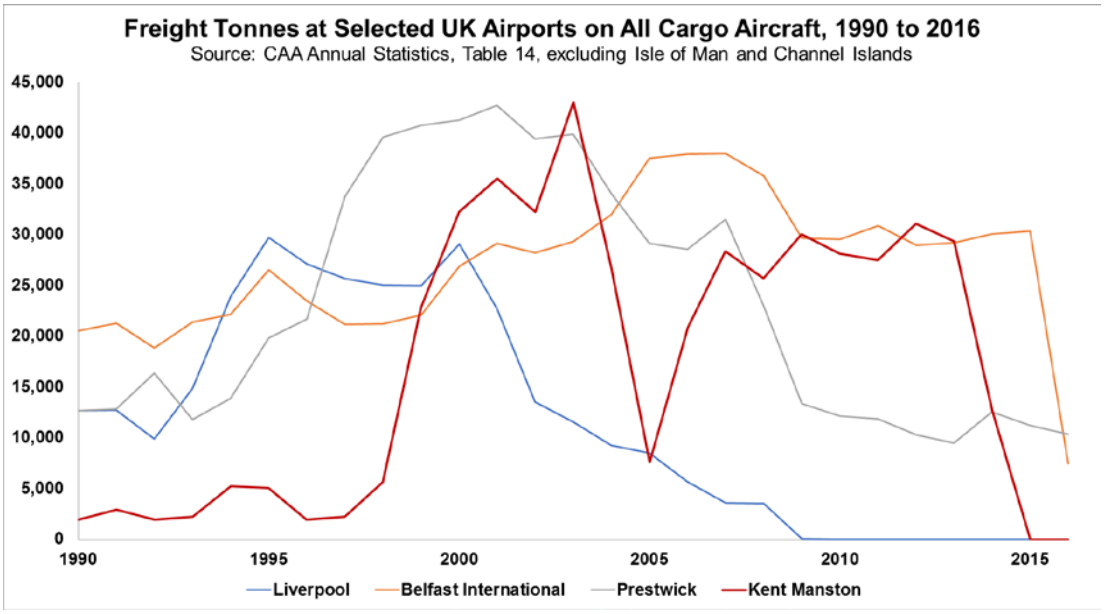


6. There has been a very clear trend to consolidation of freight carried on cargo aircraft. In 2016, the three largest airports for freight (on cargo aircraft) accounted for 86% of the UK market. The same three airports handed only 41% of the market in 1990. Similar trends have been observed in other countries.



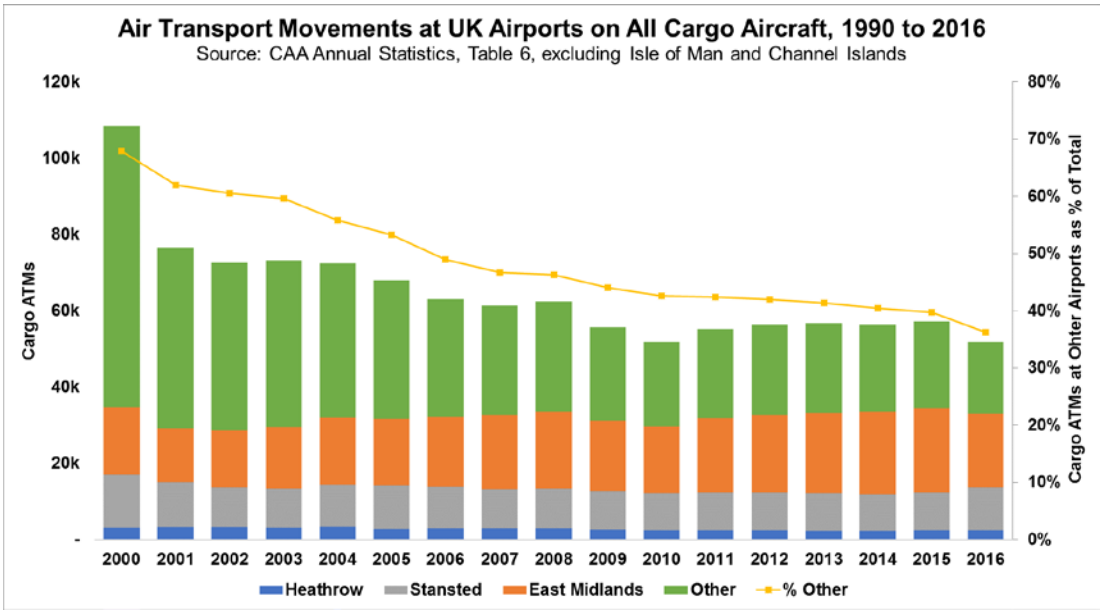
7. This trend towards consolidation of freight at a small number of airports is driven by cost efficiencies. The trend has resulted in airports which previously had significant freight volumes on cargo aircraft seeing the market shrink or almost disappear.

8. The following four airports have all been highly ranked in the UK for freight on cargo aircraft (Liverpool #5 in 1996, Belfast International #4 in 2015, Prestwick #4 in 1999, Manston #4 in 2013). However, by 2016, total freight on cargo aircraft across the three airports that remained open was less than 20,000 tonnes. Note: none of these airports has material capacity constraints.



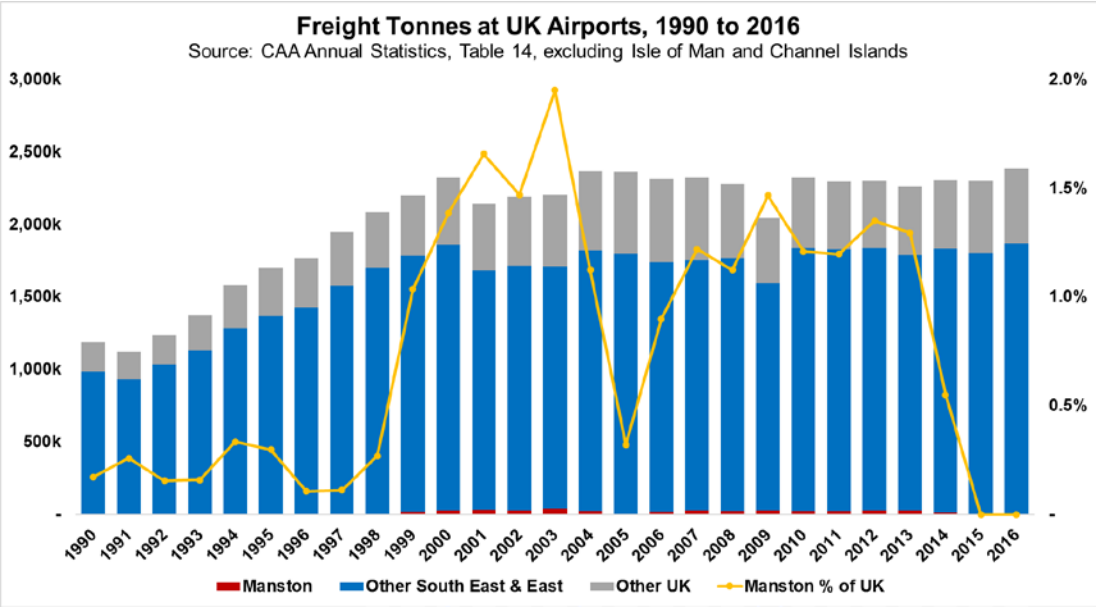
9. In fact, of the 16 airports with more than 1,000 tonnes of freight on cargo aircraft in 1990, only 3 had higher equivalent freight volumes by 2016 (East Midlands +290,000 tonnes, Stansted +191,000, Luton +4,000 tonnes, Other 13 airports combined – 134,000 tonnes).

10. A similar trend can be seen when analysing cargo aircraft flights, with a sharp reduction in flights from airports outside the “big three” of Heathrow, Stansted and East Midlands. Total freighter flights from other airports fell by almost 75% between 2000 and 2016.

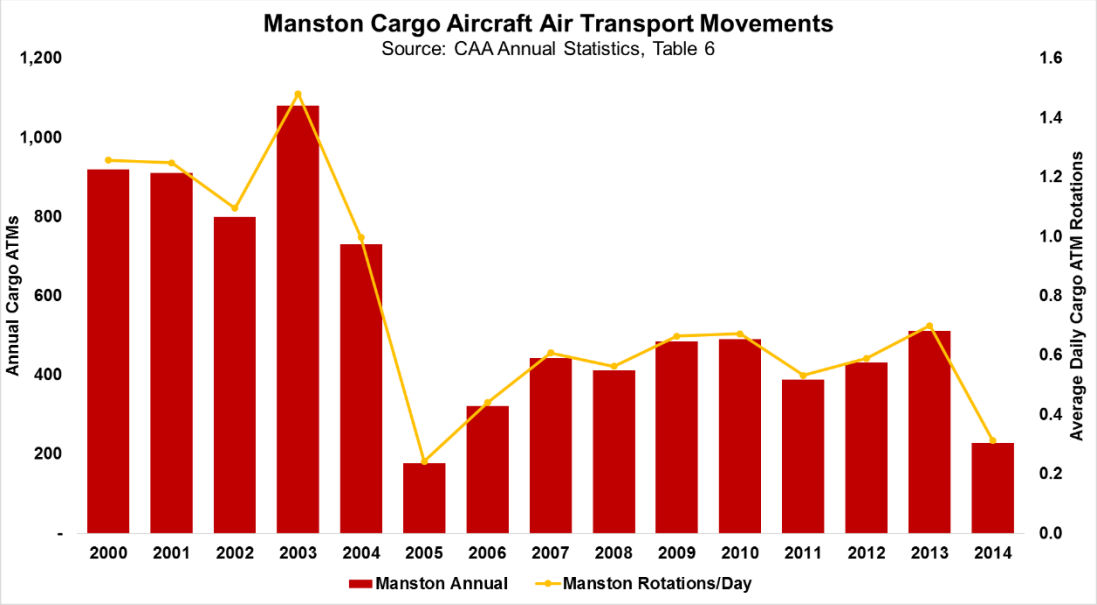


Appendix B. Review of competitiveness of Manston in the UK freight market

11. Freight at Manston has accounted for an average of 0.8% of the UK total in the period 1990-2014 (prior to closure). Its peak share of the UK market occurred in 2003, when it reached 2%.



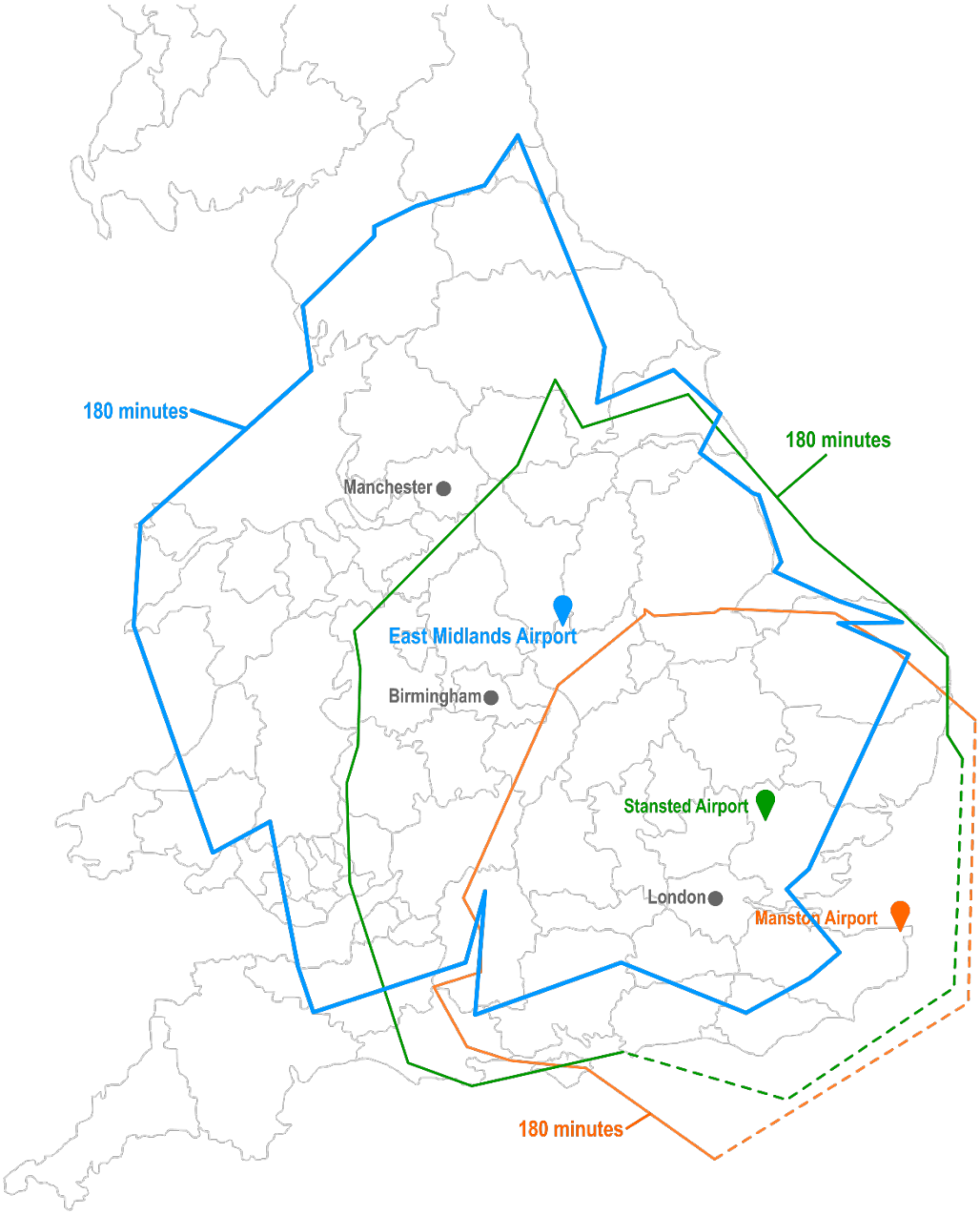
12. The total number of cargo air transport movements at Manston averaged ca. 550 per year in the period 2000-14. This is equivalent to less than one aircraft rotation per day on average (peak year in 2003 was 1.5 rotations per day).



13. The hypothesis has been put forward that Manston previously was unsuccessful due to its inability to handle additional flights due to lack of infrastructure. It seems likely that higher numbers of flights per day could have been handled if the demand existed.

15. Manston has also been described as benefiting from a favourable location. However, its location on a peninsula effectively limits its catchment. Within 3 hour drive times, the airport is limited to the South East & East of England and a small part of the Midlands.

16. In contrast, East Midlands Airport can also serve the vast majority of England and Wales within 3 hours drive time (the main exception being the South West). Its excellent coverage of England due to its central reason has been a key factor in the growth of East Midlands Airport for freight on cargo services, at the expense of other airports. It also benefits from 24-hour operation and a long runway, while supporting distribution warehouse infrastructure has been able to develop in the surroundings of the airport.



Appendix C. Discussion on potential future developments in the freight sector

17. While Airbus and Boeing forecast strong growth in freight tonne KMs in future years, it should be noted that only limited growth in freighter aircraft is envisaged for European based airlines. Airbus forecasts 276 freighters in European fleets by 2036, compared to 234 in 2016 (Source: Airbus GMF 2017). Note that Boeing does not appear to provide equivalent freighter forecasts.

18. New long haul aircraft types (with the notable exception of the A380) tend to have more space for cargo than previous common models. The B787 family offers substantial cargo capacity on its passenger aircraft (ca. 155m3 on the B787-900 model). For example, American Airlines has commented "The introduction of the 787-9 brings another more fuel-efficient aircraft type with even greater cargo capacity into the American Airlines fleet…. On routes where we operate the aircraft, our cargo customers will see notable capacity improvements". (source: David Vance, American's vice president of cargo operations, Air Cargo News, 2016).

19. Some leading airlines are cautious about the prospects for the freighter segment:

    - "Air France-KLM continued to restructure its cargo activity in 2016, resulting in a "Gradual turnaround". The company stated the restructuring continues to address weak global trading environments and industry overcapacity. The group reported… full freighter capacity: -24% year-on-year". Source: CAPA Aviation 16th February 2017.
    - "Air France-KLM said freighters would become a "niche product" as cargo markets face continued overcapacity. Air France-KLM executive VP Erik Varwijk said slowing demand and greater belly capacity on scheduled passenger services made exclusive freighters redundant….. AF-KLM is scheduled to ground two freighters in 2014 and another two in 2014, reducing their freighter fleet to 10 aircraft". Source: CAPA Aviation 23rd April 2014.
    - "Singapore Airlines Group subsidiary SIA Cargo faces another challenging year as conditions in the cargo market remain unfavourable. SIA Cargo has been unprofitable for seven of the past eight years, with losses further widening in recent quarters. Cargo capacity has been relatively flat since 2009, with additional belly space from passenger aircraft offsetting freighter reductions…. SIA Cargo is cutting its 747-400 freighter fleet in 1QCY2017, to only seven aircraft. At its peak in 2007 SIA Cargo operated 16 747-400 freighters. SIA will need to decide within the next few years whether to cut its freighter operation entirely or start investing in 747 replacements". Source: CAPA Aviation 3rd February 2017.
    - "Emirates VP cargo commercial operations Duncan Watson said the airline does not plan to add more freighter aircraft in the foreseeable future". Source: CAPA Aviation 29th February 2016.

20. Another development is the introduction of cargo into the business model of some low-cost carriers. Southwest Airlines in the USA has been carrying cargo for a number of years, while Norwegian and Eurowings also handle cargo on flights from Europe. Norwegian has a cargo subsidiary and "offers freight capacity to all destinations in Scandinavia and a range of European destinations in addition to Bangkok, New York, Orlando, Oakland, Los Angeles and Fort Lauderdale" (source: CAPA Aviation, 1st December 2015).

Appendix D. Critique of Azimuth / Northpoint documents in relation to freight viability at Manston

21. Azimuth Report, Vol III, Para 1.1.1

- "Pent up demand for freight carrier slots in the South East makes forecasts based on extrapolation of past activity potentially inaccurate".
- No relevant evidence is presented that freight traffic in the South East is impacted by airport constraints. There is no acknowledgement that cargo flights have reduced in other parts of the UK where airport capacity is not a material issue (see para 3 above) or any reference to the trends for market consolidation (see paras 6-10).
- More generally, no exploration is made of other factors that could be contributing to the limited growth in freight experienced in recent years. These could include the changing nature of the UK economy (with more emphasis on services) and the developing business model of the cargo industry to fly imports from the East into mainland European hubs for distribution across Europe by surface modes.

22. Azimuth Report, Vol III, Para 2.2.6

- "As such, and also based on market knowledge and confidential discussions with airlines, airports, and organisations involved in the freight forward and integrator markets, a short and medium-term forecast was produced. The freight movements shown in the forecast relate, where possible, to particular carriers identified through the qualitative research. The identity of these carriers is necessarily confidential for commercial reasons".
- While Azimuth highlights the difficulties with conventional forecasting techniques, no meaningful detail is provided of the assumptions that form the forecasts for the short-term future cargo at Manston. This makes it impossible for the reader to judge the credibility of the forecasts.
  - Is the forecast cargo based on existing operations that might switch to Manston or does the forecast represent new flights to the UK?
  - What proportion of the forecasts is based on comments from interviewees which are in a position to deliver the planned growth, versus based on speculative opinion?
  - How firm is the commitment to add the cargo? Are all possible opportunities that were identified included in the forecasts, or were only a proportion of potential opportunities selected?
  - Why are airlines or freight forwarders unwilling to be quoted on future plans for Manston? As part of the Airports Commission process, there was wide spread and visible support from the freight sector for a new runway at Heathrow – indeed meeting future freight demand was one of the main reasons stated by the Airports Commission for selecting Heathrow over Gatwick.

23. Azimuth Report, Vol III, Table 1

- There is very little discussion on why Manston failed to grow beyond 43,000 tonnes in the period 1990-2014 (before closure). Despite the apparent lack of airport capacity in the South East, Manston captured less than 1% of the UK market on average (peak value 2%, see para 11).

- In comparison, in Year 2 after reopening (and the first year of traffic capture), the airport is forecast to achieve almost 100,000 tonnes. This is a similar volume to the cumulative freight handled by Manston from 2011-14. It is also higher than what is being achieved by long-established cargo airports such as Frankfurt Hahn or significant passenger hubs such as Dusseldorf which are well located on the European mainland to benefit from demand consolidation.
- By Year 4 (2 further years of growth), freight is predicted at ca. 167,000 tonnes. This is equivalent to almost 25% of total UK freight on cargo aircraft in 2016. In the period 1997-2016, total freight growth in the UK (on cargo aircraft) was only ca. 140,000 tonnes.
- Much more convincing supporting evidence is required before the forecasts can be considered as credible.

24. Azimuth Report, Vol III, Para 2.3.2 and Para 2.3.3.

- "In the long-term, forecasts generally have less reliance on qualitative methods…. Therefore, from Years 11 to 20 an annual percentage growth has been applied to the figures derived for Year 10… After a period of stagnation that followed the global economic slowdown, which Boeing describe as a "temporary situation", they say: "As global GDP and world-trade growth accelerate, air cargo traffic, as measured in revenue tonne-kilometers, is projected to grow an average 4.2 percent per year over the next 20 years… However, to be conservative, and in line with the Airbus forecast, a 4% uplift on the Year 10 figures has been applied to extrapolate the long-term forecast for Manston Airport. "
- The application of a global growth figure to an individual airport is very suspect, especially given that stronger growth in cargo is expected from emerging markets. As noted in para 17, Airbus assumes only modest growth in the freighter fleets of European airlines.
- Furthermore, the Boeing / Airbus figures being applied relate to revenue-tonne KM, which is a different measure to tonnes at an airport. The revenue-tonne KM metric is influenced by changes in average stage length.
- Finally, applying a market based growth figure (even if it was appropriate) does not acknowledge the consolidation trends in the freight segment. As noted in para 9, of the leading 16 UK airports for freight on cargo aircraft in 1990, only 2 had recorded meaningful growth by 2016. There is a heavy reliance on the assumption that Manston will be a "winner" in future consolidation.

25. Northpoint report, Para 1.1

- "Thanet District Council (TDC) has placed far too much reliance on a deeply flawed report from Avia Solutions, that has been neither peer reviewed, discussed with relevant stakeholders or indeed subjected to any kind of public scrutiny, in coming to a hasty and therefore injudicious decision about the future of Manston Airport. This submission offers a high-level critique of the Avia report, which was demonstrably rushed, adopted a flawed methodology, employed poorly judged assumptions and adopted myopic view of the potential of the airport."
- There is no evidence put forward for these assertions, and we are unaware of any meaningful peer review of the Azimuth forecasts by an independent body.

26. Northpoint report, Para 1.2

- "… These proposals are in line with the business models of successful benchmark airports such as: Alliance Fort Worth in Texas, USA; Hamilton Airport in Ontario, Canada; Bergamo in

Italy; Liege in Belgium; and Leipzig in Germany; none of which rely on a passenger focused business model of the kind set out in the Avia Solutions report commissioned by TDC, which is therefore at best misguided and at worst a deliberate misrepresentation of RiverOak's plans."

- No guidance is provided on what Manston has in common with these airports, or what differentiates Manston from a range of airports that have made significant investments in cargo facilities without any tangible return. Some of the examples are also surprising e.g. Bergamo Airport had 11.2m passengers in 2016 (3rd largest in Italy) and 118,000 tonnes of cargo.

27. Northpoint report, Para 1.5

- "In part they envisage freight traffic being displaced from congested airports elsewhere in the South East, in part growth in underling traffic volumes in line with Boeing World Cargo forecasts. But also of material significance, will be RSP's plans to target the hundreds of thousands, possibly millions of tonnes of air cargo being trucked from the UK to the continent to be flown out of European airports"
- There is no recognition of the ability of East Midlands Airport (or other airports e.g. Birmingham) to serve this market (see para 15 and 16). East Midlands has similar accessibility to the South East as Manston plus the benefit of being able to serve most of the rest of England and Wales.
  - In response to the Airports Commission final report, Andy Cliffe, East Midlands Airport Managing Director commented on 1st July 2015:
  - "*East Midlands Airport, as the largest pure freight airport in the UK, has been recognised by Sir Howard Davies as a national strategic asset for freight and we're pleased that the commission identifies our important strategic role in the global freight network".*
  - *"Being ideally located in the centre of the UK and at the heart of the motorway network … Our ambitious plans, as set out in our Sustainable Development Plan, show the potential for East Midlands Airport and how we intend to grow the airport to … 1 million tonnes of freight within the next 10 – 15 years, which clearly demonstrates the available capacity right here in the heart of the UK."*
- Furthermore, there is an assumption that cargo slots will be squeezed out from Stansted. This may not necessarily be the case, as Stansted's passenger growth is currently capped. Furthermore, a very congested Heathrow has been able to maintain cargo slots, so cargo at Stansted may be sustained – despite rapid passenger growth at the same time, the number of cargo movements at Stansted grew by almost 20% from 2014 to 2016. Indeed, Stansted's 2015 sustainable Development Plan Summary states:
  - "*There is also potential for the cargo goods volume at the airport to increase, potentially doubling the current throughput of cargo on dedicated aircraft to around 400,000 tonnes per annum*."
- Finally, there is no consideration that cross-channel trucking trends may be because of cost efficiencies being exploited by the cargo industry rather than being driven by lack of airport capacity. In any case, the level of cross channel truck activity is not quantified, nor any rationale given as to why the economics of trucking cargo would be different in the future.

28. Northpoint report, Para 2.1.5

- "Avia have tried to argue that such a low CAGR is in part justified by the fact the bellies of passenger aircraft are standing empty at Heathrow waiting to absorb any additional demand

that may come forward during the next three quinquennia. Unfortunately this is not true now and certainly won't be in the future because the cargo capacity of principal aircraft types at Heathrow is set to diminish over time as B787s, A350s and new narrow-bodied aircraft enter into service. "

- We disagree with this view. The passenger B787 in particular is a very effective aircraft for cargo, and it is likely that passenger aircraft belly hold capacity for cargo will continue to increase based on current fleet orders and trends towards more long-haul flights at Heathrow (see para 18 to 19).

29. Northpoint report, para 2.26, first bullet

- "First, just under 50% global air cargo is shipped bellyhold; the comparative figure in the UK is 70%. Since the economies of the UK's main EU competitors are not materially different from our own, there is no logical explanation for this difference other than the shortage of slots available to integrator aircraft or dedicated freighters at the the South of England's two main freight airports - Heathrow and Stansted – caused by high levels of daytime runway demand and capacity at saturation levels in peak and shoulder periods, and in Heathrow's case in off-peak periods too."
- As shown in para 2, the percentage of freight carried on all cargo aircraft was actually lower in 2016 than in 1990. In 1990, any airport capacity issues in the South East were much milder, so the Northpoint assertion is not supported by evidence.
- No consideration is given for an alternative explanation - that Heathrow is the largest long-haul hub in Europe by some margin, and has very high volumes of cargo capacity available on widebody aircraft across a wide range of routes. This makes cargo on passenger belly hold aircraft very competitive and able to directly serve key markets.

30. Northpoint report, para 2.26, third bullet

- "Third, Heathrow's principal attraction for freight forwarders, namely the range of international destinations it serves directly, is also its potential Achilles heel, because that network may not be sufficiently concentrated on certain 'thick' freight routes to be able to cope with the underlying demand – in other words the more complex the passenger network, the greater the likelihood it may not match the required pattern of freight distribution flows."
- This appears to be conjecture rather than supported by evidence or analysis.

31. Northpoint report, para 2.26, fourth bullet

- "Fourth, new aircraft tend to have less bellyhold capacity than older ones and Heathrow and Stansted are the two airports where these new aircraft are most likely to be introduced."
- As noted in para 28, this assertion is dubious.

32. Northpoint report, para 2.26, fifth bullet

- "And finally, it is very likely that a sizeable chunk of the available runway capacity at both airports will be taken up by Low Cost Carriers (i.e. Ryanair at Stansted and easyJet at Heathrow), and as with most Low-Cost Carriers, carrying freight does not form part of their business model."
- There are some signs of growing development of cargo by low cost carriers (see para 20) as part of their evolving operating models.

Appendix E. Brief review of Azimuth / Northpoint in relation to passenger viability / Other

33. Azimuth Report, Vol III, Table 1

- We have not at this stage undertaken a detailed review of the passenger forecast methodology adopted by Azimuth. However, we note that as with cargo, passenger forecasts are far in excess of previous performance. Traffic in the Year 3 (the first year of passenger flights) is forecast at ca. 660,000, which is higher than total passenger traffic handled by the airport since 1990. It is also higher than Bournemouth traffic in 2016, a long established South East airport.
- In its report, Avia Solutions note that the catchment of Manston Airport is significantly smaller than Southend's catchment. Traffic at Southend was ca. 874,000 passengers in 2016, which Manston is forecast to surpass by Year 6 (the 4th year of passenger flights).

34. Northpoint report, para 1.3, fifth bullet

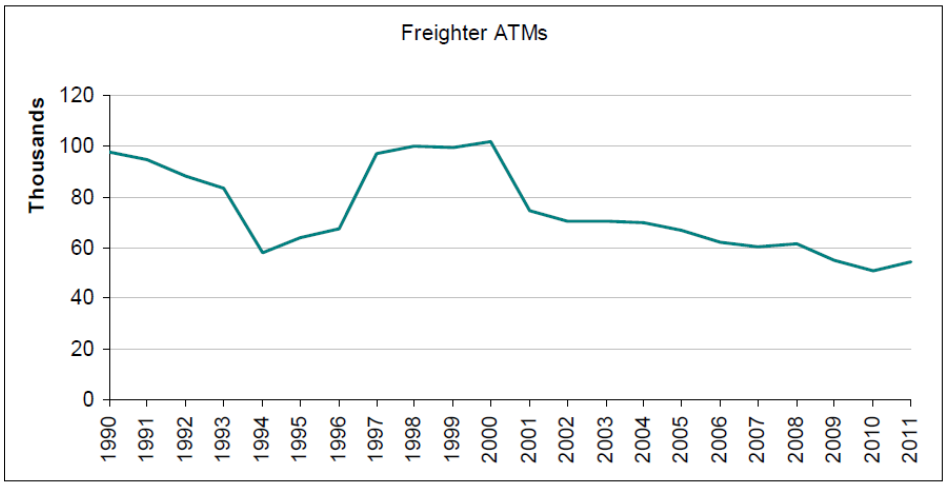
- This will be supported by… a range of other aeronautical activities, for which capacity is either already heavily constrained (e.g. business aviation, military and diverted flights), or non-existent (e.g. emergency service, aircraft servicing and commissioning flights, air shows, commercial training and flight testing, general aviation and flying schools) at the south east's larger and more congested airports; and aircraft MRO, manufacture, conversion, re-spray, dismantling, part storage and recycling.
- It is estimated that the UK has a total of 271 paved runways as at July 2016 (CIA World Factbook). Most of the activities highlighted above could be carried out at a wide range of other airports, and geographic location is not a key factor (e.g. aircraft can be flown to any part of the UK for respraying, dismantling, etc.).

Appendix F: Extracts From 2013 Department For Transport's UK Aviation Forecast

Freight

3.47 An assumption about the future growth in freighter ATMs is required to provide an indication of the number of runway movements that might be required for non-passenger aircraft. Figure 3.8 shows the number of freighters using the airports included in the forecasting model over the period 1990 – 2011.

Figure 3.8: Freighter aircraft at UK airports, 1990-2011



Source CAA airport statistics

3.48 Following a period of strong growth in the late 1990s usage of air freighters has been subdued, with a steady decline over the last decade. While some of this trend appears to be driven by an increase in the share of total freight carried as bellyhold cargo and an increase in the payload per freighter, it has also coincided with a flattening of overall demand for air freight. Several reasons for this have been suggested, including: increased capacity and frequency of shipping services; aviation fuel prices rising faster than shipping fuel prices; disruption to air services (particularly on the North Atlantic routes) following the 2001 terrorist attack in New York; and the increasing importance of the Far East market.

3.49 This forecast assumes that demand for air freight, the share of freight carried on dedicated cargo flights and the average payload of these flights will follow the average trend over the period 1990 – 2011. This results in a future projection for air freight ATMs that grows from 2011 outturn at an average rate of 0.4% a year.

Freight

8.11 The August 2011 forecast assumed that, following a period of recovery, growth in freighter ATMs would return to the long-run trend estimated by MDS Transmodal in 2000 and used by Halcrow in the earlier version of the freight model.[97] This long-run trend was estimated based on a relationship between freight demand and GDP over a period in which freighter usage had been increasing rapidly. However, as discussed in chapter 3, since 2001 the number of freighter ATMs has declined. Given the sustained nature of this trend over a ten year period, this forecast adopts a revised projection that reflects the overall pattern of freight ATMs since 1990. This reduces the overall average growth projected in freighter ATMs between 2011 and 2050, from around 2% a year to around 0.5% a year, reducing the number of freight ATMs projected for 2030 in the unconstrained forecast from 120,000 to 60,000.

Annex F.1

ATMs by domestic/international, scheduled/charter, passenger/freight, 2010-2050, central forecast, max use (constrained)

ATM 000s	International Scheduled	International Charter	Domestic	Freight	Total
2010	1,294	101	550	51	1,996
2015	1,370	91	561	55	2,077
2020	1,514	104	602	55	2,274
2025	1,678	116	661	56	2,511
2030	1,844	127	695	59	2,724
2035	2,024	139	742	59	2,964
2040	2,216	150	788	61	3,215
2045	2,485	164	816	59	3,525
2050	2,676	174	858	60	3,768

1. ATMs are counted at the 31 UK airports included in the DfT model.
2. All figures are modelled, including 2010.
3. Modelled results from s02 scenario (maximum use of existing runways)
4. ATMs exclude general aviation, air taxis, positional, diplomatic, military and other miscellaneous flights.

Enclosure 4
Critique of PEIR (Transport)

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Project name:
Stone Hill Park

Project ref:
60430453

From: Justin Sherlock

Date:
21st July 2017

Technical Note

Subject: Preliminary Environmental Information Report (PEIR) for the Manston Airport Development Consent Order (June 2017) Transport Review

Prepared and Checked by:	Verified by:	Approved by:
Justin Sherlock	Roy Kong	Nicholas Anderson
21st July 2017	21st July 2017	21st July 2017

Introduction

AECOM has been commissioned by Stone Hill Park Ltd to provide transport advice for the redevelopment of the former Manston Airport, renamed as Stone Hill Park (SHP), the Site. This Technical Note (TN) provides a review of Chapter 14, Traffic and Transport of the Preliminary Environmental Information Report (PEIR) for the Manston Airport Development Consent Order (June 2017).

Review of Chapter

The Chapter commences by describing how the site has good access to the surrounding highway network. The current highway network connections to the site are provided on Manston Road and Spitfire Way. Whilst both of these links provide two-way single carriageway roads with one lane running in each direction they are relatively constrained by their width, alignment and poor systems of drainage. The wider highway network, particularly to the north of the site is also constrained and may be unsuitable to accommodate a significant volume of additional traffic. Increased permeability to the site would therefore be essential coupled with improvements to junctions and appropriate routing of traffic to avoid less appropriate routes to the site from the north. At present these measures are not proposed.

At this stage no Transport Assessment (TA) has been prepared to assess the impacts of the proposed development on the surrounding transport network. Whilst the PEIR provides a preliminary assessment of highway link capacity this is insufficient to conclude whether the development proposals can be accommodated on the transport network. Until such a time as the TA has been prepared no conclusions can be drawn on the acceptability of this development proposal from a transport perspective.

The PEIR seeks to provide a preliminary highway network assessment. Whilst a preliminary construction traffic trip generation is presented in the Chapter no trip generation for the operational phase of the development is presented. Through interpretation of the traffic flow information it is possible to extract potential development traffic flows. AECOM estimates that the full operational trip generation could be in the region of 25,000 vehicle movements per day. However, as the link flows provided are incomplete and do not cover the entire road network any estimate made of the trip generation is likely to underestimate the operational trip generation proposed. In its current state the PEIR is incomplete and therefore no conclusions about the likely impacts of the proposed development on the highway network can currently be made.

No reference is made within the policy review section of the Chapter to emerging planning policy and the Proposed Revisions to Draft Local Plan (Preferred Options) January 2017 consultation that proposes to allocate the Former Manston Airport as a mixed use settlement with the capacity to deliver 2500 new dwellings and up to 85,000sqm of employment and leisure floorspace. In addition, no reference is made to the emerging Thanet Transport Strategy. This Transport Strategy seeks to deliver an improved highway connection between Westwood Cross and the A299. The current proposals being promoted by Riveroak do not demonstrate how the development would be compatible with these improvements.

The study area of the traffic surveys undertaken to inform the PEIR appears to be quite small given the scale of development proposed and AECOM's estimate of traffic volumes arising from the site with numerous gaps in terms of both junction and link counts. A more comprehensive data collection exercise would be expected to have been undertaken for a development of this scale.

Despite the Chapter stating that traffic counts were undertaken in March 2017 several key highway links including the A299, A256 and Manston Court Road are missing traffic flow information within the preliminary assessment. This traffic data will be essential to inform the assessment of the development. As it stands the PEIR does not present a complete picture of potential transport impacts arising from the development.

The PEIR relies upon assessment of the development utilising what appears to be a manual assignment technique for the distribution of development traffic. Given the scale of development proposed the use of a strategic transport model with dynamic traffic assignment would be expected to understand potential reassignment effects resulting from the large volume of traffic that these proposals would generate.

No detailed accident data analysis has been provided at this stage. However, it should be noted that the accident data study area excludes roads within Minster and towards Canterbury. Considering these links are included within the traffic data study area a consistent study area for the accident analysis would have been expected to have been utilised.

At this stage no consideration has been made of committed developments or committed transport infrastructure in the local area. Instead the assessment relies upon applying generic growth factors derived from TEMPRO to the baseline traffic data to inform future traffic flows. The assessment presented is therefore not considered to be robust as it relies upon the use of a standard growth factor applied to all links when in reality committed development will impact some links more than others. The Chapter is therefore likely to underestimate traffic volumes on some highway links surrounding the site and overestimate on others. A more refined approach would be expected given the scale of development proposed.

The highway links proposed to be assessed are categorised by their sensitivity in accordance with the 'Institute of Environmental Assessment (IEA) *Guidelines for the Environmental Assessment of Road Traffic*' (1993). A number of these links are defined within the Chapter as 'Not Applicable' and therefore not taken forwards to assessment because no sensitive receptors are identified along them. This approach is incorrect because it fails to appreciate that criteria such as driver delay are witnessed by the users of the link itself and not just receptors adjacent to them. Instead these links should be included within the assessment and assessed in terms of magnitude of impact with their sensitivity classified as low (if there are no receptors identified).

The assessment methodology proposed suggests that driver delay will be measured with reference to the percentage increase in traffic flow along a link. The majority of driver delay witnessed on the highway network occurs at junctions. It is therefore considered inappropriate to assess the impacts of driver delay in terms of link capacity and a junction based assessment approach should be utilised. This is supported by the IEA Guidelines which states that values for delay can be determined by the use of the Department for Transport's computerised junction assessment packages or other suitable programs.

The preliminary highway assessment presented indicates significant increases in traffic volumes along a number of highway links such as Spitfire Way where a 111% increase in traffic is anticipated and more than a 50% increase in traffic flow on Manston Road. These links are currently single carriageway roads with poor alignment and drainage. The Design Manual for Roads and Bridges (DMRB) TA46/97 'Economic Assessment and Recommended Flow Ranges for New Rural Road Links' indicates that a standard 7.3m single carriageway road has a maximum Annual Average Daily Traffic Flow (AADT) capacity of 13,000. This figure is exceeded on a number of the links suggesting that significant improvements to the existing highway link infrastructure will be required to facilitate this quantum of development. No acknowledgement is made of this within the PEIR and no improvements to these links have been proposed.

Whilst reference is made within the Chapter to link capacity and the need for additional assessment no account is made of junction capacity which, as previously highlighted is potentially a greater constraint to development than link capacity. The PEIR is therefore inadequate by failing to assess this criteria and therefore it is not possible to conclude from the PEIR whether this level of development could be accommodated on the highway network even if highway improvements were brought forwards.

The site layout proposed within Figure 3.5 of the PEIR appears to show the site boundary including sections of publically adopted highway such as Spitfire Way. It is unclear whether this is a drawing error or whether such land is required to facilitate the operation of the development. This should be clarified.

The Chapter concludes that through the production of a TA and development of a package of mitigation measures the effects of the development as assessed in the PEIR can be reduced to 'not significant'. Based upon the current assessment it is not possible to draw this conclusion as the methodology adopted is incorrect, is missing assessment of a number of links and does not consider impacts at a junction level. The PEIR is therefore incomplete.

Conclusion

AECOM has undertaken a review of Chapter 14, Traffic and Transport of the Preliminary Environmental Information Report (PEIR) for the Manston Airport Development Consent Order (June 2017). The review has identified that the transport chapter in its current form has a deficient methodology, is missing information and is incomplete. It is therefore not possible to draw any conclusions at this stage regarding the likely impacts of the development on the transport network.

Enclosure 5
Critique of PEIR (Environmental/Technical)

WSP REVIEW OF THE MANSTON AIRPORT DEVELOPMENT CONSENT ORDER PRELIMINARY ENVIRONMENTAL INFORMATION REPORT (PEIR) JUNE 2017.

INTRODUCTION

WSP has been commissioned by Stone Hill Park Ltd to lead and coordinate the preparation of the Environmental Impact Assessment and Environmental Statement and to provide various technical assessments (Air Quality, Archaeology and Cultural Heritage; Artificial Lighting; Ecology & Biodiversity; Ground Conditions and Contamination; Flood Risk and Drainage; Noise, Energy & Sustainability; Socio Economics and Population, and Waste Management) to support the current hybrid application (Ref OL/TH/16/0550) for the redevelopment of the former Manston Airport.

In that capacity we have been requested to review Sections 5, 6, 7, 8, 9, 10, 12 and 13 of the Preliminary Environmental Information Report (PEIR) dated June 2017 for the Manston Airport Development as set out below.

SECTION 5: APPROACH

The PEIR has been prepared in the context of the PINS Advice Note Seven: Environmental Impact Assessment: Preliminary Environmental Information, Screening and Scoping (March 2015) and confirms that it is preliminary information which will be provided in full and final form in the ES

The Scoping Report acknowledged that Applicants are advised to undertake consultation giving consideration to any potential issues and concerns, and to seek to resolve any transboundary effects, before the application for development consent is submitted in order to ensure that they do not become an issue during examination. Therefore in accordance with the advice, it was confirmed at the scoping stage that the Applicant would give consideration to any potential transboundary effects arising from the development of Manston Airport within the EIA in order to enable PINS, in fulfilling their obligations under Regulation 8 of the EIA Regulations, to reach a view as to whether the development is likely to have significant transboundary effects on other EEA

The Scoping Opinion from the Secretary of State recommended that the ES should identify whether the proposed development has the potential for significant transboundary impacts and if so, what these are and which EEA States would be affected. The PEIR appears to be silent on providing any indication on this matter.

The approach Report refers to the various different consenting regimes to be applied for in due course. For example the exact airspace options and aircraft flight paths will be formalised following or in parallel with the DCO through an Airspace Change Proposal (ACP), which is a separate consenting regime. The ACP will be submitted through the Civil Aviation Authority's (CAA) airspace change process and the potential noise effects will be assessed following the CAA guidance 1. However there is little reference on timings to such regimes, although it is acknowledged that the assessment approach for modelling air noise needs to be agreed with PINS and CAA and a preliminary meeting with the CAA was held on 15th May 2017. It would be expected that despite the need for approvals under such regimes, there is a need for at least some robust assumptions to be set out as the basis for PEIR and the basis for the assessment of the likely significant effects to be reported in the ES.

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SECTION 6: AIR QUALITY

The PINS Scoping Opinion confirms that it is a matter for the Applicant to decide whether or not to submit a stand-alone Health Impact Assessment (HIA) in the context of the relevant consultee responses regarding health, and in particular the comments from Public Health England, including in relation to electric and magnetic fields. The PEIR does not provide a Health Impact Assessment but confirms that the potential for significant effects of the Proposed Development on public health is considered within the air quality and noise technical chapters. However in the absence of traffic assessments and flight path details at this time, the effects on public health remains an issue that would need to be considered further.

The Scoping Opinion also advises the Applicant to give consideration to the carbon footprint of the proposed development during construction and operation, demonstrating how the development will contribute to achieving the objective of reducing global greenhouse gas emissions set out in the Aviation Policy Framework (Department for Transport, 2013). Table 6.3 confirms that in response to comments from TDC, a quantitative assessment of changes in emissions of carbon dioxide arising from the Proposed Development will be made and a comparison with national UK emissions will be made, together with an evaluation in relation to the proposed (CCC) cap on aviation emissions of 37.5 Mt by 2050. Again though in the absence of traffic assessments and flight path details at this time such issues would need to be considered further.

Section 6.6 and Table 6.2.1 sets out a summary of the environmental measures to avoid, reduce or compensate for potential adverse air quality effects either during the demolition and construction phase or operational. Such measures include the planning of aircraft arrival and departure scheduling to avoid, where possible, over-long idling, taxiing and hold times. For the purpose of the PEIR assessment, and as a worst case, the working assumption is that there might be a maximum of eight (8) aircraft movements at night between the hours of 23.00 and 07.00. The remaining air traffic movements are spread evenly across the daytime period. However the absence of any details of the flights paths proves difficult to determine how any mitigation measures can be controlled. The subsequent proposals for flightpaths and airspace are identified as being subject to a separate round of consultation once the DCO application has been made.

Table 6.42 summarises the position and para 6.10.2 readily accepts that no transport data available upon which to base assessment for the operational phase effects. Consequently many of the reported significance levels in the table may become significant and consequently need further mitigation. It is also evident there is no consideration at this point of expected flight paths and the effects on air quality.

SECTION 7: ECOLOGY

The Section confirms the intention is to produce an Evidence Plan (in ongoing consultation with Natural England), supported by evidence gathered from desk studies, field surveys, and air quality and noise modelling to meet the requirement under The Conservation of Habitats and Species Regulations 2010 (SI 2010 No. 490) (the 'Habitats Regulations') to determine whether any of these sites is likely to be significantly affected by the proposed development, either alone or in combination with other plans and projects. Confirmation is also given that there is ongoing consultation with Natural England (NE), who concluded that the ES is to be based upon information available in the public domain from other planning applications for the Manston Airport site, to be supplemented, if required, with targeted ecological surveys off-site and on-site to cover any identified gaps. Ref is made to the existing extended Phase 1 habitat survey undertaken in February 2017 for the SHP application and concludes that the work provides an appropriate basis upon which to proceed.

At the time of the PEI assessment it is evident that sufficient data on receptors is not yet available, and consequently, any evaluation of effects on the receptors reported in the PEIR is considered following a generic approach to the delivery of construction works and operation for the proposed development. As a result the intention is that a full assessment will be provided within the ES, although off-Site non-breeding (over-wintering) bird surveys for 2016/17 have been completed. A survey programme is planned with agreement to be sought with Natural England where the survey programme exceeds the DCO application programme to ensure that assessment based upon a full baseline data for the examination. However until such information is available the indicated effects on the ecology of the site and surrounding area is unknown.

It is also evident that due to the nature of the proposals, with limited opportunity for on-Site measures, off-Site restoration and enhancement works will be required that are proportional and in response to the predicted effects. Study areas associated with the impacts associated with changes in noise (Chapter 12) and air quality (Chapter 6) during the operational phase will need to be informed by the outcome of ongoing modelling based upon the location of the flight paths, and based upon worst-case (Year 20) assessments.

As a result the evaluation of effects and significance for all receptors will need to be examined and reassessed in full in the ES, once precise effects and mitigation measures specific to the relevant receptor are available and in the context of detailed information on aircraft flight paths and noise levels along with collation of survey data from the winter period 2016/2017, and in light of any more recent desk study data. The summary of significance of effects concludes that on all matters the effects would not be significant. However such conclusions appear premature in the absence of the traffic assessment and details of flight paths, particularly related to conclusions which suggest no significant effects are anticipated due to the distance (lateral and/or vertical) of the flight paths from the designated sites.

SECTION 8: FRESHWATER ENVIRONMENT

Southern Water has confirmed they would prefer that the current runway area was left undisturbed due to turbidity concerns at their source. Both Southern Water and the Environment Agency would not want to see intrusive works near the adit or within SPZ1, and it is acknowledged that the desire of Southern Water is for the minimum level of intrusive work so as to avoid mobilising contaminants and creating pathways through the unsaturated zone. However some boreholes (in target areas) would be needed to see if any pollution or contamination is reaching the water table. If any piling is to be used methods must be used to minimise ground disturbance and Southern Water requested that any site investigation works are co-ordinated with the other potential applications for the site to result in the minimum of ground disturbance.

SECTION 9: HISTORIC ENVIRONMENT

The limitations of the PEIR are acknowledged and confirm the assessment is based solely on desk-based research and the results of any known previous archaeological investigations within the site and study area. As a result it cannot necessarily be taken as a definitive statement of the potential presence and significance of archaeological remains within the site boundary and further survey will be required to refine the current assessments which are made on the basis of existing knowledge and to allow an informed assessment of the potential effects of the Proposed Development. No intrusive survey has been undertaken by the Applicant to date, although evident that site walkover surveys were conducted on 7th and 8th March 2017 to support the Assessment and comprised a visual inspection of the current site infrastructure and land uses at which time the Archaeological trial trenching in support of SHP planning application OL/TH/16/0550 was in progress.

Discussion with Historic England and Kent County Council is intended to continue ref the need for intrusive investigations and the historic building study which will be needed to inform the assessment in the Environmental Statement and to inform the significance of effects which at this point as reported are not yet established.

SECTION 10: LAND QUALITY

The Environment Agency confirmed that Environmental Impact Assessment will need to provide information on potential contamination of the site, and would also expect a preliminary risk assessment and site investigation to accompany the DCO application. A Phase 1 LQA (Manston Airport, Kent, Draft Geo-environmental Desk Study, Amec Foster Wheeler, March 2017) was carried (Appendix 10.1) and includes recommendations for a staged intrusive investigation to be undertaken post consent. A Preliminary UXO Risk Assessment has been undertaken and included in Appendix B of the Phase 1 LQA and identifies that there is a medium to high probability of UXO encounter on the site (probability rating of 4, on a scale up to 5).

It is evident that a number of site investigations have been undertaken at the Jentex site, and a number of old tanks have already been decommissioned, although further site investigations would be undertaken to inform the detailed design of the fuel farm facility in consultation with the Environment Agency and Southern Water and on the scope of any site investigations and remediation that may be required, all of which should be considered in the scope of other intrusive investigations that maybe required. The significance of effects will need to be reviewed further in the context of these investigations and updated desk based data.

SECTION 12: NOISE AND VIBRATION

Forecast future road traffic flows from the proposed development are not available and as a result the operational road traffic/Surface access noise is not assessed within the PEIR. For the purposes of the PEIR, the future baseline level of noise is considered to be the same as today.

The assessment of air noise within the PEIR is based on a design swathe and it suggests that the ES will assess prototype airspace route options within that design swathe which are considered likely to be 'worst case' and 'best-case' in noise terms and most 'likely' to be operated. It is then expected that the ACP will finalise airspace routes within those prototype routes.

For the purposes of the PEIR therefore, a qualitative assessment has been undertaken, but only of those locations expected to be significantly affected by noise, which in turn are affected by the final stages of aircraft approach and early stages of aircraft departure, where for the Proposed Development the airspace procedures have little effect.

In the absence of precise details regarding the design and layout of the Proposed Development including its airspace, the conclusions accept that it is not possible to set out the specific extents of the project study area, or undertake a detailed assessment with respect to noise and vibration.

The receptor groups that have been identified within the study areas of the assessment scenarios are considered as having the potential to be significantly adversely affected as a result of the proposed development. A Noise Mitigation Strategy is being prepared which is expected to be consistent with the proposer's business plan, the aims of the NPSE and the ICAO's Balanced Approach to Aircraft Noise Management and will also recognise the previous airports Section 106 (s106) agreement with TDC and as a minimum include the s106 requirements, and update where appropriate. The PEIR confirms that proposals for these restrictions will be presented alongside the assessments within the ES. However we understand that at meetings with PINS RiverOak confirmed that noise control and mitigation would be a key part of their environmental study and consultation process. Table 12.12 sets out the rationale for the incorporation of environmental measures, but is light on the detail and for example confirms that measures to mitigate operational road traffic noise include restricting road traffic from travelling on certain routes (e.g. through Manston or Acol villages). In the absence of any traffic assessment (other than a preliminary highway network assessment), or trip generation for the operational phase of the development which is incomplete, any conclusions about the likely effects of the proposed development on the highway network or noise effects from such traffic are largely unknown with results being subject to change and currently all operational elements are expected to result in significant adverse effects on a range of receptors.

SECTION 13: SOCIO-ECONOMICS

The information as presented is limited by the fact that the effects are dependent on so many factors and likely predicted negative effects are likely to be centred on potential pressures on the local road network and aircraft movements (and the relationship with noise generation)resulting from an increase in business-related traffic, impacting on employee and customer access; the effects from aircraft noise and associated emissions which could impact on employees, customers and residents, depending on the chosen flight paths. The magnitude of effect on socio-economic and population therefore is highly likely to be subject to change until such factors are known.

CONCLUSION

The information and effects as presented is limited by the absence of sufficient survey information and are dependent on so many unknowns and factors at this time, including the controls of other consenting regimes. As a result any likely predicted negative effects are expected to be centred on potential pressures on the local and wider road network and aircraft movements

(and the effects on noise, air quality and biodiversity) resulting from an increase in related traffic and activities, impacting on both the local environment and much wider area, irrespective of the impact and effects on the site itself.

Enclosure 6
Critique of PEIR (Landscape and Visual Impact)

17.07.17

Introduction
Planit-IE LLP has been commissioned by Stone Hill Park Ltd to provide Landscape and Visual Impact Assessment advice for the redevelopment of the former Manston Airport, renamed as Stone Hill Park (SHP), the Site. This Technical Note (TN) provides a review of Chapter 11, LVIA of the Preliminary Environmental Information Report (PEIR) for the Manston Airport Development Consent Order (June 2017).

Approach
The assessment has been undertaken in accordance with the relevant national guidance 'Guidelines for Landscape and Visual Impact Assessment – Third Edition' (hereafter referred to as GLVIA 3).

Review of Chapter

Overall
The assessment submitted with the DCO application is currently incomplete. At the time of assessment, information relating to the design and layout of the scheme lack maturity – this is acknowledged at numerous points within the report:
'As outlined in Section 1.3, the PEIR provides preliminary information based on the design of the Proposed Development to date and data gathered at this point, that will subsequently be provided in full and final form within the ES.'

Given the immaturity of the available information at this stage and until the design and layout is resolved in detail, the assessment cannot fully assess the likely impacts, and significance of those impacts with any certainty. No reference to confidence levels within the assessment are provided that would reflect this uncertainty.

Visual Impact Assessment

Baseline Viewpoint Selection
The viewpoint selection methodology presents a clear rationale for each viewpoint chosen. However, in addition to residential properties, there are only two locations selected that are near the site. Whilst there may be limited sensitive receptors, greater emphasis should be given to this zone, as visual impacts at close range from such large new buildings and infrastructure could possibly be significant. We would suggest the following should be part of the assessment:

- Receptors on the local and strategic road networks particularly on Manston Road and Spitfire Way. These represent local level views and are important cross Thanet links to the major settlement areas.
- Views from the on-site Heritage and Spitfire Museums. Whilst heritage considerations should be addressed separately, the setting and environment of this important tourist attractions should be part of the assessment.
- On-site Public Rights of Way to the eastern boundary, where views into the site would be part of the experience of the user.

Viewpoint Photography
The supporting viewpoint photography and photomontages provided within the assessment are incomplete. Figure 11.2 identifies fourteen views with thirteen views included for reference in subsequent figures. View 10 is not included. With regards to the images provided, no information is shown in relation to exact position, field of view, focal length or if the view has been surveyed and verified. Given the size and nature of the application, verified views would be expected. The views provided are clearly several images 'stitched' together to form a wider panoramic image. Whilst this allows the site's wider context to be generally appreciated, it is not an accurate representation of the visibility of the site or field of view. The methodology does not state how these images have been produced, or if any part of the image can be verified.

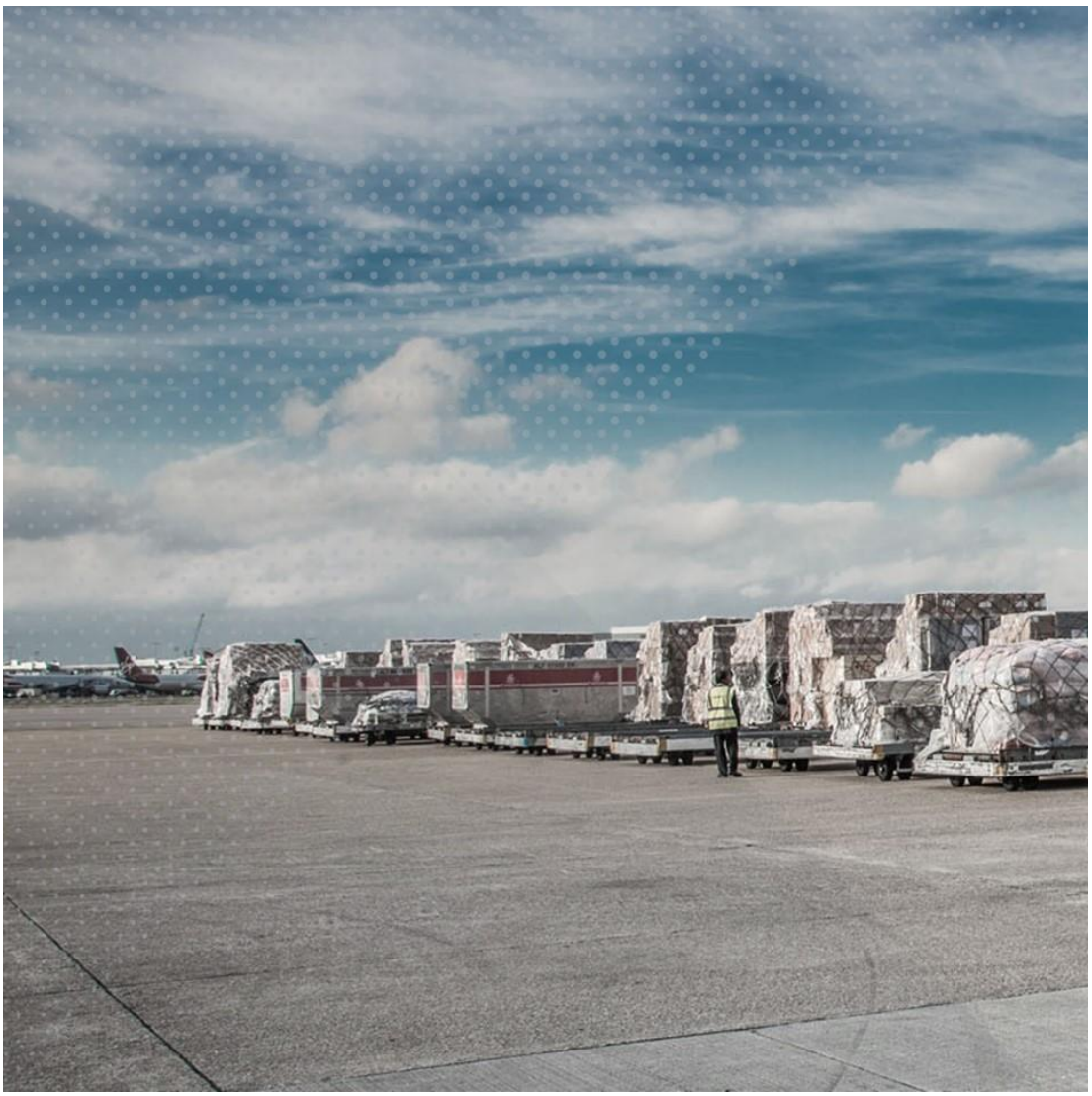
Photomontages
Only two photomontages are provided within the assessment, and are identified as views 1 & 2. View 2 appears to correspond with location of viewpoint 2, whilst view 1 does not correspond with any viewpoint position. Whilst technical information relating to these views is provided, no commentary is provided on verification of the views, or the methodology used to prepare them. Both images appear to be 'stitched' panoramic images, which draws the technical robustness of the images into question, and this should be acknowledged with a lower confidence level assigned to assessments based on them. No justification is included within the assessment as to why only these two views have been produced, or if these have been used to inform the assessment.

The tables provided at the end of the document makes initial judgements on the significance of likely visual impacts on receptor groups. Whilst a detailed justification is provided, it is unclear what these conclusions are based on in the absence of a robust and complete visual evidence base.

Conclusions
Whilst the assessment sets out a clear methodology and has completed a partial baseline, by its own admission, it is incomplete at this stage. Significant omissions, particularly within the visual sections, prevent accurate conclusions to be drawn, and as such should not be relied on at this stage to assess the full landscape and visual impacts of the proposed development. Because of these omissions, it in no way represents a sufficient body of work to support the current consultation and decision making process.

Report
October 2018

Assessment of the value of air freight services to the UK economy



Airlines UK
Our ref: 23348601
Client ref:

Report
October 2018

Assessment of the value of air freight services to the UK economy

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Executive Summary

Background

This study has been produced by Steer for Airlines UK with support from Heathrow Airport Limited, Manchester Airports Group and the Freight Transport Association. It has been undertaken in the context of the UK Government developing its Aviation Strategy, due for publication in Summer 2019, with a Green Paper expected in December 2018. As part of this process, the Government is consulting stakeholders to identify barriers to growth and how to reduce them. While many high value-added industries make significant use of air freight, there remains limited understanding of the role of air freight within the UK economy. The purpose of this study is to assess and quantify the value of the air freight industry to the UK economy, and in particular, its importance to UK regions, international trade and industrial sectors.

Key figures

- Air freight services contribute £7.2 billion to the UK economy and support 151,000 jobs.
- Across all sectors of the economy, £87.3 billion of UK gross value added (GVA) is currently dependent on air freight exports, including a very significant proportion of the GVA of some key industries and their supply chains:
  - Pharmaceuticals - £13.9 billion
  - Computer, electronic & optical - £8.3 billion
  - Creative arts & entertainment - £5.3 billion.
- In 2017 air freight represented 49% of the UK's non-EU exports by value (£91.5 billion) and 35% of non-EU imports (£89.9 billion) - over 40% of total trade by value but under 1% by volume of goods shipped.
- Germany ships just 25% of its non-EU export value by air, and most other major EU economies ship between 20% and 40%. Only Ireland ships a greater share of its non-EU exports by air than the UK.
- 9% of GVA in the North West (worth 14.9bn) is currently dependent on air freight services, compared to less than 2% of London's output. Figures are 8.6% in Wales, 7.6% in the East Midlands and 6.8% in the South West.

Industry structure

The air freight industry is complex and highly fragmented. The four major sub-markets within air freight are General cargo, Express, Specialist and niche products and Mail. Although the industry is complex and business models overlap, two principal business models serve all four markets; the forwarder model and the integrator model.

These business models dominate the UK's major air freight airports: Heathrow, East Midlands, Stansted and Manchester. Heathrow is by far the largest general air freight market using the forwarder business model and the overwhelming majority of cargo is transported in the bellyhold of passenger aircraft, mostly on long-haul routes. East Midlands, by contrast, is dominated by express freight using the integrator business model, with freight carried in freighter aircraft, often overnight on routes to mainland Europe, but also on intercontinental routes. Stansted has a combination of integrators and other freighters, while Manchester is largely bellyhold, although on a much smaller scale than Heathrow.

One notable feature of the UK air freight market is the huge importance of Heathrow and its surrounding freight facilities, with most forwarders having major consolidation centres in the vicinity of the airport. Very significant volumes of air freight are trucked to such facilities near Heathrow, processed and then trucked to another airport, either in the UK or in continental Europe, without ever flying in or out of Heathrow itself.

Night operating restrictions, based on movement limit and noise quota systems, are currently in place at Heathrow, Gatwick and Stansted, while other airports have to produce noise action plans which may set out operating limits for the night period. There is also an additional noise quota limit incentivising the user of quieter aircraft.

The quality of the UK's air freight infrastructure is a major issue, with freight facilities at UK airports often being decades old and having suffered from continued under-investment. While other airports are not as slot congested as Heathrow, they now cater to significantly more widebody freight capacity than the facilities were originally designed for.

Although the terms of the UK's exit from the EU are still being negotiated, withdrawal from the EU has the potential to affect the UK freight industry through changes to customs arrangements and changes to air services agreements (ASAs).

This analysis of the structure of the air freight industry raises a number of issues relevant to the formulation of national aviation policy. These include:

- the positive and negative aspects of the concentration of the air freight industry at and around Heathrow;
- the quality of infrastructure supporting air freight services;
- the balance of the impacts of night and noise restrictions on local residents and air freight services;
- the potential for growth of air freight services at airports outside the South East of England; and
- the management of the potential impacts of Brexit.

Market Analysis

Bellyhold cargo at Heathrow accounted for over 60% of total UK air freight volume in 2017, with forwarders and shippers utilising its extensive intercontinental passenger network. Over 30% of total air freight was shipped on US routes and most of the remainder on Asian routes. Freighter and integrator cargo is concentrated at East Midlands and Stansted, which, in 2017, together accounted for over 20% of all UK freight and the majority of freighter (60%) and integrator (79%) activity. Integrators accounted for over 90% of freight at East Midlands. At Stansted, integrators FedEx and UPS were the largest cargo airlines, although intercontinental freighters such as Qatar Airways, Cargolux and China Southern also accounted for a large share of volume.

In the last 15 years, aside from the decline in 2009 due to the fallout from the financial crisis, total volumes have remained relatively flat, growing with a compound average growth rate (CAGR) of +1.2% over the 15-year period with volumes only surpassing the pre-crisis peak in 2016.

North America was the largest destination market (accounting for 32% of volume), followed by Europe (25%, 18% of which was to the EU) and, South and East Asia (19%). Heathrow, and to a lesser extent Gatwick, handled predominately North American and Asian freight, benefitting from extensive passenger networks. The large European share of volume at East Midlands

reflects the airport's role within its integrators' networks. Similarly, at Stansted, much of the freight volume is on European and North American routes.

A relatively large share of many regional airports' volume (including Manchester, Birmingham, Glasgow and Newcastle) is accounted for by Middle Eastern routes, reflecting the importance of the Gulf carriers' networks to these airports' freight operations. Airports in Scotland and Northern Ireland, such as Aberdeen, Belfast and Edinburgh, have a relatively large share of domestic volumes, which is likely to be because trucking to other parts of the UK from these locations is less time-effective.

Although Heathrow is one the largest airports in the EU in terms of freight volumes, due to its slot and operating constraints described above, it has a significantly lower amount of freighter activity compared to other major European hub airports.

As air freight has started to grow again after several years of stagnation, the increasing volumes and longhaul connections at major airports outside the South East of England as well as the prospect of the third runway bringing additional capacity at Heathrow, give rise to a number of policy issues for consideration, including:

- how to make best use of existing infrastructure and unlock more capacity through investment in air freight facilities at UK airports;
- how to manage the air freight implications of the third runway at Heathrow; and
- how to support the air freight sector to grow sustainably.

International Trade

In 2017, non-EU trade classified as being transported by air accounted for over 40% in terms of value but under 1% of total trade in volume terms (with sea accounting for over 98%). Air freight represented 49% by value of non-EU exports (£91.5 billion) and 35% by value of non-EU imports (£89.9 billion).

Many of the products with a high share of UK trade value transported by air, such as aircraft engine parts and power generating machinery, have a high share of both import and export value, likely reflecting the global nature of these industries' supply chains and manufacturing processes. One exception is pharmaceuticals, which account for a significant proportion of export (but not import) value.

It is also interesting to compare the UK's use of air freight for its exports and imports against other European countries. Although Germany is by far the largest EU exporter to non-EU countries, only 25% of its goods by value are transported by air, whereas the UK, which has the second largest total export market, ships a far higher proportion (49% by value) by air. Most of the other major EU economies ship between 20% and 40% of the value of their non-EU exports by air; only Ireland (64%) ships a greater share of its non-EU exports by air than the UK.

On the import side, the UK is the second largest market in the EU and has the highest share of imports transported by air, which makes its imports by air (£90 billion) the most valuable in the EU. Like the UK, most other major European economies ship lower proportion of their non-EU imports (compared to exports) by air, with most importing 10% to 30% by air in value terms.

The importance of air freight to UK international trade, and in particular the UK's higher dependence on air freight than most other countries raises issues for consideration in the

development of the UK Government's Aviation Strategy on the appropriate level of Government support for the air freight sector and how its importance should be reflected as part of the strategy for the aviation sector as a whole.

Economic analysis

We have used two different, complementary, approaches to assessing the economic value of air freight:

- the traditional measure of economic impacts on employment, income and GVA of the air freight industry and associated services, generally known as "direct", "indirect" and "induced" impacts (based on the activity in the sector itself and on upstream monetary flows between the air freight industry and other sectors in the economy); and
- the wider economic impacts of air freight, sometimes referred to as "catalytic impacts", which consider how air freight facilitates economic activity in other sectors (based, in this case, on estimating what proportion of GVA in those sectors is currently reliant on air freight services).

Using the traditional approach, we have estimated the "direct", "indirect" and "induced" impacts using a recognised methodology based on the use of Input-Output tables (I-O tables), produced by the Office for National Statistics (ONS). Direct impacts relate to the employment, income and GVA generated by the sector itself, indirect impacts take account of the knock-on effects in the sector's supply chain, while induced impacts also include the impacts of employees' spending in the economy. These can be calculated from the I-O table, by inspection for direct impacts and via standard techniques for the indirect and induced impacts.

Including all of these impacts, we estimate that air freight services support GVA of **£7.2 billion**, **151,000** jobs and associated income of **£4.1 billion** (2014 data and prices).

Note that this result only relates to activities and expenditure either within the air freight and supporting industries, its supply chain and spending by its workforce. It does not include "downstream" effects, i.e. the effect on the industries purchasing air freight services, or the wider, catalytic, impacts on the whole economy. To estimate these, we have used an approach based on the fact that supplying air freight services does not fully represent either the value of what is being flown, or the value of timely delivery. In terms of the value of what is flown, air freight imports and exports, between them, were worth £181 billion (2017 values and prices) , or close to 25 times more than the economic added value (GVA) calculated using the direct, indirect and induced methodology described above.

Each sector of the economy produces outputs for which customers are willing to pay, with primary and secondary sectors producing physical products such as food, machine parts, cars and so on. For these sectors of the economy, their outputs equate to particular commodities so that, for example, farms produce agricultural products while automotive plants produce cars and trucks. Hence, there is a correspondence between each industry and its outputs. By using this correspondence (together with information on exports by air from HMRC, and in comparison with output from ONS), we can establish, for each industry producing physical outputs, what proportion of those outputs is represented by exports transported using air freight services.

It is reasonable to make the assumption that all output contributes equally to the GVA generated by an industry. We have also made the assumption that the proportion of an industry's GVA supported by air freight services is equal to the proportion of its outputs which

are exported by air. The final step in this analysis is to recognise that, if a portion of an industry's GVA is dependent on air freight services, then the suppliers who provide inputs to that industry are also dependent on the air freight services.

Using this approach, we have estimated the level of GVA currently dependent on air freight across the economy. Across all sectors of the economy, **£87.3 billion of GVA is currently dependent on air freight exports**. This represents **5% of the total GVA measure of national output** (£1,747 billion in 2016).

While the level of GVA currently dependent on air freight might potentially be reduced through the use of alternative modes of transport, the fact that such alternatives are generally poor substitutes for air freight, which is both much faster and much more expensive than surface freight, indicates that the level of GVA dependent on air freight is likely to remain significant. This indicates that air freight is a very important service supporting a significant fraction of national economic activity.

The analysis of the level of industries' and their supply chains' added value (GVA) which is currently dependent on air freight, enables us to estimate the regional importance of air freight services, by considering the regional distribution of output for each industry.

This analysis demonstrates the importance of the air freight industry in the North West, where £14.9 billion of GVA is currently dependent on air freight, representing 9.0% of the whole economy of the region. Similarly, air freight supports very significant proportions of economic activity in many regions, including 8.6% in Wales, 7.6% in the East Midlands, 6.8% in the South West, 6.0% in the West Midlands and 5.9% in Northern Ireland. The contrast between the very important role of Heathrow in providing air freight services, compared with the high dependence of regions away from the South East economies on air freight, is stark.

Considering both the industry structure and this economic analysis raises particular issues relevant to the formulation of national aviation policy as the UK Government develops an aviation strategy towards 2050:

- how to protect and develop the significant share of the UK economy currently dependent on air freight services; and
- how to support UK regions and nations whose economies are heavily dependent on air freight services, particularly where local airports do not currently benefit from strong air freight services.

1 Introduction

Background

1.1 This study has been produced by Steer for Airlines UK with support from Heathrow Airport Limited, Manchester Airports Group and the Freight Transport Association. It has been undertaken in the context of the UK Government developing its Aviation Strategy, due for publication in Summer 2019, with a Green Paper expected in December 2018. As part of this process, the Government is consulting stakeholders to identify barriers to growth and how to reduce them. While many high value-added industries make significant use of air freight, there remains limited understanding of the role of air freight within the UK economy. The purpose of this study is to assess and quantify the value of the air freight industry to the UK economy, and in particular, its importance to UK regions, international trade and industrial sectors.

Our Approach

1.2 To undertake this assessment, we have undertaken a review of the available literature, with data and information gathered from the following sources:

- The Civil Aviation Authority (CAA);
- The Department for Transport (DfT);
- Her Majesty's Revenue and Customs (HMRC);
- The Office of National Statistics (ONS);
- Eurostat;
- The Official Airline Guide (OAG);
- The United Nations Statistic Division (UNSD); and
- Individual airport traffic statistical releases.

1.3 In addition, we have held interviews and received data from industry stakeholders, including:

- Passenger airlines (UK and foreign);
- Integrators;
- Cargo airlines;
- Airport operators;
- Freight industry trade bodies; and
- UK-based companies using air freight.

This Report

1.4 The remainder of this report is structured as follows:

- Chapter 2 gives an overview of the air freight industry in relation to markets, business models and constraints;
- Chapter 3 describes the UK freight industry in relation to freight volumes;
- Chapter 4 describes air freight's role in international trade; and
- Chapter 5 provides a quantification of the economic contribution of air freight.

1.5 Illustrative case studies have also been provided in the text.

2 Industry structure

2.1 In this chapter we provide an overview of the major sub-markets within air freight, the primary business models serving them and the interaction between industry actors. The end of the chapter also provides a description of the current constraints within the UK market, based on information and views provided by stakeholders.

Overview

2.2 The air freight industry is complex and – at some levels – highly fragmented. The organisation which operates the aircraft is often not the same organisation with which the shipper has made a contract – airlines rarely interact directly with the ultimate customer (the shipper). The four major sub-markets within air freight that we have identified are:

- General cargo;
- Express;
- Specialist and niche products; and
- Mail.

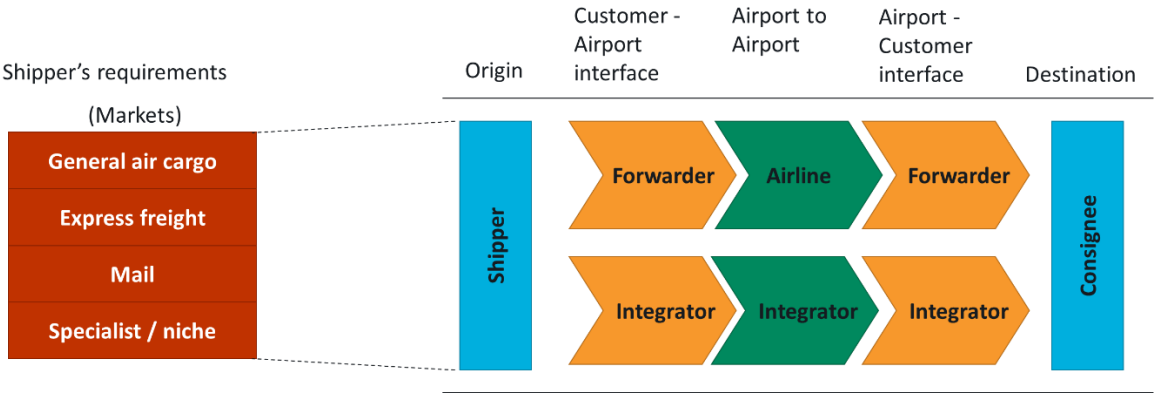
2.3 The products offered within each sub-market are generally driven by customer requirements, which may include (but are not limited to): cost, speed, predictability, storage requirements and shipping regulations.

2.4 Although the industry is complex and business models overlap, two principal business models serve all four markets; the forwarder model and the integrator model. Over the last thirty years, these two types of service providers have significantly increased their product range, coverage and scale of operation, to the point where they now serve almost every market.

2.5 Integrators traditionally offered a worldwide courier product for documents and parcels, but now offer a range of products and geographies which compete at some level with every logistics provider in the supply chain. The forwarders, partly in response and partly in search of higher yields, have expanded their product range to include greater international coverage, door to door products and other logistic services.

2.6 The interaction between the four sub-markets and these two business models is illustrated in Figure 2.1 below.

Figure 2.1: Typical end to end journey: interaction between markets and business models



2.7 In the remainder of this chapter we provide, in turn, a more detailed description of the air freight sub-markets and business models.

Air freight markets

General air cargo

2.8 General air cargo forms the majority of air freight being shipped to and from the UK and is shipped predominately using passenger bellyhold capacity. General cargo is the standard core product offered by most freight-carrying airlines and therefore consists of a broad range of goods. The main carriers of general cargo in the UK are therefore IAG Cargo (British Airways and IAG group airlines), Virgin Atlantic and a number of foreign (predominately American and Asian) passenger airlines flying on long-haul routes, split approximately 40:60 in terms of volumes flown.

2.9 End-customer relationships are generally owned by freight forwarders, who act as intermediaries between shippers and airlines. Freight forwarders will often maintain relationships, possibly on a tendered basis, with a range of shippers, many of whom will have a requirement to send large volumes of freight on a regular basis.

Express freight

2.10 Although air freight is, by its nature, time-critical, express freight services are used when particularly rapid delivery is required and are generally sold on the premise of a guaranteed delivery slot. As well as a guaranteed delivery time, customers are also often able to track a shipment's progress, enabling them to have up-to-date information on geographical position, estimated time of delivery, details of any delays and revised delivery times.

2.11 The international express market is dominated by the four main integrators (DHL, FedEx, TNT (now a subsidiary FedEx)) and UPS), who carry freight on a mixture of their own aircraft and purchased bellyhold capacity. Integrators use their own aircraft within Europe and on high-volume long-haul routes, and purchase bellyhold capacity on lower volume long-haul routes where they do not operate their own aircraft.

2.12 Although business-to-business (B2B) activity still accounts for much of express freight volumes (for example on just in time supply chains), the growth of E-Commerce has increased the demand for business-to-consumer (B2C) services. This has, to some extent, changed the dynamic of express air freight services as a growing share of express demand is now driven by consumer expectation of fast delivery.

Specialist and niche cargo

2.13 In addition to speed, some cargo shipments have requirements that cannot be met by general air cargo due to specific storage, security or regulatory requirements. Some of this cargo, such as perishable foodstuffs or pharmaceuticals, can be shipped as bellyhold freight but will usually require specialist containers and packaging. In some cases, it may also require specially trained staff or additional paperwork.

2.14 Other types of specialist cargo, such as dangerous goods, are not permitted to be carried on passenger aircraft and are therefore transported on dedicated freighters operated either by freight airlines or integrators. In some cases, shippers' requirements will not be met by either bellyhold or dedicated freighter capacity; in such cases, aircraft will need to be specifically chartered to transport goods. Examples of such goods include outsize shipments, goods destined for remote destinations or goods with particular handling requirements – such as live animals.

Mail

2.15 UK air freight capacity is used for mail by the Royal Mail domestically for its faster delivery options and for most of its international deliveries. Nearly all domestic mail is carried by chartered freighters, whereas European and Intercontinental mail is largely carried in the bellyhold of scheduled passenger flights.

2.16 A small number of freight only airlines operate in the UK in support of the major integrators and the Royal Mail; these operators generally supply both aircraft and crew and effectively lease capacity to the integrators and Royal Mail. In 2017, West Atlantic and Titan Airways accounted for over 90% of the domestic mail carried by air in terms of weight.

Air freight business models

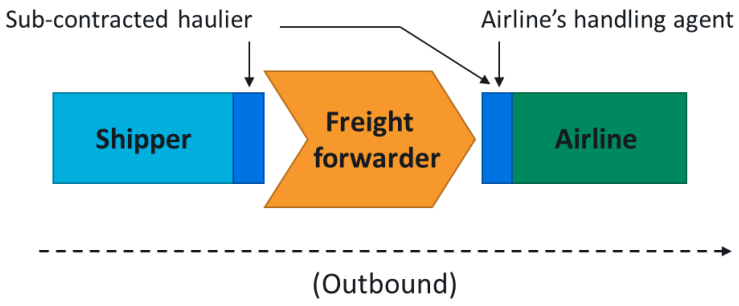
Forwarder model

2.17 In the forwarder model intermediaries (forwarders) provide the link between those with a requirement for air freight (shippers) and those with the means to provide capacity (airlines), by consolidating consignments from a number of shippers and purchasing capacity from freighter or passenger airlines. This means airlines have little contact with shippers. Many forwarders will ship any type of cargo, but the majority of consignments are general air cargo.

2.18 The forwarder model is illustrated in Figure 2.2. After collecting from the shipper (by subcontracted haulier), the forwarder will often consolidate freight at a regional centre before moving consignments in volume to its warehouses close to an airport, where freight is further consolidated before being sent (by subcontracted haulier) to the airport. At the airport,

consignments may be handed directly to the airline, or – more typically – to the airline's appointed handling agent.

Figure 2.2: Typical end to end journey: Freight forwarder



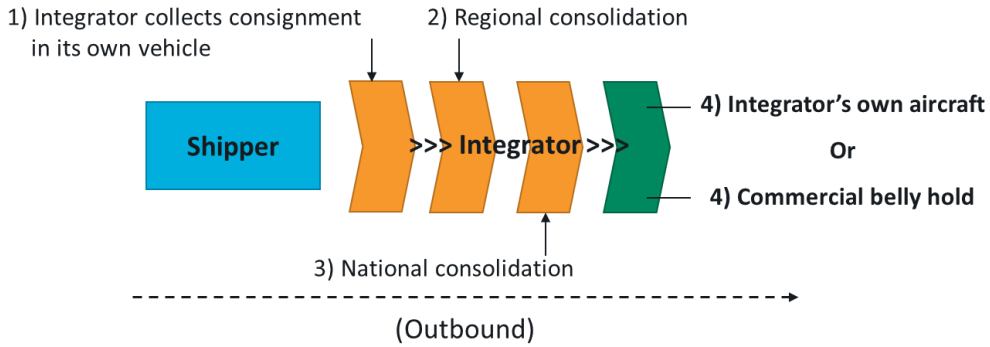
2.19 Freight forwarder activity in the UK is concentrated around Heathrow – Heathrow airport Limited (HAL) stated that approximately 450 freight forwarders are located within five miles of the airport. The concentration of forwarder activity around Heathrow also means that cargo leaving from other UK airports (both around London and further afield) is often consolidated around Heathrow before being trucked to the relevant airport, in some cases not actually being flown to or from Heathrow Airport at all.

Integrator model

2.20 In contrast to the forwarder-airline model, the integrator model has sought to offer customers a logistics solution which combines an extensive surface transport collection and delivery network with an in-house fleet of aircraft, thereby offering an "integrated" product, generally controlling the entire logistics chain from pick up to delivery. While the majority of cargo is express-like products, integrators carry all forms of cargo. On short-haul routes, this is predominately with their own aircraft, while on long-haul routes this is often on purchased bellyhold capacity (with the integrator effectively acting as a forwarder in the latter case).

2.21 A depiction of the integrator model is shown in Figure 2.3. The integrator will collect the goods and deliver them to the final destination, providing all the links in the transport chain, controlling the choice of mode (where appropriate) and offering a comprehensive information flow along with the physical transport of the goods. This is usually using their own road transport, handling, transit warehousing facilities and (for short haul) aircraft.

Figure 2.3: Typical end to end journey: Integrator forwarder



2.22 Integrator air freight activity in the UK is dominated by DHL, FedEx, TNT and UPS concentrated at East Midlands (c.50%) and Stansted (c.25%). Only a small number of dedicated cargo freighter flights operate at Heathrow.

Other models

2.23 Although the forwarder and integrator models are the two principal models handling the majority of UK air freight, several other smaller models exist, including:

- Courier and express services, which use either integrators' services or their own small chartered freighters for especially time-sensitive products such as automotive parts or newspapers.
- Specialist operators, which meet shippers' specific storage or temperature requirements en-route to the airport, in storage before shipping and on board the aircraft for goods such as pharmaceuticals or fresh salmon. Goods may be shipped on specialist freighters or in specialist containers as bellyhold cargo if specified requirements can be met.
- Air cargo brokers, who do not provide vehicles or warehouse space, but who work with freight forwarders, shippers, logistics providers, governments, and relief organisations to offer chartered freighter aircraft on a onetime or long-term basis.
- Mail, which is flown domestically on tendered dedicated freighters and internationally using tendered UK and foreign airline bellyhold capacity.

Trucked freight

2.24 Alongside the business models described above, a significant amount of air freight is transported in customs-bonded trucks between the UK and continental Europe and is classified as air freight with an assigned flight number. Freight is often flown to continental Europe, particularly from Asia, as there is often more available air freight capacity than to UK airports, partly due to lack of available slots for freighter aircraft at Heathrow. The freight is trucked as bonded freight to avoid having to undergo local customs procedures so that importers only need to deal with the UK customs authorities rather than investing in systems to deal with multiple customs authorities. This represents an inefficiency from the perspective of the UK economy as whole. See also the Case Study on consumer electronics imports at the end of this chapter.

2.25 In contrast to goods from Asia, Heathrow stated that goods destined for North America are also often trucked to the UK, in particular Heathrow, from continental Europe in order to take advantage of cheaper rates from the UK on North American routes. As Heathrow is the primary European hub for North American passenger connections, there is a significant level of bellyhold capacity available, which means air freight rates are cheaper compared to other European airports.

Structural constraints

Air freight business models at UK airports

2.26 The business models described above dominate the UK's major air freight airports: Heathrow, East Midlands, Stansted and Manchester (see Figure 3.1 below). Heathrow is by far the largest general air freight market using the forwarder business model and the overwhelming majority of cargo is transported in the bellyhold of passenger aircraft, mostly on long-haul routes. East Midlands, by contrast, is dominated by express freight using the integrator business model, with freight carried in freighter aircraft, often overnight on routes to mainland Europe, but also on intercontinental routes. Stansted has a combination of integrators and other freighters, while Manchester is largely bellyhold, although on a much smaller scale than Heathrow.

2.27 One notable feature of the UK air freight market is the huge importance of Heathrow and its surrounding freight facilities, with most forwarders having major consolidation centres in the vicinity of the airport, as noted in paragraph 2.19 above. Very significant volumes of air freight are trucked to such facilities near Heathrow, processed and then trucked to another airport, either in the UK or in continental Europe, without ever flying in or out of Heathrow itself.

2.28 Another common model is freight arriving from long haul origins (such as China or the US) flown into Heathrow and then being trucked to other airports (e.g. East Midlands) to be flown to continental airports overnight, leading to a symbiotic relationship between the different airports.

2.29 Both of these models mean that the resilience of the road network to and from airports is an important factor in reliability of service. To a large extent, they reflect the constraints on the UK air freight industry, discussed further below.

Operating restrictions

2.30 Night operating restrictions, based on movement limit and noise quota systems, are currently in place at Heathrow, Gatwick and Stansted. The current restrictions to October 2022, are summarised for current and future seasons in Table 2.1. The restrictions apply from 11:30pm to 6am, with less stringent restrictions also applying between 11pm and 11:30 pm, and between 6am and 7am.

Table 2.1: UK airport night-time operating restrictions

Airport	Seasonal Movement Limit	
	Winter (2018/19 –2021/22)	Summer (2019-2022)
Heathrow	2,550	3,250
Gatwick	3,250	11,200
Stansted	5,600	8,100

Source: DfT

2.31 There is also an additional noise quota limit incentivising the user of quieter aircraft.

2.32 Apart from the restrictions at these three London airports, other airports have to produce noise action plans which may set out operating limits for the night period.

2.33 Integrator stakeholders consulted as part of this study stated that the way in which these operating restrictions are applied impacts their ability to operate effectively, as the express business model (described above) is dependent on being able to ship goods during the night to enable maximum productivity for customers who rely on shipments being picked up close to the end of the working day and delivered as early as possible the next.

Capacity

2.34 Several stakeholders have noted that capacity constraints are a significant hinderance to the operation of UK air freight – one stated that it has caused volume growth to fall behind other European countries and another stated it is one of the main reasons why so much freight is flown to mainland Europe and trucked to the UK – in turn causing more road and port congestion.

2.35 While many of the UK's airports are not currently particularly congested, the concentration of air freight activity at Heathrow, which is severely slot constrained and which operates at 98% capacity, means that the congestion there has a disproportionate impact on UK air freight. Slot constraints at Heathrow mean that no additional freighter operations are possible, while the larger passenger aircraft such as the A380 actually have lower freight capacity than the aircraft they are replacing, particularly 747s.

2.36 Historically, much of the UK air freight activity is concentrated around Heathrow due to its significantly more extensive intercontinental passenger network compared to those of other UK airports. Although this remains the case, new intercontinental passenger connections at regional UK airports have increased possibilities for transporting long-haul freight as bellyhold cargo. As discussed in Chapter 3, some other major UK airports have increased their bellyhold volumes significantly with new connections to Asia – one stakeholder noted that Emirates is the "best in class" at utilising regional capacity.

Infrastructure

2.37 Several stakeholders commented that the quality of the UK's air freight infrastructure is a major issue, with freight facilities at UK airports often being decades old and having suffered from continued under-investment. While other airports are not as slot congested as Heathrow, they now cater to significantly more widebody freight capacity than the facilities were originally designed for.

2.38 At Heathrow, the infrastructure has led to severe levels of road congestion, with trucks often queueing for hours at the Cargo Horseshoe (Heathrow's main freight facility), with some operators investing in off-site facilities to mitigate these problems[1]. However, restrictions imposed by the Border Force currently prevents any new such remote-site facilities being developed.

2.39 The Heathrow Cargo Working Group has proposed measures to mitigate these problems, including more flexibility in allowing multiple consignments in bonded truck movements around the airport vicinity.

[1] In particular, some operators have remote "Internal Temporary Storage Facility" (ITSF-R) with customs bond facilities.

Potential Brexit impacts

2.40 Although the terms of the UK's exit from the EU are still being negotiated, withdrawal from the EU has the potential to affect the UK freight industry through changes to customs arrangements and changes to air services agreements (ASAs). The purpose of this section is not to speculate on the likely outcome of the negotiations but to describe the impact of any possible changes to current arrangements.

Customs checks

2.41 Under current arrangements, goods traded between the UK and other EU countries are not required to undergo customs checks at ports or airports. However, depending on the terms of the UK's withdrawal agreement, this may cease to be the case. This would mean, firstly, freight traveling by air between the UK and other EU countries may be required to undergo customs checks at airports and, secondly, that freight being trucked in free circulation between the UK and continental Europe may be required to undergo customs checks at ports.

2.42 As has been discussed, much of freight being trucked between the UK and continental Europe travels in customs-bonded trucks and freight traveling on these trucks should not be required to undergo additional customs checks at ports should these be imposed. However, it is likely that trucks carrying bonded freight may still be affected by customs checks at ports, if they were introduced, as additional checks of other trucks are likely to cause delays at ports.

Air service agreements

2.43 The UK is currently part of European Common Aviation Area (ECAA), which includes all EU member states and a number of other European countries. The ECAA entitles an airline with an operating licence from any ECAA country to operate flights anywhere within the ECAA. For example, a UK airline can currently operate a domestic flight in Germany or an international flight between Ireland and France.

2.44 The EU also has a number of bilateral agreements negotiated on behalf of its members with non-ECAA countries, the most important being the 'open skies' agreement with the USA. These agreements are often more liberal for freight services compared to passenger services; the EU-US deal grants 7th freedom rights for cargo services compared to 5th freedom rights for passenger services. 7th freedom rights allow airlines to fly between two foreign countries (for example, a UK airline flying between the USA and Canada), whereas 5th freedom rights only allow airlines to fly between two foreign countries if the journey ends or begins in the airline's own country (for example, a UK airline flying between the UK and Mexico via the USA).

2.45 Leaving the ECAA without an agreement in place would mean UK airlines would no longer have the right to fly to and from EU Member States under existing arrangements, or to fly to third countries, such as the US, under the terms of the EU's open skies agreements. This

means the UK would be required to fall back on bilateral agreements with both third countries (such as the USA) and ECAA members.

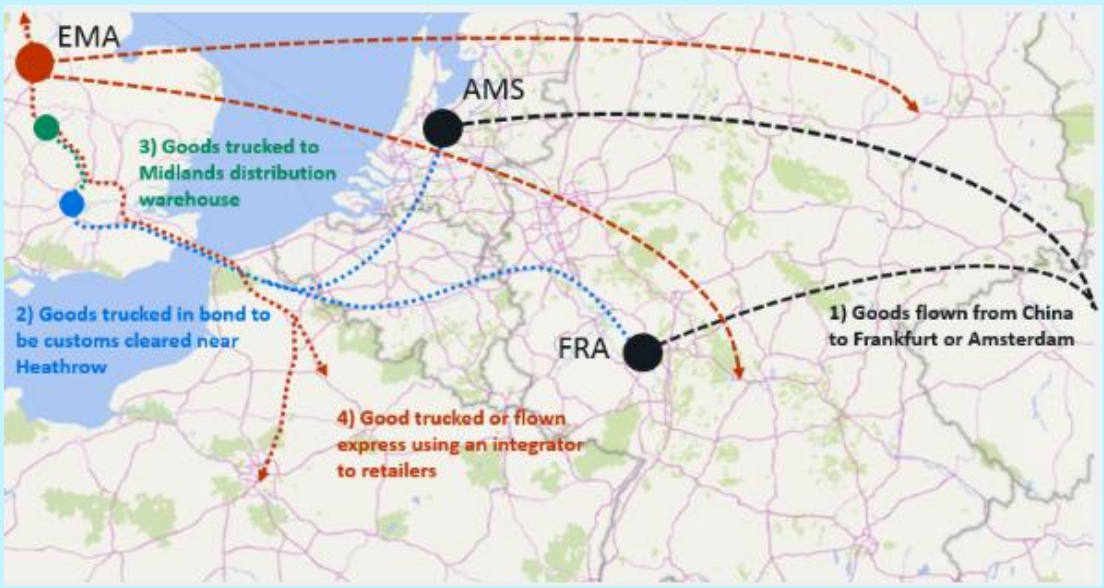
2.46 Many bilateral agreements are more restrictive than the ECAA and, for example, the EU-US open skies agreement. This may lead to more restrictions on how freight is flown between different countries, leading to slower transit times and/or higher costs, unless similarly liberal agreements can be negotiated by the UK with the EU and with other key countries such as the US.

Case Study – Consumer electronics imports

In 2017, the UK imported £10.6 billion's worth of consumer electronics accessories, equivalent to just under 90,000 tonnes of goods. These imports, which are comprised of items such as iPhone cables, car hand-free kits and other similar accessories, are imported primarily from China and other East Asian countries. In 2017, 64% of the total import value was transported by air.

A consumer electronics importer consulted as part of this study, which imports its goods from 20 different locations in China, stated that it imports approximately two thirds of its goods (in value terms) by air, with the remaining third transported by sea. More bulky goods, such as laptop bags and wireless routers tend to be transported by sea, with smaller, lighter items, such as cables, transported by air. Although using air freight is approximately four times more expensive then transporting goods by sea, air freight is often more cost effective as goods can be transported much faster.

Typical journey for imported consumer electronics goods



Since 2008, large retailers selling consumer electronics have been ordering smaller quantities of goods more frequently, which means suppliers need to be able to respond to orders more quickly. As a consequence, volumes shipped by sea have fallen in recent years as, from China to its main distribution warehouse in the Midlands, goods typically take one week by air compared to five to six weeks by sea. This also means warehouse usage has been halved through better management of inventory.

However, despite the need to import goods by air, the importer stated that it only flies around 20% of its total imports directly to the UK, with the remaining 80% being flown to mainland Europe (usually to Frankfurt or Amsterdam) and trucked in bond to the UK via a ferry or the Channel Tunnel. Imports are usually customs cleared at facilities near Heathrow, before being trucked to its Midlands distribution centre.

The importer stated the reason such a high proportion of its goods are flown to the UK via Europe, is because the UK's air freight capacity is not sufficient to service the required import volumes. Goods are trucked as bonded freight to avoid having to undergo Dutch or German customs procedures, as the importer incurs fewer administration costs as it is only required to deal with UK customs.

The importer stated that, as most of its imports are flown in freighter aircraft, one of the reasons why it often cannot fly its goods into the UK, is because not enough UK airlines operate these types of aircraft. Many airlines that in the past operated long-haul freighter services, for example IAG Cargo at Stansted, no longer do; therefore, there are fewer long-haul freighter options available. However, the main problem the importer cited with UK air freight capacity was the quality of the infrastructure.

The importer stated that it avoids using UK airports because they are too congested and therefore not efficient; air freight infrastructure has not been upgraded in line with increased traffic, which causes delays that can be avoided at continental European airports. The importer stated that there should be better utilisation of regional airport capacity at, for example, Manchester, which was cited as a relatively good operation with not enough freight capacity.

Policy considerations

2.48 The analysis in this chapter raises a number of issues relevant to the formulation of national aviation policy. These include:

- the positive and negative aspects of the concentration of the air freight industry at and around Heathrow;
- the quality of infrastructure supporting air freight services;
- the balance of the impacts of night and noise restrictions on local residents and air freight services;
- the potential for growth of air freight services at airports outside the South East of England; and
- the management of the potential impacts of Brexit.

3 Market Analysis

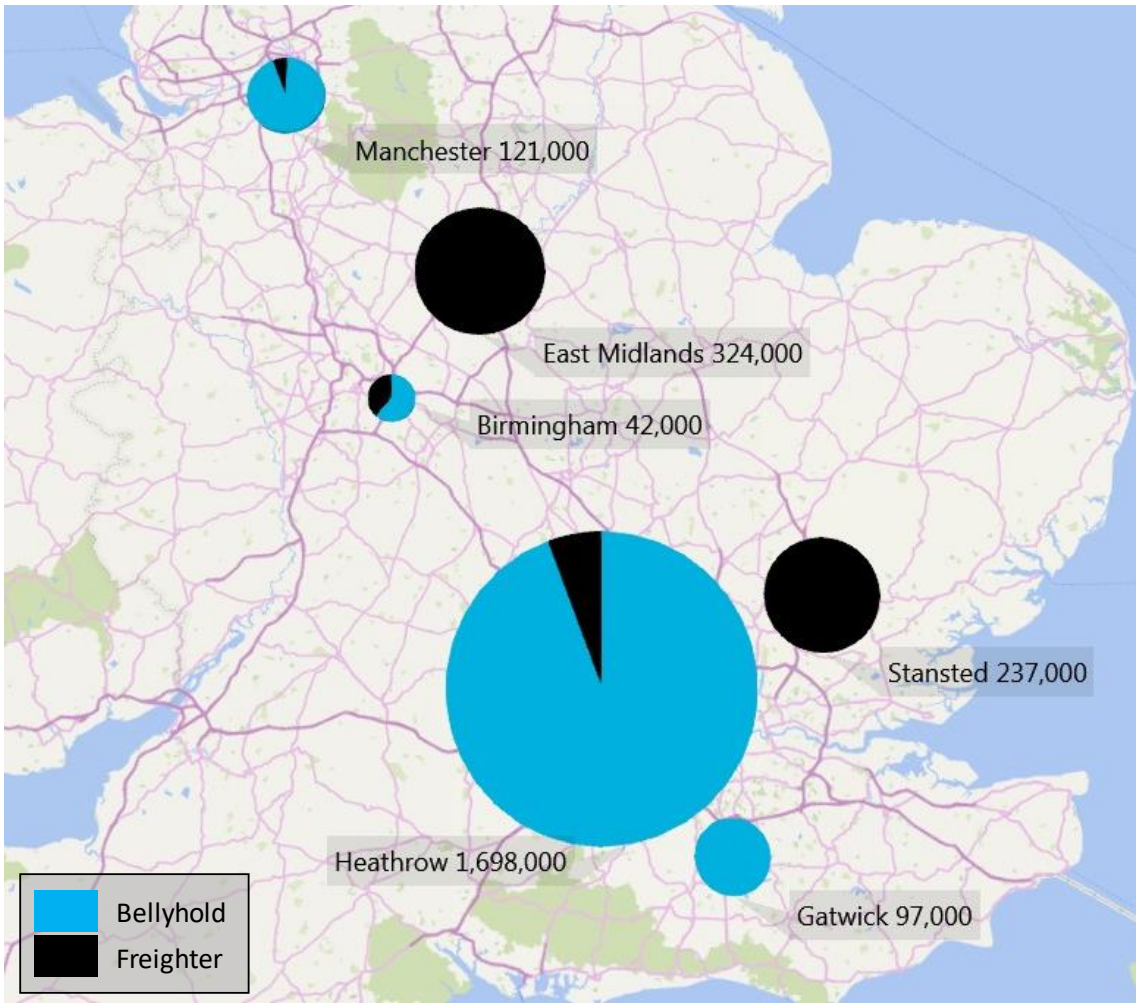
3.1 This chapter describes UK air freight volumes flown from key airports as well as recent growth trends, freight destinations, freight activity at other major UK airports and international comparisons. The analysis of UK freight volumes is based on data provided by the CAA and international comparisons based on Eurostat data.

Overview of air freight volumes

Key airports

3.2 Figure 3.1 shows the volume (tonnage) and type of freight handled at the six largest UK freight airports – the remaining airports not shown each represent less than 1% of the market in terms of volume.

Figure 3.1: Freight volumes at six largest UK airports, tonnes (2017)



Source: CAA

3.3 Bellyhold cargo at Heathrow accounted for over 60% of total UK air freight volume in 2017, with forwarders and shippers utilising its extensive intercontinental passenger network. Over 30% of total air freight was shipped on US routes and most of the remainder on Asian routes. The number of freighters at Heathrow are flown by a mixture of cargo-only airlines and passenger airliners with some freighter aircraft.

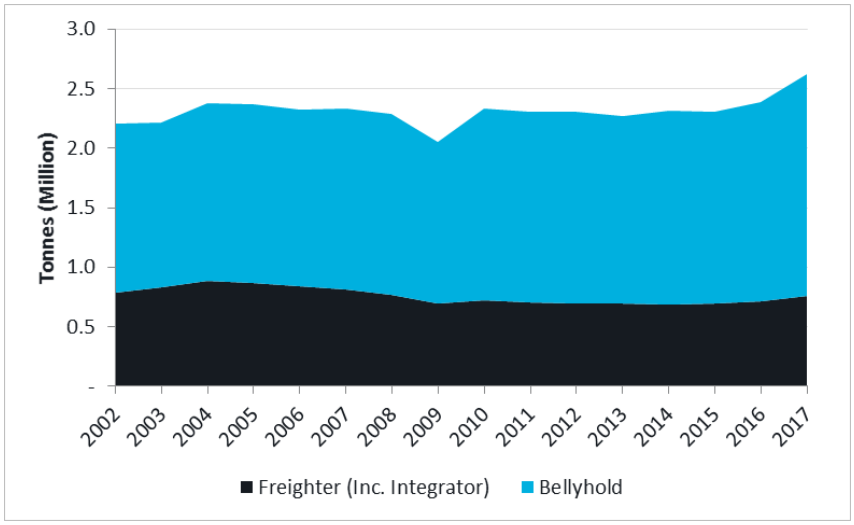
3.4 Freighter and integrator cargo is concentrated at East Midlands and Stansted, which, in 2017, together accounted for over 20% of all UK freight and the majority of freighter (60%) and integrator (79%) activity. Integrators accounted for over 90% of freight at East Midlands, with much of freight being shipped to Europe, particularly Germany, where DHL and UPS both have major hubs, as well as on intercontinental routes. At Stansted, integrators FedEx and UPS were the largest airlines, although intercontinental freighters such as Qatar Airways, Cargolux and China Southern also accounted for a large share of volume.

3.5 Almost all freight at Gatwick and Manchester was carried as bellyhold cargo in 2017, predominately to the UAE and the USA. Although both airports had relatively large freighter operations prior to the financial crisis, these operations have ceased completely at Gatwick and almost completely ceased at Manchester. Prior to 2016, freight handled at Birmingham was almost all bellyhold, and although most of Birmingham's freight volume was carried as bellyhold cargo to Asia in 2017, about a third of its volume was freighter and integrator cargo.

Volume growth

3.6 Figure 3.2 shows the development of total UK freight volumes in the last 15 years. Aside from the decline in 2009 due to the fallout from the financial crisis, total volumes have remained relatively flat, growing with a compound average growth rate (CAGR) of +1.2% over the 15-year period with volumes only surpassing the pre-crisis peak in 2016.

Figure 3.2: UK freight volumes, Million Tonnes (2002-2017)



Source: CAA

3.7 The relatively modest CAGR of +1.2% for total volumes is due to a combination of growing bellyhold volumes, which over the 15-year period grew with a CAGR of +1.8%, and stagnating freighter volumes, which declined with a CAGR of -0.2%.

3.8 The share of total volumes carried by freighter aircraft has fallen from over 35% in 2002 to under 30% in 2017 and has fallen away significantly at some airports. The market for dedicated freighter services has struggled globally since the financial crisis due to falling sea-freight rates and the continued rise of air passenger demand (and associated bellyhold capacity), which have driven down freighter yields. Although some UK airports have retained important integrator, and to lesser extent, freight operations, freighter activity has remained relatively flat in recent years and is currently lower than pre-crisis levels.

3.9 Although bellyhold cargo volumes have grown more strongly and are now above pre-crisis levels, their growth has been somewhat inhibited by capacity constraints at Heathrow and limited intercontinental networks at many other UK airports. However, combined bellyhold and freighter volumes grew by 10% in 2017, which suggests the slow growth of the previous few years may have ended.

3.10 The +1.2% CAGR for total UK volumes to some extent masks the mixed performance of different UK airports. Heathrow, East Midlands and Stansted have grown relatively steadily over the last few years, whereas smaller airports have seen more significant increases or decreases in volumes (discussed further later in this chapter). The net result has been a consolidation of freight operations at the largest airports. Between 2002 and 2017, Heathrow's share of total volumes increased from 56% to 65%, while the combined share of East Midlands, Stansted and Manchester increased from 23% to 26%.

Destinations

3.11 Figure 3.3 shows the origin/destination of freight handled at UK airports in 2017[2]. Across all airports, North America was the largest market (accounting for 32% of volume), followed by Europe (25%, 18% of which was to the EU) and, South and East Asia (19%). Heathrow, and to a lesser extent Gatwick, handled predominately North American and Asian freight, benefitting from extensive passenger networks.

3.12 The large European share of volume at East Midlands reflects the airport's role within its integrators' networks, as DHL and UPS have major hubs in Leipzig and Cologne respectively. Similarly, at Stansted, much of the freight volume is on European and North American routes – FedEx has a major hub in Memphis and Stansted is used by FedEx and other

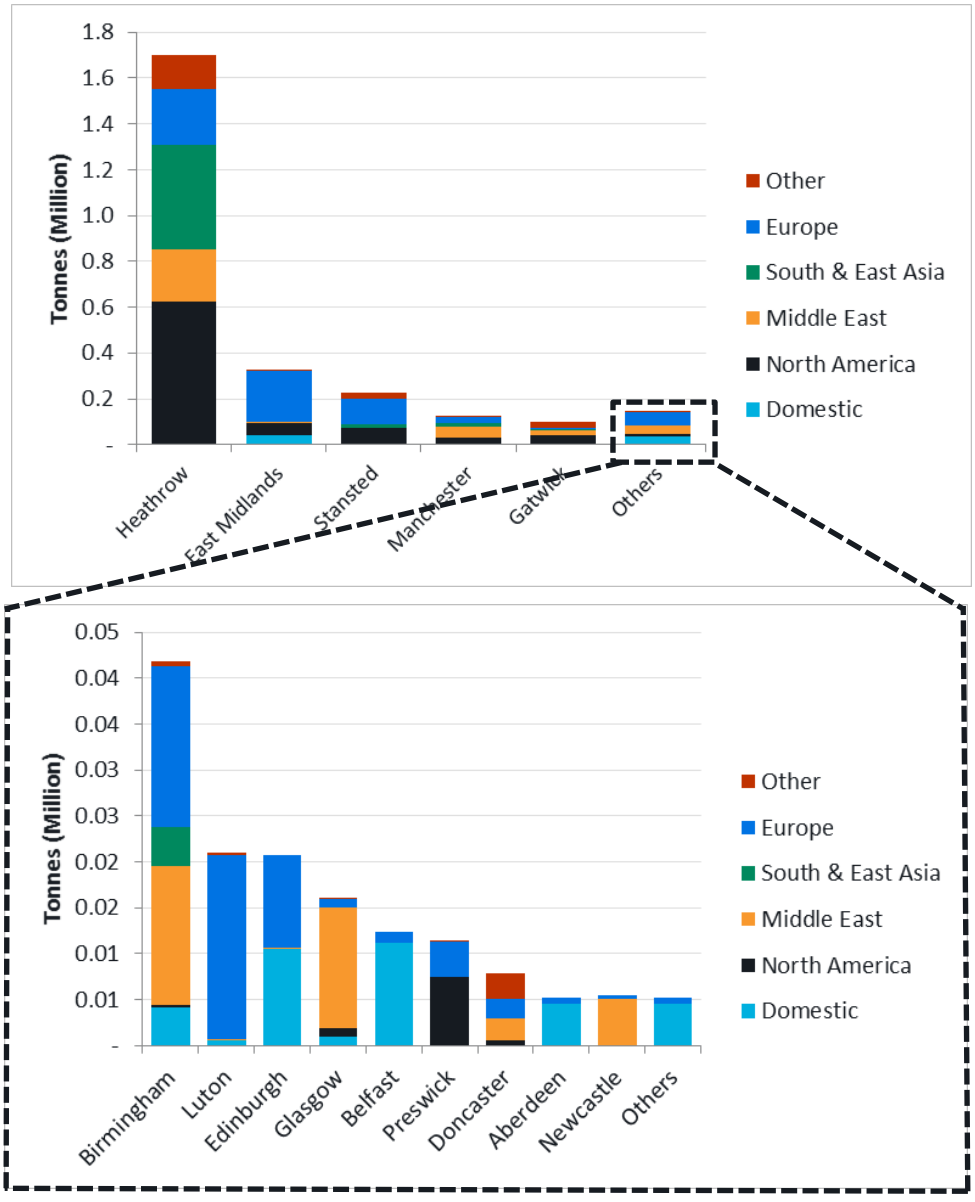
[2] Note that this is based on the origin/destination of the flight to/from the UK, which is not necessarily the same as the true origin or final destination of the cargo itself.

operators for distribution throughout Europe.

3.13 A relatively large share of many regional airports' (including Manchester, Birmingham, Glasgow and Newcastle) volume is accounted for by Middle Eastern routes, reflecting the importance of the Gulf carriers' networks to these airports' freight operations. As commented above, stakeholders noted Emirates is one of the best airlines at utilising regional airport capacity.

3.14 Airports in Scotland and Northern Ireland, such as Aberdeen, Belfast and Edinburgh, have a relatively large share of domestic volumes, which is likely to be because trucking to other parts of the UK from these locations is less time-effective.

Figure 3.3: Destination[3] of UK freight volumes, Million Tonnes (2017)



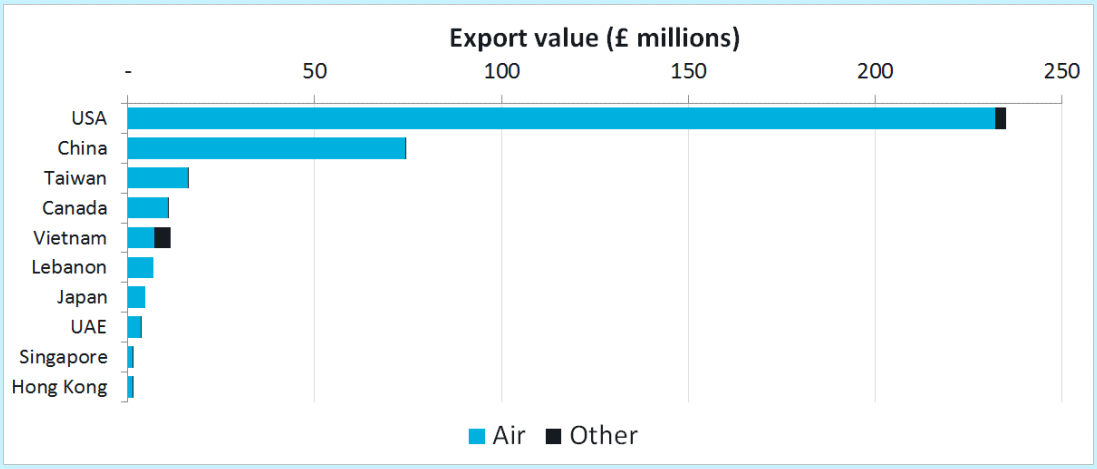
Source: CAA

[3] The "destination" as defined in CAA data is the destination of the flight departing the UK (or origin of arriving flight). It is not necessarily the final destination (true origin) of the freight consignments themselves, as they may be transhipped onto subsequent flights to onward destinations.

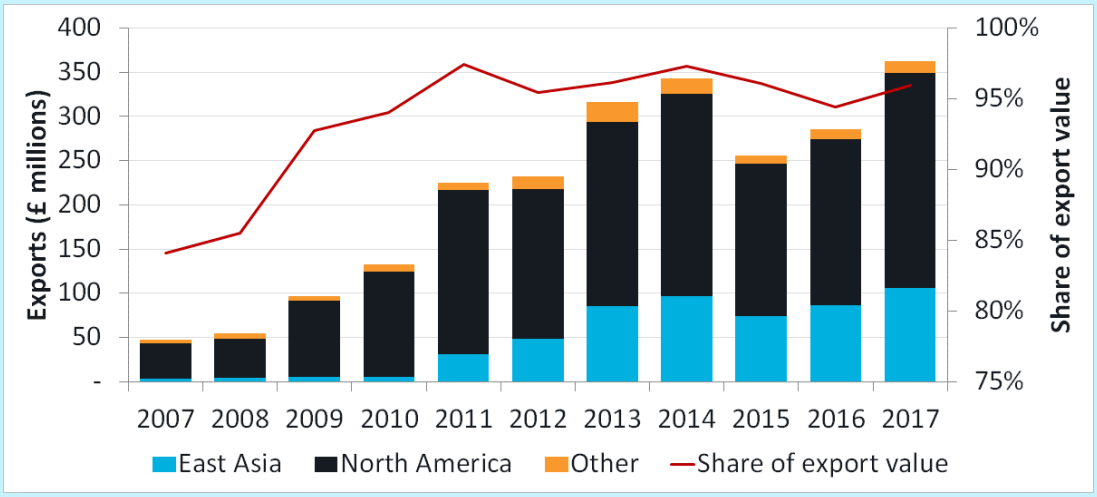
Case Study – Heathrow and the Scottish salmon industry

Scottish salmon exports were worth £600 million in 2017, up 35% on the previous year. In recent years, salmon has become one of the UK's most valuable food exports. Compared to other salmon sold worldwide, the Scottish industry has positioned itself as providing a higher quality product. Air freight is important for getting produce to market quickly to be sold as fresh as possible. Although the USA and France have remained the two largest markets, demand from East Asia has increased significantly in recent years. The share of salmon carried by air has increased with growing intercontinental demand.

2017 10 largest non-EU markets for salmon exports



2007-2017 value of salmon exports to non-EU countries

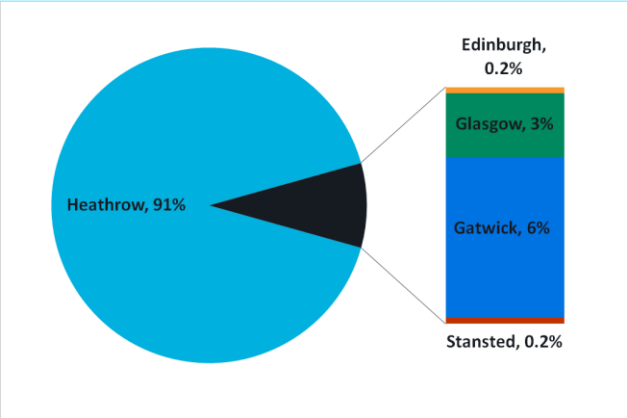


Source: HMRC

The vast majority (91%) of UK salmon is shipped internationally from Heathrow – produce is transported within the UK either by road or by air. While in transit, salmon is stored in temperature-controlled containers and may be stored at specifically designed facilities at Heathrow before being shipped. Outbound capacity must be pre-booked in advance and packing typically takes place 2-3 days before shipping.

While Heathrow is still by far the largest airport supporting the industry (see chart below), increased international connectivity at Scottish airports has given exporters other options – this year salmon was exported on the first direct flight between Scotland and China (from Edinburgh to Beijing).

2017 share of UK salmon exports by airport

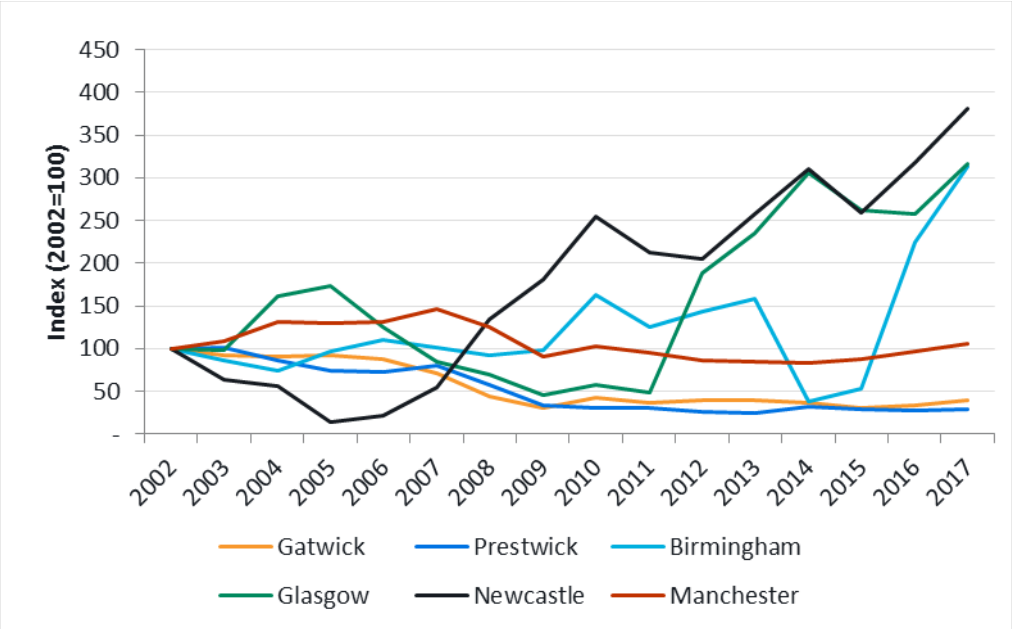


Source: HMRC

Volumes at regional airports

3.15 As discussed above, the +1.2% CAGR for total UK volumes between 2002 and 2017, shown in Figure 3.2, to some extent reflects the mixed performance of different UK airports. Figure 3.4 shows the development of total freight volumes at selected UK airports (not including the largest three freight airports: Heathrow, East Midlands and Stansted).

Figure 3.4: Indexed growth of freight volumes at selected UK airports, 2002=100 (2002-2017)



Source: CAA

3.16 Relatively significant freight operations at Gatwick and Prestwick (which in 2002 were respectively the second and sixth largest UK freight airports) have fallen to less than half of their pre-crisis levels. On the other hand, smaller operations at regional airports, such as Birmingham, Glasgow and Newcastle have increased significantly in recent years, as a result of new or increased frequencies on intercontinental passenger routes. Manchester has experienced a mix of these effects; driven by a reduction of freighter activity, total volumes decreased significantly since the financial crisis, but have grown in recent years as a result of new passenger bellyhold connections.

3.17 The figures below show, for selected regional airports, the number of departing frequencies to intercontinental destinations (represented by the stacked bars) and the total bellyhold freight volumes (represented by the red line). Charter and low-cost carrier frequencies have been excluded as these do not contribute materially to total freight volumes.

Figure 3.5: Glasgow: Departing frequencies and bellyhold freight volumes (2002-2017)

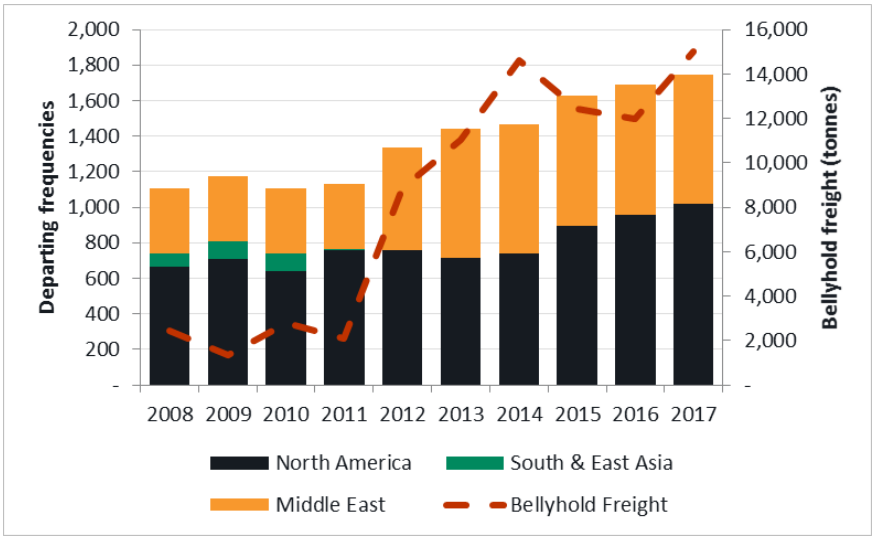


Figure 3.6: Birmingham: Departing frequencies and bellyhold freight volumes (2002-2017)

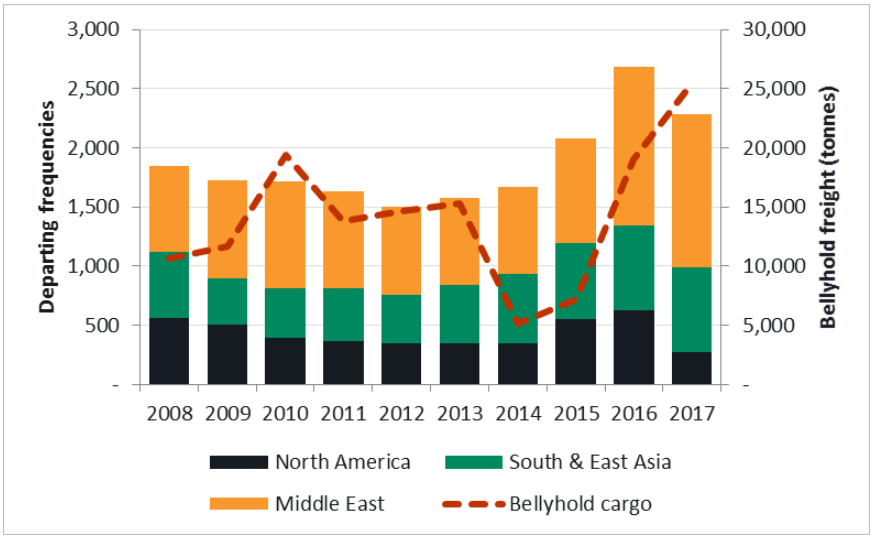
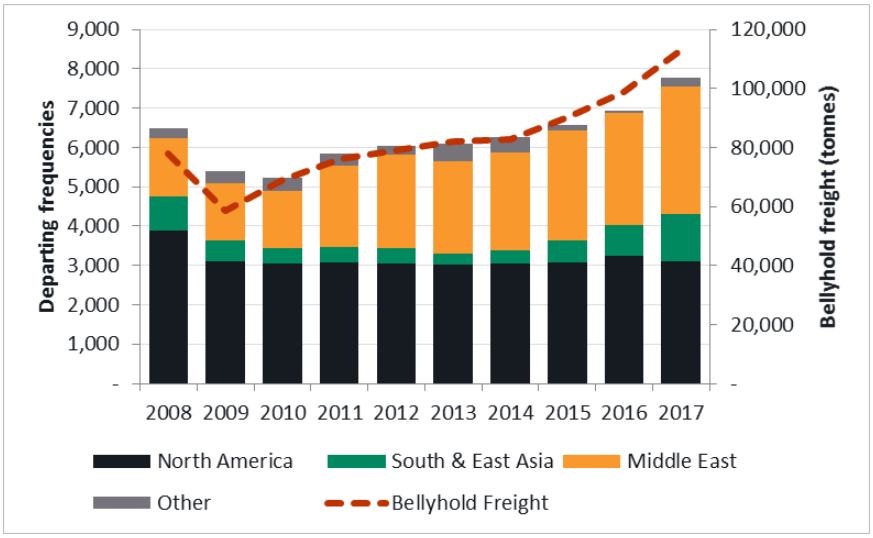


Figure 3.7: Manchester: Departing frequencies and bellyhold freight volumes (2002-2017)



Source: OAG, CAA

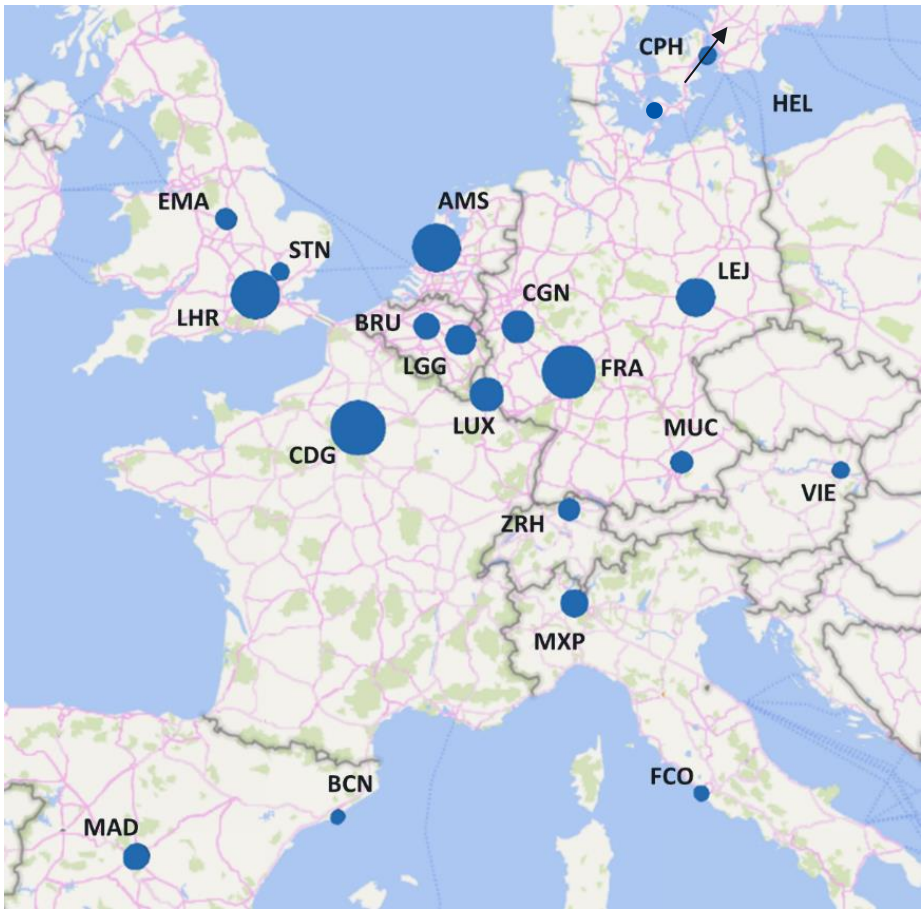
3.18 At the three airports shown in the figures above, increasing frequencies to the Middle East and Asia have significantly increased total bellyhold freight volumes. Although all three airports have had a sustained level of passenger connections to North America, as Figure 3.3 demonstrates, North America does not account for material amount of freight volumes at these airports. This is likely to be because of the large amount of North American bellyhold capacity available at Heathrow, which means shippers and forwarders have little incentive to utilise regional capacity on North American routes.

3.19 On the other hand, Heathrow has relatively less bellyhold capacity available on Asian and Middle Eastern routes, which means airlines have a greater incentive to utilise regional airports on these routes (although five new Chinese routes have started operations from Heathrow in 2018). Other airports' freight volumes have also benefited from their own new connections to East Asia. Direct passenger connections have recently started at Manchester (2016) and Edinburgh (2018) and, given the capacity constraints at Heathrow, it is likely that other airports' freight volumes will continue to benefit from the rapidly growing Asian economies.

International comparisons

3.20 Figure 3.8 shows 20 largest EU airports in 2017 based on total freight volumes.

Figure 3.8: Relative freight volumes at 20 largest EU airports (2017)



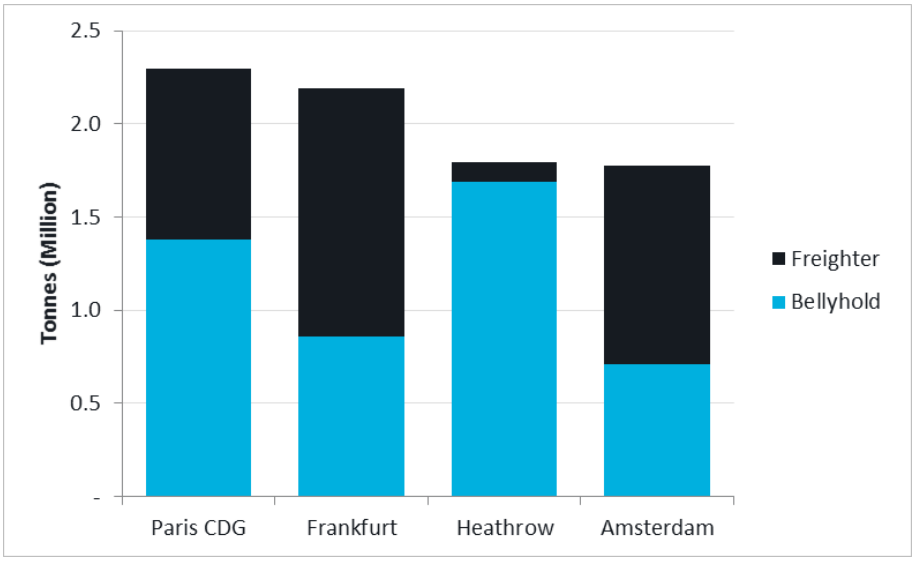
Source: Eurostat

3.21 Many of the largest freight airports in the EU are concentrated in North-West Europe, which is relatively well off and densely populated (therefore generates demand for imports), and is the home of a lot of European industry (therefore produces a large amount of goods for export). The close proximity of many large freight airports to the UK may also to some extent explain why so much air freight is flown to continental Europe and trucked to the UK, as there is much greater capacity available to continental North-West Europe than to the UK.

3.22 In terms of total freight volumes, Heathrow is the third largest airport in the EU (based on Eurostat data) and handles a similar magnitude of freight to that handled by Europe's other three major hub airports (Amsterdam, Frankfurt, Paris). Although East Midlands and Stansted are two of the twenty largest freight airports in the EU, they are significantly smaller than many of the freighter-orientated airports in Europe (including Cologne, Luxembourg, Liège and Leipzig).

3.23 Although Heathrow is one the largest airports in the EU in terms of freight volumes, due to its slot and operating constraints described above, it has a significantly lower amount of freighter activity compared to many major European airports. Figure 3.9 shows the share of total freight volumes carried by freighter and bellyhold capacity at the four major European hub airports.

Figure 3.9: Freighter and bellyhold volumes at four largest European airports, Million Tonnes (2017)

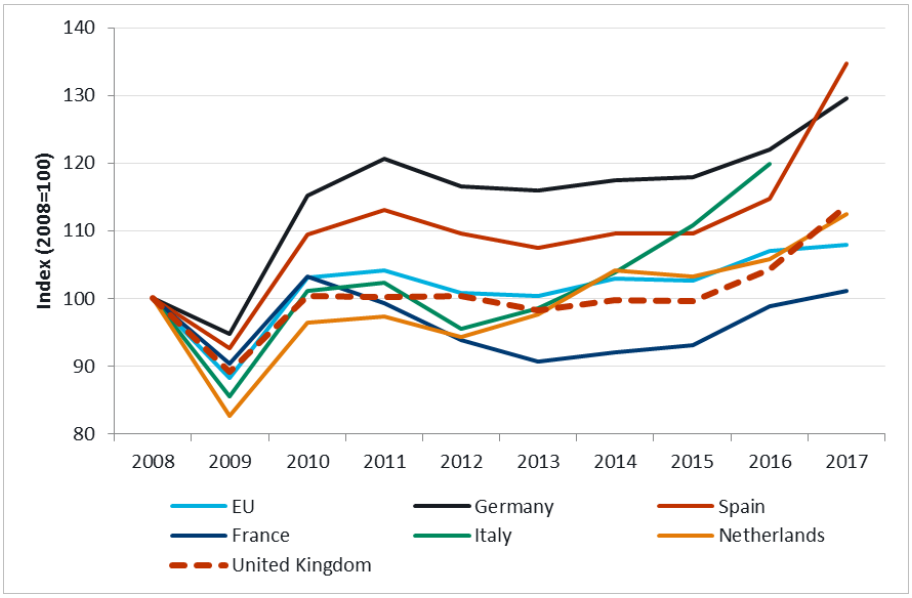


Source: Eurostat, CAA, individual airport traffic statistics (Paris CDG shares based on 2016/17)

3.24 At Heathrow in 2017, 6% of total freight volumes were carried by freighter aircraft compared to between 40% and 60% at Amsterdam, Frankfurt and Paris. Although Heathrow and Amsterdam carried very similar levels of freight in 2017, there were around 3,000[4] freighter air traffic movements at Heathrow compared to just under 17,800 at Amsterdam.

3.25 Figure 3.10 shows the indexed growth of total air freight volumes in the UK against comparable EU countries, as well as the EU as a whole, from 2008 to 2017 (and 2016 for Italy).

Figure 3.10: Indexed growth of selected EU countries freight volumes, 2008=100 (2008-2017)



Source: Eurostat. Note: France's growth prior to 2014 has been adjusted with ADP statistics to account for a change in measurement at CDG

[4] 2,971 non-passenger movements (source: CAA)

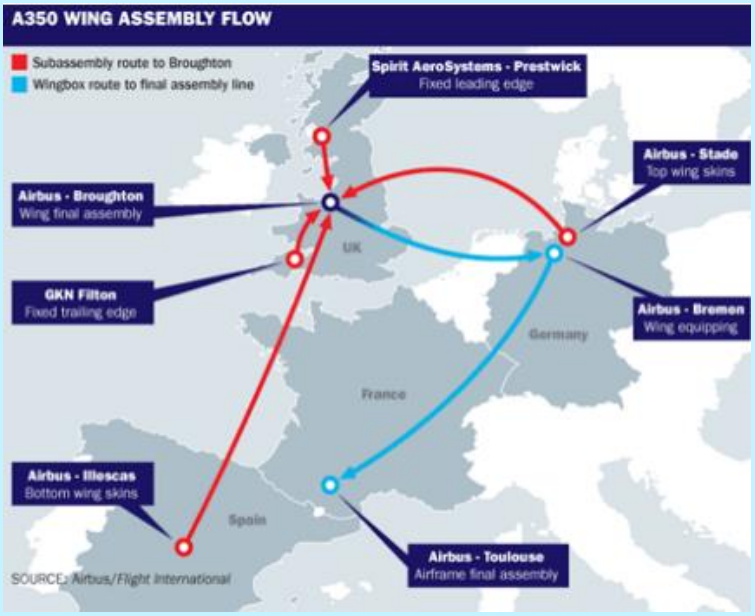
3.26 Although, like many of the countries shown, the level of growth in the UK appears to have picked up in the last couple of years, over the period shown, growth in the UK air freight volumes appears to have been lower than the growth in many other major European economies (with the exception of France).

Case study - Aerospace

The UK aerospace sector is one of the largest in the world which, according to ADS (a UK Aerospace trade organisation), had a total turnover of £45 billion in 2017 and supported 123,000 direct jobs. ADS also states that nearly 90% of final demand for UK aerospace products comes from exports. However, a large volume of goods are also imported, as aerospace supply chains are often located in several different countries, and as much of the UK's aerospace industry focuses on manufacturing aircraft parts, large quantities of components need to be regularly transported in and out of the UK.

In 2017, non-EU trade in aircraft and associated equipment[5] was worth £17.2 billion, equivalent to a little over 48,000 tonnes of equipment. In addition, trade in engines[6] (a large proportion of which are aircraft engines) was worth £28.4 billion, equivalent to a little over 32,000 tonnes of equipment. Air transport accounted for 76% of trade value in aircraft and associated equipment and 89% of trade value in engines. For both these product types, the value of imported and exported goods flown by air was very similar, reflecting the international nature of the production process and the flow of goods between countries. Some the world's most important aerospace firms are UK-based (BAE, Rolls Royce) and many of the world's largest aerospace manufacturing firms (Airbus, Boeing, Bombardier) have significant operations in the UK. For example, UK manufacturing sites are an integral part of the production process for the wings of Airbus aircraft (see map below).

Airbus wing assembly production flow



Source: HM Treasury (via Airbus/Flight International)

[5] SITC code 792
[6] SITC code 714

Airbus's assembly line for its A350 wings demonstrates air freight's role in these international production processes. Composite front spars are produced in the USA by Spirit and flown to its facility in Prestwick for assembly; these are then trucked to Airbus's facility in Broughton and are combined with other parts trucked from Filton (UK), flown from Stade (Germany) and from form Illescas (Spain). Completed wings are then flown to Bremen (Germany) for equipping, before being flown to Toulouse for final assembly.

As well as aircraft manufacturing, air freight is also important for facilitating aircraft maintenance and repair operations (MRO).
The figure below shows, on a £/kg basis, the top five UK airports with the most valuable cargo. With the exception of London City (which handles large amount of jewellery and diamonds), all are airports used as a base for aircraft manufacturing plants (Bombardier at Belfast City and BAE at Warton) or MRO (IAG at Cardiff and Marshall at Cambridge). Compared to other imports and exports, this demonstrates the high value of goods and components transported by air within the aerospace sector.

Value of airport cargo - £/kg basis (2017)

Policy considerations

3.27 The analysis in this chapter shows that air freight has started to grow again after several years of stagnation. The increasing volumes and longhaul connections at major airports outside the South East of England as well as the prospect of the third runway bringing additional capacity at Heathrow, give rise to a number of policy issues for consideration, including:

- how to make best use of existing infrastructure and unlock more capacity through investment in air freight facilities at UK airports;
- how to manage the air freight implications of the third runway at Heathrow; and
- how to support the air freight sector to grow sustainably.

4 International Trade

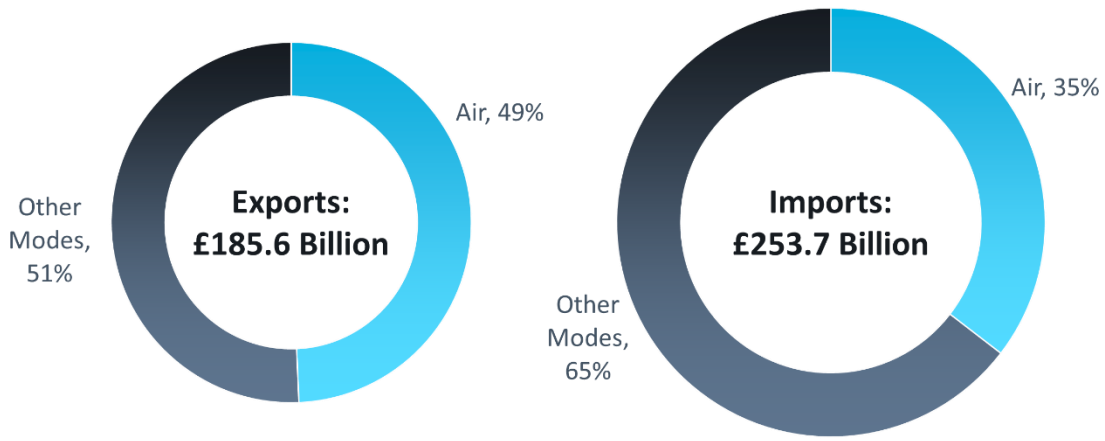
4.1 This chapter examines the breakdown of air freight flows in terms of the commodities flown and their value. We firstly compare the value of imports and exports by air in comparison with the total by all modes, then go on to examine the key product and geographic markets. We also provide a comparison of UK trade with that of other major European markets.

4.2 The analysis of UK trade presented in this section is based on import and export data within HMRC's data downloads, and therefore relates only to trade with non-EU countries. Although HMRC does provide estimates of arrivals and dispatches to and from EU countries, the level of detail provided is insufficient to undertake the analysis presented in this section for non-EU trade.

Role of air freight in UK trade

4.3 In 2017, non-EU trade classified as being transported by air accounted for over 40% in terms of value but under 1% of total trade in volume terms (with sea accounting for over 98%). Air as a proportion of total exports and imports in 2017, in value terms, is shown in Figure 4.1.

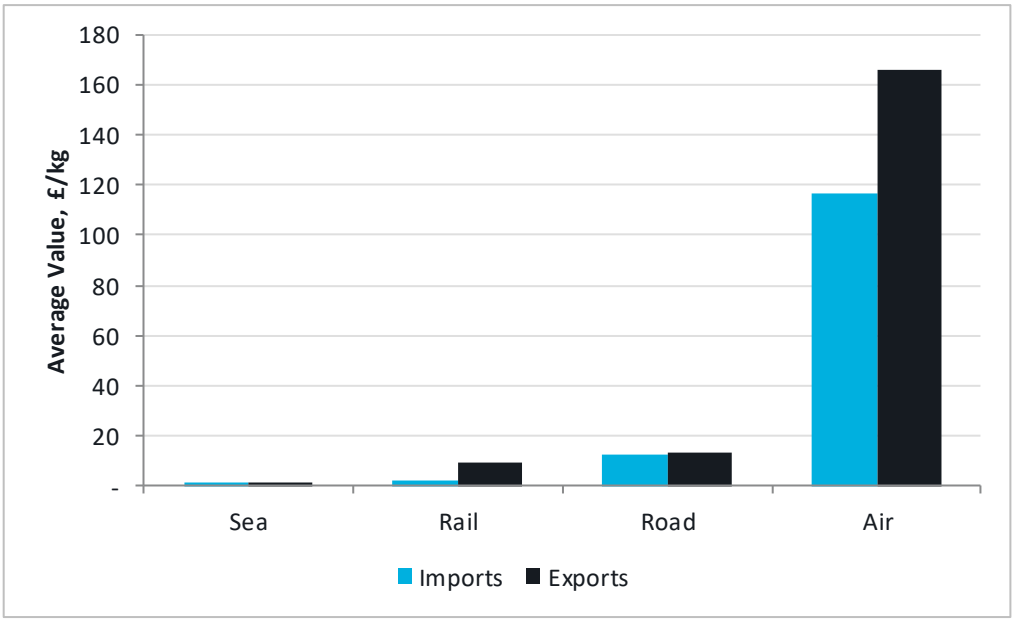
Figure 4.1: Air transport's share of total export and import value, £ Billion (2017)



Source: HMRC

4.4 Figure 4.2 shows the average value per kilogram, of exports and imports, for goods transported by sea, rail, road and air. Goods transported by air, on average, are significantly more valuable than those transported by other modes.

Figure 4.2: Average value of goods transported by each mode, £/kg (2017)

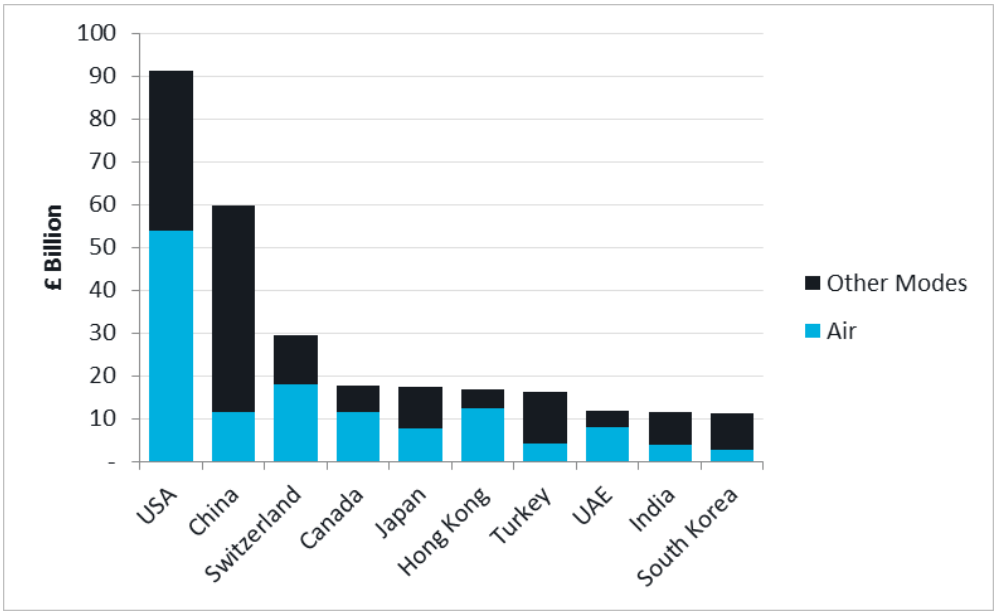


Source: HMRC

4.5 Similarly, for the UK's top ten non-EU trading partners, in volume terms, air accounted for under 1% of trade in most cases (but 1.3% with the US and 1.5% with India). Only with the USA (1.3%) and India (1.5%) did air account for over 1% of trade in volume terms. However, air accounted for a much higher proportion of trade with the UK's top ten trading partners in value terms.

4.6 Figure 4.3 shows the proportion of trade by value transported by air with the UK's top ten non-EU trading partners. Air generally accounts for a higher proportion of trade value with other service and high-end manufacturing-orientated economies (such as the USA and Switzerland), and has lower share with Asian mass manufacturing-based economies (such China and India).

Figure 4.3: Air transport's share of trade value with largest non-EU trading partners, £ Billion (2017)



Source: HMRC

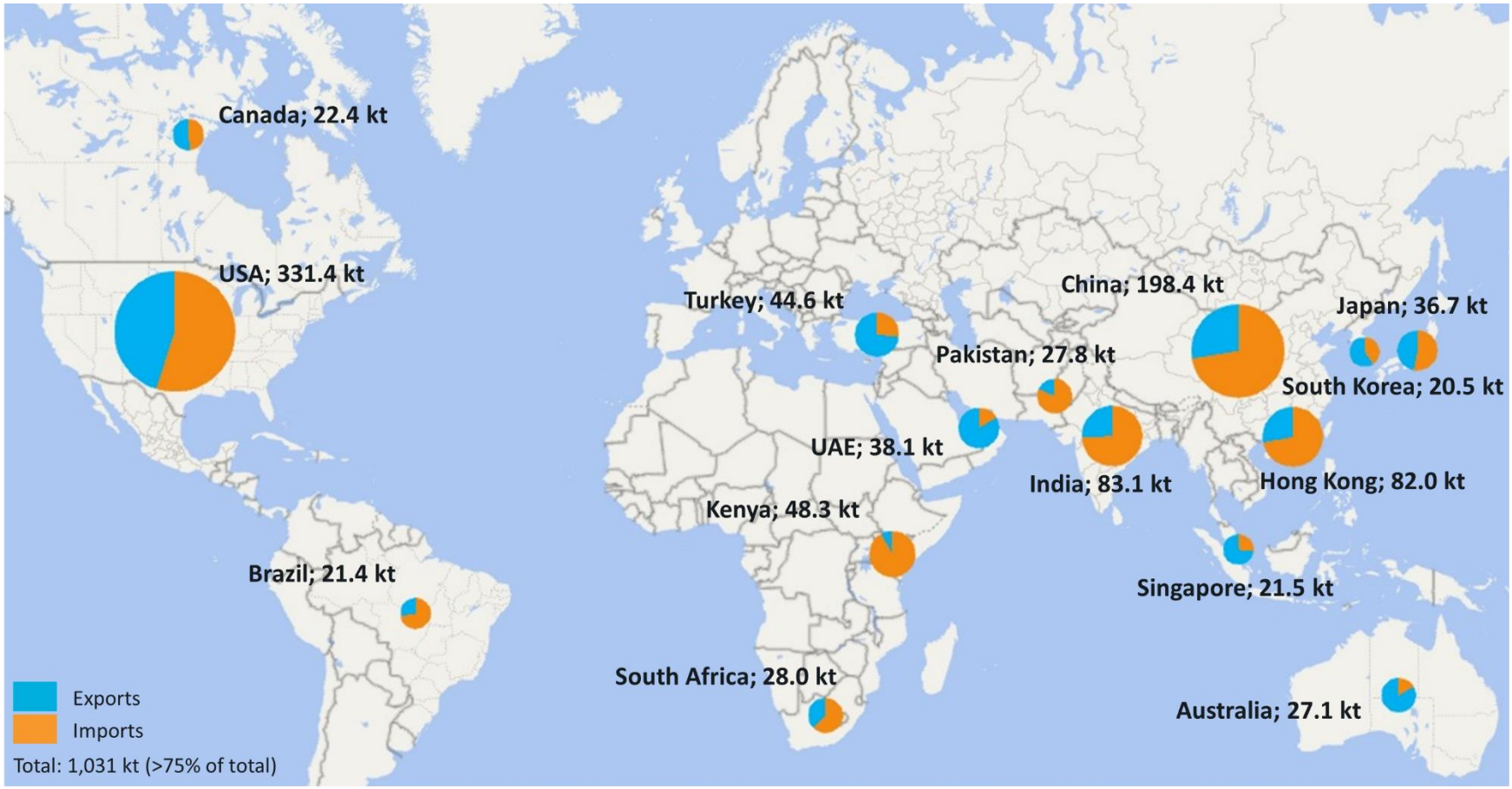
Geographical markets

4.7 The size of the import and export markets with the UK's top 15 non-EU trading partners, separately in volume and value terms are shown in Figure 4.4 and Figure 4.5, respectively. Note that although many countries feature within the UK's top 15 non-EU trading partners, in both volume and value terms, the two figures do not show the same 15 countries.

4.8 With its major trading partners, in volume terms, the UK's imports are characterised by a mixture of mass manufactured goods (such as clothing) from Asian countries including China, India and Pakistan, and more high-value manufactured products (such as electronics and machinery) from countries including Japan and South Korea. The UK also imports a significant amount of food and raw materials from countries including Brazil, Kenya and South Africa. On the export side, UK volumes are characterised by high-end manufactured goods (such as transport or scientific equipment) and food, in particular salmon, to higher income countries.

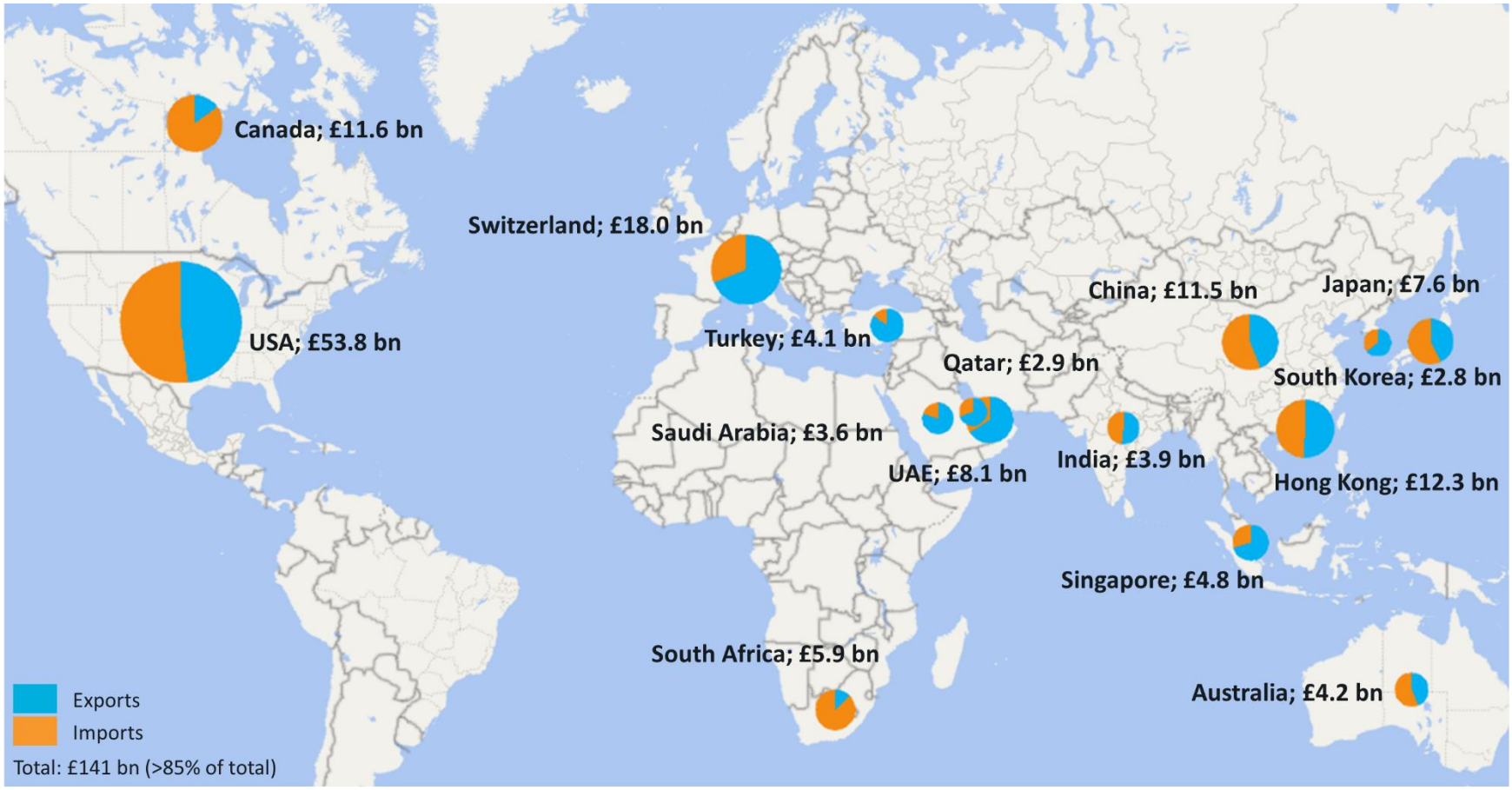
4.9 In terms of value, many of the UK's major trading partners in Asia and North America are also major trading partners in volume terms; however, in value terms UK exports account for a higher share of trade. As with volumes, much of the import and export value is accounted for by high-end manufactured goods (such as industrial machinery) as these goods are high value as well as high volume. Much of the trade with the UK's major partners, in value terms, is accounted for by precious metals and minerals (such as gold), which is high-value but low-volume. This includes imports from countries where these materials are mined, including South Africa, Australia and Canada, as well as Switzerland, which has a large gold refining industry.

Figure 4.4: Volume of air exports and imports with top 15 non-EU trading partners, 1,000 tonnes (kt) 2017)



Source: HMRC

Figure 4.5: Value of air exports and imports with top 15 non-EU trading partners, £ Billion (2017)



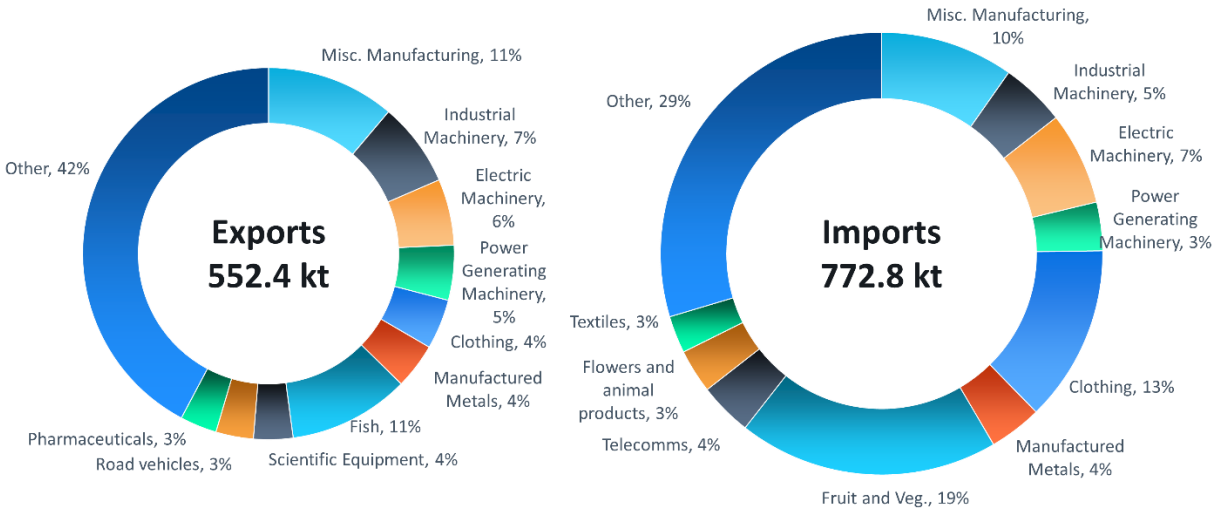
Source: HMRC

Product markets

Products shipped by air

4.10 The UK's exports and imports to all non-EU countries at a 2-digit Standard International Trade Classification (SITC) code level, in volume terms, are shown in Figure 4.6.

Figure 4.6: UK non-EU exports and imports at a 2-digit SITC code level, 1,000 tonnes (kt) (2017)



Source: HMRC

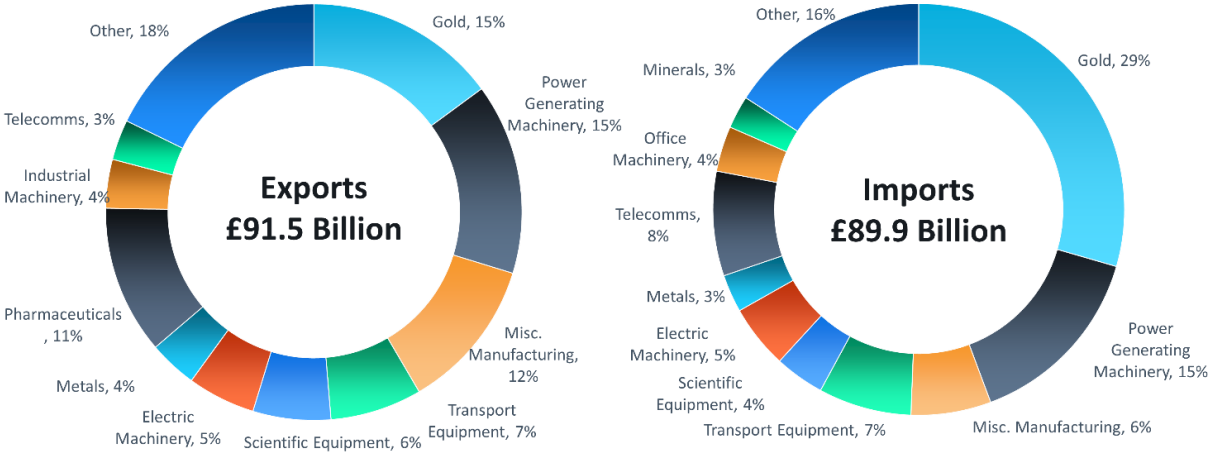
4.11 Clothing and fruit / vegetables are the two largest 2-digit SITC product groups imported by air. Fruit and vegetables are perishable and therefore need to be delivered quickly, while clothing is often shipped by air to enable retailers (particularly online retailers) to meet shifting demand of the latest fashion trends.

4.12 Other high-volume imports include business products including industrial goods, such as electric components and industrial machinery, and consumer goods including mobile phones, flowers and a range of manufactured products.

4.13 On the export side, most products with a high share of total volume are high-end manufactured goods, such as pharmaceuticals, cars, books and plane engines, or creative and knowledge industry-based goods such as books and high-end fashion. The notable exception to this is fish, in particular Scottish salmon, which accounted for over 10% of export volumes.

4.14 Figure 4.7 shows the UK's exports and imports to all non-EU countries at a 2-digit Standard International Trade Classification (SITC) code level in value terms.

Figure 4.7: UK non-EU exports and imports at a 2-digit SITC code level, £ Billion (2017)



Source: HMRC

4.15 Gold accounts for a significant proportion of import and export value, although it should be noted this is largely driven by the existence of the London Bullion Market, which, accounts for over 80%[7] of the global gold trade. This has a distorting effect on both the value of total imports and exports, as well as the value of trade with certain countries (such as Switzerland with its large gold refining industry).

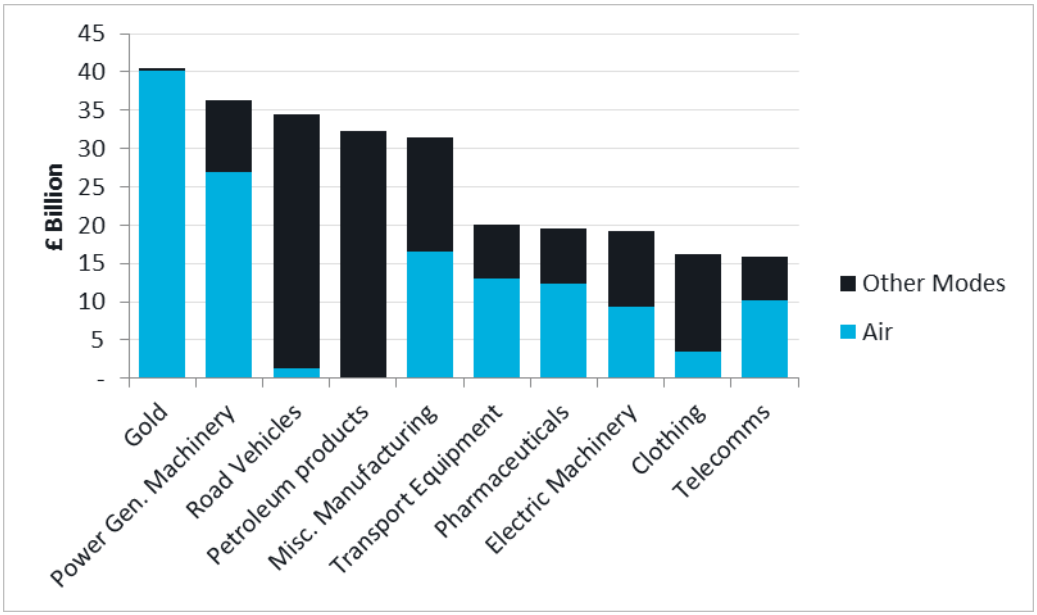
4.16 Many of the other products with a high share of UK trade value, such as aircraft engine parts and power generating machinery, have a high share of both import and export value, likely reflecting the global nature of these industries' supply chains and manufacturing processes. One exception is pharmaceuticals, which account for a significant proportion of export (but not import) value.

Products most dependent on air freight

4.17 Figure 4.8 shows, at a 2-digit SITC code level, the largest traded product groups by value and the proportion transported by air.

[7] Financial Times

Figure 4.8: Largest traded product groups at a 2-digit SITC code level, £ Billion (2017)



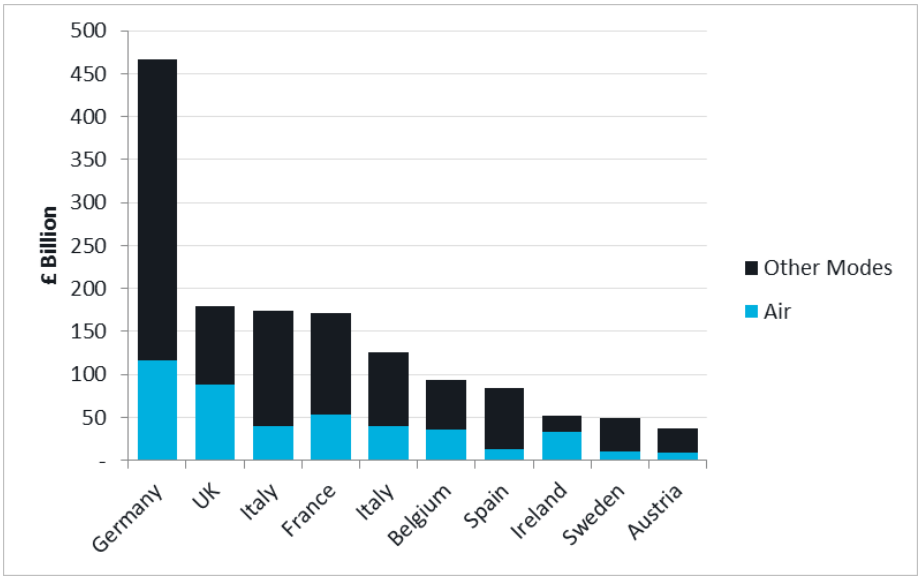
Source: HMRC

4.18 In all but three cases (petroleum products (oil), road vehicles and clothing), air accounted for over half of the value of each 2-digit product group. For some product groups, including miscellaneous manufactures, clothing and telecoms, air also accounted for a significantly higher proportion of exports (in value terms) than of imports.

International comparisons

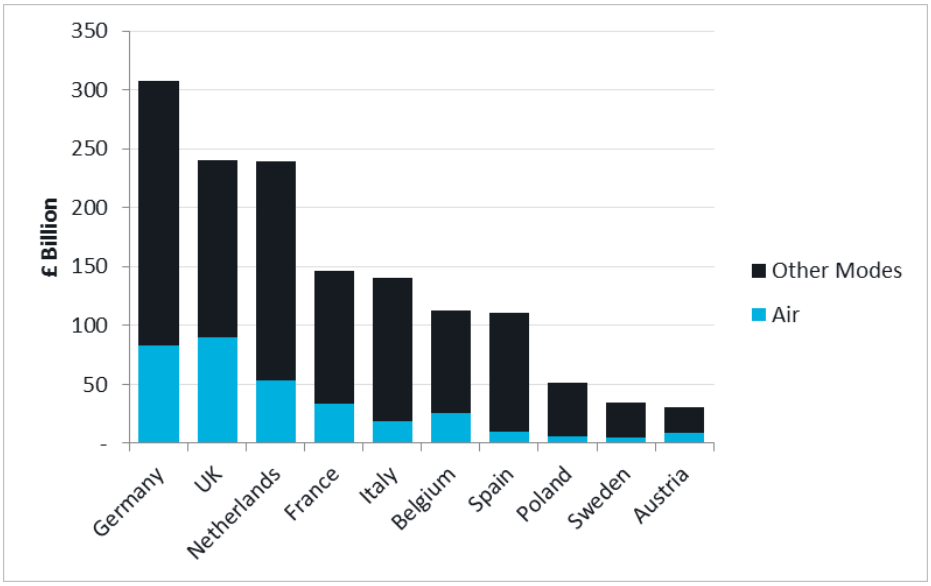
4.19 The size of the largest EU import and export markets to non-EU countries in value terms, and the shares transported by air, in 2017 are shown in Figure 4.9 and Figure 4.10 respectively.

Figure 4.9: Air transport's share of export value in top 10 EU export markets, £ Billion (2017)



Source: Eurostat – figures have been converted from Euros using an average 2017 exchange rate of €1: £0.88

Figure 4.10: Air transport's share of import value in top 10 EU import markets, £ Billion (2017)



Source: Eurostat– figures have been converted from Euros using an average 2017 exchange rate of €1: £0.88

4.20 Although Germany is by far the largest exporter to non-EU countries, only 25% of its goods by value are transported by air, whereas the UK, which is second largest total export market, ships a far higher proportion (49% by value) by air. Most of the other major EU economies ship between 20% and 40% of the value of their non- EU exports by air; only Ireland (64%) ships a greater share of its non-EU exports by air than the UK.

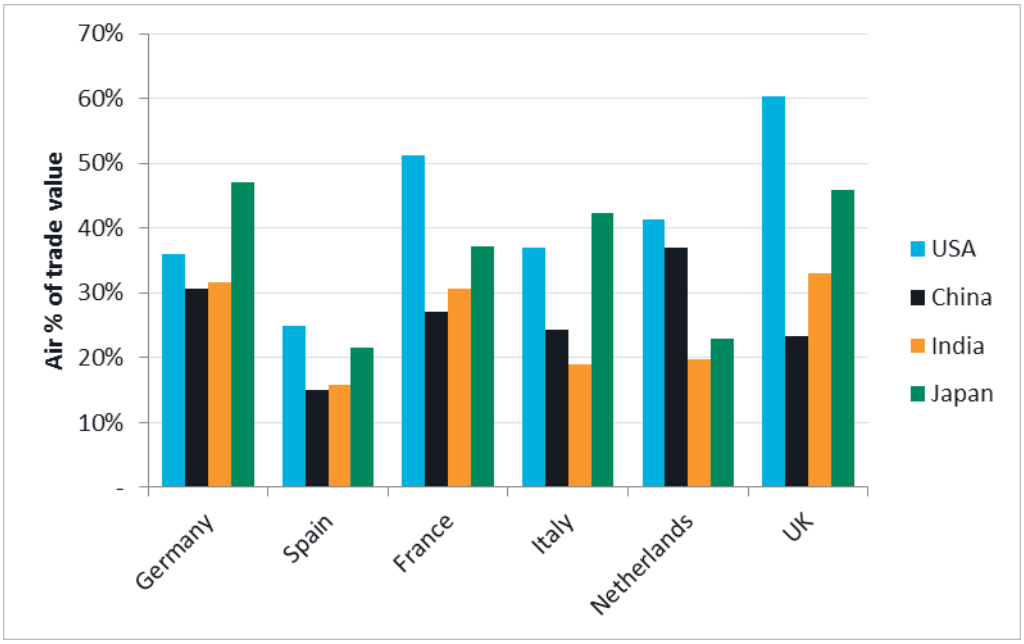
4.21 On the import side, the UK is second largest market in the EU and has the highest share (37%[8]) of imports transported by air, which makes its imports by air (£90 billion) the most valuable in the EU. Like the UK, most other major European economies ship lower proportion of their non-EU imports (compared to exports) by air, with most importing 10% to 30% by air in value terms.

4.22 The high share of air in non-EU trade for the UK (and Ireland) compared to other EU countries, is likely to be explained to some extent by the fact many countries on continental Europe can ship to some non-EU markets (such as Switzerland, Russia or Turkey) much more easily than UK without using air transport.

4.23 Figure 4.11 shows the proportion of trade value transported by air between some of the largest EU and non-EU economies in 2017.

[8] Difference from 35% shown in Figure 4.1 is likely due to slight difference between sources

Figure 4.11: Proportion of trade value transported by air between selected EU and non-EU countries (2017)



Source: Eurostat

4.24 The share of the UK's trade transported by air with India, Japan and the USA is either the highest (or close to the highest) compared to other major EU economies. In 2017, 60% of the UK's trade value with the USA was transported by air, compared to 51% for France and 36% for Germany. To a large extent, the proportion of trade value between two countries transported by air will be driven by the products the two countries trade, import demand preferences and the strength of each country's export markets.

4.25 However, it is likely that, to some extent, the proportion of trade value that is flown by air is linked to the level of air connectivity between the two countries. The UK has significantly more freight capacity to the USA than any other EU country, but has less capacity to China than Germany or the Netherlands. This may partly explain the low relative share of air in UK- China trade value; of the six EU economies shown, only Spain has a lower share of trade value with China that is transported by air.

Case Study – Pharmaceutical exports

In 2017, the UK exported £13.4 billion's worth of medical and pharmaceutical products[9], equivalent to just under 90,000 tonnes of goods. In 2017, 79% of the value these products were carried by air, which, as shown in Figure 4.7, represented over 10% of total air export value. Pharmaceutical products are key strategic knowledge-intensive industry for the UK, that benefits internationally from a reputation for high quality standards.

One company that has taken advantage of this reputation is Loughborough-based Morningside Pharmaceutical[10], which exports supplies to the developing world, to customers including NGOS, ministries of health and private sector clients including hospitals

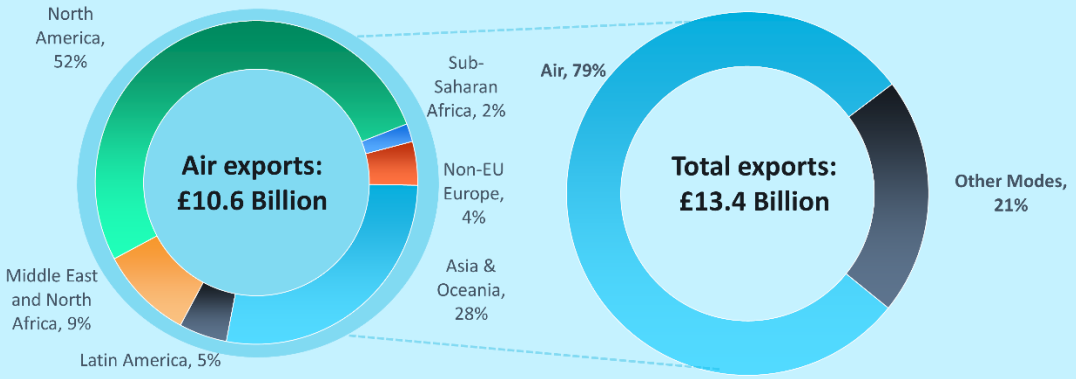
[9] SITC code 54

[10] Credit: East Midlands International Trade Association

and retailers. Shipping by air is more expensive than by sea, however, it enables supplies to delivered faster; shipments can be delivered to in-land locations in the developing world, such as Harare, within two to three days, compared to 45 to 50 days by sea and road. Many shipments are able to leave from East Midlands airport – 20 minutes away from Morningside's facility in Loughborough. Faster delivery is beneficial for Morningside as it facilitates faster payment.

Although companies like Morningside do most of their business in developing markets in Africa, the majority of UK pharmaceutical exports are to more developed economies, as shown in the figure below. In 2017, over half of air export value was shipped to the USA, while Australia, China and Japan were also important markets.

Medical and pharmaceutical supplies (SITC 54): Total and by air, £ Billion (2017)



Source: HMRC

Although it is beneficial for the drugs produced by Morningside to be delivered quickly, other pharmaceutical products are even more time critical. One pharmaceuticals manufacturer of diagnostic and therapeutic medical products, based in South-East England, supplies drugs from their facility, via Heathrow, to hospitals and medical facilities across the world. The drugs have a short life span and are therefore time critical; they must be shipped using express services before they start to degrade.

On the import side, the UK is also a world leader in clinical trials testing, therefore patient urine and blood samples from across the world are sent to the UK in order to develop world class drugs to treat illnesses. The global connectivity provided by Heathrow is therefore important for also facilitating this industry, as samples need to be delivered within 48 hours from collection so as not to compromise the sample integrity. Biological samples are imported (often on dry ice) from countries such as South Africa or Kuwait on direct commercial flights into Heathrow.

Policy considerations

This chapter demonstrates the importance of air freight to UK international trade, and in particular that the UK has a higher dependence on air freight than most other countries. This raises issues for consideration in the development of the UK Government's Aviation Strategy on the appropriate level of Government support for the air freight sector and how its importance should be reflected as part of the strategy for the aviation sector as a whole.

5 Economic analysis

Introduction

5.1 This chapter builds on the analysis earlier in the report to estimate the economic value of air freight to the UK economy. Economic value can be measured in different ways, but typically considers the impacts of an economic sector (or of a proposed project or intervention) on:

- employment (number of employees associated with the sector or intervention);
- income received as salaries by employees; and
- gross value added (GVA).

5.2 GVA is an important indicator which measures the revenues generated by an industry, after netting off the costs of its inputs, in particular its expenditure on the outputs of other economic sectors or on imports, hence the concept of "value added". GVA can be measured for both economic sectors and for geographical regions within a country, allowing for comparisons between each of these. When totalled to cover the whole economy at national level, GVA broadly equates to gross domestic product (GDP), the standard measure for national economic output (the difference is an adjustment for taxes and subsidies on products).

5.3 The analysis in previous chapters demonstrates the importance of air freight to the UK economy. As noted in paragraph 4.3 above, air freight is the transport mode used in UK external trade (to non-EU countries) for:

- 49% of exports by value;
- 35% of imports by value; and
- 41% of combined exports and imports by value.

5.4 However, while clearly demonstrating the significance of air freight, these figures do not automatically translate into the measures typically used by economists to estimate the economic value of the sector (employment, income and GVA), which are discussed below.

5.5 In this chapter, we consider two different, complementary, approaches to assessing economic value:

- the traditional measure of economic impacts on employment, income and GVA of the air freight industry and associated services, generally known as "direct", "indirect" and "induced" impacts (based on the activity in the sector itself and on upstream monetary flows between the air freight industry and other sectors in the economy); and
- the wider economic impacts of air freight, sometimes referred to as "catalytic impacts", which consider how air freight facilitates economic activity in other sectors (based, in this case, on estimating what proportion of GVA in those sectors is currently reliant on air freight services).

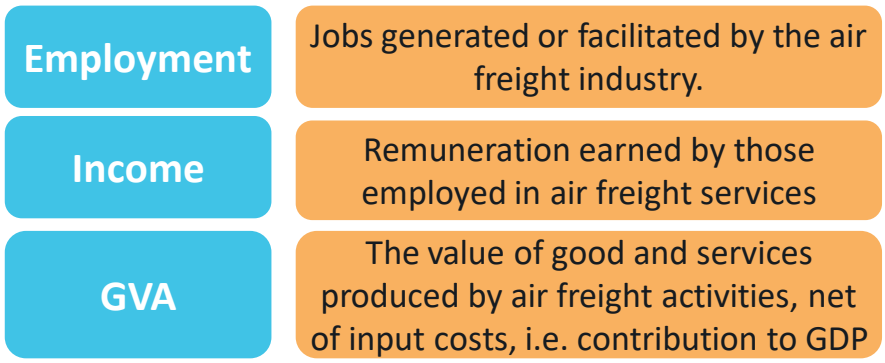
5.6 Our approach to the wider economic impacts of air freight also allows us to disaggregate these impacts both by economic sector (to illustrate which industries are most dependent on air

freight) and by the UK regions and constituent countries. This gives important insights into where the economic benefits of air freight are generated, as distinct from the localities from where or to which it is flown (concentrated at Heathrow and three other airports). These approaches are described in the sections below.

Direct, indirect and induced impacts

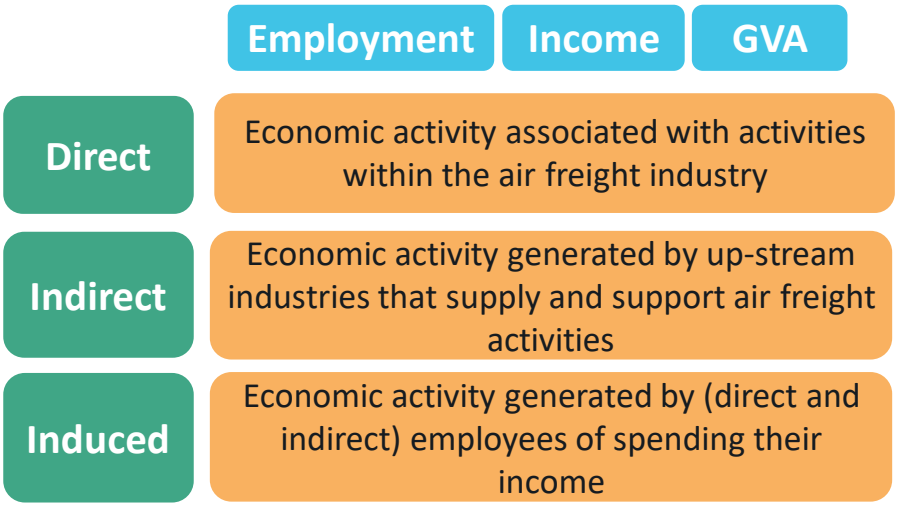
5.7 As noted above, the traditional approach to quantifying the economic impacts of an economic sector is to consider how its activity affects levels of employment, income and GVA, as shown in the diagram below.

Figure 5.1: Measures of economic impact



5.8 For each of these measures, it is possible to compute the "direct", "indirect" and "induced" impacts using a recognised methodology. In addition, wider, catalytic, impacts can also be estimated (see section below), although the approach for this is less standard. In this section, we focus on the direct, indirect and induced impacts, as shown in the diagram below.

Figure 5.2: Direct, indirect and induced economic impacts



Methodology

5.9 The calculation of direct, indirect and induced economic impacts is based on the use of Input-Output tables (I-O tables), produced by the Office for National Statistics (ONS), the latest available version being from 2014. I-O tables cross-tabulate what each industrial sector purchases from each other industrial sector (intermediate demand), and in addition include

data on household and government expenditure, employees' income and company profit, as well as taxes, capital investment, exports and imports.

5.10 However, I-O tables are only available at a high level of industrial aggregation. In order to isolate the air freight sector, it has therefore been necessary to break down the existing categories into their constituent parts, and then reconstruct the table so that it provides the best representation of the range of air freight-related activities taking place in the economy.

5.11 In order to capture the economic value of air freight, it is important to include all the economic activities relevant to the delivery of air freight services. However, the Standard Industry Classification (SIC) used by ONS classifies as "air freight" (SIC code 51.2) only the activities related to the scheduled and non-scheduled transport of goods by air, but does not include essential supporting activities such as ground service activities, cargo handling, warehousing and storage. We have therefore developed a wider definition of supporting air freight services, which also includes the following sub-sectors:

- Warehousing and storage facilities (SIC 52.10/2)
- Service activities incidental to air transport (SIC 52.23)
- Cargo handling for air transport act. (SIC 52.24/2)
- Other transport support activities (SIC 52.29).

5.12 Clearly, not all warehousing and storage, or other transport support activities relate to air freight (forwarding, brokerage, etc.), but we have made the assumption that such activities within a given distance of airports will be largely focused on such activities[11]. Based on this assumption and levels of employment in each of the above sub-sectors in wards within these airport "catchments", as compared with overall employment in the sub-sector, we have allocated a proportion of the economic activity in each sub-sector to air freight services. Although this will not capture all aviation-related activity (clearly there will be non-aviation related warehousing near airports, as well as aviation-related warehousing further away), on balance we consider that this approach is reasonable.

5.13 For "service activities incidental to air transport", which includes airport terminals and air traffic control, we have taken a proportion based on air freight's share of overall air transport GVA[12]. Cargo handling for air transport can reasonably be included in its entirety.

5.14 The table below shows the key components of the economic activity for air freight and its supporting services (these correspond to the "direct" impacts).

[11] Within 10km of Heathrow, within 5km of each of Gatwick, Stansted, Manchester, Birmingham and Glasgow, and within 3km of other airports

[12] 2.6%

Table 5.1: Air freight and supporting services

	Gross Value Added (£m)	Employment (000 jobs)	GVA per worker (£k)	Income generated (£m)	Income per worker (£)
Air Freight (SIC 51.2)	222	3	86	101	38,914
Supporting Air Freight Services	1,261	44	29	1,000	22,838
Total Air Freight Services	**1,483**	**46**	**32**	**1,101**	**23,739**

Source: ONS data, Steer analysis. 2014 data and prices.

5.15 With these adjustments to the ONS 2014 I-O table, we are able to create the underlying data to calculate the direct, indirect and induced economic impacts of air freight and its supporting services. As indicated in Figure 5.2, direct impacts relate to the employment, income and GVA generated by the sector itself, indirect impacts take account of the knock-on effects in the sector's supply chain, while induced impacts also include the impacts of employees' spending in the economy. These can be calculated from the I-O table, by inspection for for direct impacts and via standard techniques for the indirect and induced impacts[13].

Results

5.16 Undertaking the analysis described above allows "multiplier effects" to be calculated. These capture the extent to which changes to air freight services impact the supply chain (indirect impacts) and how the employee income generated by such changes generates knock-on economic activity as this is spent in the wider economy (induced impacts). Multiplier effects are initially calculated for an industry's output, and can then be converted into the corresponding effects on GVA, employment and income. The table below shows the relevant multipliers for (total) air freight services. Note that the multipliers are shown, as is customary, as the overall impact compared to the direct economic impacts (as shown in Table 5.1 above), hence can be considered to be cumulative. The multiplier for direct effects is, by definition, equal to 1.

Table 5.2: Air freight multiplier effects

Multipliers	GVA	Employment	Income
Indirect	2.21	1.81	1.97
Induced (including indirect)	4.88	3.25	3.69

Source: ONS, Steer analysis

5.17 Applying these multipliers to the direct impacts leads to the economic impacts shown in the table below.

Table 5.3: Economic impact of air freight services

Impacts	GVA (£m)	Employment ('000s)	Income (£m)
Direct	1,483	46	1,101
Indirect	1,800	38	1,067
Induced	3,949	66	1,891
Total	**7,232**	**151**	**4,059**

Source: ONS, Steer analysis. 2014 data and prices.

[13] Using Leontief I (indirect) and Leontief II (induced) matrix inversions

5.18 Overall, air freight services support GVA of **£7.2 billion**, **151,000** jobs and associated income of **£4.1 billion** (2014 data and prices) in the UK economy. Note that this result only relates to activities and expenditure either within the air freight and supporting industries, its supply chain and spending by its workforce. It does not include "downstream" effects, i.e. the effect on the industries purchasing air freight services, or the wider, catalytic, impacts on the whole economy. These are discussed in the next section.

Wider economic impacts

5.19 Traditional economic impact assessments are based on the monetary interactions between each sector of the economy with other sectors, as well as with its workforce (salaries), the government (taxation), owners (dividends) and interactions with suppliers and purchasers outside the country (imports and exports).

5.20 However, air freight is a low margin business where the actual revenues earned from supplying air freight services (whether the actual flying or support activities such as ground handling and warehousing) do not fully represent either the value of what is being flown, or the value of timely delivery. In terms of the value of what is flown, air freight imports and exports, between them, were worth £181 billion (2017 values and prices)[14], or close to 25 times more than the economic added value (GVA) calculated using the direct, indirect and induced methodology of the previous section.

5.21 Additionally, beyond the value of the goods transported by air, some products are worth considerably more to the shippers/consignees of the goods than the value of the item itself. This explains why so much machinery and equipment, as well as contractual and legal documents, are delivered using air freight. The items themselves may not be particularly valuable, but a key component may allow a production line to continue to operate rather than being shut down while the component is delivered by surface transport. Similarly, key original signed documents may allow deals worth billions of pounds to go ahead.

5.22 While the value of goods flown (exports and imports) cannot be directly compared with an economic value measure such as GVA, because their worth is not "added value" in the same sense that the activities of an industry add value, the two concepts are linked. We have therefore developed an approach to identify how much value added across the economy is associated with the value of products moved by air.

Methodology

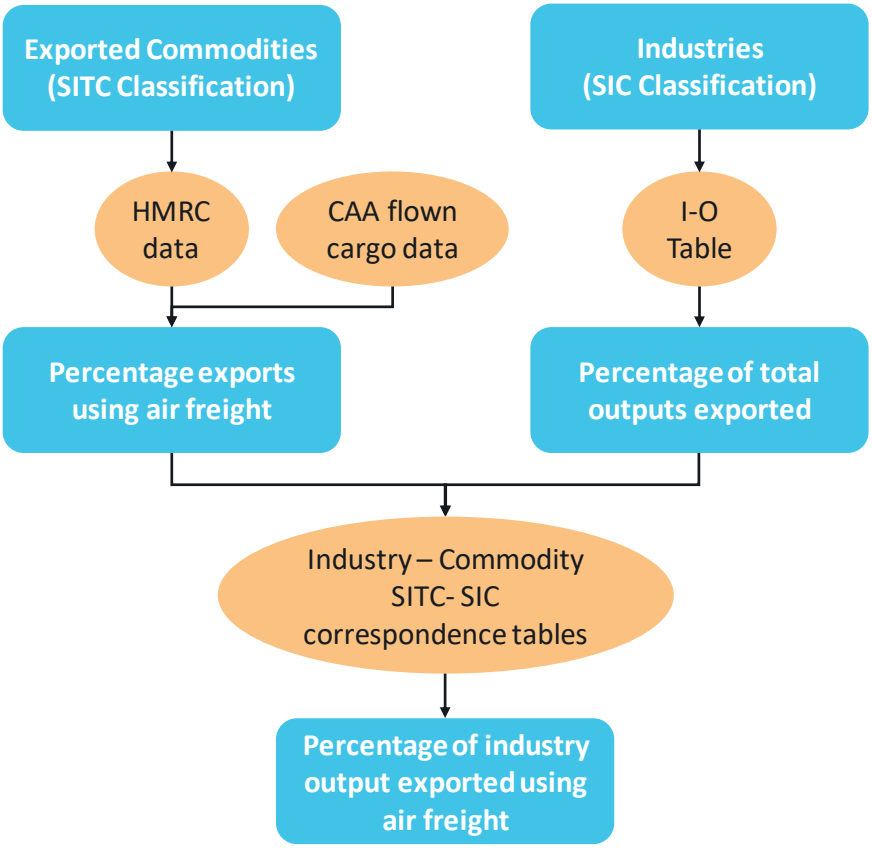
5.23 Each sector of the economy produces outputs for which customers are willing to pay. While service industries produce largely intangible outputs, primary and secondary sectors produce physical products such as food, machine parts, cars and so on. For these sectors of the economy, their outputs equate to particular commodities so that, for example, farms produce agricultural products while automotive plants produce cars and trucks. Hence, there is a correspondence between each industry and its outputs[15].

[14] See Figure 4.7 above

[15] This correspondence is formally available using tables provided by Eurostat RAMON relating Standard International Trade Classification (SITC) commodity codes and Standard Industry Classification (SIC) codes, together with mappings between different versions of each set of codes provided by ONS and UNSD.

5.24 As identified in Chapter 4 and illustrated in Figure 4.8 above, for a number of commodities air freight plays a significant role in delivering exports of the product (the majority for pharmaceuticals and power generating equipment, for example), as identified by HMRC data on transport mode used for trade. Using the HMRC data, we can therefore identify what proportion of such industries' exports are transported by air. Furthermore, for each industry, the I-O table developed by ONS and described from paragraph 5.9 above, identifies the value of exports produced by each industry in relation to the total value of its output. Bringing these together by using the correspondence between industries and the commodities those industries produce, we can therefore establish, for each industry which produces physical outputs, what proportion of those outputs is represented by exports transported using air freight services. The approach is illustrated in the figure below.

Figure 5.3: Estimation of industry output exported using air freight



Source: HMRC data downloads, ONS weighted correlation tables, Eurostat RAMON, UNSD SITC Rev. 4, CAA airport data, Steer analysis

5.25 Note that because HMRC data covers only non-EU exports, an adjustment needs to be made to account for EU exports by air. In volume terms (tonnage), air freight flown to the EU represents 18.3% of total air freight from the UK, based on CAA flown volumes data[16], so total

[16] CAA 2017 airport data (Table 14)

air freight export values can be estimated from non-EU exports by uplifting the value of non-EU exports by 22.3%[17].

5.26 An industry's output represents the value of the goods (or services) that it sells, while its value added (measured by GVA), broadly represents the value of outputs net of the cost of inputs[18]. For this reason, GVA, summed across the whole economy, with an adjustment for product taxes and subsidies, represents the whole national economic output (whereas adding all industries' outputs together would double-count the portions of output sold from one industry to another).

5.27 It is reasonable to make the assumption that all output contributes equally to the GVA generated by an industry. For example, based on the 2014 I-O Table, SIC 26, the "Manufacture of computer, electronic and optical products" generated £20.6 billion in output (sales) and its GVA was £7.9 billion. We therefore assume that each £1 million of output from these industries generate a GVA of £383,000.

5.28 We have also made the assumption that, since its exports represent a component of an industry's output and also contribute directly to the value added (GVA) of that industry, that:

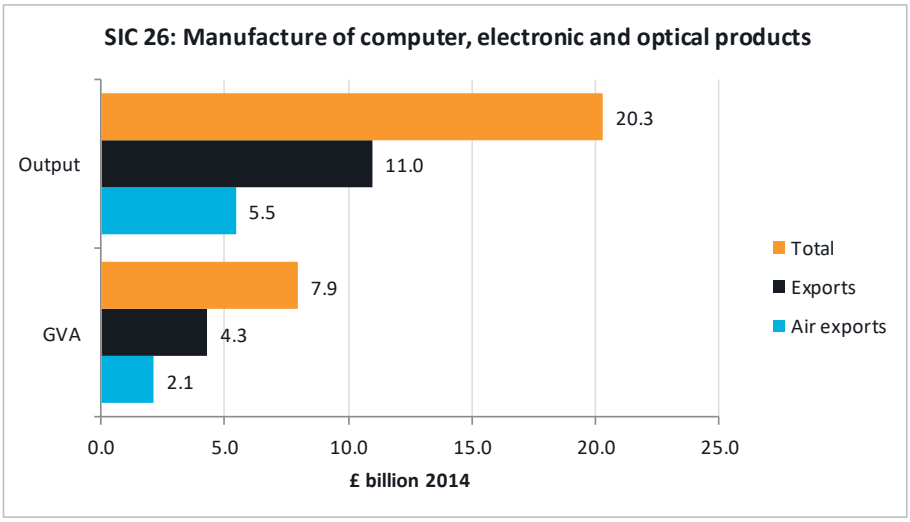
- The proportion of an industry's GVA supported by air freight services is equal to the proportion of its outputs which are exported by air.

5.29 In the case of computer, electronic and optical products, using the analysis based on the approach in Figure 5.3, 54.2% of the value of the relevant industries outputs are exported, and of these, 49.5% are exported by air (EU and non-EU combined). Therefore 27.3% of the industries' outputs, or £5.5 billion's worth of sales, are exported by air. Using the assumption that each unit of output generates the same level of GVA, we can therefore deduce that 27.3% of the GVA generated by the industries producing computer, electronic and optical products is, currently, dependent on the use of air freight services. This equates to 27.3% of the industries' combined GVA of £7.9 billion, or £2.1 billion. Note that this represents the "direct" GVA of the industries themselves, and not any knock-on effects on their supply chains. This direct GVA to output relationship is illustrated in the figure below.

[17] The 22% uplift is calculated from [1 / (100% - 18.3%)] - 1, and by making the assumption that the commodity value per kg of EU exports using air freight is similar to the value per kg of non-EU air freight.

[18] Some adjustments are made for consistency across industries which sell different proportions of outputs to other industries rather than to consumers or the public sector, so GVA for an industry is actually calculated as the sum of employees' compensation, taxes on production and its gross operating surplus. At a national level, the two approaches are equivalent.

Figure 5.4: Illustration of relationship of industry output and GVA related to exports by air, £ Billions



Source: ONS, HMRC, Eurostat, CAA, Steer analysis

5.30 The final step in this analysis is to recognise that, if a portion of an industry's GVA is dependent on air freight services, then the suppliers who provide inputs to that industry are also dependent on the air freight services. This is the same "knock-on effect" described in paragraph 5.15 above. Following this logic, it is reasonable to apply the industry multipliers for indirect and induced impacts generated from analysis of the ONS I-O table. While Table 5.2 above shows the relevant multipliers for the air freight sector, each different industry sector has its own multiplier[19]. The multipliers are shown, for each sector with air exports, at the single-character industry section level, in the table below.

Table 5.4: Industry sector induced effects multipliers

Code	Industry sector	Induced multiplier
A	Agriculture, Forestry and Fishing	3.3
B	Mining and Quarrying	2.4
C	Manufacturing	3.9
E	Water Supply; Sewerage, Waste Management and Remediation Activities	3.0
H	Transportation and Storage	4.0
J	Information and Communication	3.0
M	Professional, Scientific and Technical Activities	3.0
R	Arts, Entertainment and Recreation	2.8

Source: ONS, Steer analysis

5.31 In the example of the industries manufacturing computer, electronic and optical products, the application of the multiplier for manufacturing (code C), which is 3.9, increases the estimate of GVA dependent on air freight exports from £2.1 billion to £8.3 billion.

[19] These are estimated by the same Leontief matrix inversion approach on the I-O table used to find the air freight multipliers

5.32 This approach leads to analysis that implies that a very significant proportion of some industries' GVA is dependent on air freight. While this is factually true at the current time, it is also necessary to consider the possibility that the exports currently transported by air could be transported by other modes (i.e. land or sea), and hence that this dependency is purely contingent, because substitute transport options exist. In the absence of air freight, some products might be transported via other modes and could not, therefore, be considered "dependent" in the strictest sense.

5.33 However, while it is true that all products which are currently transported by air could, in principle, be transported by surface modes, air transport is qualitatively very different in its characteristics, because:

- transit times are very much faster (e.g. one week for bulk air freight from the Far East, vs. six weeks by sea); and
- prices are very much higher (in a range of four to six times more expensive for bulk air freight, and higher still for express freight).

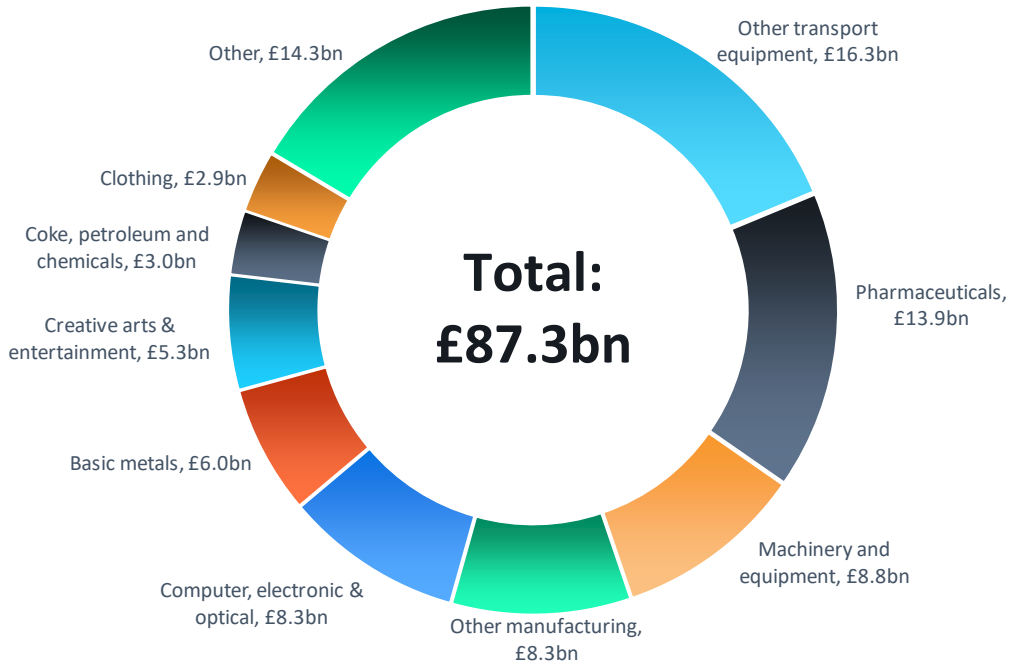
5.34 Therefore, surface modes would appear to be poor substitutes for air freight. Clearly, if air freight became less available and/or more expensive, some users would switch to surface transport. However, it is likely that they would become less competitive by doing so as, if not, they would already have made the switch. Therefore, in the longer run, such industries would tend to migrate away from the UK to other locations where air freight was more readily available and/or cheaper. For example, manufacturing plants which depend on air freight for their supply chains, and particularly to ensure continuous operation when parts fail, would be less efficient if surface transport had to be used, and hence corporations would be less likely to invest in such plants located in the UK.

5.35 For this reason, while the proportion of GVA dependent on air freight estimated using this approach may be reduced through the substitution of other modes, we consider that much of the GVA currently dependent on air freight is likely to remain so in future. Hence, any factors making air freight less convenient, less available or more expensive, are likely to have a negative impact on the industries generating this portion of GVA.

Results

5.36 Using the approach above, we have estimated the level of GVA currently dependent on air freight across the economy. Figure 5.5 below shows the industry sectors with the highest level of GVA currently dependent on air freight exports (including the contribution of their supply chains). The GVA figures are based on ONS' latest release (2016) of figures disaggregated at an industrial and regional level.

Figure 5.5: GVA currently dependent on air freight by industry, £ Billion



Source: ONS, HMRC, Eurostat, CAA, Steer analysis, 2016 values and prices

5.37 The chart shows that £16.3 billion of the GVA generated by the industries producing "Other transport equipment" (SIC 30) is currently dependent on air freight exports (including the contribution of their supply chains). Similarly, £13.9 billion of the GVA of the pharmaceutical industry (and its supply chain) is currently dependent on air freight exports. Across all sectors of the economy, **£87.3 billion of GVA is currently dependent on air freight exports**. This represents **5% of the total GVA measure of national output** (£1,747 billion in 2016).

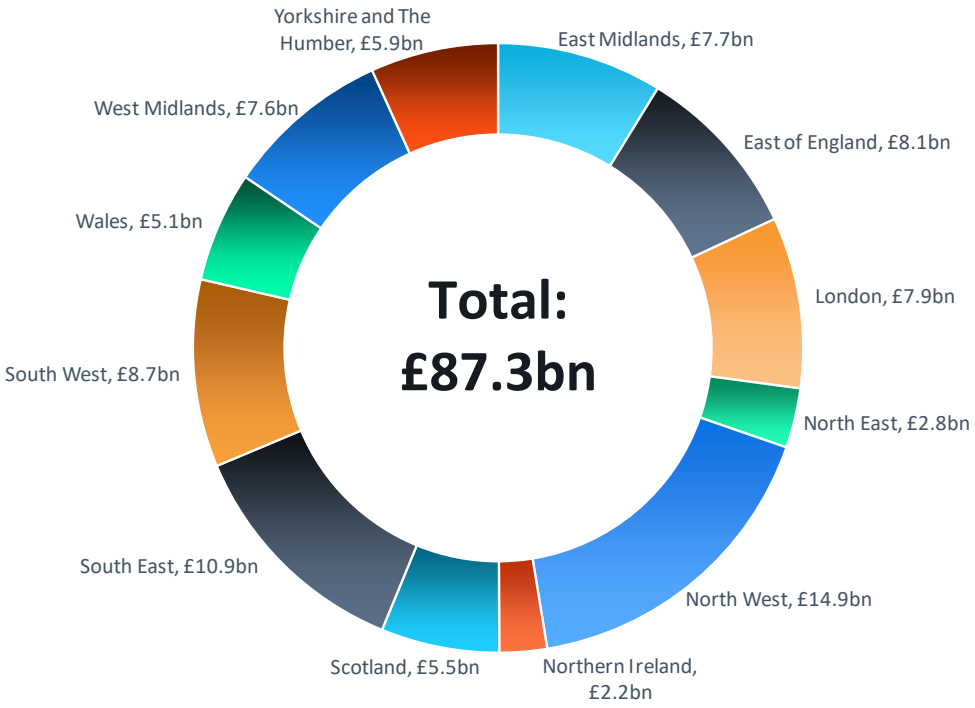
5.38 While the level of GVA currently dependent on air freight might potentially be reduced through the use of alternative modes of transport, the fact that such alternatives are generally poor substitutes for air freight indicates that the level of GVA dependent on air freight is likely to remain significant. This indicates that air freight is a very important service supporting a significant fraction of national economic activity.

Regional economic impacts

5.39 The analysis of the level of industries' and their supply chains' added value (GVA) which is currently dependent on air freight, enables us to estimate the regional importance of air freight services, by considering the regional distribution of output for each industry (and making the reasonable assumption that the proportion of air freight exports, compared with outputs, is the same for each industry across the different regions).

5.40 Figure 5.6 below shows the distribution of the £87.3 billion of GVA currently dependent on air freight exports across the UK's regions. Note that, unlike flown cargo data statistics, this data represents the origin of the air freight (i.e. where it is manufactured) rather than the region of the airport from which it is flown.

Figure 5.6: GVA currently dependent on air freight by region, £ Billion

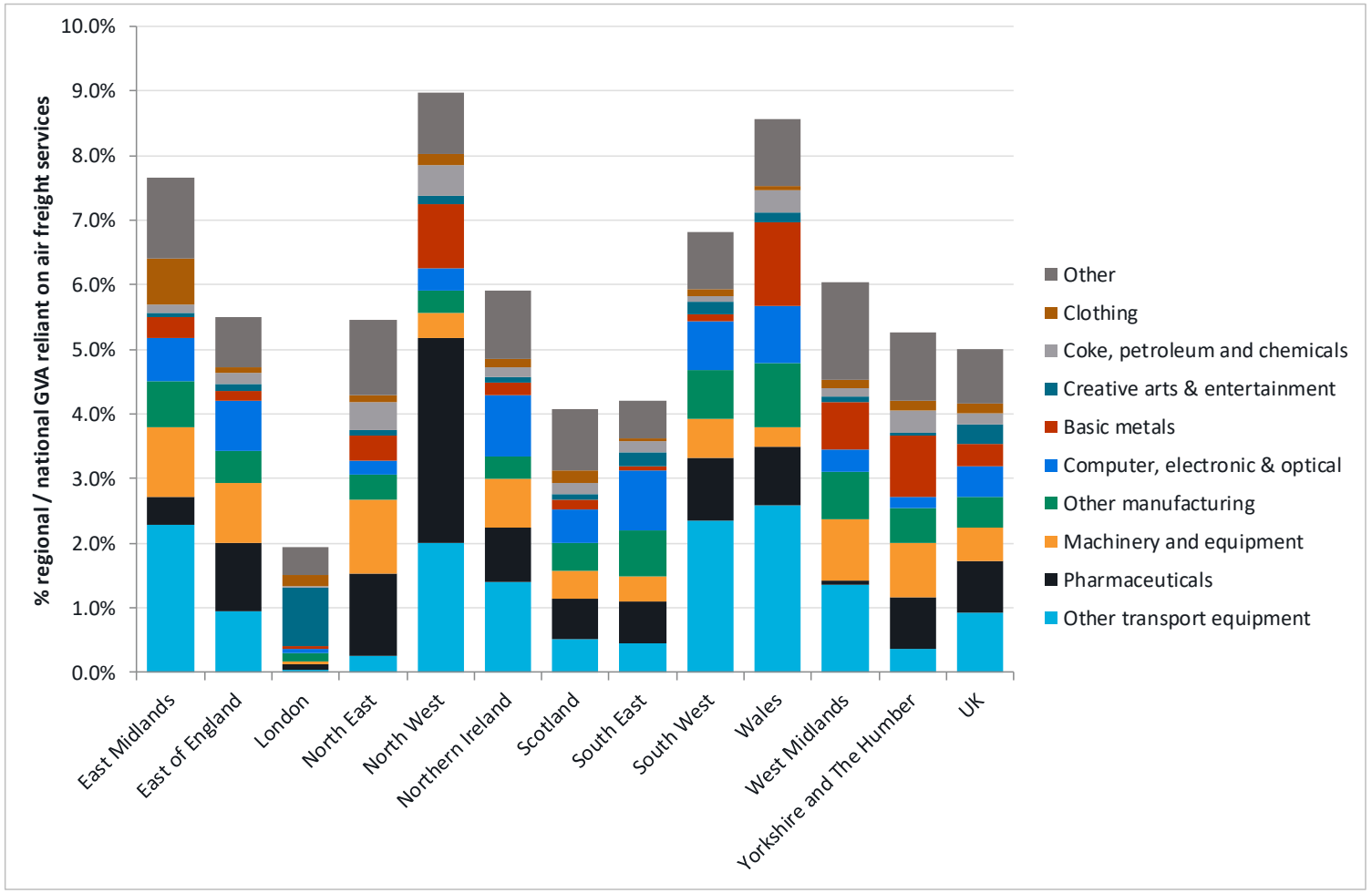


Source: ONS, HMRC, Eurostat, CAA, Steer analysis, 2016 values and prices

5.41 Figure 5.6 demonstrates the importance of the air freight industry in the North West, where £14.9 billion GVA is currently dependent on air freight, representing 9.0% of the whole economy of the region. Similarly, air freight supports very significant proportions of economic activity in many UK regions and nations, including 8.6% in Wales, 7.6% in the East Midlands, 6.8% in the South West, 6.0% in the West Midlands and 5.9% in Northern Ireland. Note that some of these regions have insignificant levels of actual air freight volumes flying from their airports, despite the importance of air freight to their economies, implying a reliance on surface transport to reach airports located elsewhere in the country.

5.42 Taking a combined view of both regions and the industries within them whose GVA is currently dependent on air freight provides some interesting insights, as illustrated in Figure 5.7 below.

Figure 5.7: Proportion of GVA currently dependent on air freight by region and industry



Source: ONS, HMRC, Eurostat, CAA, Steer analysis, 2016 values and prices

5.43 Figure 5.7 highlights the importance of air freight to transport equipment producing industries in the East Midlands, the North West, the South West and Wales, while pharmaceutical manufacturing in the North West makes very significant use of air freight as well as (to a lesser extent) in other regions. Machinery, equipment and other manufacturing in many regions are supported by air freight, while basic metal industries in Wales, the North West, West Midlands and Yorkshire are also dependent on it.

5.44 Air freight does not support much of the production of the London region, which is unsurprising since it is in general not a manufacturing region, but London's large creative arts sector is seen to be strongly dependent on air freight services.

5.45 The contrast between the importance of London and the South East in terms of providing air freight services (focused on Heathrow), compared with the relatively low dependence of their economies on the sector in comparison to regions such as the North West, Wales, the East Midlands and the South West, is stark.

Case study – Connectivity at Manchester Airport

Several stakeholders consulted as part of this study have stated that, due to the concentration of air freight activity at Heathrow, UK air freight would benefit from greater utilisation of regional capacity. The recent growth in freight volumes at Manchester, enabled by increased intercontinental connectivity, have demonstrated how utilisation on regional capacity can benefit UK air freight and regional exports.

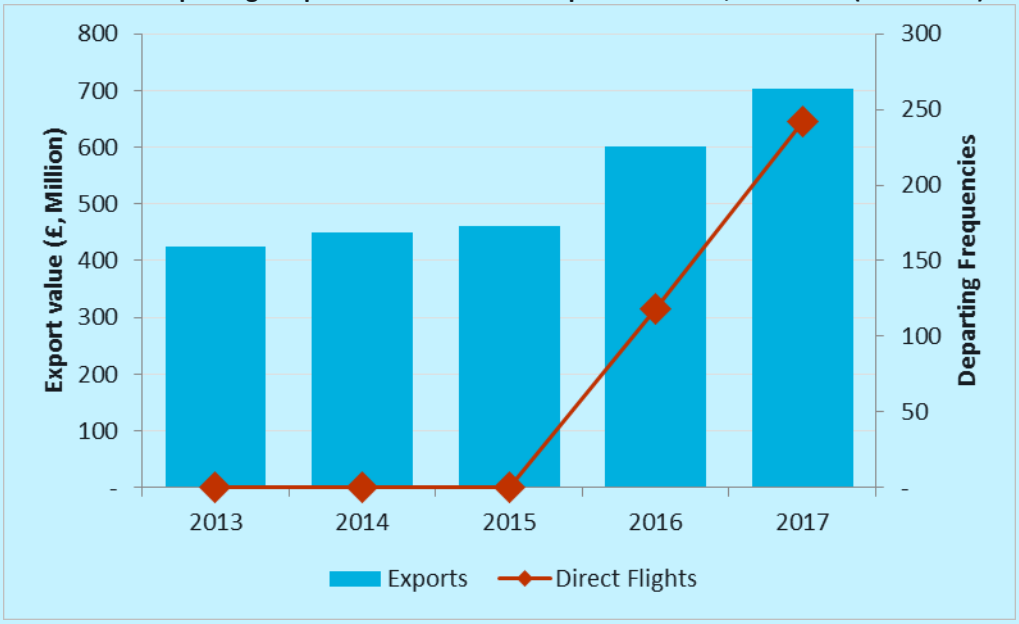
Prior to the financial crisis, freighters accounted for a significant amount of volume at Manchester. Although freighter volumes have fallen away since the financial crisis, increased intercontinental frequencies on passenger aircraft have driven a significant increase in bellyhold freight volumes since 2009. Bellyhold volumes at Manchester have increased with a CAGR of +8.5% between 2009 and 2017.

Bellyhold freight volumes have grown in line with the number of annual departing frequencies to the UAE and Qatar, which have more than doubled since 2009. In more recent years, bellyhold volumes have also been boosted by new direct connections to Hong Kong (2014), Saudi Arabia (2014), Singapore (2016), China (2016) and Oman (2017).

Connections on these new routes accounted for over 15% of freight volumes in 2017. The wider benefits of the China connection were explored in a recent report[20].

As well increasing freight volumes, these new connections have also facilitated exports flown from Manchester Airport. Although some of the routes are to global freight hubs, such as Hong Kong and Singapore, and have therefore not materially affected exports to these countries, other routes have significantly increased the value of exports shipped from the airport. The figure below shows the value of exports to China flown from Manchester Airport as well as the number of annual departing frequencies. The value of exports flown to China from Manchester Airport increased by close to £300 million in the two years since direct frequencies to Beijing were introduced. The exports to other countries have also increased; the value of exports to Oman increased 5-fold by over £40 million the year direct frequencies were introduced.

Manchester: Departing frequencies and value of exports to China, £ Millions (2013-2017)



Source: OAG, HMRC

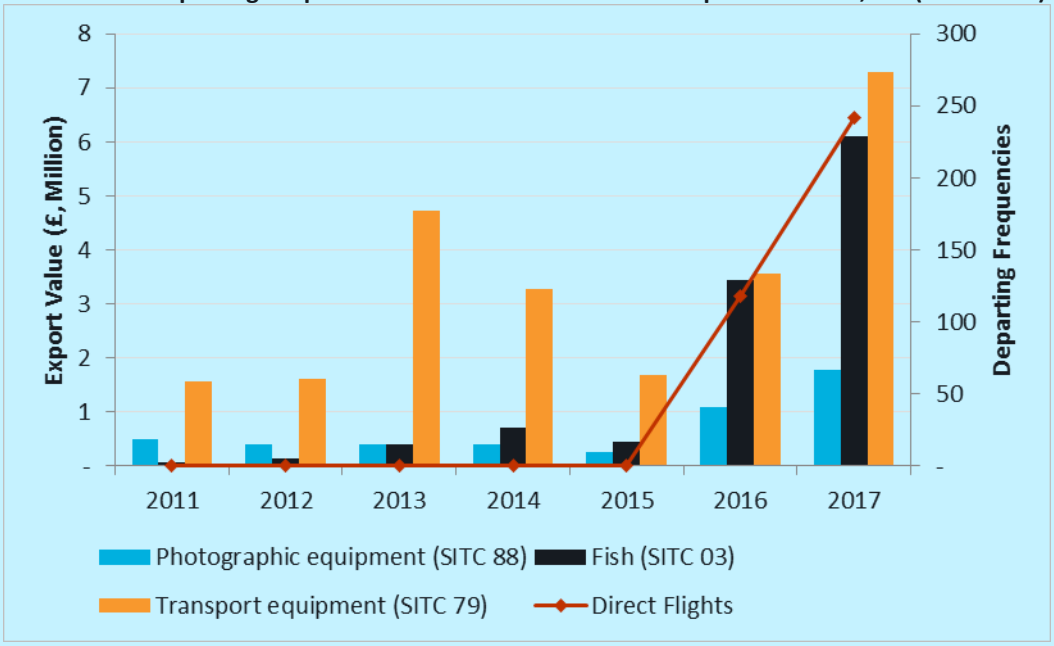
The direct connection to Beijing in some cases also appears to have aided exporters in North-West England. Although total exports to China from the UK grew strongly in 2016 and 2017 (recovering from a slump in Chinese trade in 2015), the value of some products exported to China have grown especially strongly since 2015. HMRC's Regional Trade Statistics (RTS) do not disaggregate exports by transport mode; but there has been strong growth in the value of some exports from the North West, in some products that are transported predominately by air.

The figure below shows the growth in export value from the North-West region to China, for selected product groups that have over a 70% share of air exports nationally, and the number of departing direct flights from Manchester Airport to China. The value of exports

[20] *The China Dividend: Two Years In,* Steer Economic Development, at: https://mediacentre.manchesterairport.co.uk/new-report-shows-manchester---beijing-service-is-a-major-catalyst-for-the-northern-economy/

to China from the North West, in these product groups, have increased significantly in the years since the direct flight to Beijing was introduced.

Manchester: Departing frequencies and value of North West exports to China, £m (2011-2017)



Source: OAG, HMRC

Direct connections to other countries also appear to have benefited local exports; after a new direct connection to Muscat in 2017, the value of exports flown from Manchester Airport to Oman increased 5-fold by over £40 million with export values of flown products from the North West also increased significantly.

The increased freight volumes and export values flown from Manchester demonstrate that long-haul connections served by non-UK carriers, can be a catalyst for the utilisation of regional airport capacity, can help mitigate the decline in freighter activity and can boost exports from regional airports. Given the capacity constraints at Heathrow and that, as of 2017 compared to other major European countries, the UK has relatively few connections with China and the Far East, these markets represent significant opportunity to grow freight capacity.

Policy considerations

5.56 This chapter demonstrates the importance of air freight to the UK economy as a whole, as well as to particular economic sectors and to certain UK regions and nations. Taking account of the analysis of the industry in previous chapters, this raises particular issues relevant to the formulation of national aviation policy as the UK Government develops an aviation strategy towards 2050, including:

- how to protect and develop the significant share of the UK economy currently dependent on air freight services; and
- how to support UK regions and nations whose economies are heavily dependent on air freight services, particularly where local airports do not currently benefit from strong air freight services.

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