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MANSTON AIRPORT: A NATIONAL AND REGIONAL AVIATION ASSET

VOLUME I
Demand in the south east of the UK

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Executive Summary

This report aims to answer three key questions:

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

On 24 October 2017, Chris Grayling MP, Secretary of State for Transport, said the Government's recently updated aviation demand forecasts:

> "*show that the need for additional runway capacity is even greater than originally thought. They show that all 5 of London's main airports will be completely full by the mid-2030s, and 4 of them within a decade.*" (HC Deb 24 October 2017, c 197WS)

A further consultation on the revised draft Airports National Policy Statement (**NPS**) took place at the end of 2017 with oral evidence given to the Transport Select Committee during early 2018. On 26 June 2018, the Secretary of State designated the Airports NPS, which supports the Government's decision to allow the construction of the third Heathrow runway. However, a new runway at Heathrow is not likely to be operational until at least 2030[1] and may be subject to further delays due to the complexity of such a project, its controversial nature, and potential legal challenges.

Airport capacity

The aviation sector is of vital importance to the UK, contributing £52 billion (3.4%) to UK GDP and supporting 961,000 jobs (Oxford Economics, 2015, p. 4). In 2014, the total value of tradable goods carried through UK airports exceeded £140 billion (Airports Commission, 2015, p. 73). The importance of air travel is forecast to continue to grow, with 50% more flights in 2035 than there were in 2012, from around 9 million per year to 14.4 million (Eurocontrol, 2013). The freighter fleet is set to increase by 70% over the next 20 years while air cargo traffic more than doubles (Boeing, 2016b, p. 4).

In the UK, Government forecasts show that all UK's main airports except Manchester (where an increase in capacity is expected) will be full by 2050. In London, the need for additional runway capacity is greater than originally calculated. All five of London's main airports will be completely full by the mid-2030s, and four of them within 10 years. Already HGVs are used in place of direct flights to truck goods to and from the UK and Europe.

In 2017, global cargo volumes grew by 9.3%, more than double the increase in the previous year, with growth of 4.5% forecast for 2018[2]. In Europe, the increase in cargo volumes was 11.9%[3]. In London, total cargo tonnage increased by 8.8% and dedicated freighter tonnage up 5.5% for the rolling year to Q4 2017 (CAA, 2017, p. 10). There were also improvements in load factors, yields and revenues. Speed is the most important

[1] 8 February 2016, The Transport Committee heard evidence from the Secretary of State for Transport on the Government's plans for airport expansion in the South East
[2] http://www.iata.org/whatwedo/cargo/Documents/cargo-strategy.pdf
[3] http://www.iata.org/publications/economics/Reports/freight-monthly-analysis/freight-analysis-dec-2017.pdf

selling point for air cargo transport[4] and demand is increasing for a number of reasons including:

- The need to restock inventories quickly to meet demand
- Just-in-Time and inventory reduction methods
- The need to transport perishable and time sensitive items
- Declining costs as a result of liberalization and technological progress
- Overseas production facilities and global supply chains
- The growing importance of e-commerce
- Customer demand for rapid delivery and return of products purchased online

At the end of November 2017, air freight in Europe reached capacity, which has led to an increase in prices and delays[5] Heathrow Airport also reported severe congestion, with trucks queuing and some being turned away[6]. E-commerce is set to be a game changer for the air freight market, with customers demanding next day delivery. Amazon is leading the way with its purchase of a fleet of dedicated freighters. The impact of e-commerce on air freight has already led to capacity issues and rate increases. Indeed, the competing demands of Low Cost Carriers and all-cargo operators are a major issue in the global debate over airport capacity.

Airport capacity is a problem not just in the UK but also in Europe. By 2035, European capacity is forecast to increase by 17%, leaving a shortfall of around nine runways' worth of capacity (Eurocontrol, 2013). By 2035, European airports will be unable to accommodate around two million flights due to capacity shortages leading to a loss of between 434,000 and 818,000 jobs and between €28 billion and €52 billion in EU GDP (EC, 2015).

Whilst globally around 56% of all air freight (measured in revenue tonne-kilometres (**RTKs**) is carried in dedicated freighters (Budd and Ison, 2017, p. 34), the DfT reports the UK figure (by weight) at between 30% and 22% (DfT, 2017, paras 3.32 and 4.4). The market for dedicated freighter services, including perishables, time sensitive, outsized, and luxury items, is distinct from the belly freight market. The lack of availability in the UK for freighter slots, airports' preference - in a constrained market - for passenger flights, and delays in loading and unloading freighter aircraft indicate airport capacity constraints, particularly in the South East, as a plausible explanation for the lower proportion of freighter to belly freight transport of goods in the UK compared to the rest of the world.

In the UK, non–EU trade accounts for just under half of all trade and 35% of these goods are air freighted. Both figures could increase following the UK's withdrawal from the EU (Oxford Economics, 2013, p. 5). The Airports Commission forecast that, over a 60-year time frame without additional capacity, there would be a £21 to £23 billion cost to users and providers of UK airport infrastructure and £30 to £45 billion in costs to the wider economy (Airports Commission, 2015, p. 17).

Demand in the South East of England

It is clear that the aviation market prefers the South East, with forecasts showing that by 2050, the value of air cargo lost to London due to capacity constraints would equate to

[4] *ibid*
[5] https://aircargoworld.com/allposts/freightos-warns-of-airfreight-rate-jump-as-europe-reaches-capacity/?goal=0_1711f92e66-42df020a11-39626945
[6] https://www.flexport.com/help/381-freight-market-update-november-8-2017

£106 billion per annum with net national losses of around £3.9 billion per annum (Oxford Economics, 2013, p. 5). The London airports facilitate 76% of the UK's air freight (Oxford Economics, 2013, p. 3) and all London airports will be at full capacity by 2030 to 2035 (Airports Commission, 2017, p. 103).

Without extra capacity in the South East, 2.1 million tonnes of freight would have to be diverted elsewhere (York Aviation, 2015, p. 19), mainly to Northern European airports. This tonnage equates to some 108,000[7] truckloads including around 77,000[8] to Europe, and could put huge additional pressure on the UK's road network and the Channel crossings.

Manston Airport

Manston Airport is located in the South East where aviation industry demand is highest and most constrained. The airport has a long runway, an ideal airspace location, benefits from easy surface access to London and the rest of the UK, is located close to mainland Europe, and, with RiverOak's proposed investment, can provide rapid handling and turnaround times for air freight. The airport would provide almost immediate relief to the pressing situation that is causing £2 billion in potential trade from being lost to the South East each year if it remains without additional runway capacity (Centre for Business Research, 2016).

The DCO process requires RiverOak to provide evidence that shows Manston Airport is a nationally significant infrastructure project (**NSIP**) and in particular that it would be capable of handling at least 10,000 freighter movements per year. York Aviation (a firm of air transport consultants), in an unpublished report for Transport for London (**TfL**) entitled *Note on Freight Connectivity*, specifically mention Manston, saying the airport[9] can take 14,000 movements per annum, relieving other South East airports (York, 2013, p. 7). Whilst in the short to medium-term Manston will be vital as an operational airport, even in the longer term, after the opening of Heathrow's third runway and to 2050, Manston provides the only airport infrastructure in the South East that can provide the capacity needed to support the overspill predicted within all timeframes (see Section 5 for full details).

Conclusion

There can be little doubt that, in an increasingly competitive economic climate, the UK cannot afford to lose one of its long-serving and strategically significant airports. This report describes the unmet demand in the South East and shows that Manston Airport, with the level of investment proposed by RiverOak, its geographic location and airspace position, is capable of handling air freight in the volumes required by the DCO process. Indeed, this report demonstrates that Manston Airport is a valuable regional and national asset, capable of providing infrastructure badly needed by the UK in the short, medium and long-term. Manston could play a vital role in helping Britain's connectedness and trade with the rest of the world, and of making a substantial contribution to the future economic and social well-being of the UK.

[7] See footnote 32 on page 22 and Figure 5 on page 38 for an explanation of this calculation
[8] York Aviation estimate that 71% of total excess would go to European airports
[9] York Aviation say, "*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*". However, it should be noted that there are no other airport such as Manston in the London area in terms of runway length, airspace, slot availability, land available for warehousing, etc.

Definitions and abbreviations

ACI	Airports Council International
Air freight	The carriage of goods by aircraft
ATM	Air Transport Movement and/or Air Traffic Movement
BAA	Formally the British Airports Authority
Backload	The transportation of cargo on a return trip to the originating airport
Belly freight	Cargo stowed under the main deck of a passenger aircraft
BIP	Border Inspection Post
CAA	Civil Aviation Authority
Cargo	The term cargo and freight are used interchangeably in this report and refer to goods carried by road, sea or air
Consolidator	A person or company that combines small volumes of commodities from different originators so they can be shipped together and who usually owns the aircraft used for transport
CPO	Compulsory Purchase Order
DCO	Development Consent Order
Dedicated carrier	An aircraft that transports only freight (not passengers)
DfT	Department for Transport
EASA	European Aviation Safety Agency
ECAA	European Common Aviation Area
EIA	Environmental Impact Assessment
EU	European Union
EUROCONTROL	European Organisation for the Safety of Air Navigation
FAA	Federal Aviation Administration
FNV	The Netherlands Trade Union Confederation
Freight	The term freight and cargo are used interchangeably in this report and refer to goods carried by road, sea or air
Freight forwarder	A person or company that organises the shipment of commodities from an originator (manufacturer, producer, etc.) to a destination (customer, etc.) but generally does not own the aircraft used in the transport
FTA	Free Trade Agreements
FTK	Freight tonne kilometre
GDP	Gross Domestic Product
GVA	Gross Value Added
HAL	Heathrow Airport Limited
IATA	International Air Transport Association
ICAO	International Civil Aviation Organisation
ICT	Information and communications technology
Integrator	Integrators provide a door-to-door service, usually using their own road transport, handling, transit warehousing facilities and aircraft. Normally integrators contract directly with the shipper.
JIT	Just-in-time, a manufacturing system that allows materials or components to be delivered just as they are required in the manufacturing process, thereby minimising storage costs
LCC	Low cost carrier
LCY	London City Airport
LGW	London Gatwick Airport
LHR	London Heathrow Airport
Long haul	No generally agreed definition as 'long' or 'short' is subjective. In Europe, a flight taking more than four hours to complete and/or

	originating/destined outside Europe is considered long haul
MAG	Manchester Airports Group
MOD	Ministry of Defence
MRO	Maintenance, Repair and Overhaul
NPS	National Policy Statement
NSIP	Nationally Significant Infrastructure Project
RFS	Road Feeder Service
RTK	Revenue tonne-kilometre
Short haul	As above. Short haul in Europe generally indicates a flight within Europe so taking around four hours or less to complete
TfL	Transport for London
TMA	Terminal Manoeuvring/Control Area
UK	United Kingdom
UKIP	UK Independence Party
USA	United States of America
WTO	World Trade Organization

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1 Introduction

1.1 Background and rationale

1.1.1 This report is the first in a series of documents that make the case for Manston Airport to return to full operation. These reports cover:

- **Volume I: The need for airport capacity in the South East of the UK and the potential role of Manston Airport as part of the UK's airport network**
- Volume II: The findings from a qualitative study that identifies the push and pull attractors for Manston Airport and details the opportunities and the sectoral and geographical markets the research uncovered
- Volume III: The forecast for air freight and passenger traffic for Manston Airport over the first twenty years of operation
- Volume IV: A description of the socio-economic impacts of the operation of Manston Airport as described by the forecast in the third volume of this body of work

1.1.2 For many decades the UK has struggled to resolve the issues surrounding airport capacity expansion. Whilst we now have an Airports NPS, discussions and legal challenges over the third runway at London's Heathrow are likely to continue and it may be some time before the new infrastructure is operational. As a global trading nation, the UK relies on the ability to import and export goods. Our domestic and international transport infrastructure, including airports, railways, seaports and roads, must therefore be fit for purpose and with sufficient capacity if the UK is to continue to prosper in a highly connected world.

1.1.3 To help speed the process of approving major infrastructure projects including airports, the Government introduced the 2008 Planning Act. This was followed by the appointment of the Airports Commission under Sir Howard Davies who was tasked with recommending a solution to the UK's airport capacity issues. In July 2015 the Airports Commission report was published and, in line with the Airports Commission's recommendation, the Government (on 25 October 2016) and Parliament (on 26 June 2018) decided to support construction of a third runway at London's Heathrow Airport. However, the Government is not expecting extra capacity to be available until at least 2030[10]. This means the UK and the South East in particular, has some years to wait before airport congestion is relieved. Even when this expansion is in place, there will be a need for additional capacity particularly for freight. Without immediate capacity expansion, delivered responsibly, the forecasts described in this report show that the UK, and particularly the South East of England, will continue to miss out on the full social and economic benefits they could derive from aviation.

1.1.4 This document therefore makes the case for Manston Airport to be reinstated as a freight-focused airport. Its re-opening would ease the pressure on existing infrastructure in the South East of England and allow some of the currently unmet demand to be handled now and in the future. The Secretary of State for Transport, Chris Grayling, confirmed he would be supportive of proposals to develop a freight hub at Manston Airport, although he believed, at that time, that the matter was in the hands of

[10] 8 February 2016, The Transport Committee hears evidence from the Secretary of State for Transport on the Government's plans for airport expansion in the South East. http://www.parliament.uk/business/committees/committees-a-z/commons-select/transport-committee/news-parliament-2015/airport-expansion-ev-session-15-16/ at 15.07.35

the local authority (HC Deb 15 September 2016, c OA1020). However, the airport, with its 2,742-metre runway, has been closed since May 2014. Ann Gloag, co-founder of Stagecoach, purchased the Manston Airport site on 1 November 2013. Staff were given notice of Ms Gloag's intention to close the airport on 19 March 2014 and the airport closed on 15 May 2015. The intention of the current owner is to secure a change of use from airport to a mixed-use development called Stone Hill Park. The present landowners now propose to seek planning consent to build up to 3,700 homes, a business park, and sports facilities. Such change of use would forever lose the airport facility and the important role it can play in the success of the local, regional and national economies.

1.2 RiverOak's vision for Manston Airport

1.2.1 RiverOak has a clear vision for the future of Manston Airport: To revive Manston as a successful freight-focused airport with some passenger operations, aircraft maintenance and repair, and the creation of a hub for aviation-related commercial opportunities. RiverOak, whose directors specialise in identifying profitable market opportunities, has identified the substantial need for additional and specialised airport capacity for dedicated freighters in the South East of England. 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.

1.2.2 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. Mindful of Manston's long and distinguished history, RiverOak will maintain its heritage and enhance the economic benefits to the region by creating a wide range of aviation-related employment opportunities as well as training and education to meet the necessary skills requirements.

1.3 Aim and objectives of the report

1.3.1 The aim of this report is to consider whether there is a compelling case in the public interest to create a freight-focused facility at Manston Airport. The decision about whether Manston Airport should 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 airport network and meet the requirement of a nationally significant infrastructure project?

This report demonstrates that the answer to each of the above questions is overwhelmingly yes.

1.3.2 The report summarises the available statistical data to underpin the proposal and support business planning and development at Manston Airport. There are a number of other objectives set out for this work and in particular the results will:

- Provide the information required to support the DCO application
- Inform the Manston Airport business case and master plans

- Inform Manston Airport's marketing strategy
- Initiate stakeholder consultation
- Continue to inform and gain support from key stakeholders
- Provide a platform for lobbying Government and industry organisations
- Play a key role in forming Government policy for air freight in the UK

1.4 The aims of the DCO

1.4.1 A Development Consent Order (**DCO**) will be sought by RiverOak to secure the rights and consents necessary for Manston's re-development as an airport as required by the Planning Act 2008. This means that, at the end of a process overseen by the Government's Planning Inspectorate, the Secretary of State for Transport will decide the future of Manston Airport.

1.4.2 The DCO process was established by the Planning Act 2008, as amended by the Localism Act of 2011 and the Infrastructure Acts of 2013 and 2015. This procedure was introduced to streamline the decision-making process for **NSIPs**. One of the main aims of the DCO is to provide a one-stop shop for those promoting NSIPs[11]. There are two main pre-conditions for the inclusion of a Compulsory Purchase Order (**CPO**) within a DCO.

> "*The first criterion is that the land is required for the development to which the development consent relates. For this to be met, the promoter should be able to demonstrate to the satisfaction of the decision-maker that the land in question is needed for the development for which consent is sought. The decision-maker should be satisfied, in this regard, that the land to be acquired is no more than is reasonably required for the purposes of the development.*"

(Guidance Related to Procedures for Compulsory Acquisition (DCLG), February 2010, issued under section 124 PA 2008, paragraph 24)

The second pre-condition is that there is a compelling case in the public interest for the land to be acquired compulsorily.

1.5 Report structure

1.5.1 Following this introductory section, the report commences with an overview of the UK's airport infrastructure, particularly considering national and South East capacity issues. This section is followed by a description of air freight markets before considering the growth and forecasts for these markets. Next, the report considers the capacity of the main UK air freight airports as well as airfields in the South East to determine the potential for additional air freight capacity in the short- to medium-term.

1.5.2 These sections are followed by an outline of the potential impacts on the demand for air freight before considering Manston Airport specifically and its potential as a freight-focused airport. The penultimate section considers a number of additional opportunities for Manston Airport. The report concludes with a summary of the findings in relation to the three questions posed and recommends that the Planning Inspectorate, through the DCO process instigated by RiverOak to reinstate Manston as an operational airport.

[11] Neil Cameron QC, Landmark Chambers available from http://www.landmarkchambers.co.uk/userfiles/documents/resources/Development_Consent_Orders_-and-_Compulsory_Purchase_-_NC.pdf

2 UK airport capacity

2.0.1 The huge growth in aviation over the past eight decades has been at the focus of a wide range of contrasting arguments about when, where and if airports should be built or expanded. Since the 1920s and '30s, when aerodromes were owned privately or by local authorities or municipalities, airports have been nationalised, denationalised and privatised. A wide range of options for the expansion of existing airports and for the construction at sites mainly in the Thames Estuary have been driven by the 'predict and provide' approach to aviation of successive governments. However, on-going and often unresolved issues persist, providing politicians with a choice to make: Should they favour aviation's links to economic growth and job creation or should they preference the concerns of some local people?

2.0.2 Figure 1 shows the location of the UK's airports, with the largest concentration being in the South East of the Country.

Figure 1 Map showing the location of UK airports

Source: www.gov.uk/government/uploads/system/uploads/attachment_data/file/450387/avi0109.pdf

2.1 Constraints in the UK airport network

2.1.1 The most recent and widely circulated documents that describe the UK's airport capacity situation are those used by the Airports Commission in its 2017 report and the DfT's 2018 report. However, a number of other studies (see for example York Aviation, 2015; Oxford Economics, 2013, 2015) also point to the urgent need for airport capacity in the UK. Indeed, on the 24 October 2017, Chris Grayling MP, Secretary of State for Transport said that evidence from updated aviation demand forecasts, "*show that the need for additional runway capacity is even greater than originally thought. They show that all 5 of London's main airports will be completely full by the mid-2030s, and 4 of them within a decade*." (HC Deb 24 October 2017, c 197WS) The new government figures show that in 2016 Air Traffic Movements (**ATMs**) in the UK grew by 10%, "*despite average load factors being higher and airlines using bigger aircraft*" (Department for Transport, 2017, p. 9).

2.1.2 In 2015 the Airports Commission reviewed all available information and consulted widely, arriving at the conclusion that:

> "*While London remains a well-connected city its airports are showing unambiguous signs of strain. Heathrow is operating at capacity, and Gatwick is quickly approaching the same point. There is still spare capacity elsewhere in the South East for point-to-point and especially low-cost fights, but with no availability at its main hub airport London is beginning to find that new routes to important long-haul destinations are set up elsewhere in Europe rather than in the UK. Other UK airports are increasingly squeezed out of Heathrow, with passengers from the nations and regions obliged to transfer through other European airports, or Middle Eastern hubs. That costs them time and money, and is off-putting to inward investors. Without action soon the position will continue to deteriorate, and the entire London system will be full by 2040."* (Airports Commission, 2015, p. 3)

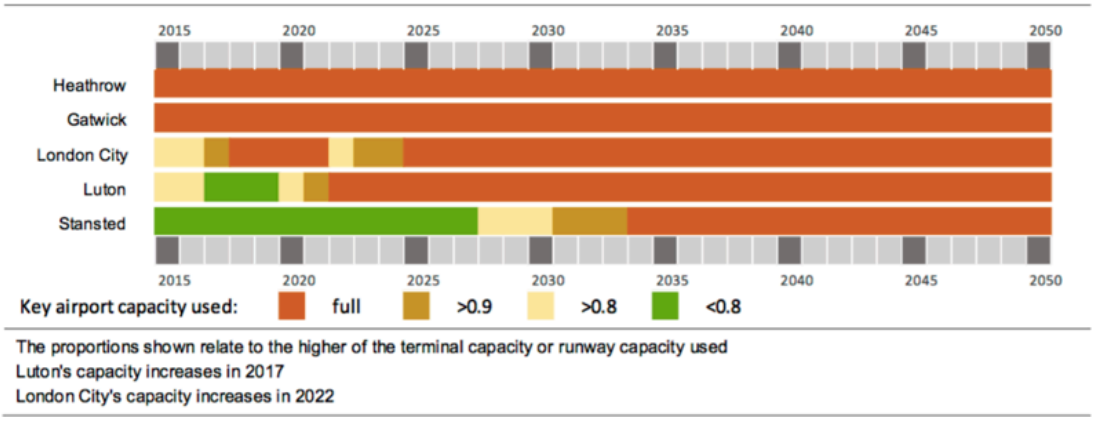
2.1.3 By 2017, the Airports Commission's analysis of the capacity at the London airports shows that:

> "*even in the low demand growth scenario all London airports are full by 2040. Under the high demand growth scenario, all the London airports are full by 2030*" (DfT, 2017, pp. 102-3).

Figure 2 shows the central growth scenario for the London airports without new runways. The figure shows the timeline of capacity usage; where airports are full, or have less than 90% and 80% or more than 80%.

2.1.4 For the UK as a whole, the DfT central demand figures show that all the main airports except Manchester (where an increase in capacity is expected) will be full by 2050 without additional capacity. This is shown in Table 1. However, it should be noted that the figures focus on passenger aircraft usage and do not specifically differentiate the need for freighter aircraft going forward.

Figure 2 ***Central growth scenario, no new runways, London airports, timeline of capacity usage***



Source: DfT, 2017, p. 103 section 7.23 figure 7.4

2.1.5 The lack of airport capacity in the UK is losing the country considerable potential trade, particularly with non-EU countries. Figures compiled by the Centre for Economics and Business Research (CEBR, 2016) for the Let Britain Fly campaign show that, based on 2015 figures, the UK could be missing out on at least £9.5bn in potential trade each year. Without airport development, CEBR predicts that losses could continue to accumulate at the rate of £1.1 million every hour. For the South East, these losses due to lack of runway capacity amount to £2 billion in potential trade each year.

Table 1 ***Proportion of capacity used by airport, central demand, baseline capacity***

	2016	2030	2040	2050
Heathrow	100%	100%	100%	100%
Gatwick	100%	100%	100%	100%
Stansted	70%	88%	100%	100%
Luton	81%	100%	100%	100%
London City	80%	100%	100%	100%
London	93%	98%	100%	100%
Manchester	89%	81%	70%	91%
Birmingham	50%	66%	95%	100%
Bristol	76%	95%	100%	100%
East Midlands	79%	63%	87%	100%
Southampton	82%	99%	100%	100%

2016 is modelled
The proportions shown relate to the higher of the terminal capacity or runway capacity used
The London total proportions relate to a weighted average by number of passengers
Runway capacity is assumed to increase at Manchester; so lower utilisation figures reflect an increase in capacity rather than a decrease in demand

Source: DfT, 2017, p. 102 section 7.20 Table 33

2.1.6 Whilst the European aviation market is becoming more mature, it is nonetheless predicted that there will be 50% more flights in 2035 than there were in 2012, from around 9 million per year to 14.4 million (Eurocontrol, 2013). However, across Europe, it is estimated that airport capacity will increase by just 17% by 2035, leaving a shortfall

of around nine runways' worth of capacity (*ibid*, 2013)[12]. The EU's calculations show that by 2035, European airports will be unable to accommodate around two million flights due to capacity shortages. This will lead to a loss of between 434,000 and 818,000 EU jobs and between €28 billion and €52 billion in EU GDP (EC, 2015, p. 7). It is, as Eurocontrol say, essential therefore that we make the best possible use of existing infrastructure.

2.2 Aviation's contribution to the economy

2.2.1 Oxford Economics (2015, p. 4) calculates that the aviation sector contributes £52 billion or 3.4% to UK GDP and supports 961,000 jobs. In terms of the value of the UK air freight industry, Oxford Economics estimate that airlines earn around £3.1 billion from shippers annually, carrying 2.3 million tonnes to, from, and within the UK (*ibid*, p. 5). Indeed, the Airports Commission says that:

> "[*A*]*viation supports British manufacturing, carrying high value exports, particularly to emerging markets, and helping to secure the position of UK based manufacturers in complex global supply chains. Today around 40% of the UK's trade with economies outside the EU by value is transported by air and in 2014 alone, the total value of tradable goods carried through UK airports exceeded £140 billion*." (Airports Commission, 2015, p. 73)

2.2.2 The importance of air freight to economies is increasing for a number of reasons:

- Firms using Just-in-Time (**JIT**) methods to reduce inventories use air freight to transport products, components and raw materials in the fastest and most reliable way.
- For perishable and time sensitive items, air freight is the fastest way to transport products to customers to meet their needs and preferences.
- Declining costs as a result of liberalization and technological progress make air cargo logistics more appealing.
- Firms with production facilities overseas and global supply chains increasingly rely on air cargo logistics.
- The growing importance of e-commerce is allowing firms to sell into global markets, including growing economies such as India and some in Asia, increasing the demand for air freight.
- Customers are demanding rapid delivery and return of the products they purchase online. (See Bilotkach *et al*, 2017, p. 1)

2.2.3 Aviation makes an enormous impact on our economy, creating jobs and contributing to GDP (Oxford Economics, 2013). Indeed, most studies conclude that world air freight traffic is strongly correlated to GDP (e.g. Boeing, 2014, 2016b) and that world merchandise trade is a component of GDP, is an important measure of economic performance (Boeing, 2014, p. 2), and that transport infrastructure contributes to economic development (Ishutkina, 2009; Prud'homme, 2005).

> "*In 2014, airlines transported 51.3 million metric tons of goods, representing more than 35% of global trade by value . . . equivalent to USD6.8 trillion worth of goods annually, or USD18.6 billion worth of goods every day*." (IATA, 2015, p. 4)

[12] This figure does not suggest that only nine new runways are required but indicates the scale of the problem

2.3 Political setting

2.3.1 From the advent of commercial aviation, government policy has been to meet rather than to manage demand for airport capacity (Humphreys *et al*, 2007). This strategy is derived from the close link between a country's economic status in world rankings (including attracting inward investment and creating jobs) and their global connectivity. As the DfT say in their Airports NPS:

> "2.1 *International connectivity, underpinned by strong airports and airlines, is important to the success of the UK economy. It is essential to allow domestic and foreign companies to access existing and new markets, and to help deliver trade and investment, linking us to valuable international markets and ensuring that the UK is open for business. It facilitates trade in goods and services, enables the movement of workers and tourists, and drives business innovation and investment, being particularly important for many of the fastest growing sectors of the economy.*
>
> *2.2 International connectivity attracts businesses to cluster round airports, and helps to improve the productivity of the wider UK economy. Large and small UK businesses rely on air travel, while our airports are the primary gateway for vital time-sensitive freight services. Air travel also allows us ever greater freedom to travel and visit family and friends across the globe, and brings millions of people to the UK to do business or enjoy the best the country has to offer*." (DfT, 2018b, p. 13)

2.3.2 However, issues about where to locate new airport infrastructure are dogged by local politics. Members of Parliament represent their constituents and there are considerable anti-airport development lobbies in areas such as Heathrow, Gatwick and Stansted. In Thanet both local MPs and the new Leader of Thanet District Council fully support the re-opening of Manston as an airport.

2.3.3 One of the justifications for the privatisation of the UK's airports was a desire to increase competition between UK airports, particularly the London airports. This competition is seen as essential if customers, both passengers and freight, are to benefit in terms of service and pricing. However, capacity constraints defeat the free market ideal, putting upward pressure on fares and creating significant barriers to entry for new players who are unable to acquire landing and take-off slots at main airports (Airports Commission, 2015).

2.3.4 Indeed, since the 1986 Airports Act, the UK government no longer builds airports or adds runways (DfT, 2003) and, "*can only encourage and incentivize airport operators to invest in new capacity, when it believes capacity would best benefit the national interest*" (Humphreys *et al*, 2007, p. 341). As such, it is vital that government makes, "*best use its regulatory, fiscal and planning levers to encourage the investment it wants*" (*ibid*, p. 343).

2.3.5 The UK's international transport networks are a key enabler to trade in goods and services (DfT, 2009). Therefore uncertainty about the location of additional airport infrastructure, particularly runways, has led to considerable frustration over past years. Despite differences of opinion between the merits of Heathrow and Gatwick, now resolved (at least in Parliament), there is general consensus that additional airport capacity is urgently needed to relieve the congestion in the London system.

2.3.6 At present, neither the UK nor EU governments have specific policies for air freight. However, the UK Airports NPS states that:

> "*the Government has confirmed that it is supportive of airports beyond Heathrow making best use of their existing runways.* ." (DfT, 2018b, p. 11)

The NPS also states that,

> "*The Commission noted in its final report that a new runway* [Heathrow] *will not open for at least 10 years. It therefore considered it imperative that the UK continues to grow its domestic and international connectivity in this period, which it considered would require the more intensive use of existing airports other than Heathrow and Gatwick*." (DfT, 2018b, p. 5)

2.3.7 The 2018 Airports NPS makes clear the importance of air freight to the UK economy. Highlighting the need to increase the speed of delivery between manufacturer and customer, they say:

> "*2.7 Air freight is also important to the UK economy. Although only a small proportion of UK trade by weight is carried by air, it is particularly important for supporting export-led growth in sectors where goods are of high value or time critical. Heathrow Airport is the UK's biggest freight port by value. Over £178 billion of air freight was sent between UK and non-European Union countries in 2016, representing over 45% of the UK's extra-European Union trade by value. This is especially important in the advanced manufacturing sector, where air freight is a key element of the time-critical supply chain. By 2030, advanced manufacturing industries such as pharmaceuticals or chemicals, whose components and products are predominantly moved by air, are expected to be among the top five UK export markets by their share of value. In the future, UK manufacturing competitiveness and a successful and diverse UK economy will drive the need for quicker air freight.* ." (DfT, 2018b, p. 14)

2.3.8 The Airport NPS indicates the Government's concerns over capacity constraints, pointing to the impact on connectivity. Profit maximisation means that profitable routes are operated at higher frequencies but other routes cease to be served, reducing the possibility of using belly freight to those destinations and increasing the need for dedicated freighers.

> "*2.14 The consequences of not increasing airport capacity in the South East of England – the 'do nothing' or 'do minimum scenarios' – are detrimental to the UK economy and the UK's hub status. International connectivity will be restricted as capacity restrictions mean airlines prioritise their routes, seeking to maximise their profits. Capacity constraints therefore lead to trade-offs in destinations, and while there is scope to respond to changing demand patterns, this necessarily comes at the expense of other connections. Domestic connectivity into the largest London airports will also decline as competition for slots encourages airlines to prioritise more profitable routes*." (DfT, 2018b, p. 15)

3 Airfreight markets

3.0.1 Air freight, goods carried between one point and another in aircraft, is only one of the various means of transporting goods. However, air freight has played an important role in enabling the rapid delivery of goods between countries. Table 2 shows the characteristics of different modes of transport. Due to air freight's particular qualities, it is generally used to transport commodities with high value, high business impairment value or time critical (not having the item would incur considerable cost to business), low demand predictability, or that are perishable (Gourdin, 2006).

Table 2 Characteristics of different transportation modes

	Rail	Road	Pipeline	Air	Water
Door-to-door	Sometimes	Yes	Sometimes	No	Sometimes
Price	Low	High	Very Low	Very high	Very low
Speed	Slow	Fast	Slow	Very fast	Very slow
Reliability	Medium	Medium	Very high	Very high	Low
Packaging needs	High	Medium	Nil	Low	High
Risk of loss and damage	High	Medium	Very low	Low	Medium
Flexibility	Low	High	Very low	Very low	Low
Environmental impact	Low[i]	High[ii]	Low[iii]	Medium[iv]	Low[v]

[i] Minimal air and noise pollution, low energy consumption per ton-kilometre travelled
[ii] Air and noise pollution, traffic congestion, high energy consumption per ton-kilometre travelled
[iii] Pipeline rupture could result in catastrophic environmental damage
[iv] Air and noise pollution, very high energy consumption per ton-kilometre travelled
[v] Minimal air and noise pollution, low energy consumption per ton-kilometre travelled

Source: Gourdin, 2006, p. 88

3.0.2 Compared to passenger transport, air freight is more complex, "*because the former [air freight] involves more players, more sophisticated processes, a combination of weight and volume, varied priority services, integration and consolidation strategies, and multiple itineraries of a network than the latter [passenger transport*]." (Feng et al, 2015, p. 265)

3.1 Types of air freight

3.1.1 Boeing (2014) segment air freight into three main service sectors:

- **Scheduled freight**
  - Including general and express freight
  - Accounts for 88% of the world air freight market
  - Express freight continues to grow faster than the average world air cargo growth rate
- **Charter freight**
  - Made up of urgent and/or special handling requirements
  - 8% of the market
  - Almost entirely carried on dedicated cargo aircraft rather than as belly freight
- **Mail**
  - Forecast to grow at 1% per year
  - Risks to growth include express operators moving to mail, increasing internet communication, a move to express services by mail air freight operators, and more stringent security requirements

3.1.2 Gardiner and Ison (2007, p. 5) segment the air freight industry rather differently:

- **Belly freight**
  - Percentages vary by airport, from almost all at Heathrow to less at East Midlands
- **Express freight**
  - Carriers operate dedicated freighter aircraft on a time-definite basis
  - Worldwide almost 50% of airport movements in this sector take place at night
- **Heavy freight**
  - Dedicated cargo either on a scheduled or charter basis

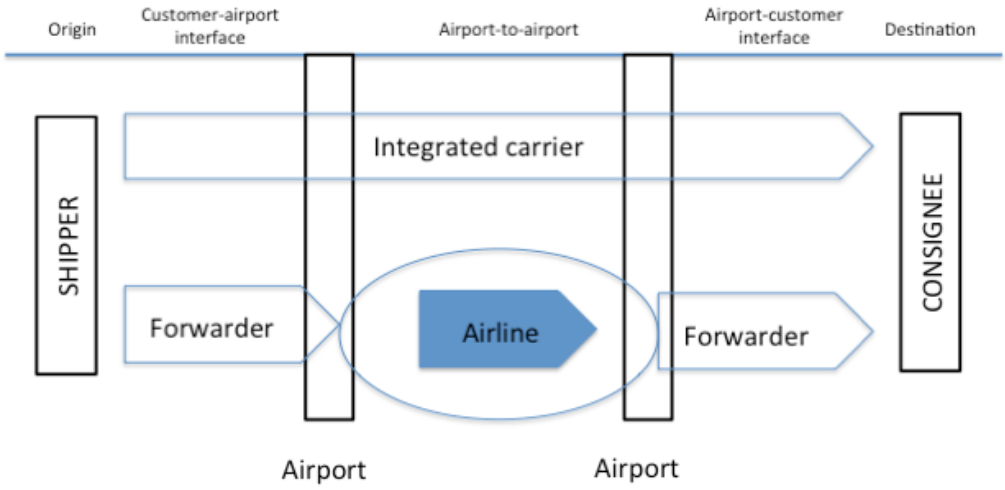
3.1.3 Other industry segmentations of the air freight market include:

- **General air cargo**
  - Includes individually planned and time-defined services suited to price-sensitive cargo with non-urgent transit times that are not hazardous or dangerous
- **Express freight/perishables**
  - The fastest growing market, including all urgent and time critical cargo
- **Specialist or niche cargo**
  - Including dangerous goods and live animals
- **Mail**

3.2 Air freight models

3.2.1 There are two models of air freight: the air freight forwarding model and the integrated air freight model. Figure 3 shows the door-to-door air freight value chain from its origin with the shipper to its destination with the consignee. The customer contracts with either an integrated carrier (such as FedEx, UPS, DHL, etc.) or a freight forwarder.

Figure 3 The door-to-door value chain



Source: Clancy *et al*, 2008 in Khan, 2010, p. 10

3.2.2 **Air freight forwarders**: These organisations provide a service to shippers and importers that has evolved over the last few decades. Originally freight forwarders received a consignment of freight from a shipper and arranged its routing, transportation handling and documentation to either the final receiver or to a foreign airport without owning the vehicles (trucks or aircraft) involved. In more recent years, the role of the forwarders has developed with the largest companies now describing themselves as logistics providers. Most air freight forwarders use belly freight on scheduled passenger services using wide bodied aircraft although there are a number of dedicated all-cargo freighter aircraft.

3.2.3 **Integrators**: These companies provide a door-to-door service, usually using their own road transport, handling, transit warehousing facilities and aircraft. Normally integrators contract directly with the shipper. Originally branded as express operators, they now compete more directly with freight forwarders and airlines. Integrators mainly use dedicated freighter aircraft although they may buy capacity on passenger aircraft.

3.2.4 The types of commodities transported by air include high value and generally low weight items; perishable goods such as fruit, vegetables, and flowers; and process critical items such as medical items (pharmaceuticals, etc.), and machinery parts where outages would be costly (such as for aircraft and telecommunications equipment). A significant proportion of the UK's total air freight flow consists of transhipments (DfT, 2009).

3.3 Main air freight carriers

3.3.1 The large integrators, FedEx, UPS, and DHL rank in the top four airlines in terms of tonnes carried per year. All these integrators use East Midlands Airport and FedEx and UPS also use Stansted Airport. Table 3 shows the World's top 50 air freight carriers by freight tonne kilometres (**FTK**s) in 2016 and compared to 2015 FTKs. It should be noted that airline groups have been used so, for example, AirBridgeCargo is included within the Volga-Dnepr Group and Lufthansa Group includes Swiss, Austrian and Brussels Airlines.

Table 3 Top 50 air freight carriers in 2016

Rank	Airline (or Airline Group)	2015 rank	FTKs (millions)	% change from 2015
1	Federal Express	1	15,712	-0.9
2	Emirates	2	12,270	-.0.4
3	UPS Airlines	3	11,264	3.9
4	DHL Express Group	6	10,562	15.1
5	Cathay Pacific Group	4	10,208	-3.6
6	Lufthansa Group	5	9,469	1.6
7	Qatar Airways	9	9,221	19.6
8	Air France-KLM	7	8,133	-9.2
9	Korean Air	8	7,666	-7.1
10	Cargolux	10	7,453	7.7
11	Air China Group	11	6,809	1.0
12	China Southern Group	12	6,744	3.9
13	Singapore Airlines	13	6,345	2.2
14	Atlas Air	14	5,875	0.4
15	China Airlines	16	5,273	-4.0
16	IAG Group	15	5,148	-6.3
17	Volga-Dnepr Group	19	5,102	17.5
18	China Eastern Group	17	4,727	-1.6
19	Etihad Airways	18	4,481	-1.7
20	All Nippon Airways	20	4,315	7.5
21	Asiana Airlines	21	3,813	-4.5
22	Turkish Airlines	28	3,640	30.0
23	United Airlines	22	3,534	-7.4
24	EVA Air	24	3,480	-4.5
25	LATAM Group	23	3,278	-13.7
26	American Airlines	26	3,168	-6.2
27	Nippon Cargo Airlines	27	2,899	3.4
28	Delta Air Lines	26	2,577	-19.5
29	Qantas Airways	32	2,273	10.1
30	Japan Airlines	29	2,142	-9.8
31	Thai Airways	31	2,123	-1.2
32	HNA Group	35	1,774	15.0
33	Air Canada	34	1,732	8.1
34	Kalitta Air	30	1,557	2.5
35	Silk Way West Airlines	41	1,536	62.5
36	Ethiopian Airlines	38	1,500	16.4
37	Virgin Atlantic	36	1,416	3.6
38	Air New Zealand	39	1,231	4.5
39	Avianca	40	1,126	2.3
40	Malaysia Airlines	33	870	-50.8
41	Saudi Arabian Airlines	43	834	-1.7
42	Finnair	45	759	8.0
43	South African Airways	42	743	-15.1
44	Jet Airways	44	732	-0.4
45	Aeroflot Russian Airlines	48	728	17.2
46	Garuda Indonesia	49	688	21.6
47	SAS Scandinavian Airlines	47	674	5.1
48	Air India	46	571	-12.2
49	Philippine Airlines		540	
50	Alitalia		514	

Source: https://aircargoworld.com/allposts/freight-50-top-50-carriers-chart/ compiled from IATA, U.S. Department of Transportation, Cargo Facts database, 2017

3.3.2 The growth of airlines such as Silk Way West (up from 41st to 35th ranking on FTKs), Turkish Airlines (22nd from 28th), Qatar Airways (now 7th from 9th) and Emirates (who hold 2nd place and ranks amongst the integrators) is attributed to "*diverse cargo growth strategies*"[18]. Asian operators such as Korean Air, Air China, China Southern Group, Singapore Airlines, China Eastern Group and Etihad rank highly in terms of world RTKs. The potential for increased trade with China has been demonstrated by the impact of direct flights operating from Manchester. The DfT report that the value of goods exported by businesses from Manchester Airport has doubled since the route commenced (DfT, 2018a, p. 38). This success provides an indication of the potential for East Kent should routes between China and Manston Airport be made available.

[18] https://www.aircargoweek.com/iata-wcs-2017-freighters-boeings-crabtree/

4 The growth in air freight

4.0.1 At the end of November 2017, air freight in Europe reached capacity for the first time in at least 10 years. This situation led to a rise in shipment costs, with the price reaching as high as US$13 per kilogram for a trans-Atlantic route[19]. According to press reports, "*major airports in Europe are experiencing delays of a week in uplift, particularly Milano Malpensa Airport*"[20]. Heathrow Airport was severely congested, with queuing trucks, truck wait fees, and trucks being turned away[21]. With warnings that services on key trade routes from Heathrow are reaching capacity, the UK's exporters could be hampered by lack of access to markets[22]. In particular, routes such as Shanghai, Delhi, Mumbai, Los Angeles, Kokyo Haneda and Dubai are affected.

4.1 The UK air freight market

4.1.1 London's six airports, Heathrow, Gatwick, Stansted, Luton, London City and Southend facilitate 76% of the UK's air cargo. Providing sufficient aviation capacity to meet future air freight demand is, say Oxford Economics (2013, p. 8), the first step to encouraging future trade growth. Connectivity will become ever more critical as the UK, an island nation, commences its exit from the EU. Table 4 shows the 2017 figures for passengers and freight at the London airports.

Table 4 2017 South East UK Airport operations

Airport	Passenger	%	Tonnes freight	%	ATM	%
Heathrow	78,012,825	45%	1,698,461	83%	475,783	40%
Stansted	25,931,639	15%	236,892	11%	189,919	16%
Gatwick	46,515,945	27%	96,983	5%	285,912	24%
Luton	15,990,197	9%	21,027	1%	133,743	11%
London City	4,595,854	3%	65		80,490	7%
Southend	1,092,445	1%	0		26,674	2%
Total	172,138,905	100%	2,053,428	100%	1,192,521	100%

Source: CAA Airport Data, 2017[23]

4.1.2 The government's emerging strategy for aviation makes clear the importance of the rapidly growing UK air freight sector:

> "*4.5 Whether in the bellyhold of commercial airlines or in dedicated aircraft, air freight plays a crucial role in the sector and is currently flourishing. The strategy will establish our approach to place the UK at the forefront of air freight technology and facilitation processes.*" (DfT, 2018a, p. 36)

[19] https://aircargoworld.com/allposts/freightos-warns-of-airfreight-rate-jump-as-europe-reaches-capacity/?goal=0_1711f92e66-42df020a11-39626945
[20] https://www.flexport.com/help/381-freight-market-update-november-8-2017
[21] https://www.flexport.com/help/381-freight-market-update-november-8-2017
[22] http://www.aircargonews.net/news/airport/single-view/news/uk-exporters-warned-they-could-be-held-back-by-lack-of-air-cargo-access.html
[23] https://www.caa.co.uk/Data-and-analysis/UK-aviation-market/Airports/Datasets/UK-Airport-data/Airport-data-2017/

4.1.3 The busiest UK airport for air freight is London's Heathrow, where most freight is carried in the hold of passenger aircraft. However, industry leaders have called for infrastructure changes at Heathrow to resolve a number of access issues. Heathrow has seen cargo volumes increase by 10% in 2017, leading to congestion, delays and an inability to reach the airport's cargo centre[24].

4.1.4 For freight-only aircraft, Stansted and East Midlands currently dominate (DfT, 2017, p. 67). In terms of cargo-only ATMs, Table 5 shows 1% growth between 2016 and 2017 at all reporting UK airports. Between 2016 and 2017, East Midlands cargo-only ATMs increased by 10%. Heathrow's cargo ATMs increased by 21%, whilst Stansted's decreased by 10%. This is perhaps an indication of the capacity constraints at Stansted impacting on cargo-only operations.

Table 5 2017 cargo ATMs at UK airports

Airport	2017 cargo ATMs	2016 cargo ATMs	% change
Gatwick	1	0	
Heathrow	2,971	2,452	+21%
Luton	1,490	1,778	-16%
Stansted	10,126	11,246	-10%
All London	14,588	15,476	-6%
East Midlands	21,286	19,357	+10%
All reporting	52,330	51,863	+1%

Source: CAA monthly airport data, Table 6

4.1.5 Aircraft-to-aircraft movements account for around 15% of air freight traffic in the UK, mainly through Heathrow (DfT, 2009). Three of the four largest integrators, DHL, UPS and TNT, have a strong presence at East Midlands with offices at Heathrow, Stansted and other airports. Fedex's UK base is Stansted.

4.1.6 In terms of mail carried through UK airports, the Royal Mail dominates the market. Their strategy is to wet lease aircraft (hire aircraft with flight crew) and take space on other flights through integrators. In 2017, 182,000 tonnes of mail were carried through UK airports (down from 206,000 in 2015 and 185,000 in 2016). Heathrow handles most mail (99,000 tonnes) on scheduled passenger flights (CAA Table 18, 2017). However, overall, the use of passenger aircraft for mail reduced in 2017 by 6% in favour of cargo aircraft.

4.1.7 By weight, the UK imports (57% or around 1.3 million tonnes) more than it exports (43% or approximately 1 million tonnes) (DfT, 2009, p. 9). A large proportion of exports, by both weight and value, include machinery and transport equipment. Imports are more mixed across all types of commodities when measured by weight but by value, machinery and equipment dominate. The US and Asia are the primary markets for UK air freight for both imports and exports (*ibid*, p. 9).

[24] http://news.moov.com.ng/london-heathrow-airport-struggles-with-increasing-cargo-congestion-delays/

4.2 Air freight forecasts

4.2.1 By 2000, UK air freight had become constrained, particularly at the London airports (DfT, 2003; Oxford Economics, 2013, York Aviation, 2013, 2015). In London, the cargo-only market grew by 5.5% in terms of tonnage between Q1 2016 to Q4 2016 and Q1 2017 to Q4 2017 (CAA, 2017, p. 10). This took the total tonnage carried in dedicated freighters to and from London airports to 374.1 tonnes per year. The regional figure for dedicated freighters (outside London) increased by 8.6% over the same period.

4.2.2 Despite the constraints, the UK freight market seems strong, having increased by 10.6% in Q4 2017 compared to the same quarter in 2016 (CAA, 2017, p. 10). There was an increase in both imports and exports (October 2017 figures) and manufacturing orders from overseas customers was high[25]. AirBridgeCargo has increased its freighters into Heathrow, Etihad has commenced freighter services at Stansted and East Midlands, and Manchester Airport saw 15% growth to China with the addition of Hainan Airline's Beijing service.

4.2.3 Boeing's traffic and market outlook describes an air cargo market recovery that began in 2014. Their market outlook 2016-2035 (Boeing, 2016a) forecasts air cargo traffic, measured in RTKs, to increase annually at 4.2% (although there are differences between the forecasts for regional pairs). For example, Asia-Europe is forecast to grow during the period to 2035 by 4.6% (Boeing, 2016b, p. 16). The Airbus forecast is for growth at 4% globally (Airbus, 2016). The Boeing and Airbus forecasts are based on the opinions of experts who summarise the world's major air trade markets and identify key trends.

4.2.4 Overall, demand for air cargo services set to more than double over the next 20 years, with the number of aircraft in the freighter fleet expected to increase by 70% (Boeing, 2016b, p. 4). IATA confirm that:

> "*Large wide-body freighter aircraft utilization is trending upwards and is now back to levels last seen in 2012. At the same time, airlines are managing to maintain the freight load factor at levels last seen in late 2014.*" (IATA, 2018)

4.2.5 IATA 2017 figures show air freight growth of 9.3% globally[26] and 11.8% year-on-year in Europe when measured in freight tonne kilometres[27]. Full-year 2017 demand for air freight grew at twice the pace of the expansion in world trade, which was 4.3%. IATA contribute air freight's outperformance of world trade to strong global demand for manufacturing exports as companies restock inventories[28]. In contrast, capacity (available freight tonne kilometres) in Europe grew by only 5.9%, accounting for only half the increase. IATA reports their outlook for 2018 as optimistic since consumer confidence is buoyant, forecasting 4.5% expansion in 2018[29].

[25] https://theloadstar.co.uk/brexit-effect-seems-positive-comes-uk-air-freight-market/
[26] http://www.iata.org/whatwedo/cargo/Documents/cargo-strategy.pdf
[27] http://www.iata.org/publications/economics/Reports/freight-monthly-analysis/freight-analysis-dec-2017.pdf
[28] http://www.iata.org/pressroom/pr/Pages/2018-01-31-01.aspx
[29] http://www.iata.org/pressroom/pr/Pages/2018-01-31-01.aspx

4.2.6 IATA surveys also show increased confidence in the market, with 58% of respondents expecting further increases in freight volumes in the coming year and just 11% expecting a decrease[30]. Indeed, IATA says:

> "*The results of our latest survey of airline CFOs and heads of cargo, conducted in early-July, suggest that the squeeze on industry profit margins peaked in the first quarter of the year. 77% of respondents reported that profitability increased in year-on-year terms in Q2 2017 – more than double the corresponding share in the previous survey and the highest proportion in almost seven years. Having been at or below the 50-mark for the past four surveys, the weighted-average score jumped to its highest level in more than two years.*"

4.2.7 Air freight increases appear to have resulted in increased demand for cargo charters. For example, UK-based Air Charter Service reports a hike of 11% in 2017, to 4,300 cargo charter contracts, some 15,000 flights[31].

4.2.8 Despite 2017 figures and industry forecasts, the DfT are currently showing no growth from 2016 figures in the all cargo market (DfT, 2017, 2.5.6). This issue was raised at a meeting with the DfT on 25 January 2018. The DfT's response, received on the 1 June 2018, points out that they do not model freight in detail and the zero percent growth is an assumption. The Department is currently revaluating air freight policy as part of the developing Aviation Strategy. It is unclear whether the zero percentage growth assumption is due to the absence of detailed information or is simply pragmatic, since the lack of capacity for dedicated freighters would preclude any substantial increase in movements, particularly in the South East.

4.2.9 Indeed, York Aviation (2013) highlights the lack of a central means by which to calculate how much freight is handled at any particular airport. The mix of belly freight and dedicated freighters makes the relationship between departures and air freight tonnage very difficult to approximate. This means that predicting freight movements and tonnage at an airport level is difficult and contentious. Having a common database of figures (akin to the National Air Passenger Demand Model) and an agreed methodology would help considerably.

4.3 The UK's competitive position

4.3.1 On the 25 October 2016, the Government decided on their preferred option for the future direction of air freight and passenger travel in the UK. Several options were considered, including a new airport on the Isle of Grain or the Outer Estuary. This proposal was discounted, leaving only a third runway at Heathrow or a second at Gatwick on the table. Heathrow was the preference of the Airports Commission and is now supported by the Government under Theresa May and by Parliament.

4.3.2 However, given the complexity of the Heathrow project, its controversial nature and the potential for legal challenges, new infrastructure is unlikely to be operational within the next decade or longer. This leaves the air freight industry and those who depend upon it, to operate under constrained conditions unless more use of existing infrastructure can be made. Moreover, even once a third runway is in place at Heathrow,

[30] http://www.iata.org/whatwedo/Documents/economics/bcs-jul-17.pdf
[31] https://aircargoworld.com/allposts/air-charter-services-cargo-charters-soar-in-2017/?goal=0_1711f92e66-16658a24b0-39626945

and into the long-term, considerable capacity constraints for dedicated freighters may still remain.

4.3.3 Since there is a clear case for additional freight capacity in the UK, it seems undeniable that there is a compelling case, in the public interest, to consider a freight-focused facility at Manston Airport. A facility already exists at Manston and, with appropriate investment, can be brought back into use relatively quickly. The UK lacks a specialist freight hub such as Liege and Leipzig and capacity issues at airports such as Amsterdam-Schiphol highlight how the preference for passenger flights negatively impacts dedicated freighter operations (see Section 8.4 for more details).

4.3.4 The UK's airports operate in a global marketplace, competing against airports in northern Europe. Indeed, York Aviation describes the role of Germany, The Netherlands and Belgium acting as the major freight centres in Western Europe. Their 2013 report says:

> "*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.*" (York Aviation, 2013, p. 3)

4.3.5 These concerns seem justified when the UK's airports are compared to those in the rest of Europe. Table 6 shows the total air transport in freight tonnes and the number of freighter movements at the main European freight airports in 2016, 2015 and 2014. The figures highlight the reliance on belly freight at most of the UK's airports.

4.3.6 The figures in Table 6 also point to the importance of the relationship between freight handled and the presence of integrators located at the airport. For example, East Midlands Airport handles a relatively small tonnage of freight compared to Heathrow but much of this is carried on dedicated freighters. East Midlands is the UK's hub for DHL and UPS and supports operations for TNT and Royal Mail. As the UK progresses with negotiations to exit the EU, the UK may find it advantageous to have sufficient capacity at airports that can handle dedicated freighters, without the need to truck to airports in mainland Europe.

Table 6 Freighter movements at the main European airports

	Freight tonnes			Freight flights ('000s)		
	2016	**2015**	**2014**	**2016**	**2015**	**2014**
Leipzig	1,044,952	982,534	904,110	37	36	33
Paris CDG	2,211,265	2,175,838	1,475,817	28	30	31
Cologne	768,138	739,457	738,430	28	27	26
Liege	592,146	625,285	581,802	17	26	24
East Midlands	**319,609**	**321,150**	**307,242**	**21**	**22**	**22**
Frankfurt	2,111,358	2,075,657	2,131,585	21	22	21
Amsterdam	1,771,106	1,655,328	1,670,671	17	16	16
Brussels	472,710	483,121	408,045	13	13	12
Luxembourg	801,058	736,880	707,150	9	10	10
Milan MXP	548,765	511,192	469,658	10	10	9
Stansted	**245,658**	**226,776**	**225,851**	**12**	**10**	**9**
Madrid	404,284	382,628	376,827	9	9	9
Copenhagen	185,691	196,579	200,054	5	8	7
Helsinki	182,198	177,441	187,419	1	7	8
Vienna	216,382	209,053	210,277	5	5	5
Munich	353,495	336,030	309,148	4	4	4
Dublin	134,207	137,267	127,448	4	4	4
Heathrow	**1,637,582**	**1,588,884**	**1,585,885**	**2**	**2**	**2**
Luton	***25,426**	***28,008**	***27,414**	***2**	***2**	***2**
Rome	160,904	145,017	143,008	1	1	2
Manchester	***109,630**	***100,021**	***93,466**	***1**	***1**	***1**
Gatwick	***79,588**	***73,371**	***88,508**	***0**	***0**	***0**

Source: http://ec.europa.eu/eurostat/statistics-explained/index.php/Air_transport_statistics#Further_Eurostat_information
Except those marked * CAA statistics

4.4 The need for air freight capacity in the South East

4.4.1 Quantifying the cost of existing airport capacity constraints, the Airports Commission estimates that over a 60-year time frame and without additional capacity, there would be a £21 to £23 billion cost to users and providers of airport infrastructure and between £30 to £45 billion to the wider economy (Airports Commission, 2015, p. 17). In terms of cargo, Oxford Economics (2013) forecasts suggest that, "*by 2050, the value of air cargo lost to London due to capacity constraints would equate to £106 billion per annum*" (Oxford Economics, 2013, p. 5). They also calculate that in the same timeframe, "*net national losses due to airfreight capacity constraints could equate to £3.9 billion per annum*." (*ibid*, p. 5)

4.4.2 These figures were calculated prior to the referendum on the UK's exit from the EU. In 2012, non-EU trade accounted for just under half of all UK trade, with around 35% of these goods being air freighted (Oxford Economics, 2013, p. 5). If the proportion of trade changes, with a greater reliance on non-EU activity after the UK's withdrawal from the EU, the demand for air freight would be likely to increase.

4.4.3 The London airports facilitate 76% of the UK's air freight (Oxford Economics, 2013, p. 3). However, the Airports Commission shows that all London airports will be at capacity by 2030. London's Heathrow and Gatwick airports are already constrained and London City Airport is expected to reach capacity by 2025 with Luton and Stansted

airports following closely behind (Airports Commission, 2013, p. 20). What the Airports Commission makes clear is that, "*the demand for landing slots in London and the South East of England will continue to grow*" (2015, p. 54). Whilst some commentators criticised the Commission's focus on capacity in London and the South East, the Commission believes the strength of the London aviation system is crucial to the UK as a whole.

4.4.4 Boris Johnson, the then Mayor of London, proposed construction of a new airport in the Thames Estuary, an idea originally mooted in the 1950s. Johnson believed that locating an airport to the east of London and away from the major conurbations of the capital would have significant benefits including reducing the environmental and security problems of aircraft over-flying London. Manston Airport's location brings many of these benefits without the need to overcome the technical issues, environmental impact on protected habitats, and huge cost involved in constructing an airport in the Estuary.

4.4.5 York Aviation predicts that by 2050 the London area could require an additional 80,000 freighter slots per year to meet demand if no additional airport infrastructure is provided (York Aviation, 2015, p. 19). If this capacity is not provided in the UK, 2.1 million tonnes of freight will be trucked elsewhere at a cost of more than £400 million in trucking and user time (*ibid*, p. 31). York Aviation calculates the GVA lost to the sector's economy and to the wider economy at £637 million and £978 million respectively (*ibid*).

4.4.6 Indeed, York Aviation predicts that, even with the third runway at Heathrow, capacity for 45,000 freighter movements will be required elsewhere (York Aviation, 2015, p. 19). Section 5 of this report considers where freighter aircraft could be handled, concluding that an operational Manston Airport is the only viable option. Furthermore, York Aviation's earlier report for TfL states that, "*around 14,000 freighters a years could still be accommodated in the vicinity of London by using capacity at airports such as Manston, which already handles some long haul freighters*" (York Aviation, 2013, p. 7).

4.4.7 2.1 million tonnes of freight that would be diverted elsewhere by 2050 without additional capacity in the London area (York Aviation, 2015, p. 31) is equivalent to around 108,000 truckloads per year in addition to current movements[32]. Even with additional runways at Heathrow or Gatwick the volume of freight to be diverted elsewhere would be around 1.2 million and 1.7 million tonnes respectively (*ibid*, p. 19). York Aviation says they derived these figures as follows:

> "*we have considered the potential air freight capacity that might exist in London under different scenarios. In line with the structure of the market now, we have assumed that the majority of capacity will be provided via aircraft bellyhold freight. We have estimated this capacity based on the number of forecast international movements at the relevant airports in the London system multiplied by the expected average tonnage per international movement in 2050 at each airport. The latter has been derived by taking the tonnes per international movement now estimated from CAA Statistics and growing this by 0.5% per annum to 2050 to reflect increasing loads and larger aircraft. In relation to the 2nd Runway at Gatwick scenario, we have made a*

[32] Maximum total truck weight (truck, fuel and load) is 44 tonnes for trucks with 6 axles. Maximum payload is 28.1 tonnes. For trucks with 5 axles, maximum payload is 20. 3 tonnes. See Figure 5 for details. Average load used for this calculation is 19.4 tonnes to take account of various truck sizes and lighter or part loads.

further adjustment to allow for the fact that we would expect the airport to attract more long haul services in such a scenario. We have assumed that tonnage per movement in this scenario would increase significantly to be around double that observed at Gatwick in the other scenarios in 2050. This reflects the Gatwick Airport long-term demand forecasts from its submissions to the Airports Commission, which suggest a doubling in the proportion of long haul traffic at the airport by 2050." (York Aviation, 2015, p. 19)

4.4.8 Around half the goods that could be transported between Heathrow and continental Europe as air freight are already trucked by road (DfT, 2009, p. 50). The movement of surface traffic has pinch points on the M25 and at Dover. Not only does this delay the movement of commodities, it puts extreme pressure on the road network in the South East. With South East airports at or near capacity, resilience of both the airport and road networks are key issues. It is clear from the figures presented here that the capacity available at Manston Airport is vital to the continued competitiveness of the UK.

5 Airport capacity for freighter operations in the South East

5.0.1 2014 marked 100 years since the birth of commercial aviation. This century of flight has transformed the way we live and how and with whom we conduct business[33]. The history of air freight has always been entwined with that of passenger aviation, with mail the first cargo transported by air. However, after the Second World War, airmail gave way to the age of air freight. The use of air freight was prompted by a general worldwide trend towards globalisation, a change in management practices including just-in-time (**JIT**) and made-to-order models, trade and economic liberalisation between countries, and other political changes (Ishutkina, 2009) including open skies agreements.

5.0.2 The previous sections have outlined some of the arguments that demonstrate the need for additional airport infrastructure in the UK. This section considers the South East of England particularly and focuses on the potential for increasing air freight operations at existing airports. The DfT 2017 report shows that it is the South East that has the greatest difference between unconstrained and constrained passenger demand (defined as "*those passengers deterred from travelling to or from mainland UK*"), in excess of 7.5 million by 2050 (DfT, 2017, pp. 98-99).

5.0.3 This section demonstrate that other South East airports cannot accommodate sufficient capacity for freighter aircraft to meet the forecasts for demand outlined in Section 4.4. Whilst little research on competition in the air cargo airport market has been undertaken (Kupfer *et al*, 2016), it is apparent that air freight operators have no enduring loyalty to specific airports, particularly in situations where there are other options located within a few hours trucking time. For this reason, East Midlands Airport, with its focus on freight has also been included in the review.

5.1 Stansted Airport

5.1.1 The Airports Commission ruled Stansted out of its preferred three options for airport expansion, focusing their shortlist on Gatwick Airport and two options at Heathrow. The Commission did not favour the construction of a four or five-runway hub airport at Stansted Airport since it may involve the closure of either Heathrow or Gatwick, be excessively costly, and require extensive improvements to surface transport. Neither did the Commission shortlist the construction of a second runway at Stansted although this may be reconsidered sometime between 2040 and 2050.

5.1.2 The Airports Commission noted that planning conditions prevent Stansted from operating to its maximum capacity and will reconsider lifting these during the next phase of its work if there is a case for optimising aviation capacity in the London system. Stansted Airport's owners, Manchester Airport Group (**MAG**), are seeking to raise the passenger cap from 35 million per year to 44.5 million and the number of aircraft movements per annum from 274,000 to 285,000. However, the final report by the Airports Commission (2015, p. 332) recommends that the cap at Stansted (the G1 planning cargo-only cap was 20,500) be reviewed on the basis of extensive stakeholder consultation.

[33] http://www.flying100years.com

5.1.3 In October 2017 and following extensive consultation, Stansted Airport's CEO, Ken O'Toole, issued a statement explaining that whilst residents supported ongoing growth and investment in the airport, there are concerns about an increase in the current cap on the number of aircraft movements. Mr O'Toole's statement says they have listened to residents' concerns and adapted their proposals:

> "so that growth can be met within the current cap on the number of aircraft movements. That *means the airport's growth over the next ten years to serve 43 million passengers can be achieved without increasing the existing limits on aircraft movements and noise*."[34]

5.1.4 TfL is working to improve passengers' surface access to Stansted Airport and once in place, these improvements are likely to stimulate the demand at Stansted for passenger flights. Indeed, Ryanair already has increased the frequency and number of routes it provides from the airport. Ryanair's expansion will continue to increase pressure on slots, particularly at peak times such as early morning, Ryanair is the dominant carrier at Stansted Airport and, since the low cost carrier (**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 operate four rotations per day to maximise the profitability of each aircraft, late evening and potentially night time slots will be required.

5.1.5 It seems likely that MAG will want to maximise the use of their infrastructure, in line with the DfT's desire to make full use of existing capacity (DfT, 2013b). Given the statement by the CEO in October 2017, this is likely to focus on the passenger market. At present, Stansted Airport has capacity to accommodate a number of freighter flights. However, cargo-only flights account for only around 8% of ATMs at Stansted. Freight carriers have traditionally used night slots at the airport and these may become less available if the LCCs utilise them.

5.1.6 According to the European Shippers' Council, the battle between LCCs and all-cargo operators, "*will be central to the global debate over airport capacity for the next decade*"[35]. For airports nearing capacity and handling both LCCs and air freight, the impact will be to:

> "*pit the rival economic benefits of high-value cargo with its huge economic importance as a wealth multiplier, against leisure airlines catering to populations which desire cheap and regular flights to global destinations on services which often carry limited or no bellyhold cargo*."[36]

The Managing Director at the European Shippers' Council additionally says:

> "*We have huge passenger and cargo growth ahead, so we need a full discussion about how to accommodate that to avoid disruptions especially for the cargo market*."[37]

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[34] http://mediacentre.stanstedairport.com/london-stansted-airport-targets-growth-within-current-environmental-and-aircraft-movement-limits/
[35] http://www.aircargonews.com/1217/120417/Growing-Slot-Squeeze-Impacts-Cargo.html
[36] *ibid*
[37] *ibid*

5.1.7 Stansted Airport's Local Rule 4 states that:

> "*Planning Condition ATM1 limits the number of air transport movements at Stansted Airport to 264,000 during any 12 month calendar period. (Of which no more than 243,500 may be PATM's and 20,500 may be CATM's)*"[38]

264,000 passenger movements (PATMs) per year represents an average of one every two minutes based on a 24-hour per day operation. Given that there is a preference to operate during the daytime, this per-minute figure is likely to be much higher. To put this in context, Gatwick is currently the busiest single runway airport and handled 282,000 ATMs in 2017[39]. Passenger airlines focus on punctuality, particularly the LCCs and Ryanair has its biggest base at Stansted. Viscount Aviation's analysis of this situation is that cargo flight timings are likely to be impacted severely since the airport will prioritise servicing Ryanair. This is because the proportion of the airport's income derived from Ryanair is considerable. This focus on service quality of the LCCs, coupled with the high usage of the single runway is likely to result in all-cargo flights waiting to land or take off, causing a knock-on effect to their schedules and hampering their operations. LCCs and Ryanair in particular will, given slot availability, switch services to a competing London airport in the event of regular service issues. By contrast, cargo services are much more difficult to relocate as handling facilities such as warehousing may not be available at competing airports.

5.1.8 The preference for passenger flights over cargo occurred at Schiphol Airport (see Section 8.4 for more details), where air traffic capacity constraints were announced in September 2017. Hong Kong, Paris, Brussels, Chicago, Beijing, Mexico City, Frankfurt, Shanghai, and Heathrow are also suffering capacity constraints that are affecting freighter operations[40] as passenger flights are preferenced for a number of reasons. As such, it may be that moving freight to Manston Airport could represent a significant opportunity for MAG should they want to free up slots for higher value passenger aircraft use.

5.2 London Heathrow Airport

5.2.1 Heathrow is the UK's only hub airport, handling around 476,000 ATMs per year (CAA 2017 figures), with average daily movements of nearly 1,300. Whilst Heathrow handles around 63% of the UK's air freight, relatively few dedicated cargo aircraft use the airport (CAA, 2016). CAA figures show that around 95% of air freight at Heathrow is carried in the hold of passenger aircraft as belly freight. However, Heathrow does handle almost 3,000 freighter movements per year, including Cathay Pacific and Emirates

5.2.2 The proposed 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, the new runway may be used to meet as yet unmet passenger demand. Should Low Cost Carriers, who generally 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, may not increase substantially. Heathrow's focus

[38] https://www.acl-uk.org/wp-content/uploads/2017/07/STN-Local-Rule-4-1.pdf
[39] https://www.gatwickairport.com/business-community/about-gatwick/company-information/gatwick-by-numbers/
[40] http://www.aircargonews.com/1217/120417/Growing-Slot-Squeeze-Impacts-Cargo.html

on passenger and belly freight markets is also likely to continue to keep dedicated freighters out of the airport. This means that markets not served by passenger aircraft will remain unreachable for UK importers and exporters without a dedicated freighter operation.

5.2.3 However, in 2015, Heathrow Airport Limited (**HAL**) announced their blueprint for a £180 million overhaul to their cargo facilities. The plans include new underground access roads, improved air-to-air facilities and a specialist pharmaceutical storage area. HAL's aim is to reduce what they declare as their current processing time of eight to nine hours to around four hours[41], still considerably longer than Manston's previous and proposed processing time. Even so and as York Aviation figures indicate, there will be a shortfall of slots for dedicated freighters, likely to be in the region of 45,000 by 2050 (York Aviation, 2015, p. 19).

5.2.4 Of interest to the Manston Airport freight forecast is that Delta Airlines reported to the CAA that whilst Heathrow is a good connecting airport for the US, it is not so well placed for Europe (CAA, 2016, p. 38). The CAA (*ibid*, pp. 34-35) report a number of concerns expressed by cargo operators, including:

- *Problems with airfield access leading to bottlenecks at control posts and cargo access points viewed as a lower priority than passenger equivalents*
- *Limited space to hold cargo and empty equipment resulting in more vehicle movement*
- *Road congestion becoming increasingly an issue and impacting on already lengthy journey times*

5.2.5 As such, even with an operational third runway at Heathrow Airport, Manston Airport will still be vital to ensure the UK meets the needs, wherever possible, of the demand for air freight.

5.3 London Gatwick Airport

5.3.1 Whilst Gatwick Airport's submission to the Airports Commission did not include plans for freight, a subsequent statement says their plans are to make provision for ten times the amount of freight the airport currently handles[42]. Gatwick Airport handled only one dedicated freighter in 2017 and none in 2016. This lack of experience, which is a key element in the choice of a freight airport for operators (Kupfer *et al*, 2016), and without a second runway, means that Gatwick is not a serious competitor in the freight market.

5.4 London Luton Airport

5.4.1 Luton Airport is located close to the M1 and therefore well situated to access the UK's road network. The current number of stands at Luton are unable to support significant growth[43]. In December 2017, Luton Borough Council, owner of the airport, announced a 30-year plan to expand Luton Airport to accommodate 36 to 38 million passengers and 240,000 ATMs. The airport is forecast to reach its current permitted capacity of 18 million passengers per annum by 2021. The airport's operator, London Luton Airport Operations, in association with Luton Borough Council, initiated the redevelopment of the passenger terminal in January 2016. Improvements will also be made to ground transportation and airport parking.

[41] http://your.heathrow.com/takingbritainfurther/trade-and-exports/improved-cargo-facilities/
[42] http://www.aircargoweek.com/cargo-omitted-from-gatwicks-response/
[43] https://www.caa.co.uk/WorkArea/DownloadAsset.aspx?id=4294972551

5.4.2 Luton Airport handles around 28,000 tonnes of cargo each year with DHL, MNG Airlines and British Airways operating dedicated freighters from the airport. Luton Airport's business profile is similar to Stansted Airport's in terms of the dominance of LCCs, focusing the airport on passenger traffic. It would therefore be improbable for Luton Airport to provide a hub for dedicated freighters.

5.5 London City Airport

5.5.1 London City Airport has benefited from planning permission to build seven new aircraft stands, a parallel taxiway and to extend the passenger terminal. However, the airport is focused on the passenger market and handled only 69 tonnes of freight in 2016. London City Airport has a short and constrained runway, at 1,900 metres, and is therefore unable to support a large freighter operation.

5.6 Southend Airport

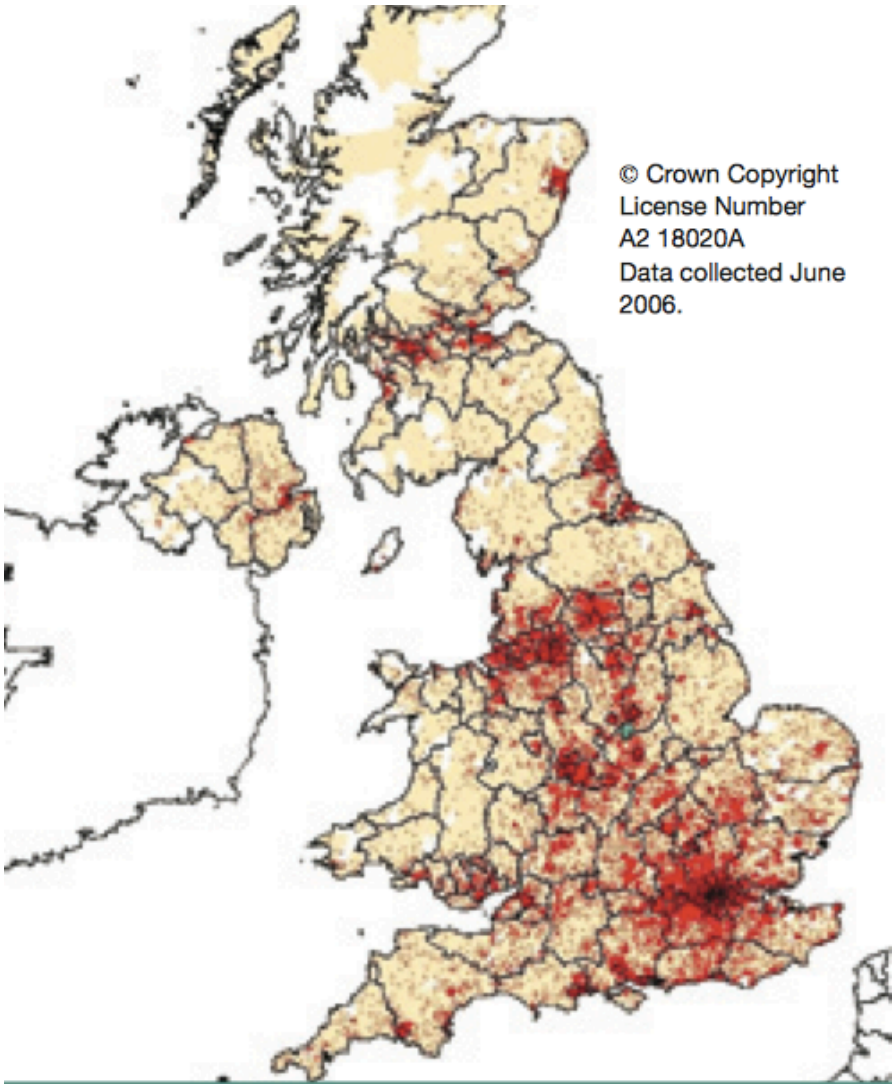
5.6.1 Southend Airport is focused on the LCC passenger market, handling only five tonnes of freight in 2015 and none in 2016. Although extended in 2012, Southend's runway is unlikely to be suitable for long or mid-range freighter aircraft.

5.7 East Midlands Airport

5.7.1 East Midlands Airport is a major successful integrator hub, focused on handling packages and parcels. DHL has a purpose-built facility at the airport and is the major operator. UPS and TNT also use the airport as well as Royal Mail. As with Stansted, the airport is owned and operated by MAG. The airport has a 24-hour licence and imposes additional charges on aircraft using the airport between 23.30 and 06.00, dependent on the noise band of the aircraft. The airport also charges a shoulder supplement between the hours of 06.01 to 07.00 and 21.01 to 23.29.

5.7.2 In 2017, East Midlands Airport handled 21,286 freight aircraft movements, an increase of 10% over the 19,357 movements in 2016. At present the airport serves a wide catchment area as shown in Figure 4. 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.

Figure 4 Location of businesses served by integrators at EMA



Source: DfT, 2009, page 26 (data collected in June 2006 by Manchester Airports Group)

5.8 Other South East UK airfields

5.8.1 There are few other options for increasing air freight capacity in the South East. The Thames Estuary Airport proposed by Boris Johnson, the then Mayor of London, has been ruled out as an option, with the Airports Commission saying its substantial disadvantages outweighed its potential benefits. Other airports in the South East and the constraints on their development are shown in Table 7. It should be noted that the characteristics of an optimal freight-focused airport are:

- A paved runway with a length of at least 2,500 metres and capable of supporting CAT II/III operations
- Existing infrastructure with capacity to provide facilities for new air freight operators according to demand
- Certified, or the ability to obtain an Aerodrome Certificate from the European Aviation Safety Agency (EASA) or other relevant licensing organisation, for the operation of the types of aircraft currently used and likely to be used in the future by airfreight operators

- Capacity to accommodate dedicated air freighters and warehousing hold freight
- Operations not focused on passenger or other markets that would negatively impact air freight operations
- Availability of new slots/landing times for airfreight operators and a flexibility of existing slots/landing times
- Sufficient warehousing and handling facilities
- Good surface access to the strategic road network with no bottlenecks to access in or around the airport, with an additional advantage of a good connection to high quality public transport infrastructure
- Airspace that is outside of the London Control Zone (also known as the Controlled Traffic Region (CTR)) to provide maximum flexibility and capacity for airport operations
- Located in the south-east of England close to the main significant population and commercial centres, with an additional advantage of a good connection to continental Europe

5.8.2 The final option in the South East is Manston Airport, which is described in detail in Section 0. When all other airports in the South East, as shown in Table 7, are assessed against the criteria for an optimal freight-focused airport, as shown in the previous paragraph, Manston is the only real choice for the location of such an airport in the South East of England. Indeed, The 2003 White paper, The Future of Air Transport, states that Manston "*could play a valuable role in meeting local demand and could contribute to regional economic development*" (DfT, 2003, p. 132).

Table 7 South East Airfields

Airfield	Constraints
Biggin Hill	One operational 1,808m paved runway, which is too short for large freight aircraft operations. The runway orientation and proximity to London Gatwick Airport creates numerous airspace issues. The airport's location and elevated position mean it experiences poor weather conditions impacting operations. The airport's rural/residential location and difficult road access to main M25 artery are unlikely to support HGV movements associated with a freight airport. The airport also has restricted opening hours with no night flights permitted. Operators are now focused on business aviation and are reducing the number of light aircraft using the airport.
Bournemouth	Bournemouth handled no cargo aircraft movements in 2016 or 2017. Sold in December 2017 by MAG to Regional and City Airports. In 2016 the airport attracted £40 million of government investment. However, the airport is some 30 miles from the M3 and M27 on a route that passes through the New Forest National Park, not ideal for fleets of trucks.
Farnborough	Two runways approximately 2,400m and 2,450m in length. Restricted number of movement particularly at weekends, only certain aircraft categories permitted. The airport's Business Aviation focus that would not fit with a cargo model and scheduled passenger and freight services are not permitted. The airport also has restricted operating hours, particularly at weekends.
Lydd	Short runway with considerable approach issues (including MOD Hythe firing range and proximity of Dungeness Power Station). Plans to extend the runway by 300m would still result in weight restrictions for aircraft. The airport has a rural location with relatively poor surface transport connectivity
Northolt	An RAF station with safety issues raised due to proximity to Heathrow, difficulties integrating with London airspace. The airport has a relatively short runway of 1,600m, which would not support large freight aircraft.
Rochester	General aviation aerodrome with grass runways. A planning application was validated in September 2017 for a replacement paved lit runway and parallel grass runway. However, the runways are less than 1,000 metres and not suitable for cargo operations. The airport does not have supporting infrastructure to facilitate large-scale freight operations and has restricted operating hours and a cap on aircraft movements.
Shoreham	The airport has two grass and one paved runways and is used for helicopters and light aircraft. The 1,036m paved runway would not support freight operations. Road access is relatively poor and would require reconfiguration to support the HGV movements generated by a freight operation.
Southampton	The airport handled 23 cargo movements in 2017, 6 in 2016 and4 in 2015. The airport is close to the M3 and M27 and has the benefit of an onsite railway. Southampton Airport focuses almost entirely on the passenger market, handling very little cargo (173 tonnes in 2016). Their master plan and vision statement make no mention of developing an air freight market.

6 Potential impacts on the demand for air freight

6.0.1 This section considers the potential for changes to current trends in the UK air freight market. These trends include the continuing impact of e-commerce, the potential effect of the UK's withdrawal from the EU, the current ratio of belly freight to dedicated freighter use in the UK, and the extent of the use of air freight trucking to airports outside the UK.

6.1 The continuing impact of e-commerce

6.1.1 E-commerce is the fastest growing retail market in Europe and North America with online sales forecast to grow strongly year on year. The UK is second only to Norway for online purchases. In the UK, Germany, France, The Netherlands, Sweden, Italy, Poland and Spain, this market grew from £132.05 billion in 2014 to £156.67 billion in 2015, a growth of 18.6%[44]. 2017 figures show around 19% growth for the year in Europe[45]. In the US, digital sales during Thanksgiving week (between 23 and 26 November 2017) were at an all-time high of $13 billion, and increase of 14.4% year-on-year[46].

6.1.2 In the UK, the increasing use of smartphones for internet shopping has driven online spending with UK retailers to £133 billion in 2016, 16% higher than 2015[47]. Retail is not the only market to migrate to e-commerce. The shift to consumer-driven healthcare is creating new e-commerce opportunities throughout the supply chain including retailers, manufacturers, and online merchants. Indeed, e-commerce allows organisations of all types to link their systems together so that information across the 'electronic chain' can be accessed much quicker and more accurately. This decreases transaction costs, enabling significant cost reductions throughout the supply chain.

6.1.3 The International Air Transport Association (**IATA**) says that:

> "*E-commerce is a future growth driver for the air cargo industry, and therefore there's an increasing need for speed, visibility and easy returns, all of which will impact the logistics chain*"[48].

Not only is e-commerce a future growth driver, it is potentially a game changer for the air freight market. Customers are demanding next day delivery and Amazon is leading the way, demonstrating the relationship between e-commerce and air freight with the purchase of a fleet of dedicated freighters. This move to build up dedicated freighter capacity, "*is opening a new debate about the viability of cargo airports*"[49]. Amazon's interest in Hahn Airport, a former military airbase, 120 kilometres from Frankfurt, which has reported years of losses, low usage, and has a 23.00 to 05.00 hours curfew, is indicative of the potential for the redevelopment of cargo focused airports.

6.1.4 The impact of e-commerce on air freight has led to capacity issues and rate increases. The air freight press is reporting the difficulties felt by forwarders and

[44] http://www.retailresearch.org/onlineretailing.php
[45] https://ecommercenews.eu/ecommerce-europe-grows-19-percent-2017/
[46] Adobe figures reported in https://aircargoworld.com/allposts/5-ways-that-this-years-cyber-monday-shook-up-logistics/3/
[47] https://www.imrg.org/media-and-comment/press-releases/uk-online-sales-in-2016/
[48] http://www.iata.org/whatwedo/cargo/Pages/e-commerce-logistics.aspx
[49] https://theloadstar.co.uk/e-commerce-boom-amazon-effect-saving-smaller-cargo-airports/

shippers, with one commentator saying, "*It's a carrier's market. Airlines are definitely becoming more selective with what they take and accept. E-commerce is a massive issue this year*.[50]" Since countries with 1% better air cargo connectivity engage in 6% more trade [51], it is imperative for the UK, particularly post-Brexit, to ensure our manufacturers, importers and exporters are fully globally connected, with unconstrained access to air freight transportation.

6.1.5 The potential for further dependence on air freight due to the impact of e-commerce is set against the freight capacity constraints at South East airports. Indeed, forecasts may not yet have taken account of the magnitude of the impact of e-commerce on the air freight sector. Addressing these capacity constraints by bring Manston Airport back into the UK airport network seems to be vital for the continued and growing prosperity of the UK. Without rapid increases in freight capacity, the UK will suffer even greater economic losses than those currently described (see for example Centre for Business Research, 2016).

6.2 The potential effect of BREXIT on UK aviation

6.2.1 At the Royal Aeronautical Society's conference held in October 2016 on the effect on Britain's aviation, aerospace and space sectors of the UK leaving the EU, David Jones MP, the then Minister of State at the Department for Exiting the EU, stressed the importance of the UK aerospace sector to the UK's on-going prosperity. He said the UK's aerospace sector would be the economic and trade spearhead for forging new links with the rest of the world. The MP stated that the sector is six times more productive than the rest of the UK's economy and will be central to building a new outward-looking Britain and providing post-Brexit opportunities.

6.2.2 There are many unknowns at this stage - prior to the completion of negotiations – and building a future for the aviation sector will not be without risks. These risks include the ability to influence future EU aviation policy, access to Galileo's precision satellite navigation signals, participation in the ATM SESAR initiative, collaboration in aviation and military R&D programmes, and aviation market access[52]. Indeed, in principle, UK airlines may lose their rights to fly between European countries. This will adversely affect airlines such as EasyJet, where 24% of their seats are on flights between countries remaining in the EU[53].

6.2.3 One option for the UK will be to join the European Common Aviation Area (**ECAA**)[54]. This is an agreement between the EU and partners from south-eastern and northern Europe (including Albania, Bosnia and Herzegovina, Croatia, the former Yugoslav Republic of Macedonia, Montenegro, Serbia, Kosovo under UNSCR 1244, Norway and Iceland). The objective of the ECAA was to integrate the EU's neighbours in southeast Europe in the EU's internal aviation market, which, at the time, consisted of 25 EU Member States as well as Norway and Iceland. ECAA airlines have open access to the European single market in aviation.

[50] https://theloadstar.co.uk/forwarders-shippers-caught-updraught-air-cargo-perfect-storm/
[51] http://www.iata.org/whatwedo/cargo/Pages/index.aspx
[52] https://www.aerosociety.com/news/tailwind-or-turbulence-brexit-and-uk-aerospace/
[53] https://peresuau.files.wordpress.com/2016/06/2016_06_28-brexit-suau-sanchez-la-vanguardia.pdf
[54] http://ec.europa.eu/transport/modes/air/international_aviation/country_index/ecaa_en.htm

6.2.4 The EU is currently the UK's most important trade partner, accounting for half of all UK exports and imports (Dhingra *et al*, 2015). Following the vote to exit the EU (so-called Brexit), Britain now has to negotiate Free Trade Agreements (**FTA**) with the EU. It is likely the UK and the EU will agree trade deals but higher tariffs and non-tariff barriers would make imports and exports more expensive, affecting trade between the UK and the EU. 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. 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 Airport can provide nationally significant to the UK's airport infrastructure.

6.2.5 Backloading (the transportation of cargo on a return trip, using empty space paid for on the outward leg) from international airports is important as this helps airlines to maximise profit on their return journeys. However, this requires fourth or fifth freedom rights, depending if two non-UK countries are involved[55]. Freedoms of the air are a set of commercial aviation rights that grant one country's airlines privileges to enter and land in another country's airspace. They result from the Chicago Convention, the Convention on International Civil Aviation of 1944[56]. There are nine levels of freedoms, where the first provides rights to overfly a foreign country and the eighth and ninth provide full cabotage (rights to operate inside a foreign country). The fifth freedom provides the right to operate between two foreign (non-domicile) countries when the flight originates or terminates in the home country.

6.2.6 The events on the 22 March 2016 at Brussels Airport[57], the 28 June 2016 at Istanbul and the 18 March 2017 at Paris Orly have put airports around Europe on high alert. Airports in the UK and Europe carry out security checks on passengers as they go airside. Once airside, some airlines scan hand luggage again at the departure gate. 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 may impact belly freight, potentially making a switch to dedicated freighters more likely. This is particularly the case for perishable and high value goods. However, switching from belly freight to dedicated freighters requires slots to be available, particularly in the South East. An operational Manston Airport with a focus on freight would help to accommodate this potential increase, allowing the UK to maximise the economic benefits it derives from trade with the rest of the world.

6.3 Dedicated freighter use compared to belly freight

6.3.1 Belly freight is cargo stowed under the main deck of a passenger aircraft. This means that cargo is restricted to passenger schedules and destinations, which may not serve cargo markets. Since on and off loading cargo can cause delays to passenger aircraft, the LCCs, who rely on fast turnarounds, generally do not carry belly freight.

[55] Freighters frequently 'hop' between countries rather than make point-to-point journeys to or from the UK and one other overseas country

[56] http://www.aviationlaw.eu/wp/wp-content/uploads/2013/09/Freedoms-of-the-Air-Explained.pdf

[57]http://www.dailymail.co.uk/news/article-3504030/Europe-s-biggest-airports-step-security-armed-police-patrols-terror-attacks-Brussels.html

However, the cost of moving goods by air can be more competitive as belly freight as surplus capacity can be sold at marginal cost since operating costs can be allocated to passenger services (Budd and Ison, 2017, p.2). However, belly freight is not necessarily forwarded on single passenger flights but may take a route involving a series of airports[58]. This adds air miles, additional fuel, and intermediate airport handling to overall forwarding costs and impacts.

6.3.2 By contrast to passenger services, dedicated freighters, which carry cargo only, do not tend to operate a point-to-point, bi-directional service. Instead they 'hop' from airport to airport, picking up and setting down cargo, as demand requires. Many freight operations move between more than one of the main European freight airports as well as a number of overseas airports. Whilst some freighters do operate simple round trips, the data shows that inbound patterns do not necessarily mirror outbound patterns, providing flexibility to add new pick up/drop off points as the market dictates.

6.3.3 Types of cargo carried by dedicated freighters include:

- Perishables such as flowers, fruit, vegetables, fish, seafood
- Other time sensitive items such as electronic components, machinery required to ensure operation of critical services (such as for aircraft, energy generation, etc.) and increasingly consumer goods purchased online including a wide range of items such as computers, mobile phones, clothing and other fashion items.
- Pharmaceuticals
- Heavy, outsized and hazardous items
- Luxury items including cars, food and drink
- Live animals such as race horses, transport to wildlife and zoos
- Niche markets such as cargo for live events and entertainment (rock bands, sports, etc.)
- Mail
- Humanitarian aid and military use

6.3.4 Whilst a large proportion of air freight is currently carried as belly freight in passenger aircraft, particularly in the UK, Boeing says that:

> "*Dedicated freighter services nonetheless offer significant advantages, including more predictable and reliable volumes and schedules, greater control over timing and routing, and a variety of services for outsize cargo, hazardous materials, and other types of cargo that cannot be accommodated in passenger airplanes. In addition, range restrictions on fully loaded passenger flights and the limited number of passenger frequencies serving high-demand cargo markets make freighters essential where both long-range and frequent service are required."* (Boeing, 2014, p. 3)

6.3.5 The introduction of wide body passenger aircraft, which have larger belly capacity has not significantly reduced the dedicated freighter share over time (Boeing, 2016b, p. 3). Boeing's statistics show that, on some routes, freighters are critical. For example, around 80% of the air freight between Asia and Europe is carried on dedicated freighters. Boeing explains the reasons for using dedicated freighters include restricted passenger routes and range restrictions as follows:

[58] Derived from examination of the RFS schedules

> "*Over the past five years, only 30 percent of the lower-hold capacity of new widebody aircraft has served primary cargo airport routes. This underscores the need for freighters to serve these markets and airports. Range restrictions on fully loaded passenger fights and the limited number of passenger frequencies serving high-demand cargo markets make freighters essential where both long-range and frequent service are required*." (Boeing, 2016b, p. 4)

6.3.6 Air freight flights enable the flow of goods between economies. This mode of transport relieves surface infrastructure deficiencies (Gourdin, 2006) and enables access to markets for commodities where speed adds value, provides a different distribution mechanism (such as next day delivery), enables the use of efficient production methods such as JIT manufacturing, and ensures high value machinery and equipment maximise their capital value (Ishutkina, 2009, p. 114). IATA's Global Shippers' Surveys show that speed is the number one selling point for air cargo transport, which is linked to reliability and predictability[59]. In 2017, the average time taken between pick up and delivery was 138 hours[60].

6.3.7 Speed is a key source of competitive advantage and improving time to market is now a priority for many sectors. Advantage can be gained from speed in innovation and use of analytics, product development, time to market, and delivery to and returns from the customer. For electronics firms such as mobile phone manufacturers, time-based competition means that reducing delivery times by even a few days is valuable. With the rise of e-commerce and online purchases, consumers now expect near instant satisfaction of their order. For example, Amazon Prime has made speed of delivery a priority and leveraged competitive advantage from their two-day service. With their launch of Amazon Air, a dedicated air freighter network, Amazon rejected belly freight alternatives that may not have been providing the speed and reliability required to meet customer expectations. It is noted that in terms of profit, airlines that operate freighters generate 90% of the industry's revenues, with all cargo and passenger belly only generating 10% each (Boeing, 2016b, p. 3).

6.3.8 Globally, around 56% of all air cargo (measured in RTKs) is flown in dedicated freighter aircraft (Budd and Ison, 2017, p. 34). The remaining 44% is carried as belly freight on passenger aircraft, or on combi or quick change aircraft that can accommodate both passengers and freight. Boeing forecasts that:

> "*Freighters will continue to carry more than half of the world's air cargo for the next 20 years, as the majority of players in the industry continue to rely on and augment their cargo operations by flying freighters*." (Boeing, 2016b, p. 4).

6.3.9 However, in the UK the DfT report the proportion of cargo in dedicated freighters as between 22% and 30% with the remaining 70% to 78%% being carried as belly freight (DfT, 2017, paras 3.32 and 4.4). The considerable disparity between global and UK patterns of air freight transport indicates an underlying issue in the UK. One potential cause is the UK's constrained air freight market, particularly in the south east of the Country. Constraints at UK airports, not just in terms of slots but also in handling infrastructure and times, may mean airports outside the UK are used in combination

[59] http://www.iata.org/whatwedo/cargo/Documents/cargo-strategy.pdf
[60] *ibid*

with trucking (see Section 6.4 for more details). The UK does not currently have a dedicated freighter airport such as Liege or Leipzig. Stansted and East Midlands airports, handling considerable numbers of passengers and passenger ATMs, are more similar to Amsterdam's Schiphol Airport, where constraints have led to pressures on slots for freighter, with many airlines looking to move to other airports in Europe.

6.4 Air freight trucking

6.4.1 The role of road transport in air freight networks, sometimes refered to as airline trucking or Road Feeder Service (**RFS**), is a largely obscure element in logistics models, with a lack of publicly available statistical data differentiating freighter and truck operations (Heinitz *et al*, 2013). Road transport can be complementary to air freight, linking the shipper with freight airports and freight airports with the consignee. RFS can also at as a replacement for freighter flights with trucks given an airline code and customs cleared.

6.4.2 The short haul belly freight market is extremely price sensitive, with airlines competing with trucking companies for loads and around half the goods that could be transported between Heathrow and continental Europe as air freight are already trucked by road (DfT, 2009, p. 50). Whilst price may be the key determinant for cargo destined to travel as belly freight rather than on dedicated freighters, trucking to and from passenger hub airports may also be linked to shippers' preference (including the location of their hubs if relevant), the availability of capacity on particular routes, and in turn, to airport capacity.

6.4.3 Oxford Economics discussed this issue some years ago (before the economic and air freight recovery), saying:

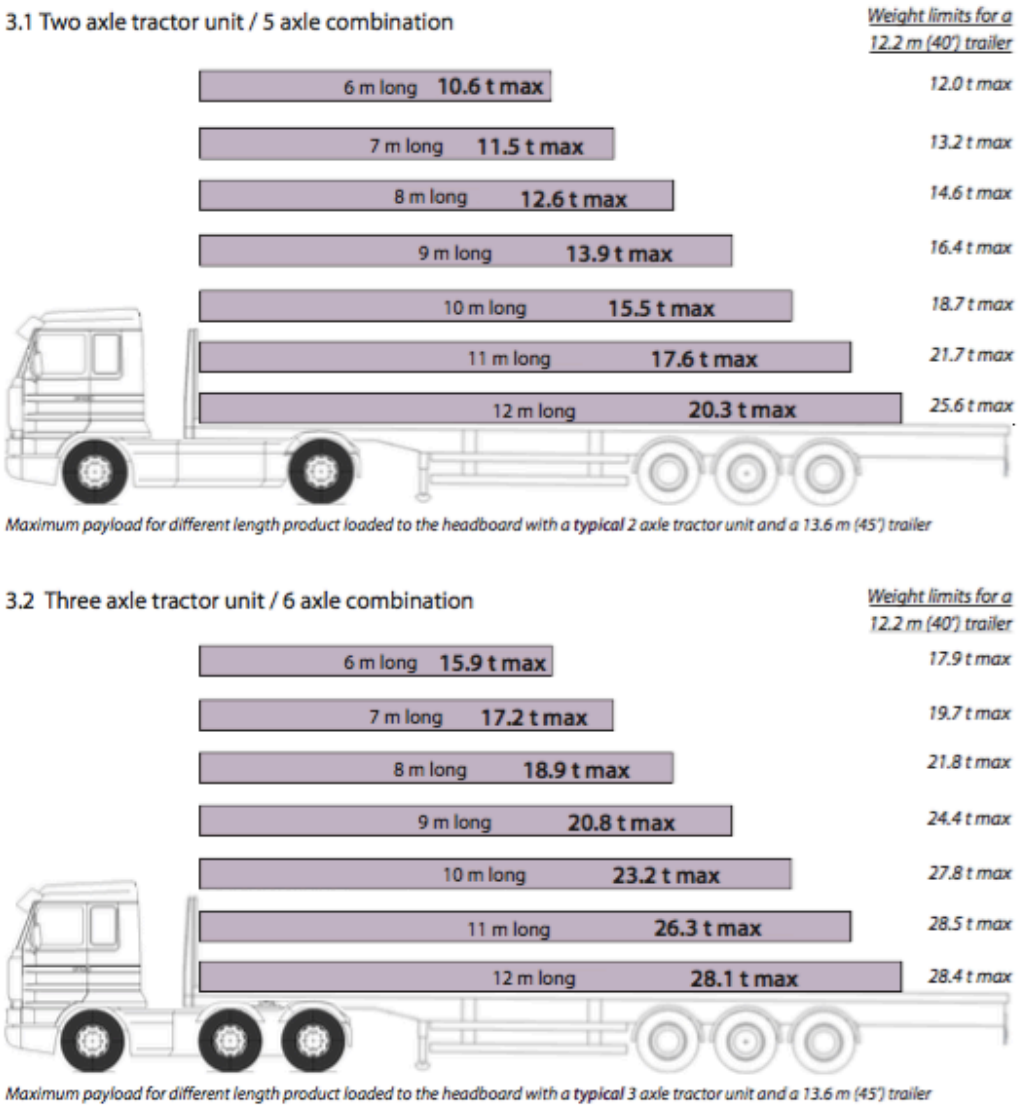
> "*In all likelihood, short-haul cargo may have fallen due to both capacity constraints at Heathrow and freight forwarders substituting road or rail transport for short-haul destinations. Which phenomenon is more important? Volumes of short-haul cargo peaked around the time the Channel Tunnel opened in 1994 and have fallen ever since. Therefore, this hints that much of the decrease in short-haul volumes may be due to the lower-cost option of truck transport to continental Europe rather than capacity constraints at London area airports."* (Oxford Economics, 2013, p. 16)

6.4.4 By contrast, the dedicated freighter market is mainly used for long-haul services where trucking can only be to and from an airport and is not a substitute for transportation by air. Section 6.3 described the types of cargo flown in dedicated freighters. The drivers for dedicated freight (see Volume II for further details) are distinct from those for belly freight. Whereas price is the key driver for belly freight, speed is vital to the dedicated freighter proposition (this is not to say that price does not play a role). Trucking to and from the UK to find capacity at northern European airports adds to overall delivery time and it is with this market that UK airport capacity constraints may be most keenly felt, ultimately resulting in economic losses for UK businesses.

6.4.5 Some years ago, Steer Davies Gleave estimated that 97,000 tonnes of air freight crosses the English Channel by truck each year (2010, p. 73). At an average of 19.4

tonnes per movement[61], this suggests around 5,000 HGV movements, a figure that is dwarfed by more recent estimates (see section 6.4.6 to 6.4.9 below for further details). By comparison, 87,000 tonnes was flown as belly freight directly between the UK and Europe in that year (*ibid*).

Figure 5 HGV maximum payloads



Source: TATA Steel technical information sheet: Axle weights and load distribution available from http://www.poferrymasters.com/carrierinfo/tis-0012-axle-loads-and-weight-distribution-issue-1.pdf

6.4.6 York Aviation calculated that by 2050 and without any further airport capacity, 2.1 million tonnes of air freight would be trucked out of the London area. Almost three quarters of this excess demand is likely to be trucked to Europe, particularly Paris CDG (34%), Amsterdam (19%) and Frankfurt (18%) (York Aviation, 2015, p. 23). Using the same truckload calculation, this equates to around 77,000 truck movements per year in

[61] Figure 5 shows HGV maximum payloads. The figure of 19.4 tonnes is midway between the minimum load of 10.6 tonnes and the maximum 28.1 tonnes.

each direction[62]. Even with a third runway at Heathrow, York predicts that excess demand for air freight would be 1.2 million tonnes (York Aviation, 2015, p. 20), some 44,000 truck movements (given the same proportion to European airports).

6.4.8 To provide an example of the scale of trucking in 2018, an examination of one day's RFS operations (Wednesday 4 April 2018) was carried out. Wednesday was selected as a mid-week day to estimate average weekday movements. The information was compiled by Bob Parsons from data from 15 out of 50 cargo carriers for those routes reported. The airlines included are:

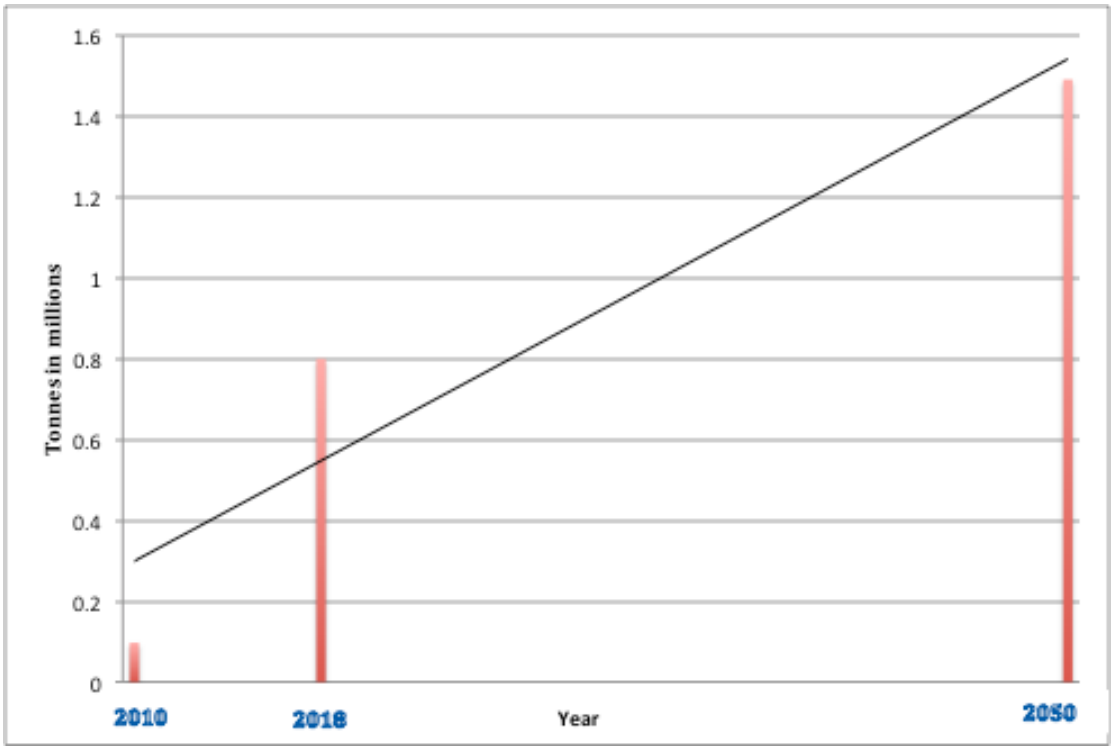
- American Airlines
- Air Canada Cargo
- Air France-KLM
- Cargolux
- Cathay Pacific Cargo
- Delta Airlines
- Emirates Sky Cargo
- Etihad Cargo
- International Airlines Group
- Japan Airlines Cargo
- Korean Air Cargo
- Nippon Cargo Airline
- Lufthansa
- Singapore Airlines Cargo
- United Airlines Cargo

6.4.9 The outbound RFS data from the 15 airline schedules shows a total of 134 movements from UK airports to European airports: 43 to Amsterdam-Schiphol, 19 to Brussels, 12 to Paris-Charles de Gaulle, 12 to Frankfurt Main and a further 48 to other European airports. Over a year, RFS movements across the Channel to European airports could amount to around 41,800 (average of 6 days per week since some schedules are 5 days per week and some 7). Using the previous truck load average, in the region of 800,000[63] tonnes of air freight per year could be moved from UK airports to other European airports (based only on the data from the 15 airlines analysed). Whilst this figure is a crude estimate, it indicates a considerable increase over the past decade (cf. the 2010 figure of 97,000 tonnes calculated by Steer Davies Gleave detailed in section 6.4.5). It also adds weight to the York Aviation forecast of around 1.5 million tonnes by 2050. The timeline and these three figures are depicted in Figure 6.

6.4.10 There are noticeable differences between carriers. For example, Asian carriers, such as Singapore Airlines, do not appear to have wide distribution networks whereas others, Emirates for example, seem to market RFS services extensively to regional airports for air segments from London and Manchester. American Airlines Cargo expanded their European RFS network in mid 2017. Almost 2,000 tonnes of freight per month is now fed from the Netherlands, Belgium, Ireland, Germany, France, Denmark and Hungary into the American Airlines network from Heathrow[64]. Further detail of airline trucking activity is provided in Volume II Section 4.2.

[62] 2.1 million tonnes x 71% = 1.491 million tonnes / 19.4 tonnes = 76,856 truckloads
[63] Calculated as 134 x 6 x 52 movements x 19.4 tonnes
[64] http://www.aircargonews.net/news/airline/single-view/news/american-airlines-expands-european-trucking-services-as-global-q2-revenues-soar.html

Figure 6 Cross channel air freight tonnage



6.4.11 Whilst calculations and forecasts from various analysts differ, all indicate that the scale of air freight trucking is considerable. RFS therefore forms a significant element of Channel crossings, which totalled almost 4.25 million HGVs in 2017 (2.6 million through Dover and 1.64 million on Eurotunnel). Capacity constraints such as HGV parking facilities in the event of disruption to crossings are already a concern. During Operation Stack, which has been used since 1996, the coast-bound side of the M20 in Kent has to be closed to traffic in order to park trucks waiting to cross the Channel. Hauliers, who have experienced significant delays due to the migrant situation in Calais, bad weather, and industrial strikes in France, may face further problems after Brexit. Even if Britain negotiates an orderly withdrawl from the EU after March 2019, any increase in customs paperwork risks contributing to substantial delays at Dover. A customs agreement with the EU that substantially adds to bureaucracy could create chaos.

6.4.12 Delays at the Channel crossings are a costly exercise in terms of policing, delay for hauliers, and the effect on the local economy and quality of life. Indeed, the Freight Transport Association calculated the cost to the haulage companies of the three week delay in July 2015 to be £700,000 a day with costs of £250m to the UK economy as a whole[65]. Research by Imperial College London for the BBC has found that two extra minutes on post-Brexit border crossings could triple queues at the Port of Dover[66]. The Deputy Chief Executive of the Freight Transport Association, James Hookham, is reported as saying:

> *"If you add an average of two minutes to customs processing, you get a 17-mile queue [from Dover] almost back to Ashford. Another four minutes takes*

[65] http://www.bbc.co.uk/news/uk-england-kent-33688822
[66] http://www.bbc.co.uk/news/uk-england-kent-43318258

the queue back to Maidstone, six minutes back to the M25, eight minutes and you are up to the Dartford crossing and Essex."[67]

6.4.13 Delayed truck movements and reduced overall speed of air freight delivery are lost economic opportunities for the UK. The reinstatement and redevelopment of Manston Airport could recapture much of this benefit for the UK. Flying freight from Manston Airport, negating the need to truck to and from European airports for some types of air transportation, should help to ease congestion in the area.

[67] https://www.ft.com/content/7ff7c97c-b33c-11e7-a398-73d59db9e399

7 Manston Airport

7.0.1 Manston Airport is located on the Isle of Thanet in East Kent, 17 miles from the Port of Dover, 65 miles from Central London and 60 miles from the Port of Tilbury. Figure 7 shows the airport's location in the South East of the UK. The airport's runway has a length of 2,748-metres and a width of 60 metres, heading 10/28. It is capable of handling all types of aircraft. The airport has been closed to traffic since May 2014.

Figure 7 Map showing location of Manston Airport

7.1 History

7.1.1 Manston has been an airfield since the Great War. In 1915, aircraft began using farmland at Manston for emergency landings when unable to use their destination landing strip on top of the cliffs at Westgate. By the end of 1916, there were two units stationed at the Admiralty Aerodrome at Manston. By 1939 and the outbreak of World War II, Manston was still an all-grass airfield. It was from here that Barnes Wallace designed and tested his bouncing bombs in the sea near Reculver in preparation for the Dambusters raids. In the 1940s, the runway at Manston, the longest and widest in southern England at the time, was built to assist the safe landing of badly damaged aircraft returning from Europe.

7.1.2 In 1958, Manston became a joint RAF and civil airfield and played a key role in the early and developing years of charter air travel. From this time and during the 1960s, the airport was home to a fleet of five Hermes 4A aircraft, operating successful passenger services from Manston to Le Tourquet for Silver City Airways. In 1961, one of the directors of Silver City, Wing Commander Hugh Kennard, founded Air Ferry, which flew charter flights from Manston. When the company was taken over by Air Holdings Group, Kennard founded Invicta Airways, which operated passenger and cargo flights

from Manston. Indeed, during the summer of 1965, 120,143 passengers were flown from Manston to destinations including Basel, Dusseldorf, Luxembourg, Malaga, Palma, and Seville[68]. The airline operated from Manston throughout its 18-year history.

7.1.3 In terms of passenger operations, several charter services have used the airport over the years of its operation. In the 1990s there were summer services to Jersey, Mallorca, Crete, Cyprus, and the former Yugoslavia. Operators such as Dan Air, the Yugoslavian carrier, Aviogenex, and Aspro Holidays operated successful services from Manston. For several years, Manston hosted seasonal charter flights connecting cruise line passengers from the USA to the Port of Dover. In 2001 this operation accounted for some 9,000 passengers. The airport arranged bonded transportation by coach between the airport and the port so that passengers cleared customs and immigration in Dover. Their baggage was not reclaimed at the airport but delivered to their cabin on the cruise ship.

7.1.4 In 1999, RAF Manston was closed and ownership of the airport passed to the private sector. The Wiggins Group plc/PlaneStation first purchased the civilian enclave from Seaborne Aviation in 1997, completing the purchase of the remainder of the Airport from the MOD in 1999. The Wiggins Group plc/PlaneStation owned the airport until 2005. Infratil, a New Zealand company who also operated Prestwick (Glasgow) airport, took control of Manston in 2005. The Airport has enjoyed a unique position in the hearts of many local people. In 2005, the residents of Thanet expressed, "*broad support for the proposed expansion of the airport*" (MORI, 2005) with 85% in favour of expansion of the airport of which 63% were strongly in favour. More recently, many local people have campaigned vigorously to save the Airport from housing development and a number of action groups coordinate the continuing activities of Manston Airport's supporters.

7.1.5 The low cost carrier EUJet had a base at Manston between 2004 and 2005. The airline used a small fleet of Fokker 100 jets and had a schedule including 21 domestic and European destinations. Between 2010 and March 2012, Flybe operated a daily service from Manston to Edinburgh, Belfast and Manchester. In April 2013, KLM began a twice-daily service between Manston and Amsterdam, which ended when the airport's owners gave notice it was closing.

7.1.6 Helicopter search and rescue operations ran from Manston from the early 1960s until the closure of the RAF base in 1995 (with some small gaps). Manston was the preferred Search and Rescue airport for the area but the closure of the airport forced the contract to be re-awarded.

7.1.7 One of the questions raised by those who doubt Manston's ability to attract air traffic, is why other operators have been unsuccessful. Manston was first privatised in 1999. Sold to the Wiggins Group (later PlaneStation plc), the airport attracted a considerable amount of air freight traffic. However, in 2004/5, the company purchased the low cost airline, EUJet, without apparently completing satisfactory due diligence. In 2005, both PlaneStation and EUJet went into administration.

7.1.8 Ownership of the airport passed to Infratil, a New Zealand-based company. Under their management the airport continued to attract freight traffic and instigated a

[68] Woodley, C. (2014) Flying to the Sun: A History of Britain's Holiday Airlines. Available from https://books.google.com/books?isbn=0750968702

twice-daily rotation with KLM to Amsterdam. However, as Pauline Bradley, Director of Manston Skyport (owners of Manston from 2013), says, the airport suffered from the physical distance between its ownership and operation[69]. Infratil's management of Manston seemed to lack a business plan or strategic direction. Indeed, the airport's management made little investment in their facilities, something airlines would expect to demonstrate a commitment to the medium and long term. Other competing facilities at Stansted, East Midlands, and Doncaster invested significantly and benefited in terms of traffic growth. The constraints imposed on prior operations by the airport's infrastructure limited the potential for business development, particularly since Manston's attraction to air freight customers was in its turnaround times. With increased numbers, these would be severely impeded without the major investment proposed by Riveroak.

7.1.9 In 2013, Infratil sold Manston Airport for £1 to Ann Gloag, co-founder of the Stagecoach Group. Sir Roger Gale, giving evidence at the Transport Select Committee's smaller airports inquiry, said Ann Gloag "*had no intention of running this as an airport and every intention of seeking to turn this into an asset stripping property development*"[70]. Ms Gloag pledged to keep the airport open for two years but within months the airport was closed.

7.2 Previous operations

7.2.1 Before its closure, the operators of Manston Airport managed all airport activities including ATC, fire cover, security, ground handling, catering, duty-free and slot allocation. The airport focused on the cargo market whilst also providing passenger flights. In terms of cargo, Manston Airport established a reputation for speedy handling of perishable cargo, with unloading and throughput times much faster than competitor airports. By 2012, Manston was carrying around 31,000 tonnes of cargo per year. Table 8 shows the extent of the airport's operation from 2004 until its closure in 2014.

Table 8 Manston Airport operations

Year	Tonnes of cargo	ATMs	Passengers
2004	26,626	3,460	100,592
2005	7,612	4,862	206,875
2006	20,841	913	9,845
2007	28,371	1,205	15,556
2008	25,673	798	11,625
2009	30,038	811	5,335
2010	28,103	1,469	25,692
2011	27,495	1,965	37,169
2012	31,078	1,004	8,262
2013	29,306	2,073	40,143
2014 (Airport closed in May)	12,696	778	12,385

[69] http://www.parliament.uk/business/committees/committees-a-z/commons-select/transport-committee/news/smaller-airports-ev2/ on 2nd February 2015
[70] As above

Source: Department for Transport Statistics, Table 02.2 Summary of Activity at UK Airports, 2004 to 2014

7.2.2 Since Manston Airport 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 8. 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, as shown below[71], indicates that Manston Airport, with the investment required could have a strong future.

- 2010: 4 weekly freighters
- 2012: 7 weekly freighters
- 2013: 9 weekly freighters
- 2014: 13 weekly freighters
- 2013: 5th busiest UK airport on tonnage handled
- 2013: Overtook Luton Airport to become 4th busiest airport in the South East
- 2013: 3rd busiest UK airport handling dedicated freighters

7.2.3 In 2011, York Aviation reviewed the then owner's forecasts for Manston in light of proposed night time operating. Referring to Boeing and Airbus world freight forecasts for 5.9% growth per annum, York Aviation stated that Manston Airport:

> "*stands to benefit from these levels of growth within the South East of England due to the likely growth of constraints in airport capacity in the region.*" (York Aviation, 2011, para 2.22, p. 13)

Since 2011, these constraints have increased considerably. In 2011, York Aviation stated that:

> "*whilst the MSE* [Manston Airport] *Master Plan indicates growth rates above the worldwide average forecast by Boeing and Airbus, it is expected that some of the growth will come from the relocation of existing services from other London region airports. It is for the relocation of these services that MSE is ideally geographically positioned. Furthermore, the greatest opportunities are foreseen in the markets which are growing above the 6% p.a. average, such as the Middle East and points in Asia and South Asia*." (York Aviation, 2011, para. 2.23)

7.3 Infrastructure

7.3.1 The Manston site extends to some 732 acres (296 hectares), 618 (250 hectares) on the main site and 114 (46 hectares) on the Northern Grass. Whilst the airport has been decommissioned, buildings that housed the passenger terminal and office facilities, Border Inspection Post (**BIP**) and cargo hangers still stand, as does the car parking area. The existing taxiway network requires modification in order to allow Manston Airport to attract the widest range of operators as well as being EASA compliant. Improvements would include a new taxiway parallel to the runway, new taxiways linking the aprons

[71] Provided by Alan McQuarrie, cargo manager at Manston Airport at time of closure

and stands, and modifications to existing taxiways to ensure gradients are EASA compliant.

7.3.2 Much of the equipment that was installed at the airport has now been removed. This, however, is not seen as a drawback as RiverOak plans to upgrade to state-of-the-art navigation and operational equipment. A new radar facility will be installed in its original position to the northwest of the site on what is known as the Northern Grass. Modifications to the airport site will match the forecast produced for Manston. In particular, construction work will allow for the parking of up to 11 aircraft (eight freighters and three passenger) including those classified as Codes E[72]. Full details are provided in Volume III of this series of reports. Access to the new cargo facility, which will cover approximately 66,000 m2, is proposed from the B2190 (Spitfire Way) to the west of the existing access.

7.3.3 RiverOak Strategic Partners intend to redevelop the site, providing standing for eight freight aircraft and three stands for passenger use. Airport improvements will also include cargo storage and handling, and a new passenger terminal, within two years of taking ownership and before reopening Manston Airport. Construction and development will allow the airport to accommodate at least 10,000 freight movements and up to one million passengers per year within the first six years of operation. Further developments will be made in the medium-term to accommodate the predicted increase in both freight and passenger traffic.

7.3.4 Almost all air cargo is intermodal in that is has to be transferred from airport to final destination by surface transport, generally by road on trucks. Surface access is therefore vital to the success of a freight airport and Manston has good arterial road links. The completion of the East Kent Access Road (A299) means that Manston is now accessible directly from the national trunk road network. In terms of drive time, the airport is less than 60 minutes from the M25 London Orbital, significantly widening the passenger catchment area of the airport.

7.3.5 The proposed new Lower Thames Crossing, announced in April 2017, will improve access from Manston to Essex, Suffolk and Norfolk, reducing travel times from the M25 and onto the M11, A1, and M1. The new proposed crossing means that freight arriving and leaving Manston Airport from/to continental Europe avoids the need to further congest the M25. Manston Airport has excellent high-speed rail links from Ramsgate station, less than 10 minutes' drive from the airport, to Ashford International and Central London.

7.4 Airspace issues[73]

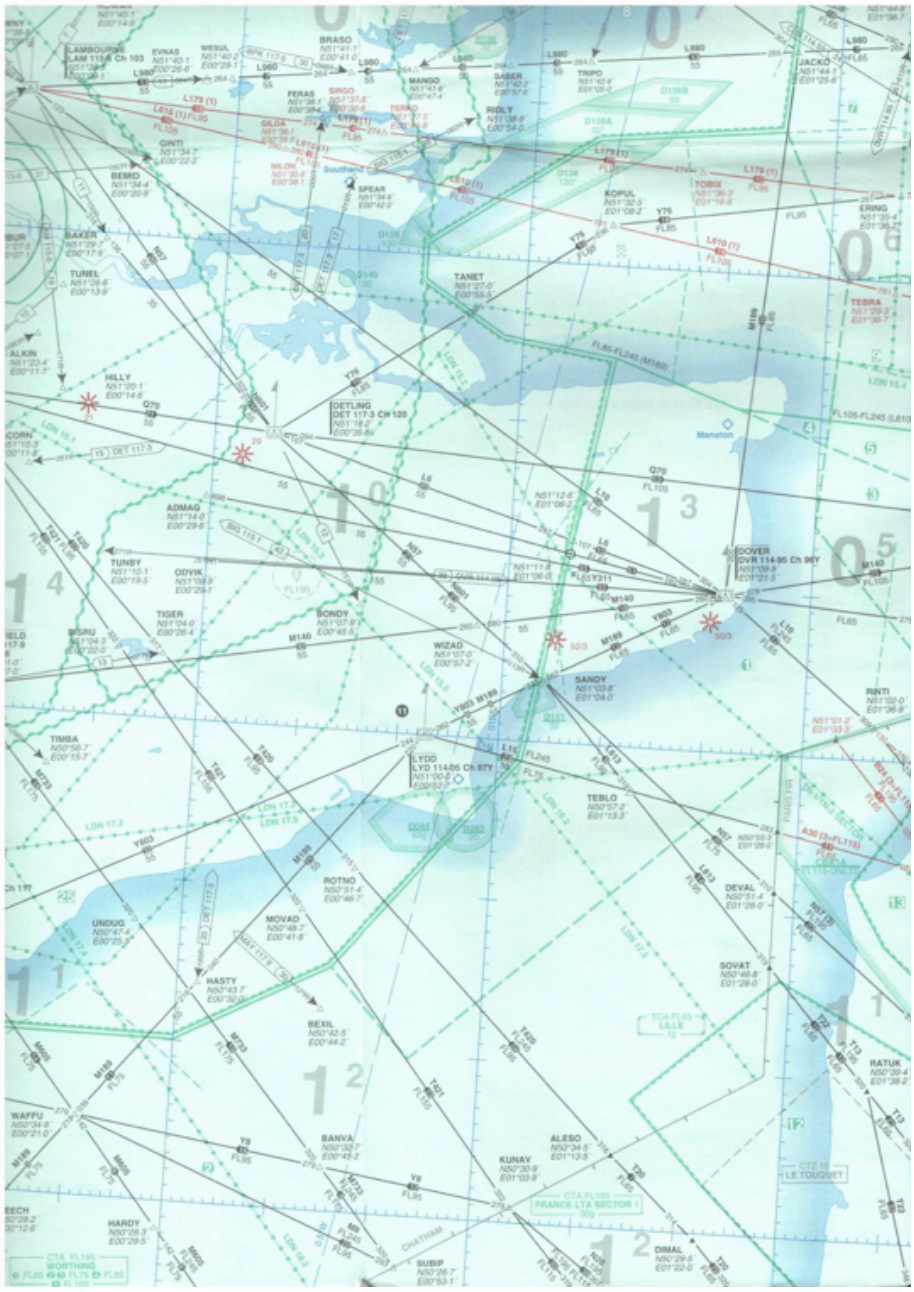
7.4.1 Airspace is an essential element in determining whether Manston is viable as an airport. Major airports must be able to integrate into the European Air Traffic Management Network, which considers air routes, airways and airports across Europe in a seamless and contiguous manner. Successful integration entails connectivity - identifying suitable entry and exit points to join and leave the network – as well as minimising impact by ensuring aircraft can climb to cruising altitude without blocking

[72] Aircraft codes are defined by ICAO (Annex 14) and derive from the most restrictive of either the aircraft wingspan or the aircraft outer main gear wheel span. Codes E and F cover the largest aircraft. Code E includes B747 -100, 200, 200, 400, B777, B787 and A330. Code F includes B747-8 and A380-800 when available

[73] Provided by Osprey Consulting Services Ltd.

multiple levels. The South East of England, and the London area in particular, has amongst the busiest and most congested airspace in Europe. However, as Figure 8 shows, from an airspace perspective, Manston's location is ideal. The airport is sufficiently close to the confluence and convergence of major routes, such as those that converge on the Dover beacon, to be able to exploit them whilst sufficiently far away for aircraft to gain height safely before doing so. Aircraft departing from Manston can climb to 6,500 feet (and higher if routed to the north) before having any impact on the efficiency of the Air Traffic Management network.

Figure 8 Aeronautical chart showing location of Manston Airport



Source: UK(L)1, No 1 AIDU, Flight Information Publication, En-route Low Altitude, Southern UK (for reference only)

7.4.2 From an airspace perspective, expansion of an airport also requires consideration of the impact on adjacent airfields and traffic patterns, the routing of civil and military aircraft operating in the area, and the impact on third parties on the ground in terms of safety and noise. The recent proposed airspace changes at airports in the London area highlight the considerable resistance from the broader aviation community. Both civil and military stakeholders raised objections because of the potential impact on their operations as well as concerns over noise.

7.4.3 Although any proposed changes to airspace would be subject to extensive public and aviation stakeholder consultation, development at Manston would have no adverse impact on either civil or military aviation in the area. Indeed, the infrastructure at Manston previously allowed the airport to be designated for emergency diversions for aircraft crossing the Channel. Manston is outside the London Terminal Manoeuvring/Control Area (**TMA**) and can therefore provide landing facilities for emergency incidents without causing disruption to the London airports.

7.4.4 For aircraft approaching from the east, the vast majority of the flight path will be over the sea. Only the final 2.5 miles are over land, which includes 1.5 miles over-flight of part of Ramsgate. For aircraft approaching from the west, the area is comparatively lightly populated. Aircraft approaching in this direction may route over Herne Bay but will be at an altitude of around 2,400 feet at this point. As part of the development of approach and departure flight paths and operating procedures for Manston Airport, population densities would be taken into account to minimise the number of people affected by aviation noise. Where operationally and meteorological conditions allow, noise mitigation will be a factor when selecting runway direction during periods of low intensity operations. Such proposals would be subject to close scrutiny by the CAA as part of their Airspace Change Process.

8 Potential opportunities for Manston Airport

8.0.1 The previous sections have made a clear case for the reopening of Manston as a freight-focused airport with supplementary passenger operations. Capacity constraints in the South East have particularly affected freighter aircraft. Heathrow Airport lands very few freighter aircraft and with Stansted Airport reaching its current operating capacity, particularly at peak times, the situation is becoming increasingly critical, resulting in air freight being trucked to and from northern European airports (see Volume II for details).

8.0.2 There are a number of factors that influence a cargo airline's choice of airport including congestion, airport delays, custom clearance times, turnaround time and market access (Kupfer *et al*, 2016, p. 56). Kupfer and colleagues' research on the drivers behind freight airlines' choice of airport includes the presence of forwarders[74], night-time operations, airport charges, the airport's experience with cargo, and demand for air freight services from the local region. These authors find that the presence of a major forwarder is the most important attribute for airlines when choosing an airport. The RiverOak vision is to encourage integrators[75], customs brokers and agents to locate in the Manston area, have a competitive pricing structure, and build on the previous excellent cargo handling service provided by the airport. Manston is well located, with easy surface access throughout the South East. The proposed Lower Thames Crossing would improve access and the Thames Estuary 2050 project aims to stimulate business in the local area.

8.0.3 Freighter operators find competitive advantage by locating at an airport that minimises flying time. Gardiner (2006, p. 11) outlines these savings in fuel costs as well as potentially in ACMI costs (aircraft, crew, maintenance and insurance). Gardiner discusses how, when it was operational, carriers chose Manston Airport, which is 65 miles southeast of London, to avoid the London Air Traffic Control area when approaching from the south. Savings of up to 45 minutes flying time and 20 minutes taxiing can be made when compared to Heathrow or Stansted airports, a potential attraction for future users. Additionally, Manston was highly efficient in offloading aircraft and the time taken to get cargo onto trucks could be as little as 45 minutes. This compares to an average of 4 to 7 hours at Stansted Airport and far longer at Heathrow Airport. Gardiner quotes the Managing Director of MK Airlines as saying, "*Why bother flying a product at eight miles a minute when it sits in a warehouse for 7 hours?*" (Gardiner, 2006, p. 154)

8.0.4 Airports are both drivers of economic growth in a region as well as drawing on the success of the region to fuel their own growth. In March 2015, Kent County Council, in their brochure, 'Manston Airport under private ownership: The story to date and future prospects' say that, "*For decades we have argued that Manston was a sleeping giant: a regional and national asset.*" (KCC, 2015, p. 2) Looking to the future, there are a number of pertinent developments that, whilst not critical to the viability of Manston,

[74] A person or company that organises the shipment of commodities from an originator (manufacturer, producer, etc.) to a destination (customer, etc.) but generally does not own the aircraft used in the transport

[75] Integrators provide a door-to-door service, usually using their own road transport, handling, transit warehousing facilities and aircraft. Normally integrators contract directly with the shipper.

are likely to increase the success of the airport including the proposed The Lower Thames Crossing and the Thames Estuary Growth Commission 2050.

8.1 The Thames Estuary 2050 project

8.1.1 During his 2016 budget speech, the Chancellor of the Exchequer announced the extension of the Thames Gateway project. Lord Heseltine was commissioned to develop and implement a plan to create high productivity clusters along the Thames Estuary. The development zone is a critical economic corridor, linking the Channel Tunnel and the seaports of Tilbury and Dover with London. This corridor includes Manston Airport, the only freight-viable airport within the Thames Estuary area.

8.1.2 In December 2017, the new Chair, Sir John Armitt, announced the priorities for the Thames Estuary Growth Commission. The Commission, whose final report is due in 2018, will focus on[76]:

- Sectors: creating internationally-competitive centres of excellence that build on the corridor's sector strengths, for example in ports and logistics, and making the most of growth sectors such as the creative industries
- Connectivity: making the most of planned investments such as the Lower Thames Crossing, and assessing the case for other investments that have been proposed, such as further river crossings and extending the Elizabeth Line to Ebbsfleet
- Communities: ensuring that people right across the corridor benefit from expected growth, including equipping them with the right skills, making sure high-quality housing is available, promoting use of the river, and enhancing the Thames Estuary's natural environment
- Delivery: working closely with organisations and communities to develop a plan for delivering the vision, aligning with the Government's intention to explore ambitious housing deals in the area.

8.1.3 Discussion in Parliament [77] indicates that the Thames Estuary Growth Commission places significance on the aviation sector. The case was made for Southend Airport and the Parliamentary Under-Secretary of State for Housing, Communities and Local Government, Jake Berry, confirmed that the airport is, "*at the heart of the Thames estuary commission's growth plans*". However, Manston Airport, also within the Thames Estuary area, has far greater potential for development due to the length of the runway, potential for connectivity outside Europe, and the significance of RiverOak's commitment to infrastructure development.

8.1.4 As part of the ambitious Thames Estuary 2050 project, a freight-focused airport at Manston will provide a considerable boost to the local and regional economies. The UK is calculated to be missing out on at least £9.5bn in potential trade with emerging economies per year due to the lack of runway capacity (Centre for Business Research, 2016). The presence of a freight-focused airport in the Thames Gateway will provide businesses with the means to import and export high value, time-sensitive and perishable goods and alleviate some of the trade that is currently lost due to a lack of UK airport infrastructure.

[76] https://www.gov.uk/government/news/thames-estuary-2050-growth-commission-priorities-confirmed

[77] https://hansard.parliament.uk/commons/2018-01-22/debates/3319205D-A97C-4A48-934B-B1D0540FC585/ThamesEstuary2050GrowthCommission

8.1.5 Azimuth Associates on behalf of RiverOak has made a submission to the Commission concerning the potential for a Manston-based Aviation Academy. Subject to further detail and agreement, this academy would be delivered in association with the outstanding conglomeration of Further and Higher Education Institutions in East Kent, with whom RiverOak has been engaging.

8.2 The Lower Thames Crossing

8.2.1 The proposed new crossing, once complete, would allow surface traffic to access Manston Airport from the east of the Country without negotiating the M25 and the associated bottlenecks. This would be particularly important for freight since trucks would be able to operate between Manston and East London, the East of England, and onwards to the Midlands and the North. The importance of the Lower Thames Crossing and potentially other crossings was confirmed in December 2017, with the Thames Estuary 2050 Growth Commission announcing their priorities, which include:

> "*making the most of planned investments such as the Lower Thames Crossing, and assessing the case for other investments that have been proposed, such as further river crossings and extending the Elizabeth Line to Ebbsfleet*"[78].

8.2.2 The improvement to road infrastructure in Kent is expected to negate the previous accessibility issues that were previously raised about the location of Manston Airport. Indeed, since Manston is located to the south east of London, closer to continental Europe, using the airport would save fuel (potentially around $2,000 to $3,000 per movement) and crew time (see comment by an interviewee detailed in Volume II). This saving for airlines adds to the attractiveness of Manston as a London area airport.

8.3 Manston's role in the resilience of the UK airport network

8.3.1 In addition to the ability to harness the opportunities outlined above, an operational airport at Manston has the benefit of providing valuable resilience in the UK airport network. This is particularly vital at times when nearby airports such as Heathrow and Gatwick are closed or restricted. Manston Airport has a long and wide runway with hard standing available away from the runway, which makes the airport particularly important as an emergency diversion airport. Stansted, the current South East diversion airport, has to be closed during an emergency, causing major disruption to passenger flights, which can cause knock on effects such as missed connections.

8.4 Capacity restrictions at Schiphol Airport

8.4.1 Amsterdam's Schiphol Airport has an annual quota restricting its operation. The Alders Agreement of 2008 and the Aviation Policy Memorandum (Luchtvaartnota) set medium term (to 2020) limits on aircraft movements. The 2020 maximum was set at 510,000 movements of which 32,000 can take place at night or early morning. It was envisaged that regional airports, including Eindhoven and Lelystad, would be used to provide 70,000 movements in additional capacity.

8.4.2 Air traffic movements at Schiphol increased from 450,679 in 2015 to 478,864 in 2016[79]. The year-to-date figure for August 2017 is 4.2% higher than the same period in

[78] *ibid*

[79] Figures from https://www.schiphol.nl/en/schiphol-group/page/transport-and-traffic-statistics/

2016. For this reason, it is expected that the airport will exceed its agreed quota by the end of the year. Therefore, in September 2017, it was announced that air traffic capacity constraints will be introduced at Schiphol for the forthcoming winter season.

8.4.3 These constraints mean that slots may be de-allocated to airlines that have failed to use less than 80% of their requested flight schedules. Since air freight is less predictable than passenger transport, it is likely that freighter airlines will be most affected[80]. Indeed, the airport announced that full freighter movements reduced by 12.4% to November 2017. Their estimate was for 10.5% in 2018, approximately 1,900 ATMs, previously estimated. The airport states specifically that, "*The decrease in full freighter flights is a direct result of the slot scarcity at Schiphol*"[81] One of the operators affected is Russia's AirBridge Cargo. The Netherlands Trade Union Confederation (**FNV**) has said that hundreds of jobs are at stake with Menzies Aviation reportedly cutting 101 positions[82]. The Dutch Transport Minister has acknowledged the need a Local Rule for freighter airlines but no date has yet (March 2018) been given for implementation[83].

8.4.4 Schiphol currently handles around 1.75 million tonnes of freight. Compared to prior years, 2016 saw an increase of 2.5% and the 2017 figure shows a 5.4%. Whilst the quota will be reviewed for the period from 2020, the airport is planning a new passenger terminal by 2023, which will increase Schiphol's capacity by 14 million passengers per year to more than 70 million. In terms of ATMs, any new agreement would need to be substantially higher to accommodate both increasing passenger and freighter movements.

8.4.5 Manston Airport, focused on air freight, may benefit from the relocation of operations from Schiphol and the knock-on effect in northern Europe. As airports in the region become increasingly congested, many seem to preference passenger services, squeezing out freight, particularly dedicated freighters. Indeed, the ACI say that:

> "*With demand for air travel set to increase by 50% by 2035, airport capacity is one of the most pressing issues facing European mobility today. As competing global hubs in the Middle East and other emerging economies power ahead with their own infrastructure roll-outs, European air traffic is set to be heavily congested in 2035. EUROCONTROL estimates that 12% of demand will be unaccommodated, meaning 237 million passengers unable to fly."*[84]

8.4.6 These constraints may have a significant impact on freighter operations and affect logistics centres based around airports such as Schiphol. Scarcity in capacity tends to increase air cargo rates (and passenger fares – see Burghouwt *et al*, 2017), which impacts businesses in the supply chain. As such, freighter operators and the distribution centres, logistic operations and other supporting businesses may choose to leave airports like Schiphol and locate elsewhere. Airports who focus on freight and understand the nature of the industry, which does not follow the more regular patterns of the passenger market, seem likely to benefit. A freight-focused operation at Manston

[80] http://www.aircargonews.net/news/airport/single-view/news/schiphol-airport-braces-for-loss-of-105-of-freighter-slots.html
[81] https://www.schiphol.nl/en/cargo/page/local-rule-cargo-to-be-discussed-by-mid-december/
[82] https://www.ch-aviation.com/portal/news/59960-airbridge-cargo-loses-schiphol-slots-seeks-alternatives
[83] http://www.aircargoweek.com/shippers-call-urgent-implementation-schiphol-local-rule/
[84] https://www.aci-europe.org/policy/position-papers.html?view=group&group=1&id=1

Airport, in the South East of England but close to the rest of Europe, may provide an ideal option.

8.5 Enterprise Zones

8.5.1 In the 2011 Budget, the Government announced the creation of a number of Enterprise Zones across England. Enterprise Zones define a geographical area where fiscal incentives and simplified planning controls encourage businesses to flourish by reducing the barriers to growth. Enterprise Zones have been established to include or be based around a number of airports including Manchester, Luton, Newquay and Cardiff. The Government's Aviation Policy Framework (DfT, 2013b, pp. 75-6) outlines the effect of Enterprise Zone Status on airports including transforming airports into international business destinations, creating jobs, and attracting investment to boost air connectivity and maximise economic impact. Should Manston Airport re-open, it may be possible to apply to the Government for Enterprise Zone status, providing incentives for businesses to locate to the area, bringing additional employment and economic benefits to Thanet. These businesses might include a Maintenance, Repair and Overhaul (**MRO**) facility, an aircraft recycling facility, the return of the flying school, and a business jet operation.

9 Conclusions

9.0.1 This report has pointed to the considerable challenges faced by the UK as our airports reach capacity. Airports generally tend to preference the passenger market, which can lead to particular issues for freighter airlines. An example is the experience of Schiphol Airport, where dedicated freighter airlines are being forced to look to other European airports for slots. Volume II of this body of work explores the impact on UK operations in more detail.

9.0.2 In the future, the UK and its reliance on air freight faces a number of issues including the potential ramifications of a withdrawal from the EU, the continuing impact of e-commerce and changes to manufacturing practices. Speed is now a key source of competitive advantage and this is potentially a game changer for the air freight market. Using dedicated freighters may be the only way to reliably shorten delivery times across the global marketplace. Rationalising supply chains may mean that cargo is decoupled from passenger flights to meet the need for speed in delivery to both end customer and supply chain partner.

9.0.3 Trading further afield as a result of the UK's exit from the EU and the increasing importance of growth markets may mean less short haul and more long haul freighter business. This will reduce the potential for trucking to be used as a replacement for air freight. Complementary road transport would still be used to feed freight airports, particularly specialist freight airports who can operate unencumbered by passenger operations, providing reliability and speed to shippers.

9.0.4 This report set out to answer three key questions, the first of which was:
Does the UK require additional airport capacity to meets its political, economic, and social aims?
The forecasts discussed in this report highlight the need for additional airport capacity. The UK patently and urgently requires additional airport infrastructure. Without this, the UK is haemorrhaging potential trade, particularly with non-EU countries. In monetary terms, the UK could be missing out on at least £9.5 billion in potential trade each year, accumulating losses at the rate of £1.1 million every hour (CEBR, 2016).

9.0.5 The second question was:
Should additional capacity be located in the South East of England?
The London airports facilitate 76% of the UK's air freight and all London airports will be at capacity by 2030 (Airports Commission, 2017). The South East is particularly hard hit by the lack of airport capacity with losses in potential trade running at £2 billion each year (CEBR, 2016). Demand is driven by where airlines want to fly to and from and demand is highest in the South East. Dedicated freighters are squeezed out of airports that focus on passengers as their preferred market, including all main South East airports. Other airports in the South East either do not have the runway length or space for warehousing to accommodate a vibrant freight operation, which may be seen, particularly by LCCs who do not carry belly freight, to interfere with passengers operations.

9.0.6 The final question posed by this report was:
Can Manston Airport, with investment from RiverOak, relieve pressure on the UK's airport network and meet the requirement of a nationally significant infrastructure project?
Manston Airport was operational for 100 years until its closure in May 2014. Due to its size, location and lack of airspace constraints, Manston has the potential to attract and

accommodate at least 10,000 cargo movements per year. Manston Airport would seem to be the only viable option for a freight-based airport in the South East in the short, medium, and long-term. Moreover, the work in this report shows that the addition of a third runway at Heathrow Airport does not change the need for a freight-based airport at Manston.

9.0.7 It is clear from the data presented in this report that there is a substantial need for Manston Airport. Manston can be operational in as little as two years from the transfer of its ownership to an airport operator. Its strategic location, runway length and potential to accommodate all necessary infrastructure together with the considerable local backing mean it is without comparison in the UK. As this report shows, Manston is the only airport in the South East that can provide airport infrastructure for freight cargo that is needed by the UK both now and in the long term.

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MANSTON AIRPORT: A NATIONAL AND REGIONAL AVIATION ASSET

VOLUME II
A qualitative study of potential demand

JULY 2018

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Disclaimer

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Executive Summary

The research detailed in this report seeks to examine the demand for Manston Airport as a freight hub for the South East of the UK with additional passenger and general aviation services. There is clear demand for additional airport capacity in the South East of England, with evidence that existing airports are increasingly focusing on the passenger market as they near capacity.

Manston Airport is located in the South East where aviation industry demand is highest and most constrained (DfT, 2017). The airport has an ideal airspace location; benefits from easy surface access to London and the rest of the UK; and can provide rapid handling and turnaround times for air freight. The airport would provide almost immediate relief to the pressing situation that is causing £2 billion in potential trade to be lost to the South East each year we remain without additional runway capacity (Centre for Business Research, 2016). Indeed, examples of unconstrained freight-focused airports in Europe, such as Frankfurt Main, show the difference between a true market, where capacity is available to attract freighter flights, and a constrained market such as that in London.

Assessing demand for freight is no easy matter, with forecasts usually calculated by extrapolating past trends for a region or country before allocating a proportion to individual airports. This approach may miss any currently unmet demand and is inappropriate for an airport such as Manston with a history of underinvestment and no data to extrapolate from since 2014. As such, a quantitative approach would not be the most appropriate.

Findings from the literature review suggest a lack of datasets for freight forecasting, the unreliability of using historic data to predict the future, the inability to infer forecasts for individual airports from national figures, and the volatility in the freight sector. Academic and industry experts contacted through this research process confirmed these findings, validating the qualitative approach taken. The intention of the research was to uncover the drivers of demand for dedicated air freighter transport and provide a foundation for the forecast presented in Volume III. As such, the report provides qualitative information derived from 24 interviews with industry experts. These interviews and information from other sources identify potential demand for sectoral and geographic freight markets, passenger and other aviation opportunities.

Evidence collected for this report suggests that a vast quantity of freight is already trucked to and from northern European airports, losing revenue for UK airports and increasing costs for all those in the supply chain. A number of issues have been identified through this research that present opportunities for Manston Airport including:

- The lack of available slots at South East airports
- Bumping[1] of freight from passenger aircraft
- Security issues particularly with outsized cargo
- Speed of turnaround and bottlenecks for air freight

[1] Bumping in this context means air freight that has been booked onto a passenger flight is denied loading. Interviewees contacted for this research explain that this may happen numerous times before the goods are loaded into the belly-hold of a passenger flight or the shipper decides to use a different route or means of transport.

Interviewees also provided insight into potential markets for Manston Airport, which include:

- Perishables including fruit, vegetables, flowers, fish, and shellfish
- Outsized freight
- Express freight
- Formula One and luxury cars
- Live animals (for breeding or racing)
- Time sensitive items such as aircraft and the oil and gas industry
- Humanitarian and military flights

The research has also identified opportunities for aircraft recycling, an on-site maintenance, repair and overhaul facility (**MRO**), a Fixed Base Operation (**FBO**), and a flying school. Additionally, there is the potential to attract an integrator to Manston Airport, which would dramatically increase the profitability of the airport.

In terms of passenger services, this research has identified opportunities including providing a base for a number of low cost carrier aircraft (**LCCs**), for charter and scheduled flights, and for a tie up with Dover Harbour Board to receive passengers destined for cruise ships. The proposed London Resort and Ebbsfleet Garden City developments are expected to increase demand for both in and outbound flights. The proposed Lower Thames Crossing will improve accessibility by road to Manston Airport. The Thames Estuary 2050 regeneration project would be likely to stimulate demand for the airport whilst also benefiting from the presence of a freight-focused facility at Manston.

This report concludes that Manston Airport is of strategic importance to the UK, having the ability to attract significant air traffic, particularly the dedicated freighter market. In light of the findings described in this report, there can be little doubt that, in an increasingly competitive economic climate, the UK cannot afford to lose one of its long-serving airports. This report shows that Manston Airport is a valuable regional and national asset, capable of providing infrastructure badly needed by the UK and playing a role in helping Britain's connectedness and trade with the rest of the world.

Definitions and abbreviations

ACI	Airports Council International
ACI-NA	Airports Council International North America
Air freight	The carriage of goods by aircraft
ATM	Air Transport Movement and/or Air Traffic Movement
BAA	Formally the British Airports Authority
Backload	The transportation of cargo on a return trip to the originating airport
Belly freight	Cargo stowed under the main deck of a passenger aircraft
BTO	Build-to-Order
CAA	Civil Aviation Authority
Cargo	The term cargo and freight are used interchangeably in this report and refer to goods carried by road, sea or air
Consolidator	A person or company who combines small volumes of commodities from different originators so they can be shipped together and who usually owns the aircraft used for transport
CPO	Compulsory Purchase Order
DCO	Development Consent Order
Dedicated carrier	An aircraft that transports only freight (not passengers)
DfT	Department for Transport
EASA	European Aviation Safety Agency
ECAA	European Common Aviation Area
EEA	European Economic Area
EIA	Environmental Impact Assessment
ETS	Emissions Trading Scheme
EU	European Union
EUROCONTROL	European Organisation for the Safety of Air Navigation
FAA	Federal Aviation Administration
FBO	Fixed Base Operation
Freight	The term freight and cargo are used interchangeably in this report and refer to goods carried by road, sea or air
Freight forwarder	A person or company that organises the shipment of commodities from an originator (manufacturer, producer, etc.) to a destination (customer, etc.) but generally does not own the aircraft used in the transport
FSM	Four-step model
FTG	Freight trip generation
GBFM	Great Britain Freight Model
GVA	Gross Value Added
IATA	International Air Transport Association
ICAO	International Civil Aviation Organisation
ICT	Information and communications technology
Integrator	Integrators provide a door-to-door service, usually using their own road transport, handling, transit warehousing facilities and aircraft. Normally integrators contract directly with the shipper.
JIT	Just-in-time, a manufacturing system that allows materials or components to be delivered just as they are required in the manufacturing process, thereby minimising storage costs
LCC	Low cost carrier
LCY	London City Airport
LGW	London Gatwick Airport
LHR	London Heathrow Airport

Long haul	No generally agreed definition as 'long' or 'short' is subjective. In Europe, a flight taking more than four hours to complete and/or originating/destined outside Europe is considered long haul
MDir	European Transport Model Directory
MRO	Maintenance, repair and overhaul facility
MROL	Maintenance, repair, overhaul and logistics
NAPAM	National Air Passenger Allocation Model
NAPDM	National Air Passenger Demand Model
NEAC	European model for freight transport
OAG	Official Airline Guide
RTK	Revenue tonne kilometres
Short haul	As above. Short haul in Europe generally indicates a flight within Europe so taking around four hours or less to complete
SIC	Standard Industrial Classification
STN	Stansted Airport
TfL	Transport for London
TNO	The Netherlands Organisation for Applied Scientific Research
WACF	World Air Cargo Forecast
WTO	World Trade Organization

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1 Introduction

1.1 Background and rationale

1.1.1 This report is the second in a series of documents that make the case for Manston Airport to return to full operation. These reports cover:

- Volume I: The need for airport capacity in the South East of the UK and the potential role of Manston Airport as part of the UK's airport network
- **Volume II: The findings from a qualitative study that identifies the push and pull attractors for Manston Airport and details the opportunities and the sectoral and geographical markets the research uncovered**
- Volume III: The forecast for air freight and passenger traffic for Manston Airport over the first twenty years of operation
- Volume IV: A description of the socio-economic impacts of the operation of Manston Airport as described by the forecast in the third volume of this body of work

1.1.2 There is an urgent need for airport capacity in the South East of the UK as outlined in the first report in this series, *Manston Airport: A national and regional aviation asset*: *Volume I: Demand in the south east of the UK*. Whilst Parliament has now decided to support the proposed construction of a third runway at Heathrow, it will take many years before the political, legal, environmental and development issues are resolved and a third runway is operational. In these intervening years, likely to be until at least 2030[2], the UK will suffer continued airport congestion and lose the economic benefits associated with meeting demand for air travel. Even with a third runway in place, there may still be a need to accommodate additional freight.

1.1.3 Having noted the opportunity to reopen Manston Airport in 2014, RiverOak, now a UK-registered investment company, began the process of negotiating with the owner of the airport, Ann Gloag, co-founder of the Stagecoach organisation. However, approaches to Ms Gloag have been unsuccessful and the airport was closed in May 2014. The re-opening of Manston is now subject to an application for a Development Consent Order (**DCO**), promoted by RiverOak, which, if granted would authorise the compulsory purchase of the site.

1.1.43 The intention of the current owner is to secure a change of use from airport operations to a mixed use development called Stone Hill Park. This development would include up to 4,000 homes, a business park, and sports facilities over the next 20 years. Such change of use, if granted, would remove the opportunity to increase airport capacity in the South East in the short term and the important role it can play in the success of the local, regional and national economies in the long term. This report describes the research carried out to understand the potential for Manston Airport.

1.2 Aim and objectives

1.2.1 The aim of this report is to investigate the demand for Manston as an operational airport. This investigation includes freight and passenger demand as well as other potential revenue generating activities the airport can support. The results of the

[2] 8 February 2016, The Transport Committee hears evidence from the Secretary of State for Transport on the Government's plans for airport expansion in the South East. http://www.parliament.uk/business/committees/committees-a-z/commons-select/transport-committee/news-parliament-2015/airport-expansion-ev-session-15-16/ at 15.07.35

investigation have been used to support the development of a 20-year demand forecast for Manston Airport. This forecast includes the number of aircraft movements per year, an indication of the type and tonnage of freight moved, the number of passengers, the airlines' origin and destination, and the type of aircraft predicted to use Manston Airport. A review of the extant literature is used to ensure a robust methodology is followed, particularly with regard to air freight demand forecasting.

1.2.2 There are a number of objectives set out for this work and in particular the results:

- Provide the information required to support the DCO application
- Inform the Manston Airport business case and master plans
- Inform Manston Airport's marketing strategy
- Initiate stakeholder consultation
- Continue to inform key stakeholders
- Open dialogue with academic institutions from Higher and Further Education
- Stimulate innovation and the future business direction for the airport
- Provide a platform for lobbying Government and industry organisations
- Play a role in forming Government policy for air freight in the UK

1.3 Delimitations and limitations

1.3.1 The delimitations of a study are the boundaries the sponsor imposes during the selection of their research questions. This contrasts the limitations of the study, which refer to conditions or influences that cannot be controlled by the researcher. For this paper, the delimitation is the focus on Manston Airport and in particular its potential for air freight operations. An unconstrained approach, looking beyond Manston to develop a forecast for the UK or Europe, is outside the scope and resources of this study.

1.3.2 Research of this nature has its limitations. Indeed, transport models generally are at best "*imperfect representations of reality*" (DfT, 2014, p. 3). The limitations of this study, including the particulars of the research design and methodology, are not intended to be generalizable beyond Manston Airport. However, since there are no current UK government guidelines for assessing air freight demand at an airport level, it is hoped this study will provide a valuable resource to DfT policy makers.

1.3.3 Every effort has been made to ensure the robustness of this study. Decisions on the selection of the method used to assess demand, its design, and inputs are transparent and straightforward to audit. Key stakeholders have been invited to influence all aspects of the research and will continue to be able to monitor, assess and challenge the validity of the information produced. Air freight is subject to a wide range of external influences. These influences make the process of assessing demand for air freight complex. In mitigation, this study incorporates a process of triangulation, checking and re-checking with industry specialists to ensure the best assessment of quality possible in the circumstances.

1.4 Report structure

1.4.1 The report commences with a review of air freight forecasting literature, which guides the choice of methodological approach for this study. Next, the method used is outlined. The following section describes the findings from the research, structuring them so that freight, passenger, and other potential revenue streams are reported separately. A discussion of the information gathered follows the findings section. The report concludes with recommendations for government and RiverOak.

2 Review of air freight forecasting literature

2.0.1 There is a distinct lack of academic literature in the field of air cargo (Gardiner and Ison, 2007, p. 15). Forecasting air freight is quite different from forecasting passenger movements for a number of reasons. Firstly, passengers tend to make round trips whereas air freight moves in one direction only. Origin-destination (**O-D**) information is much harder to collect because passengers generally prefer direct routings whereas shippers are concerned only with ensuring cargo arrives within the agreed timescale. This may mean belly freight makes any number of aircraft changes (Khan, 2010). Secondly, air freight forecasting is complicated by the relative lack of statistics available and by the range of alternative options available to shippers. It is perhaps for these reasons the literature on air cargo volume forecasting has always been secondary to passenger forecasting (Khan, 2010, p. 70).

2.0.2 This section sets out the way in which the literature was interrogated to define a means by which to assess the demand for air freight movements at Manston Airport. Secondary research involves the collation and examination of existing information. A review of the extant literature helps build a robust case and make clear the premises on which subsequent work is based. The literature review method comprised three stages. The first stage was to clearly define the problem under investigation. In this case, the aim was to identify any useful and credible methods that had been used for forecasting air freight. These methods could originate in academia, government departments, or industry.

2.0.3 The second stage was to undertake a preliminary review of literature through Google and academic database searches. Known sources of credible information were accessed first. These included:

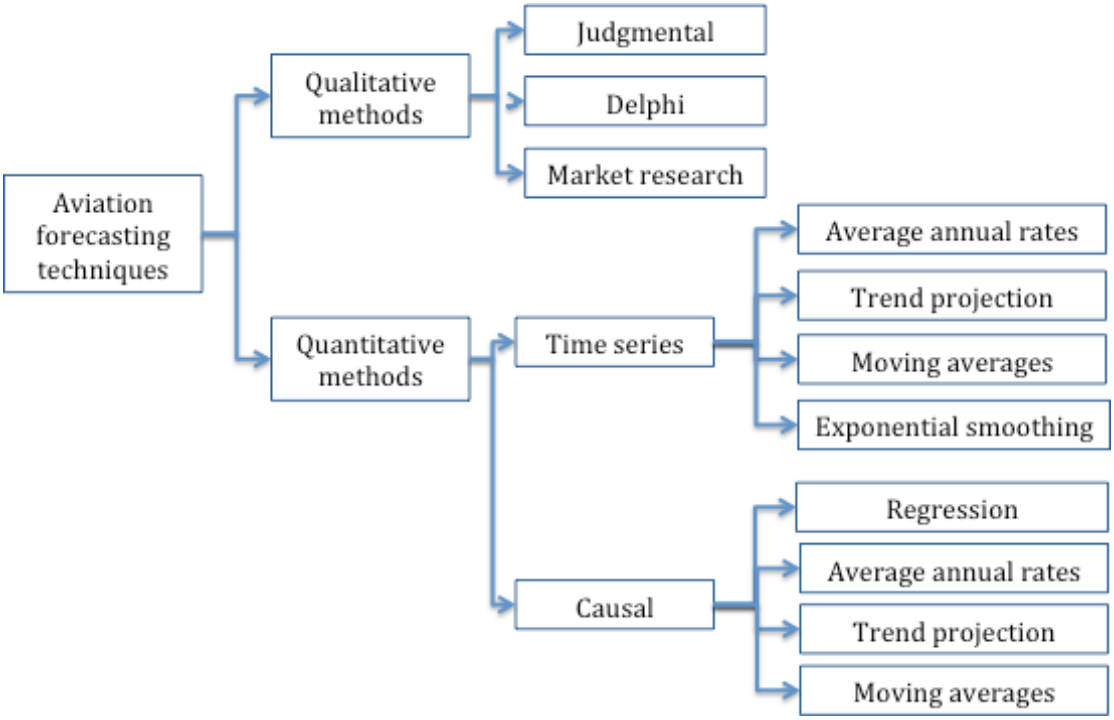
- The EU's Transport Research and Innovation Portal, an online database of research documents
- The EU's website, particularly the transport pages
- The UK Government's Department for Transport website
- The Airports Commission publications

2.0.4 The final stage was to follow citations found in the preliminary review. Information from these documents was then incorporated in the review. All literature has been referenced using the Harvard system, in text and in the list of references at the end of the report. Footnotes have been used where citations refer to opinions quoted in the press or on websites and do not form part of the literature review.

2.0.5 Broadly, aviation forecasting techniques can be divided into three main categories: qualitative methods; quantitative time series methods; and quantitative causal methods. Figure 1 shows the range of forecasting techniques available in aviation modelling.

2.0.6 Forecasts for freight are carried out on a 'demand pull' basis, where the importing country/region causes the demand for the commodity. This contrasts the LCC passenger model, where low prices cause 'demand push' to airports that may not usually 'pull' passenger traffic. However, there is evidence to suggest that an important driver in freight transport demand is the location of logistics centres with efficient service quality (Gardiner, 2006).

Figure 1 Range of aviation forecasting techniques



Source: Silva, 1994

2.0.7 The review of literature uncovered a number of forecasting techniques, which are described in the following sections.

2.1 Four-step models

2.1.1 The history of demand modelling for passenger travel has been dominated by an approach referred to as the 'four-step model' (**FSM**) (McNally, 2007). De Jong *et al* (2004, pp. 105-6) describe the four steps in freight forecasting as:

1. Production and attraction: Marginals of the O-D matrix (quantities of goods to be transported)
2. Distribution: Cells of the OD matrix (flows between origins and destinations)
3. Modal split: Allocation to modes of transport
4. Assignment: Convert tonnes of freight to transportation mode units (i.e. number of aircraft)

2.1.2 De jong *et al* review models for each of these steps:

1. Production and attraction

- Trend and time series models that extrapolate historical data to provide a forecast into the future.
- System dynamics models where growth in GDP is fed back into the model (for example the ASTRA - Assessment of Transport Strategies - system dynamics model). These models may not provide sufficient detail to show point-to-point flows.
- Zonal trip rate models predict the number of trips originating in or destined for a particular traffic analysis zone. However, a 2012 paper produced for the

Association of European Transport by Holgiun-Veras and colleagues calls into question the accuracy of freight trip generation (**FTG**).

- Input-output and related models are macro-economic models that start from input-output tables. These tables describe the movement of goods (in units of currency), import and export, between sectors and consumers. These statistical tables are produced nationally.

2. Distribution

- Gravity models
- Input-output models

3. Modal split

- Elasticity-based models
- Aggregate modal split models
- Neoclassical economic models
- Econometric direct demand models
- Disaggregate modal split models (including inventory-based models and models on SP data)
- Micro-simulation approach
- Multi-modal network models

4. Assignment

- Separate assignment stage model
- Multi-modal network model

2.1.3 Issues associated with freight modelling include the conversion between the value of goods being transported and their weight. Value/weight ratios need to be calculated by commodity groups to get an accurate as possible forecast. De Jong and colleagues also point out that shipment frequency, shipment size, return loads, and vehicle utilisation rates influence transport decisions.

2.2 Airports Council International (ACI)

2.2.1 Two documents have been reviewed in this section: The first is the 2011 ACI Airport Traffic Forecasting Manual; and the second is Chapter 3: Demand Forecasting Techniques from the ACI North America Air Cargo Compendium 2013.

2.2.2 ACI Airport Traffic Forecasts (ACI, 2011) use a blend of methods including data from a sample of around 250 airports, econometric variables, and estimates based on airline capacity considerations. Forecasts take account of capacity constraints as well as demand data. The 20-year timeframe includes short and medium-term forecasts. ACI data includes:

- Development of worldwide passenger traffic
- Traffic projections by region
- Individual forecasts for over 140 countries
- Forecast traffic growth between world regions
- Freight and aircraft movements

2.2.3 The ACI North America Air Cargo Compendium provides more specific information on forecasting techniques for air freight at individual airports. They recommend deriving customised inputs from a detailed market assessment informed by

carriers, their business partners and other supporting entities in the air freight community (ACI-NA, 2013, p. 3). Unlike their sister body, the ACI-NA propose forecasting unconstrained market-driven demand.

2.2.4 The ACI-NA also discusses how airports might stimulate local air freight activity. They suggest that in the US, airports have developed truck drop centres near major highways, "*to efficiently pull air traffic away from gateway airports*" (ACI-NA, 2013, p. 5). They also suggest that airport users find certain infrastructure and facilities desirable, including, "*newly built air cargo facilities, easier airport access, warehousing sorting and storage space, smoother customs policies, secure airside access, and shorter taxi-time*" (ACI-NA, 2013, p. 6).

2.2.5 The ACI-NA's forecasting model separates air cargo demand from supply in the stages as described below (ACI-NA, 2013, pp. 7-13):

Air cargo demand

- Origin/destination
- Commodity (perishability, value, weight, and physical dimensions)
- Level of service (desired transit times)
- Shipment size
- Regional/local economic indicators (demographics, employment, production, industrial location)
- Demand side indicators (economic, industrial and demographic factors affecting destination/origin markets)

Air cargo services and other supply factors

- Integrated air cargo carriers
- Combined passenger/freight carriers
- Freight forwarders
- Customs brokers
- Trucking firms
- Warehousing, ground handling, and 3PL firms
- Current and future fleet trends
- Time through the airport (including security screening)
- Cost of using the airport
- Restrictions at the airport (night flying, noise, emissions, etc.)

2.2.6 In terms of supply considerations, ACI-NA believe the most important consideration is assessing whether existing patterns and trends are set or whether change can be expected and should be incorporated into air freight forecasts (ACI-NA, 2013, p. 12).

2.2.7 The activity measures the ACI-NA advise incorporating into forecasts are shipment weight and value; the number and capacity of aircraft operations by category, type and aircraft size; truck activity to and from the airport; and infrastructure at and near the airport (ACI-NA, 2013, pp. 12-13).

2.2.8 In terms of a specific forecasting method, ACI-NA recommends the following activities (ACI-NA, 2013, pp. 16-20):

- Collect and analyse data
  - Current aviation industry and cargo trends

- Catchment area socio-economic data
- Historical air service and cargo traffic trends
- Benchmarking against similar airport
- Competitor analysis

- Employ modelling technique
- Use a market share forecast (if using data for a region or country)

2.2.9 The ACI-NA recommends using both near-term and long-term forecasts, where the method for each can differ. Whilst the long-term forecast can be based on statistical regression analysis linked to projections for GDP, the near-term forecast should take account of judgements by industry specialists.

2.2.10 The ACI manual (2011) also provides information on constructing ultra-short-term forecasts to optimise operational performance (used to produce resource plans, avoid departure delays, etc.).

2.3 Airports Commission demand forecasting model

2.3.1 The Airports Commission based their forecasting model on the DfT's aviation forecasts. However, they also analysed how demand for air travel is likely to change in the future in response to national and global economic development, policy changes, and fuel price changes. Additionally, the Commission took account of national and international competition, particularly the effect of UK airport capacity constraints. However, the Airports Commission says they did not follow a mechanistic 'predict and provide' approach. Instead they developed new assessment methodologies including noise impacts, surface access, cost and deliverability.

2.3.2 The main details of the Airports Commission demand forecasting model is contained within their standalone report (Airports Commission, 2013). Very generally, the Airports Commission classify forecasts into one of three main categories (Airports Commission, 2013, pp. 6-7):

- Naïve – where tomorrow is forecast to be like today
- Causal – where dynamic links to economic, fiscal, and demographic drivers are modelled into demand forecasts
- Judgement based – where data is limited or simply not available, the Airports Commission recommend using expert witnesses to predict how demand might look in the future. Several methods are useful including executive judgement, the Delphi Method, and market research. Use of these methods requires transparency of assumptions and testing on different scenarios (see Section 13 of this report for a discussion of various scenarios).

2.3.3 The Airports Commission's forecasts focus heavily on passengers, with little description of how air freight was handled. The uncertainties and scenario testing carried out all involved passenger transport. Since the Commission declare their base forecast was provided by the DfT, it can be assumed, since no mention of a change to the air freight forecasts took place, that these stand.

2.4 ASTRA

2.4.1 ASTRA (Assessment of Transport Strategies) is a system dynamics model developed for the European Commission (ASTRA, 2000). With this type of system, changes to freight transported over time are fed back as an impact on the economy and GDP. This in turn affects freight figures. ASTRA has a macro-economic module that allows regional growth in GDP to be predicted. However, system dynamics models do

not usually contain sufficient detail to allow zone-to-zone forecast flows and link loadings to be made (de Jong *et al*, 2004).

2.5 Boeing

2.5.1 The Boeing (and Airbus etc.) forecasts are good references for macro-level information. These sources consider international volume growth but do not provide micro-level, airport-specific forecasts or the methodology to do so. The next update to the World Air Cargo Forecast (**WACF**) is due in the fourth quarter of 2018.

2.5.2 Boeing (2014, p. 10) says four approaches provide useful forecasts. These are:

- Econometric modelling - useful for medium- and long-range forecasts in regional markets
- Evaluation based on judgment – used to account for predictable changes in non-econometric growth factors
- Trend analysis - useful in evaluating general changes in the market attributable to the combined effects of numerous factors
- Potential analysis - useful for forecasting markets in their early stages of development. This approach projects air freight from total freight using the value of the goods (Boeing suggest more than $16 per kilogram) to estimate which will be moved by air.

2.5.3 The most recent Boeing air cargo forecast shows 4.2% world growth annually over the next 20 years, measured in revenue tonne kilometres (**RTK**s) (Boeing, 2016, p. 2). For Europe the annual growth figures are:

Europe-Asia	4.6%
Europe-North America	2.4%
Latin America-Europe	3.8%
Africa-Europe	3.8%
South Asia-Europe	5,0%
Middle East-Europe	3.9%
Intra Europe	2.2%

2.5.4 Global e-commerce is expected to grow rapidly over the coming years and has the potential to bolster air cargo growth. China is the key growth trading bloc, with online retail sales growing at an average of 56% per year. Boeing expects that China's e-commerce market will be larger than the existing US, UK, Japanese, German and French markets (Boeing, 2016, p. 2).

2.6 Department for Transport national level forecasts

2.6.1 Despite an in depth literature search, the air freight forecasting method used by the DfT seems sparse when compared to the passenger information they provide. Their 2013 publication, UK Aviation Forecasts, says:

> "*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.*" (DfT, 2013a, p. 55)

2.6.2 Later in the same report, the DfT refer to the MDS Transmodal[3] 2000 model, used by Halcrow in the earlier version of the freight model 97. This model links freight demand to GDP in the long-term, providing a much higher demand than the final DfT output. This is due to the DfT taking the view that the downturn in freighter ATMs from 2001 will continue. They therefore reduce their freight ATM forecasts between 2011 and 2050 from growth of around 2% to only around 0.5%. By 2030, this reduces their forecast ATMs from an unconstrained 120,000 to 60,000 (DfT, 2013a, p. 103).

2.6.3 The 2001 report by MDS (a consultancy providing analysis and advice on issues related to freight transport and logistics) and others for the DfT, forecasts air freight between 2000 and 2010. Instead of GDP, MDS linked air cargo to international trade, applying an increasing share to UK trade projections (Morrell, 2011). Their assumptions of stimulated competition between airports resulted in an increased forecast for freighter cargo from 30% in 1998 to 57% by 2030. Indeed, under an alternative scenario, this move towards cargo being carried on dedicated freighters resulted in an increase to 74%.

2.6.4 The 2017 updated aviation demand forecasts (DfT, 2017, p. 33) confirms that freight is not modelled in detail. An assumption that the 2016 number of movements will remain unchanged has been used. Based on analysis of CAA figures, the DfT found that:

> "*Total freight carried at the UK airports in the department's model rose from 2.9 million tonnes in 2011 to 3.1 million tonnes in 2016, with a growth of 4% in cargo tonnage on freighter aircraft and 5% increase in bellyhold freight on passenger aircraft.*" (DfT, 2017, p. 67)

2.6.5 To be complete, the methodology used by the DfT for forecasting passenger traffic has been included here. The model has two stages: The first is the National Air Passenger Demand Model (**NAPDM**), which forecasts national demand. This demand is disaggregated into sub-markets including origin-destination, country of residence, business/leisure, and final destination/transit. The second stage is to allocate demand to individual airports. This is carried out through the National Air Passenger Allocation Model (NAPAM). No such models exist for air freight traffic.

2.6.6 Time series regression analysis follows to identify the drivers for passenger air travel and to model these relationships. These drivers can be categorised as those that affect economic activity (such as consumer expenditure, GDP, and trade) and those that influence airfares (oil prices, carbon prices, and airline costs). Drivers are allocated elasticity of demand factors for each of the passenger segments (business/leisure, etc.). Following the two-stage process, Air Traffic Movements (**ATMs**) can be forecast for each airport. This data can then be used to produce forecasts for the aircraft fleet mix at each airport and by route.

2.7 DG-TREN projects

2.7.1 DG-TREN is the European Directorate General for Mobility and Transport. According to DG-TREN, the aviation sector is strategically important, making a vital contribution to the EU's overall economy and employment. Aviation supports almost five million jobs and contributes €300 billion, or 2.1%, to European GDP.

[3] See DfT, 2013, p. 103 (UK Air Freight Study Stage 1, MDS Transmodal, August 2000; UK Air Freight Study Stage 2, MDS Transmodal, August 2001; and, SERAS Stage 2, Appraisal Findings Report – Supporting Documentation: Freight Forecasting, Halcrow, May 2002)

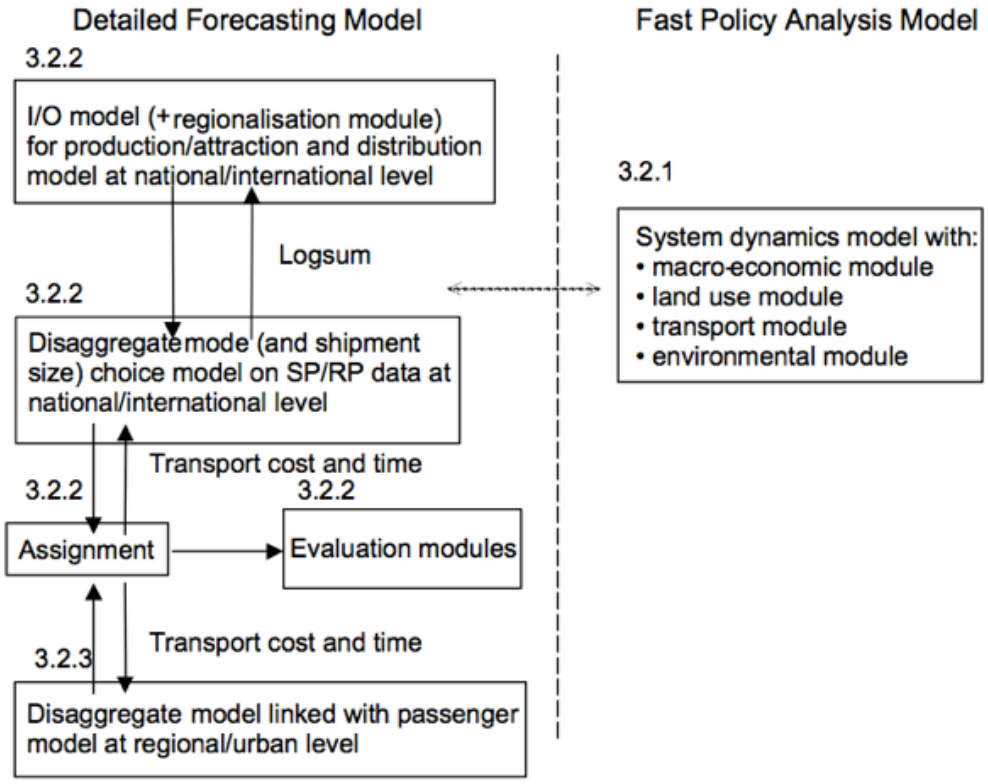
2.7.2 As part of their remit, DG-TREN has funded the development of a number of advanced tools for transport policy decision-making. Included in these are MDir, SCENES and STEMM, brief descriptions of which follow.

2.8 MDir

2.8.1 The European Commission, as part of a project for DG-TREN, established a European Transport Model Directory (**MDir**). This directory contains information on freight transport models and also on joint passenger and freight transport models (De Jong *et al*, 2004). The project does not include air freight specifically. The project lists a number of national freight models. For the UK, MDir lists the STEMM national freight transport forecast system (see below).

2.8.2 The project recommends development of a model with high and low-resolution levels for detailed and policy analysis respectively. Figure 2 shows the steps involved in the proposed model structure, which is based on a four steps process.

Figure 2 MDir proposed freight forecasting model



Source: De Jong *et al*, 2004, p. 12

2.9 SCENES

2.9.1 The SCENES Internet database is a databank of variables including 33 sectors and more than 200 European zones, covering passengers and freight. The objective of SCENES is to allow the production of transport demand scenarios for the EU. These scenarios are made up of external, socio economic scenarios, and sets of policy scenarios (ME&P (UK) *et al*, 2002).

2.10 STEMM

2.10.1 DG-TREN's STEMM project (Strategic European Multimodal Modelling) is a sophisticated passenger, multi-country passenger and freight transport model. Again,

this project failed to incorporate air freight, focusing on road, rail and sea. However, the project developed a methodology for modelling intermodal chains for passenger and freight transport. The project aimed to assist policy makers to reduce barriers to intermodality arising from institutional and regulatory measures[4].

2.10.2 The researchers had problems with data collection for the freight transport aspect of the model, with the voluntary survey resulting in an inadequate sample size. The model was completed using data from other sources. A number of policy scenarios were built into the model including a strongly anti-road orientated strategy[5].

2.11 Eurocontrol

2.11.1 The latest edition of the European Commission's Eurocontrol Network Manager seven-year forecast was published in February 2016. Eurocontrol is the European Organisation for the Safety of Air Navigation. It provides Europe-wide impartial air traffic forecasts, market analysis, and statistics to the aviation community. Due to its focus on air navigation, only IFR (Instrument Flight Rules) flights are included.

2.11.2 Eurocontrol/STATFOR takes an econometric forecasting approach to provide impartial Europe-wide air traffic forecasts. Other Eurocontrol units use this high level forecast, shown in Table 1 for the UK, to provide forecasts at the level of individual airports. The forecast uses the most up-to-date input forecasts of economic growth, population, low-cost market share growth, load factors, future events, future high-speed rail network, and future airport capacities. It uses scenario-based inputs to describe the future combined with data-driven models (such as the development of high-speed rail).

Table 1 STATFOR IFR movement forecast for the UK

	All IFR traffic			Cargo traffic @ 3.4% of total		
IFR Flight movements ('000s)	High	Base	Low	High	Base	Low
2012		2,211			75.2	
2013		2,225			75.7	
2014		2,269			77.1	
2015		2,322			78.9	
2016	2,410	2,384	2,358	81.9	81.1	80.2
2017	2,480	2,435	2,382	84.3	82.8	81.0
2018	2,570	2,484	2,395	87.4	84.5	81.4
2019	2,641	2,531	2,416	89.8	86.1	82.1
2020	2,732	2,585	2,439	92.9	87.9	82.9
2021	2,799	2,622	2,445	95.2	89.1	83.1
2022	2,869	2,655	2,457	97.5	90.3	83.5

Source: European Commission, 2016, p. 70 (cargo traffic calculated by author)

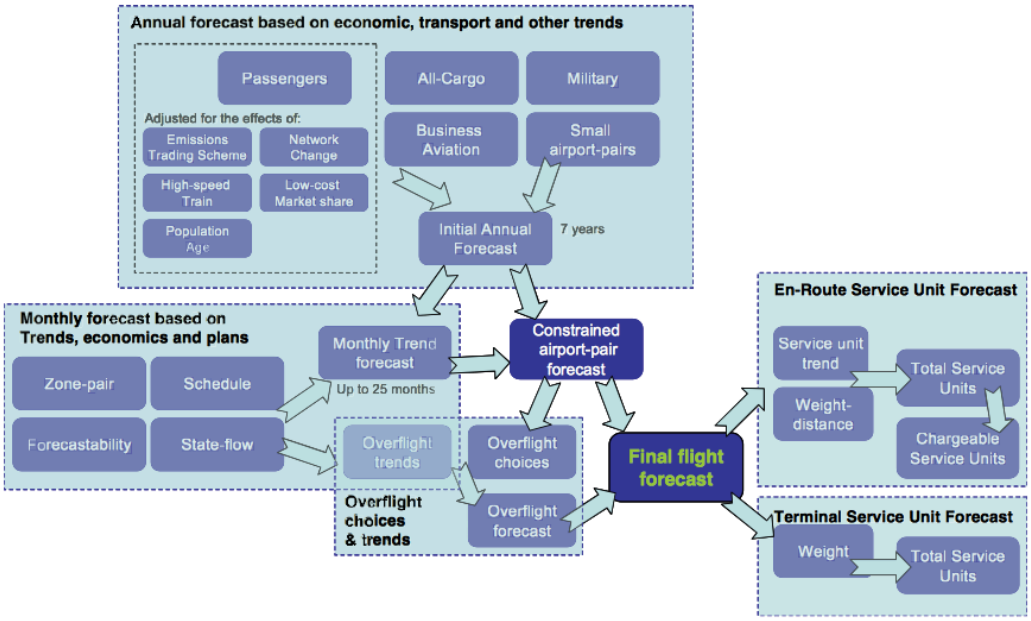
2.11.3 The Eurocontrol forecast is based on the interaction between supply and demand. They find the three most influential inputs to be economic growth, regulation, and overflight patterns. The 2016 forecast has been revised upward for the UK, to 2.7%. The Spanish forecast was also revised upwards to 6.7% whilst Germany remains stable at 2.7% and France and Italy have been revised downwards to 2.2% and 1.8%

[4] http://cordis.europa.eu/result/rcn/22642_en.html
[5] http://cordis.europa.eu/transport/src/stemmrep.htm

respectively. In terms of air freight, the all-cargo segment grew by just below 1% for the second year running and makes up 3.4% of the total IFR traffic in Europe.

2.11.4 Figure 3 shows the components of the Eurocontrol/STATFOR seven-year forecast.

Figure 3 Components of the STATFOR seven-year forecast



Source: Eurocontrol, 2016, p. 14

2.12 GB Freight Model

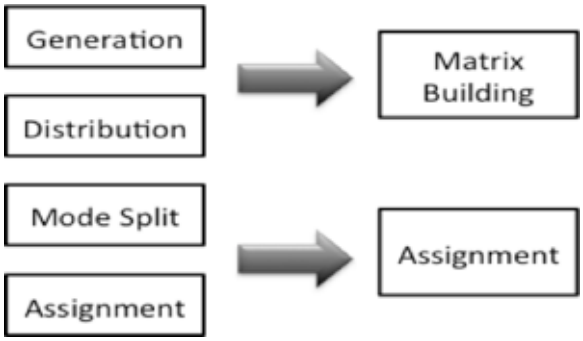
2.12.1 The DfT's GB Freight Model (**GBFM**) evolved from Kent County Council's ferry models of the early 1990s to an international and domestic multimodal national transport model. MDS-Transmodal documented the methodology used to forecast freight in 2004. In 2013, the DfT used external consultants to audit the model to assess its suitability and recommend improvements whilst a more refined freight modelling system is being developed[6]. The Institute for Transport Studies at Leeds University led the freight modelling methodology.

2.12.2 One of the outcomes of the work on the GB Freight Model was the STEMM Freight Model. The model uses the four-step transport forecasting model as a basis. However, the GB model combines the first two steps and the last two steps as shown in Figure 4 The two resulting steps are then used to allocate traffic to freight services – international, domestic multimodal, and domestic road.

2.12.3 The two stages within the GBFM contain a number of processes as shown in Figure 4. The F-Logit specification, as shown in Figure 5, came from the STEMM project. The F-Logit calculates the probability that an alternative route will be chosen. The model contains a number of criteria that can be defined to show choices between pairs of alternatives. The assignment stage focuses on how multimodal systems are used. The model does not, however, forecast air freight traffic.

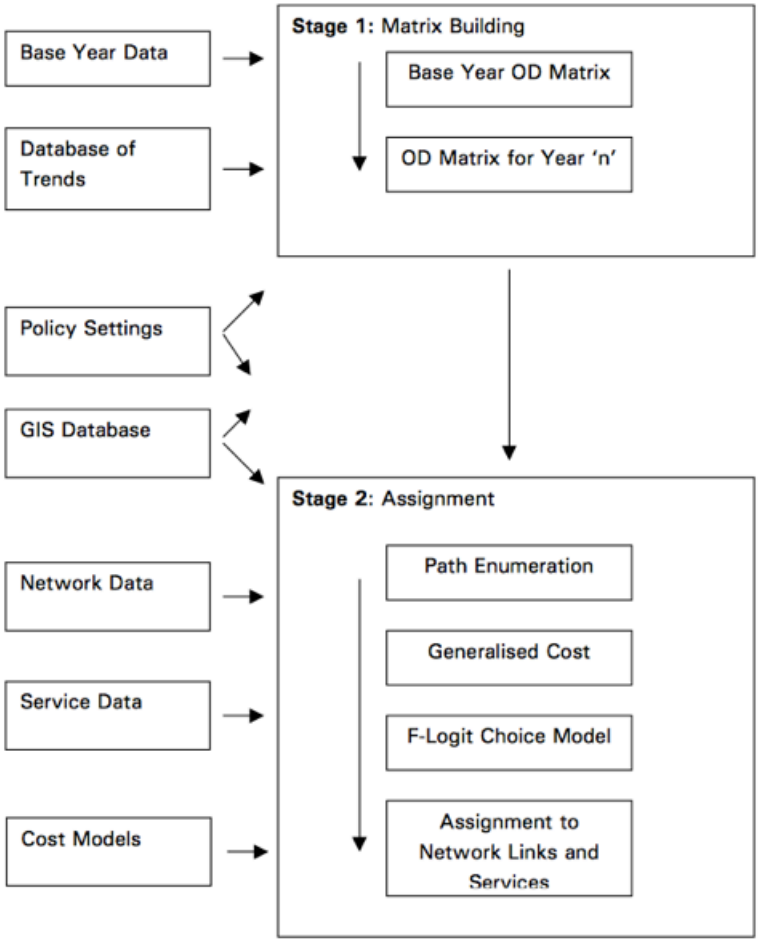
[6] http://www.dft.gov.uk/rmd/project.asp?intProjectID=11780

Figure 4 GBFM compared to the four-step model



Source: MDS-Transmodal, 2004, p. 18

Figure 5 GBFM processes



Source: MDS-Transmodal, 2004, p. 30

2.13 International Air Transport Association

2.13.1 The International Air Transport Association (**IATA**) December 2017 Air Freight Market Analysis shows a continuing global recovery in freight volumes with the strongest year for air freight growth since 2010 (IATA, 2017, p. 1). IATA sells their Airline Industry Forecast for around US $1,500 (approximately £1,100). The report provides detailed five-year traffic forecasts for more than 3,000 individual country-

pairs, plus aggregate results at regional and global levels.The forecast derives from the results of a survey of the industry's major airlines, civil aviation and airport authorities. Freight tonnes and five-year forecasts for inbound and outbound freight are provided for over 1,000 international country pairs, including aggregated values for six world regions, 17 world sub regions, and more than 900 country to sub region forecasts[7].

2.14 International Civil Aviation Organisation

2.14.1 The International Civil Aviation Organisation (**ICAO**) produces short to medium-term forecasts for total world air cargo traffic (Morrell, 2011). These forecasts are available at global, regional and route-group levels. ICAO uses a judgement-based consensus approach to forecasting, which combines forecasts from a range of other organisations and discussion with experts. The objective of their forecasts is to support commercial aviation development. In particular, ICAO aim to support airports with their planning issues.NEAC Model.

2.15 NEAC Model

2.15.1 The European model for freight transport (**NEAC**) is a tool for analysing and forecasting national and international transport flows. As a forecasting model, NEAC uses a database of information on transport flows between regions, based on the specialisation of countries or regions. In addition to the supply and demand elements (gravity model based on supply factors of the exporting country/region and the demand factors of the importing country/region), barriers to trade such as transport costs, tariffs (or conversely free-trade zones) and cultural differences are taken into account. More specific NEAC models can be coupled with the database including:

- A trade model for forecasting of future trade flows
- A modal-split model (estimation and forecasting of modal-split)
- An assignment model (assignment of traffic flows on transport networks)
- A container forecasting model (estimation of containerised transport)
- An environment model (calculation of emissions resulting from transport
- The EcoNEAC model (estimation of the effect of transport and infrastructure on the economy)

2.16 OAG

2.16.1 The Official Airline Guide (**OAG**) produce medium-term air freight forecasts with a 10-year horizon. Their customised cargo flight data can be used to plan shipments, manage supply chain activities and monitor trends[8]. Prices available on application.

2.17 Transportation Research Board

2.17.1 The Transportation Research Board, part of the US National Research Council, explains how demand forecasting for new facilities (Chapter Four, pp. 23-34). For a new facility or project, where forecasters do not have the benefit of a past on which to project future use, they say that:

> *"In summary, the following four steps describe demand forecasting for new facilities:*
>
> 1. *Identify the potential freight market*
> 2. *Forecast changes in the market*

[7] http://www.iata.org/publications/Pages/airline-industry-forecast.aspx
[8] http://www.oag.com/markets/cargo

3. *Estimate the new facility's market share, and*
4. *Evaluate the effects of alternative futures"* (National Research Council, 1997, p. 23)

2.17.2 In terms of identifying the potential freight market, the first step is to identify competing facilities, which may be nearby or more distant. Changes in the market can be estimated using either economic indicators or statistical procedures. Identifying sources of demand for a new facility may arise from four key sources:

- Diversion of traffic from a competing facility without any change in modes used (for example to air transportation from road haulage or sea crossings)
- Diversion of traffic from another mode
- Increased production by existing shippers in the area
- Establishment of new shippers in the area (ibid, p. 24)

2.17.3 The techniques required to estimate route diversion to new facilities include estimating carriers' or shippers' flows, comparing costs, and projecting the sensitivity of current flows to changes.

2.17.4 As the authors of this report say:

> "*A major reason for considering the development of a new transportation facility may be the hope that it would result in new shippers moving into the area. Although a new transportation facility may increase the attractiveness of the area to potential new shippers, actual location decisions will depend both on the resulting transport costs and quality of service, as well as on a variety of other locational factors*." (*ibid*, p. 26)

2.18 TRANSTOOLS

2.18.1 TRANSTOOLS, tools for transport forecasting and scenario testing, provides a European transport network model for passengers, freight, and intermodal transport. The TRANSTOOLS team say they have developed the most comprehensive European transport model available. The model is free although requires ARC-GIS (an information system for working with maps and geographic information) and TRAFFIC ANALYST to run. The TRIP website[9] says the TRANSTOOLS Freight Demand Module consists of the following sub-modules:

- *The TRANSTOOLS Trade Module, which uses the ETIS O/D freight transport matrix. Its output is a forecast O/D matrix for freight including origin region, in-between trans-shipments and destination region, as well as transport mode at origin, in-between trans-shipments and at destination, commodity group and tonnes.*
- *The TRANSTOOLS Modal Split Module for freight transport based on the model in NEAC. It adjusts the stable modal split resulting from the Trade Model. Its output is the ETIS freight matrix (a forecast O/D matrix including forecast modal split.*
- *The TRANSTOOLS Logistics Module. Based on SLAM, which is a module appended to the SCENES model, it evaluates the impacts of changes in the logistic and transport systems within Europe on the spatial patterns of freight transport flows, through changes in the number and location of warehouses for the distribution of goods. Its outputs are unimodal transport matrices used by the Assignment Module, and generalised and monetary costs per origin, destination and commodity type used by the Economic Module.*

[9] http://www.transport-research.info/project/tools-transport-forecasting-and-scenario-testing

2.18.2 The contact for this model is Dr. Chen, at The Netherlands Organisation for Applied Scientific Research (**TNO**), who was emailed on 17 March 2016. The email was forwarded to Dr Mandel of MKmetric. His response to a request for further information was that, in principle the tool does not allow forecasts for a single airport. It is also unlikely that TRANSSTOOLS includes Manston Airport although this was not specifically requested and would need to be checked. However, the air freight forecasting element of TRANSTOOLS is rudimentary, using fixed air networks, which, it seems, does not provide a realistic forecast.

2.19 WebTAG

2.19.1 The WebTAG modelling and forecasting guidance enables practitioners to produce adequate evidence to support the business case for major transport schemes (DfT, 2014, p. 1). The DfT propose a standard model structure for transport forecasting, consisting of a three step process:

1. Data collection
2. Modelling
3. Forecasting

2.19.2 This model is aimed at road traffic forecasting but has been included here for its standardisation and application in the UK by the DfT. The DfT prefer incremental models (2014, p. 7), where there is a more heavy reliance on observed data than on the mathematical specification of an absolute model. In the case of Manston Airport, it is impossible to base forecasts on current observable traffic since the airport closed in 2014. However, data is available for the years prior to its closure and this could be used as a proxy for observable data.

2.20 Game theory

2.20.1 Game theory aims to predict equilibrium outcomes, which lie at the intersection of the various players' strategies for winning the game. Essentially, a negotiated equilibrium is reached when there is no incentive, given the choices of the other parties, for any of the parties to change their strategy (Sebenius, 1992). Lenoir (1998) describes the air transportation system as chaotic, rendered so by the strategic behaviour of the actors in this oligopolistic sector. She says that game theory can be applied to try to make sense of what drives actors' decisions. Since the industry has a limited number of actors, the behaviour of one has consequences, in terms of pricing and total capacity, on the entire market. (Lenoir, 1998, p. 15)

2.20.2 In support of this premise, Balakrishnan (2008) describes the air transportation system as having multiple stakeholders with competing interests. Using game theory, she says, makes it, "*possible to develop algorithms for the scheduling (and rescheduling) of air transportation resources that address issues of equity and incentives for gaming among airlines.*" (Balakrishanan, 2008, p. 3)

2.20.3 A few academics have considered the use of game theory in air transportation. In 2009, the California Management Review, which serves as a vehicle of communication between those who study management and those who practice it, considered whether airports would expand or delay depending upon their competitor's actions. D'Alfonso and Nastasi (2012) investigated contracts between airports and airlines. They looked at two competing facilities and three types of agreements, developing a multistage game showing whether competing airports and their dominant airlines decide would enter a contractual arrangement.

2.20.4 Saraswati and Hanaoka (2014) also looked at airport–airline cooperation using game theory. These authors considered a contract where an airport shares a percentage of its commercial revenue with an airline for a fixed payment. The objective was to observe how the revenue share allocation maximised profit for the airport but was also acceptable to the airline. Saraswati and Hanaoka, drawing on Starkie (2008), Fu *et al*. (2011) and Hihara (2012), note that cooperation between airports and airlines takes a number of forms:

- Long-term terminal leases
- Long-term negotiated charges for the use of airport facilities
- Signatory airline status in airports (where airlines have certain rights over airport use and capital improvement projects)
- Concession revenue sharing
- Airline ownership of airports
- An airport making a contingent payment to/from the airline, "*based on the difference between the realized load factor and the target load factor set at the start of the contract period*." (Saraswati and Hanaoka, 2014 p. 17)

2.20.5 Aside from the airport-airline 'game', Ordonez and Stier-Moses (2010) used network games to model the interaction between agents who select routes to go from their origins to their destinations. Saeed (2012) and Krajewska and Kopfer (2009) look at game theory in the context of vertical and horizontal cooperation between independent freight forwarders. Ting (2009) uses game theory to consider competitive pricing in logistics services and Theys *et al* (2008) use this method to analyse cooperative networks in intermodal transportation.

2.21 Gravity models

2.21.1 Gravity models derive from the literature on international trade and the transport economics literature. They take the concept of gravity as an attractor and apply it to the transport sector. Gravity models assume links between origin and destination nodes (such as cities) and use this gravity to calculate traffic volumes. A friction factor is calibrated to show any impedance in the route[10]. The 'pull' between the two nodes (the origin and destination) is proportional to the size of the nodes (cities) and inversely proportional to a function of the distance between them.

2.21.2 York Aviation (2015) used a gravity model to forecast the airport destination of the excess air freight demand from the London system. Their premise is that if demand cannot be met in London, freight will be trucked to other airports. York Aviation forecast that a total excess tonnage of freight of 2.1 million that would have to go elsewhere by 2050 without airport expansion in the UK. This amounts to some 80,000 freighter movements (York Aviation, 2015, p. 15). They found that 34% would be trucked to Paris Charles de Gaulle, 19% to Amsterdam, and 18% to Frankfurt. The remainder would go to Birmingham (13%), East Midlands (8%) and Manchester (7%) (*ibid*, p. 23).

2.22 Conclusions from the literature review

2.22.1 Most modern transport planning is carried out by modelling demand and supply. Holguin-Veras and colleagues (2012) describe how poor understanding of freight transportation behaviours and a lack of data has ensured that few freight demand models are available to planners. A thorough understanding of how a freight system functions is necessary if a good model of that system is to be developed. Such an

[10] http://www.princeton.edu/~alaink/Orf467F08/The%20Gravity%20Model.pdf

understanding comes from in depth discussions with both the users and providers of the system. As such, qualitative investigations with industry experts must form a key part of the development and population of a demand model.

2.22.2 Indeed, whilst focusing on airline traffic forecasting, Table 2 provides a good summary of the advantage and disadvantages of the qualitative and quantitative methods available. According to Khan (2010, p. 73) only econometric modelling, trend analysis, and the three qualitative methods have been used to forecast air freight demand. However, as Table 2 shows, none perform well in the short, medium and long-terms.

Table 2 Attributes of aviation forecasting techniques

	Qualitative methods			Time-series				Causal
	Exec. Judg' ment	**Market research**	**Delphi**	**Annual Ave. Growth**	**Expo. Smooth-ing**	**Linear Trends**	**Moving Ave**	**Regre-ssion**
Accuracy:								
0-6 months	Good	Good	Fair/ good	Fair	Good	Fair	Fair	Good
6-24 months	Fair	Fair	Fair/ good	Fair	Fair	Poor	Fair	Fair/ good
5 years	Poor	Fair/ poor	Fair	Poor	Poor	Poor	Poor	Fair
Suitability for forecasting:								
Traffic growth	Good	Good	Good	Good	Good	Good	Good	Good
Traffic reaction	Poor	Fair	Poor	n/a	n/a	n/a	n/a	Good
New routes	Poor	Poor	Poor	n/a	n/a	n/a	n/a	Poor/ fair
Ability to identify turning points	Poor/ fair	Fair/ good	Fair/ good	Poor	Fair/ poor	Poor	Poor/ fair	Good
Ready availability of input data	Good	Fair/ poor	Poor	Good	Good	Good	Good	Poor/ fair
Days required to forecast	1-2	90+	30-180	1-2	1-2	1-2	1-2	30-90
Cost	Very low	Very high	Mod.	Low	Low	Low	Low	High

Source: Adapted from Doganis, 2002, p. 234

2.22.3 Whilst econometric models have been the forecasting method of choice by the DfT, Airports Commission and the EU, these are generally used to forecast passenger air traffic for a country or region. As the ACI says, "*Any airport wishing to apply an econometric forecasting approach is advised to begin by examining its historic traffic and survey data*" (ACI, 2011, p. 25). This suffices at country level or for established airports where the past can be used to predict behaviour in the future. However, in the case of Manston Airport, closed for several years and lacking investment for many more, this approach is <u>not</u> 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.

2.22.4 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.

2.22.5 This approach is similar to that described by the US Transportation Research Board (described in outline in section 2.17 above), which promotes initial identification of the potential freight market (Transportation Research Board, 1997). This has been largely carried out in Volume I of this series of reports. The second phase is to forecast changes in the market, interpreted for this project as to identify the underlying drivers of demand for dedicated air freighter transport. The third stage recommended by the Transportation Research Board is to estimate potential market share. For Manston Airport this includes examination of airports in the South East of the UK as well as those in northern Europe, who may be used in place of constrained UK airports. Finally, consideration of alternative futures is recommended.

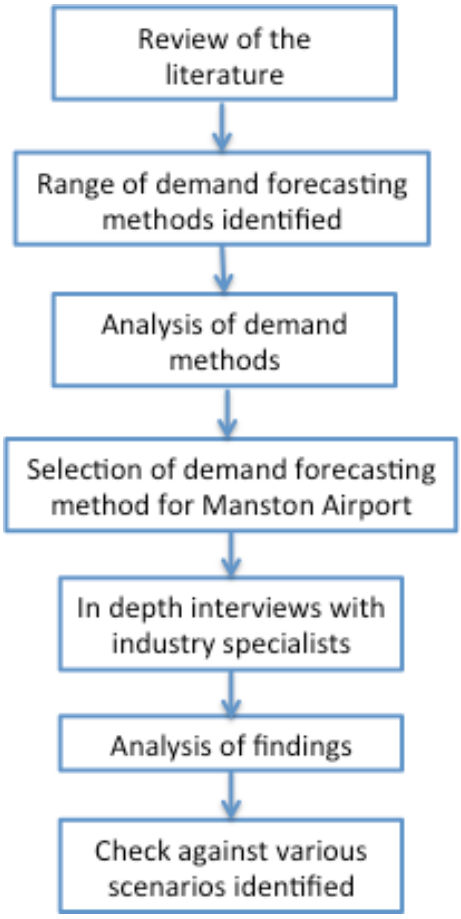
3 Research methodology

3.0.1 Forecasts are our best assessment of how the future will unfold. Whilst no forecast can guarantee to be fully accurate, we can make certain that our assumptions are unbiased, robust and clearly described so that interested parties can assess the resulting output. This section therefore describes the methodological approach taken to complete this research project so that the reader can understand the processes involved in compiling an assessment of demand for Manston Airport.

3.1 Research design

3.1.1 The aims of this research project were firstly to identify a suitable method by which to assess air freight demand for Manston Airport. This work is described in the review of literature shown in the previous section. The second aim was to use the qualitative approach identified through the review of the literature to demonstrate the potential demand for Manston Airport. As such, research was designed to meet these aims and was carried out using both primary and secondary data. Figure 6 shows the design of the research project. It should be noted that a comparative case study approach was not deemed possible, as no airports in sufficiently similar circumstances were identified.

Figure 6 Research design



3.2 Interviewee identification

3.2.1 This qualitative study necessitated discussion with experts in the field. This was essential if an overview of the potential demand for Manston Airport could be collated. The first step at this stage of the research process was therefore to identify potential interviewees.

3.2.2 The Mint UK database, which is a comprehensive database of company information, was then interrogated to identify potential interviewees. Standard Industrial Classification (**SIC**) code 52290 ('other transportation support activities') produced 245 results for Kent. Further analysis identified the air freight agents and brokers, freight forwarders, and hauliers. These potential interviewees were added to a contacts database complied by the RiverOak consultancy team. A total of 94 potential interviewees resulted, covering:

- Kent transport infrastructure
- Government and public sector
- Industry associations
- Freight forwarders and consolidators/integrators
- Local import/export businesses
- Cargo airlines

3.2.3 A full list of interviewees is shown in Section 3.4. These prospective interviewees were contacted by email in the first instance to arrange face-to-face interviews wherever possible. If not, telephone or email communication was used. The objectives for the primary data collection phases of this work were to:

- Understand the processes and issues associated with air freight
- Investigate the likely trends in air freight in the future
- Identify what might motivate airlines and other organisations to use Manston Airport
- Provide information to use in preparing the forecast for Manston Airport

3.3 Semi-structured interview schedule design

3.3.1 A semi-structured approach was used to collect rich data from the interviewees whilst keeping the interviews on track to ensure all objectives were met. Questions were devised under each of the objective headings detailed in Figure 7. The interview schedule was used as a guide and depending on their expertise, not all questions were asked of all categories of interviewees.

Figure 7 Categories of interview questions

Questions designed to understand the process and issues associated with air freight	Q1: What type of commodities do you send by air freight? Q2: Are these for import or export? Q3: Can you describe the process you go through to air freight goods? Q4: What are the bottlenecks or main frustrations for you in this process? Q5: Do you think the air freight market likely to expand or contract over the next 20 years? Q6: Why do you say this? Q7: What are the trigger points for this contraction/expansion?
Questions that investigate	Q8: Are e-freight and security the main issues for air freight

the likely trends in air freight in the future	at the moment? Q9: Are there any other current issues or trends in the sector? Q10: What do you think will be the likely issues and trends in air freight in the future? Q11: Thinking about why you use a belly freight service, why do you do this rather than use a dedicated freighter (e.g. convenience, price, habit, etc.)?
Questions that identify the motivations for organisations to use Manston Airport	Q12: How are capacity constraints at UK airports affecting you? Q13: How do you think these constraints will affect you over the next 20 years? Q14: What drives your business decisions about which air freight route to use (cost, speed, etc.)? Q15: Can you rank these issues by their importance to your business? Reduced flying time Congestion in London airspace leading to delays in take off/landing Speed from aircraft to road haulage Access to road networks including Northern Europe Landing costs Refueling Availability of land for development of storage/processing facilities Q16: Is it essential for you to be located at LHR.STN,EMA, etc.? Q17: Have you ever considered using Manston Airport? Q18: What could the airport offer that would encourage you to seriously consider using Manston?
Questions that help define the demand forecasting model for Manston Airport	Q19: Do you forecast air freight traffic? Q20: If so, how do you do that (use of a model, etc)? Q21: Do you think the government/Airports Commission model is accurate? Q22: How do you think they could have improved the air freight element of their forecasts?
Questions that elicit information for the Manston demand model	Q23: What volume of freight are you currently having to truck or ship by sea that you would prefer to air freight? Q24: Where is this freight coming from/going to? Q25: What are the main markets for imports/exports handled as air freight? Q26: What are the main types of commodities that are being imported/exported that you would prefer to air freight? Q27: If you were to use Manston Airport, how would you get freight to and from the airport?

3.4 Interview data collection

3.4.1 The data collection phase of this work commenced in mid-April 2016. Both primary and secondary data were collected using a variety of methods. Primary data involved interviewing key industry experts by means of face-to-face, telephone or email interviews. In line with the qualitative method chosen, the collation of primary data was the focus of the research. Some 93 primary contacts from an in-house database were

initially emailed and interview appointments were made with the 24 participants who responded, as shown in Table 3. On some occasions, interviewees were contacted more than once. In these instances, the date of the first discussion is shown in the table.

Table 3 List of interviewees

Name of Organisation	Contact	Date	Method
ACC Shipping Ltd	Managing Director	27 April 2016	Telephone
Active Transport Ltd	Managing Director	26 April 2016	Telephone
Aeroconsult	Axel Grossmann	13 October 2016	Email
AvMan Engineering (Modern Jet Support)	Chairman	20 May 2016	F2F*
Baltic Air Charter Association	Past member	13 May 2016	F2F
British International Freight Association (BIFA)	Policy & Compliance Advisor	26 April 2016	Email
Chartered Institute of Logistics and Transport (CILT)	Chairman, Aviation Policy Forum	28 April 2016	Telephone
Coyne Airways	Sales & Development Project Manager	28 April 2016	Telephone
Department for Transport, Department for Aviation Statistics	Aviation and Ports Analyst	27 April 2016	Email
DHL	Director DHL Air Ltd	23 May 2016	Telephone
Equinus Transport Consultancy	Bob Parsons	7 October 2016	Email
Eurotunnel	Public Affairs Director	21 April 2016	Telephone
FedEx Express	Senior International Legal Advisor	3 June 2016	Telephone
Freight Transport Association	Head of Global Policy	22 April 2016	Telephone
Infratil Airports Europe	Former Chief Executive	27 April 2016	F2F
Locate in Kent	Chief Executive	20 April 2016	F2F
Polar Helicopters	Operations Manager	27 October 2016	F2F
Securitas	Operations Manager - Aviation	8 June 2016	F2F
SmartLynx	Vice President - Technical	27 November 2016	Telephone
Taft International	Owner	6 October 2016	F2F
TG Aviation	Manager	23 October 2016	F2F
Transport for London	Principal Transport Planner - Aviation	8 June 2016	F2F
Visit Kent	Chief Executive	26 April 2016	Telephone
White's Transport Ltd	Operations Director	28 April 2016	F2F

*Note that F2F indicates that the interview was conducted face-to-face

3.4.2 Transcripts have not been made available as part of this report due to the confidentiality of the interviews and the commercial sensitivity of the data collected. Responses have been incorporated into the findings presented in Section 4.

3.4.3 It should be noted that in addition to the 24 full interviews were carried out, information was collected from numerous other sources such as the manager of Charter Sales at National Airlines, Florida and Tracey Deakin, COO, Le Bas International in respect of some of the questions shown in Figure 7.

4 Findings

4.0.1 The following sections outline the key findings from the research undertaken. The section commences with a summary of the categories of questions posed to interviewees as shown in Figure 7. A section that details the freight findings that will help define the demand for Manston Airport follows this initial summary. The findings relating to freight commence with a section on trucking issues before detailing the findings relating to perishable goods, fish and live animals, other import and export markets, integrator demand, and military and humanitarian flights. The freight findings conclude with an analysis of freight at Frankfurt Main Airport.

4.0.2 The freight findings section is followed by findings relating to demand for passenger travel, with sub-sections presenting specific types of passenger airline covering KLM, low cost carriers, resident carriers, charter flights, and Dover cruise terminal related findings. The section concludes with more general findings relating to other potential income streams for Manston Airport.

4.1 Findings by category of interview question

4.1.1 This section provides a summary of the responses to each of the interview schedule questions by the category allocated to these questions. These categories cover the process and issues associated with air freight, likely trends in the sector, motivations to use Manston Airport, and demand data for Manston.

The process and issues associated with air freight

Q1: What type of commodities do you send by air freight?

4.1.2 Interviewees were involved with a range of commodities including oil and gas equipment, hazardous goods, commercial goods such as clothing and electronics, urgent aircraft parts, pharmaceuticals, and electronics. In terms of markets, one interviewee said, "*The USA is our strongest market with the main hubs in Atlanta, New York, Chicago and Houston. We fly from Heathrow and Manchester*" (ACC Shipping). Another interviewee said, "*Most aircraft parts come from the US, Asia, and Russia. They currently come into Heathrow, Stansted, Luton and also East Midlands. For example, the Iron Maiden plane went tech at Stansted and required a new engine*." (Active Transport) Another interviewee said their main markets, "*are Afghanistan, Azerbaijan, Iraq, and Georgia. Services to Baku in Azerbaijan are growing. Iraq is the next big market but already rates look very cheap. Africa is the place to look at with limitless opportunities. People will start ordering phones and electronics, etc*." (Coyne Airways) Another interviewee said, "*Nigeria is a growing market*." (White Transport)

4.1.3 For the integrators, their main market is high value, low weight cargo. In terms of pricing, one interviewee said, "*Charges are around 80 pence per kilo from Amsterdam or £1.20 from Heathrow so it works out the same if you have to truck to Amsterdam*" (ACC Shipping). In terms of tonnage, there was a wide range between 90 tonnes and 20,000 tonnes per year for the smaller shippers to vast amounts for the integrators.

Q2: Are these for import or export?

4.1.4 Answers to this question varied from 99.9% export (Coyne Airways) to almost all import (White Transport).

Q3: Can you describe the process you go through to air freight goods?

4.1.5 The process used to air freight goods varied depending on the type of shipper. For airlines, they tend to pick up bookings from a freight forwarder. One respondent said, "*freight is tendered through a handling agent who trucks to Amsterdam*" (Coyne Airways).

Q4: What are the bottlenecks or main frustrations for you in this process?

4.1.6 Most of the interviewees who answered this question talked about problems at Heathrow and at the Channel crossings. Many also discussed getting bumped from belly freight. This means that freight booked onto a passenger flight to be carried in the hold is left at the departure airport without uploading onto the aircraft and has to wait for a later flight. Of Heathrow, some examples of interviewee comments include:

"*Delays happen at Heathrow where trucks are queuing for at least three hours. Drivers get very frustrated. It is not going to get better – I just can't see how it will.*" (Coyne Airways)

"*Heathrow is the worst as it is the busiest. There is at least a two or three hour wait at all airports.*" (Active Transport)

"*It is nigh on impossible to get a dedicated freighter into Heathrow and you would have to go to Prestwick or Stansted*" (Active Transport)

"*The biggest problem is congestion and the impact in terms of delays with customs and getting equipment/cargo in and out of airports and moving the schedule. It can take more than four hours with BA, with drivers sitting around for that time. It is expected to get worse in the next 20 years as there will still be growth before any new infrastructure comes on line.*" (ACC Shipping)

4.1.7 Compounding delay at Heathrow is the issue of security clearing huge amounts of outsized freight. One interviewee (Securitas) reported that at present there are no UK facilities for clearing outsized air freight so items arriving in the UK are loaded onto trucks and transported by road to northern Europe, including Brussels, Liege, Amsterdam and Rotterdam, for security clearing. In Europe, sniffer dogs and air samples from containers are used to check for a variety of illegal goods including explosives, drugs and money. There are currently no canine units in the UK but Securitas is in negotiation with the UK Government to approve the use of dogs in security checking outsized freight.

4.1.8 Talking about the Channel crossings, interviewees said:

"*We were trucking freight to Amsterdam but have been experiencing increasing delays using the Channel crossings. We now use Harwich to ship freight to Holland. Bottlenecks and main frustrations are that there is a lot of trucking to the continent and getting out of the UK through Calais is a nightmare. We have lost a lot of cargo stuck in Dover.*" (Coyne Airways)

"*Calais is a nightmare. We won't go near after dark, which often means parking up early in Belgium, losing three hours as the driver has to park up early and wait until morning.*" (Active Transport)

4.1.9 Discussing getting bumped from belly freight, interviewees said:

"*As there are no slots in the UK, flights are often bumped for two or three flights. If this is likely then parts for aircraft gone tech will be airfreighted to Europe [mostly Luxembourg, Amsterdam, Frankfurt, Frankfurt Hahn, Brussels and Leipzig] and trucked to wherever the aircraft is in the UK.*" (Active Transport)

"*We want the best service for the cheapest price and you have to go with what your customer wants even though we get bumped from belly-freight and the customer moans.*" "*Insuring that traffic does not get bumped off is a big problem, particularly to Dubai. Dubai is not really an export country – purely import. It is really a price priority so anyone who pays a higher price gets on the flight. Sometimes cargo will get changed from London to Amsterdam, which will go by rail or truck.*" (ACC Shipping)

Q5: Do you think the air freight market likely to expand or contract over the next 20 years? Q6: Why do you say this? Q7: What are the trigger points for this contraction/expansion?

4.1.10 Most of the interviewees who answered this question thought the market would expand although there is considerable pressure on price for air freight carriers. Interviewees mentioned the potential effect of Brexit and also change in fuel price as trigger points for contraction/expansion. One interviewee said, "*We expect general growth in movement of freight. There is the referendum but most of our work is from outside the EU.*" (Active Transport) Another said, "*The market is likely to expand but it doesn't feel like that at the moment. There was a respite with the fuel price being lower but people will go out of business and start parking freighters if the price goes back up. This is except for the Middle East. They are ordering planes and flying to more and more places.*" (Coyne Airways)

Likely trends in air freight

Q8: Are e-freight and security the main issues for air freight at the moment?

4.1.11 Most interviewees agreed that security was an issue for the sector. One said, "*It all comes down to security – preventing smuggling and terrorism.*" (Active Transport) Another said, "*The main issues are around physical load security, particularly around the issues with Calais*" (White Transport). The interviewee from Securitas explained that having a dedicated canine detection unit at a UK freight specialist airport would make a considerable difference to the security issues that are currently being experienced. At the moment, it is estimated that between 30 and 120 trucks are dispatched from Swissport Manchester and Heathrow each day for security checking outsized freight. If this situation is repeated at other airports, the number of truck movements per year involved is substantial, potentially in the region of 50,000 per year.

4.1.12 Whilst e-freight was considered an issue, it did not seem to be a major problem for interviewees although one interviewee said, "*E-freight is a topic. There are difficult deadlines for implementation and they get missed. IATA e-freight makes it difficult to get documentation up to standard. However, it will cut down paperwork eventually.*" (Coyne Airways)

Q9: Are there any other current issues or trends in the sector?

4.1.13 Some interviewees reiterated the problems with getting bumped from belly freight (as shown in Q4). Other issues mentioned were safety, particularly with the carriage of lithium batteries, and reducing yields. One interviewee said, "*They* [lithium batteries] *need to be transported but there are moves to ban them from passenger flights.*

The US is pushing ahead with this. Cargo airlines are not too keen either. There are more and more things palletised with batteries included. (Coyne Airways)

Q10: What do you think will be the likely issues and trends in air freight in the future?

4.1.14 Interviewees generally think there will be a continuation of the current situation; not imagining improvements or major changes in the way the sector operates. Some interviewees mentioned the reduced capacity for freight on the A380 passenger aircraft. One interviewee was concerned that the industry would concentrate in the hands of fewer operators, particularly those from the Middle East (Coyne Airways).

Q11: Thinking about why you use a belly freight service, why do you do this rather than use a dedicated freighter (e.g. convenience, price, habit, etc.)?

4.1.15 The feeling was generally that the use of belly freight was due to availability. One interviewee said, "*Not many freighter routes operate now apart from FedEx and UPS. There are less and less - maybe only a handful per week to and from the US to UK whereas there are hundreds of passenger flights*." (Coyne Airways) This interviewee also said that, "*Most intra-Europe passenger flights are narrow bodied so can't take much weight. The market has sprung up flying around Europe. Few routes are flown by wide-bodied aircraft so there are freighter hops around Europe every night*."

Motivation to use Manston Airport

Q12: How are capacity constraints at UK airports affecting you?

4.1.16 The issues with Heathrow and a general lack of slots in the South East for freighters were affecting interviewees, as shown in Q4.

Q13: How do you think these constraints will affect you over the next 20 years?

4.1.17 Interviewees found it difficult to respond to this question apart from to express a concern that the situation was unlikely to improve for some decades.

Q14: What drives your business decisions about which air freight route to use (cost, speed, etc.)?

4.1.18 For those freight airlines, business decisions are driven by where they can make money. One said, "*If we can fill an aircraft at a good enough rate to make money we will fly*" (Coyne Airways).

Q15: Can you rank these issues by their importance to your business?

- **Reduced flying time**
- **Congestion in London airspace leading to delays in take-off/landing**
- **Speed from aircraft to road haulage**
- **Access to road networks including Northern Europe**
- **Landing costs**
- **Refuelling**
- **Availability of land for development of storage/processing facilities**

4.1.19 Generally cost, speed and access to road networks were considered important. One interviewee said, "*Speed is very important to business. The speed at which we get cargo from LHR onto a plane and to a destination is a combination of a number of things including queuing times*." (Coyne Airways) Another said, "*Cost is always the most important*." (ACC Shipping) One interviewee talked about the potential cost saving of using Manston Airport, saying, "*If heading south, there is a saving to be made on time and fuel. The saving on fuel burn from Manston is likely to be, depending on aircraft type, compared to EMA headed south-east, 45 minutes to one hour and therefore USD 2,000 to 3,000 per flight and more as fuel prices increase. Total cost of a flight is generally 75% fuel*." (Coyne Airways)

Q16: Is it essential for you to be located at Heathrow, Stansted, East Midlands, etc.?

4.1.20 Most interviewees felt that it was not too important for sales departments particularly to be located at these airports. Some interviewees have their offices in Central London.

Q17: Have you ever considered using Manston Airport?

4.1.21 Some interviewees had previously used Manston Airport and their experiences had been good. These people generally expressed the opinion that it would be a benefit to reopen Manston Airport. One interviewee said, "*I speak to people all this time who say it would be useful to have Manston operating*." (White Transport) Another said, "*we miss Manston Airport and hope it will return*" (Active Transport). Others had not previously considered using the airport, with one interviewee saying, "*we have never seen any publicity advertising the airport*." (ACC Shipping)

4.1.22 An email received from the Manager of Charter Sales at National Airlines based in Orlando, Florida, dated 26th January 2017 reads:

> "*Having worked for the Manston regulars such as Das Air, African International (Intavia) and MK Airlines along with many other carriers while I worked for Chapman Freeborn in the UK, MSE was always our first choice for freighter charters.*
> *When it closed it was a great loss*!"
> *I'm sure you could also reach out to the likes of Magma, Cargo Logic Air and ANA as they would be keen to bring the African flowers back in to MSE*."

Q18: What could the airport offer that would encourage you to seriously consider using Manston?

4.1.23 Some interviewees said that the road links were excellent and could not be improved. Others talked about airport operating hours with one interviewee saying, "*it's not going to work if you can only fly between 10.00 and 21.00*" (Active Transport). Others talked about competitive landing fees. Some talked about the airport needing to be easy to use and well equipped with the latest technology including scanning equipment. Some mentioned having warehousing of all sizes available. One airline felt that Manston Airport should find a niche such as becoming well-known perishables centre (Coyne Airways).

Demand model and data for Manston Airport

4.1.24 Generally, interviewees were either unaware of airport demand forecasting models for air freight or felt that they were too difficult to construct. The findings

gathered from the interviewees and other research that help to define the demand for Manston Airport are detailed in the following sections.

4.2 Freight-focused findings

4.2.1 Many interviewees talked about the potential effect of Brexit on the freight market with a general feeling that with a decline in the value of sterling, export markets will be stimulated. At present, Eurotunnel, for example, carry more imports than exports and 45% of trade is with Europe where goods include those destined for the automotive and high tech sectors (Eurotunnel). However, continued uncertainty after the referendum over the terms of the UK's exit from the UK may negatively affect trade.

4.2.2 The main issues for interviewees were security, smuggling and terrorism (Active Transport, ACC Shipping). Several interviewees mentioned escalating problems with the carriage of lithium batteries. Scanning outsized items was also cited as a problem for all airports. Locating a canine detection unit at Manston Airport would alleviate many of the delays associated with security clearing air freight (Securitas). One interviewee believed Manston Airport must have, "*all the mod cons and equipment including warehousing of all shapes and sizes, and security screening for all sizes of cargo*" (Coyne Airways).

4.2.3 One interviewee (Coyne Airways) felt that success at Manston Airport 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 (Coyne Airways).

4.2.4 Several interviewees said that it is almost impossible to get a dedicated freighter into Heathrow due to slot restrictions. Delays and queuing to off load and upload freight at Heathrow was reported by many interviewees to be considerable. One interviewee said, "*It is not going to get any better. I can't see how it will*" (Coyne Airways). It is perhaps because of these frustrations that one interviewee reported feeling that life will continue to be difficult for air freighters, with Air France, for example, ceasing to use freighters (Coyne Airways).

4.2.5 However, freight is frequently bumped from passenger aircraft, often up to three times, before goods are uploaded onto a flight. If it is impossible to wait, if items are needed urgently such as parts for aircraft, then they are loaded onto a flight to Europe and trucked back to the UK (Active Transport, ACC Shipping). One interviewee (ACC Shipping) found that bumping from passenger aircraft was particularly problematic on flights from Dubai. He felt this was because Dubai is not generally an export market and so anyone who is prepared to pay a premium price would get priority.

4.2.6 One interviewee felt there had been a respite due to lower fuel prices making operations more cost effective (Coyne Airways). He also felt that Middle Eastern carriers would gain advantage over European based operators because of the difference in fuel price. Operators from the Middle East, "*are ordering planes and flying to more and more places*" (Coyne Airways). The interviewee felt that the industry is worried about the expansion of Middle Eastern carriers but that, since it is a free market, nothing can be done. He felt that, "*full liberalisation of flying rights would be good but would benefit those with the money*" (Coyne Airways).

4.2.7 If freight was banned from Heathrow or conditions for freight operators was made more difficult, then other airports that could handle freight would benefit (Coyne

Airways). Manston Airport could benefit. Transport links to Manston Airport are considered to be good with one interviewee (Active Transport) saying that even with road diversions access was "*brilliant*". One key issue reported by an air freight operator is easy airport access for cargo. He said, "*that would be a big thing*" (Coyne Airways). Another interviewee talked about Manston's location close to mainland Europe as an advantage (DHL). One interviewee (Taft) who has been in road haulage in Thanet for thirty years, stated that his view has always been that Manston is perfectly located to become northern Europe's premier hub for air freight.

4.2.8 The interviewee from Transport for London (**TfL**) discussed the expected increasing pressure on Stansted Airport for passenger flights. TfL are working hard to provide surface links for passengers from London to Stansted, which is predicted to increase demand. In this case, freight may be squeezed out of the airport as slots and handling become more focused on the passenger market. TfL undertook an extensive exercise as part of the work to define the need for the proposed Estuary Airport. This work by York Aviation shows that almost 54,000 additional freight movements per year would be required in the South East by 2050 with current infrastructure operating at maximum use (York Aviation, 2013, p. 7).

4.2.9 The DfT's 2017 report shows that with no new runways and under a central growth scenario, all London airports will be at capacity by 2030. Heathrow and Gatwick airports are considered to be full or almost full. London City Airport is deemed full between 2017 and 2021 with some additional capacity[11] relieving their situation until 2025. Luton Airport will be at capacity by 2021 and Stansted constrained by 2030 and at capacity by 2034 (DfT, 2017, p. 103). Under a high growth scenario (based on the Airports Commission's global growth and low-cost is king scenarios)[12], Stansted would be constrained by 2026 and full by 2029 (*ibid*, p. 139)

4.2.10 The TfL report by York Aviation specifically mention Manston in their 2013 report, stating that, "***around 14,000 freighters a year could still be accommodated in the vicinity of London by using capacity at airports such as Manston***" (York Aviation, 2013, p. 7). Without sufficient air freight capacity in the South East, cargo is trucked to and from northern European airports, putting pressure on the Channel crossings and on the surrounding road network, particularly when delays occur and trucks have to be parked in Operation Stack. The following section discusses the trucking activity and the implications for Manston Airport.

Trucking activity

4.2.11 Manston is ideally located for airport-to-truck and truck-to-airport consolidation for cargo destined for or originating from continental Europe. Due to its location if heading south and quick turnaround times, the location of Manston is considered to save time and money by many interviewees. Fuel savings compared to East Midlands were likely to be in the region of $2,000 to $3,000 (approximately £1,500 to £2,200) and more as fuel prices increase (Coyne Airways). Total costs are generally around 75% fuel so this is a considerable saving. As well as fuel savings, there are savings to be made in terms of crew flight time limitations (Baltic Exchange). Indeed, one interviewee believes that, "*Manston could be one of the best cargo airports in Europe if not further afield*" (Taft).

[11] The City Airport Development Programme (**CADP**), which received planning permission in July 2016, includes seven new aircraft stands, a parallel taxiway and passenger terminal extension.
[12] For definitions of the high and low growth scenarios see DfT, 2017, pp. 83-4

4.2.12 Almost all interviewees talked about the delays at the Channel crossings and the frustrations this causes. The interviewee from Eurotunnel felt there had been a move towards air freight during 2016 due to the migrant crisis in Calais. During the crisis, it was impossible to enter Calais after dark because of attempts to board trucks. Drivers were forced to park overnight in Belgium, losing around three hours at night and several in the morning (Active Transport). The frustration experienced by hauliers struggling with border controls and transport security is likely to drive them to consider air transport but pricing is key to remodelling the freight market (Eurotunnel and Active Transport). Nonetheless, Eurotunnel have three shuttle trains on order that will all be in service by 2018.

4.2.13 There are significantly marked seasons within the Channel crossing freight market with the end of the year being substantially busier to meet the Christmas demand (Eurotunnel). Conversely, the summer period, especially August, is much quieter as factories shut down production. Generally Eurotunnel find freight traffic busier mid-week; weekends are busier for passenger traffic. However, one of the hauliers (White's Transport) stated that there were no large seasonal variations since organisations are now mainly using JIT.

4.2.14 One interviewee (Baltic Exchange) felt that the UK trucking industry would benefit from the reopening of Manston Airport. The sector would see a reduction in costs, less congestion at the Channel crossings and also fewer security risks, uplift of freight would be in the UK, and the ability to offer livestock delivery from the airport as was the case in the 1980s, rather than on long pan-European road transport. Indeed, one of the haulier interviewees (Taft) observed that capacity issues at Heathrow have resulted in the Lufthansa Cargo operation shrinking over the years to a fraction of its former size.

4.2.15 There is a considerable volume of business for road hauliers willing to take goods from the UK to Europe for air freighting, mainly from Frankfurt (Taft). There is also a large amount of return business. However, according to this interviewee, there is very little business for hauliers picking up large loads from freighters landing in the UK for delivery within the UK. There is also very little business for hauliers transporting goods within the UK from a manufacturer to an airport (Taft).

4.2.16 Turnaround times and delay at airports are crucial for airlines and hauliers. The journey by road from Manston to Heathrow takes two hours on average. The time taken to load at Heathrow Airport can vary from two hours to 10 hours, depending on workload at the airport. The journey from Manston to Frankfurt takes eight hours, which is just within a driver's permitted 10 hours. However, because of historic problems at Calais, the return journey can often be subject to delays due to border and police controls. This means drivers who have exceeded their permitted driving hours have to wait around until they are legally able to drive again. One interviewee said that, "*the advantage of Manston is that it might well remove quite a lot of HGVs carrying air cargo from getting caught up in French industrial action or perhaps in the future by UK/EEA customs checks after Brexit, and would bring quite a lot of cargo into a single UK airport from which domestic distribution can take place – whether that is by smaller cargo flights, rail freight or continuing movement by HGVs*." (Equinus)

4.2.17 Taft International provided the three-hour trucking times from Manston. As Figure 8 shows, trucks can reach Basingstoke to the west, Northampton to the northwest, and Ipswich to the northeast within three hours. The proposed Lower Thames Crossing would increase this area, particularly to the northeast.

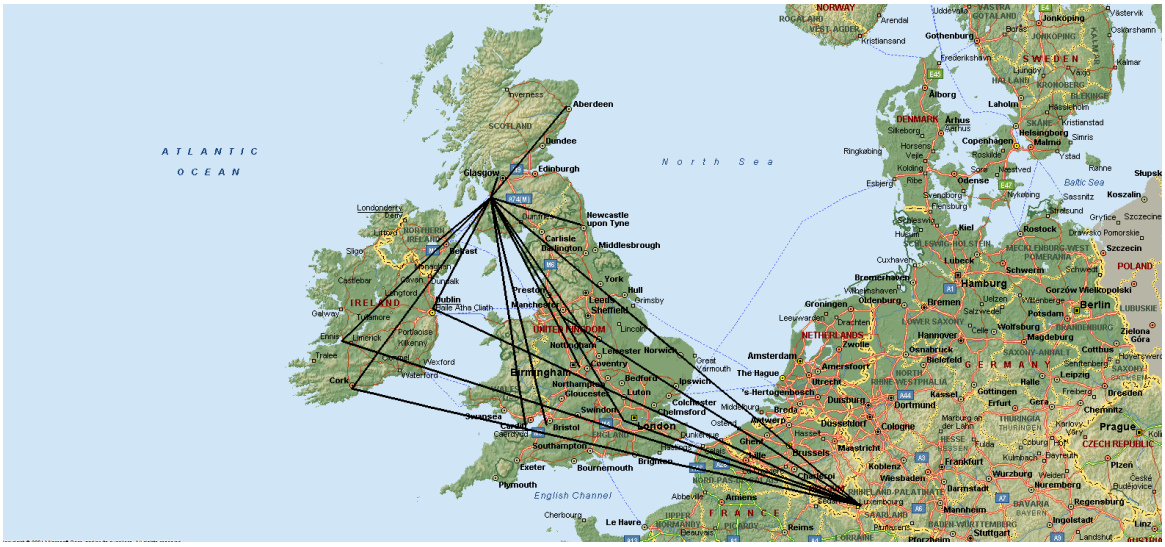
Figure 8 Three hour trucking times from Manston

Source: Taft International

4.2.18 One interviewee provided details of the trucking activities of Cargolux, Cathay Pacific and Lufthansa. The following maps show the origins/destinations of freight. These origins and destinations are shown as a direct line on the maps although, of course, all truck movements involve either a ferry or tunnel crossing thus passing very close to the Manston Airport site. About two-thirds of the HGVs use ferries rather than Eurotunnel (Equinus). He also said, "*I suggest that because of Manston's position with sea on three sides that any use of rail might benefit by considering how marine intermodal freight is distributed*." (Equinus)

4.2.19 Cargolux has hubs at Prestwick and Luxembourg and Figure 9 shows the destinations to where this freight is trucked.

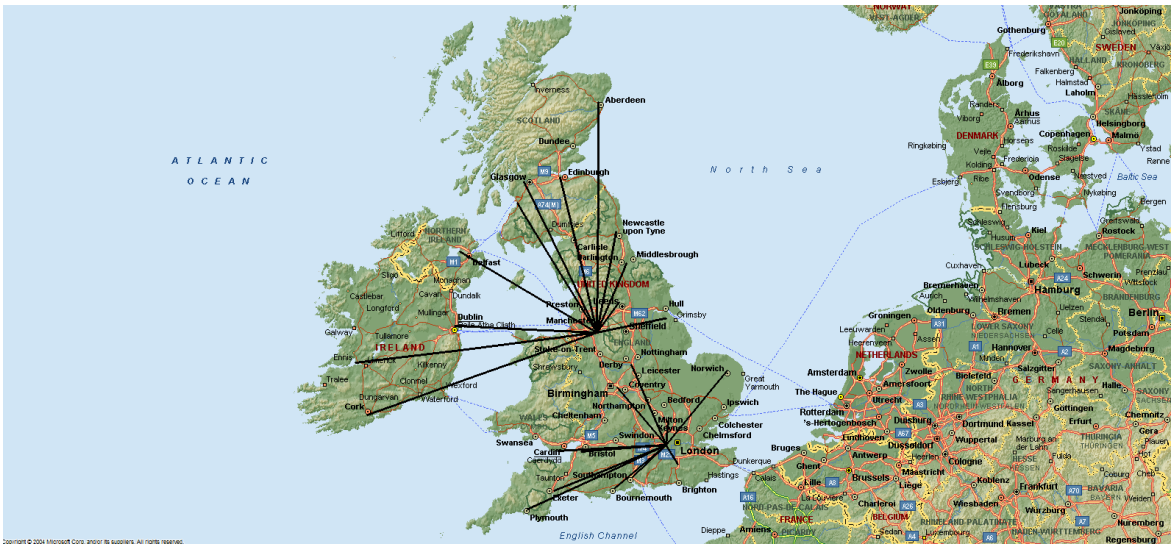
Figure 9 Cargolux trucking



Source: Bob Parsons

4.2.20 Cathay Pacific has hubs at Heathrow and Manchester airports and Figure 10 shows the trucking movements from these two hubs.

Figure 10 Cathay Pacific trucking



Source: Bob Parsons

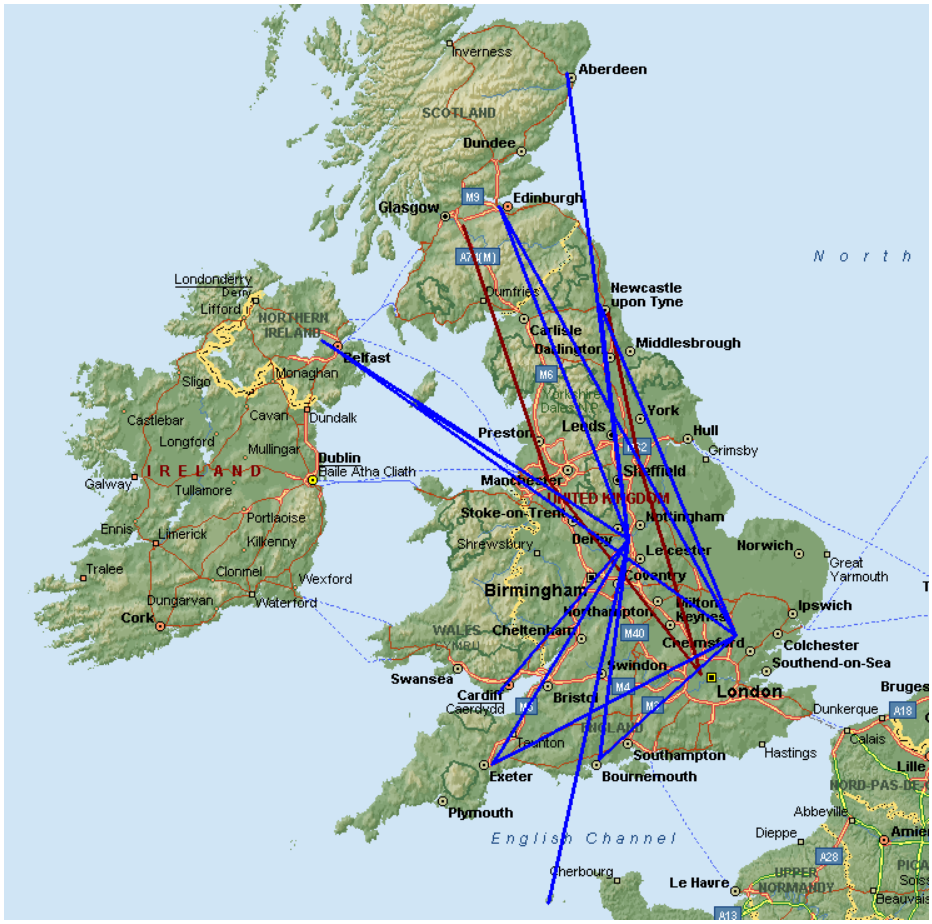
4.2.21 Figure 11 shows Lufthansa's trucking from its hub in Frankfurt.

Figure 11 Lufthansa trucking

Source: Bob Parsons

4.2.22 In terms of mail, Figure 12 shows rail movements between mail centres in dark red and air movements in blue.

Figure 12 Royal mail air and rail



Source: Bob Parsons

Perishable goods

4.2.23 East Kent is served by the port at Dover and by the Channel Tunnel. The Channel Tunnel does not publish or generally collect data on the type of goods being carried in the 1.5 million trucks per annum who currently use their services. They predict the number of truck movements through the tunnel will rise to two million by 2020. However, the company believes that goods transported through the Tunnel include food and other perishable goods. The Port of Dover carry larger numbers of trucks that also carry perishables.

4.2.24 In the short and medium-term, there is clear demand for perishable goods particularly fruit, vegetables, and flowers with many respondents mentioned this category of air freight. The perishable market was a staple for Manston, and the airport, with reduced flying time compared with other airports, has a reputation for the speed at which cargo can be offloaded and onto the road. One interviewee, who had operated successfully from Manston hauling mainly perishables, confirmed that the unloading operation was the quickest he knew (Taft). However, underinvestment by previous owners had caused constant problems because equipment was old and unreliable.

4.2.25 Whilst the current UK air freight model is for shippers to preference belly freight, this can take up to a week to arrive and dispatch from some of the UK's airports. This research shows how the frustrations associated with this model are impacting all levels of the supply chain. It seems likely, therefore, that the model is set to change, much as the model for passenger flights changed some decades ago. The low cost carriers now dominate many airports, operating point-to-point to offer competitive prices to their customers. As Sales says:

> "*In today's aviation world, airports have become the economic drivers of business and industry and the service on the ground for both passengers and freight has become very competitive, especially when customers have alternative choices.*
>
> *For air cargo, it is the minimum time spent on the ground before and after the flight that can make a particular airport attractive and will play a role in the ultimate selection by the forwarders and consolidators, who will mostly determine how much cargo is directed to and from a particular airport.*" (Sales, 2013, p.43)

4.2.26 In terms of business support, written evidence submitted by David Brown, Group Supply Chain Director Finlays Horticulture, part of Finlays Horticulture Investments Ltd dated 16 January 2015 says the following:

> "*As a previous large customer to the services of Manston airport, we felt it important that Finlays wrote to explain their previous business and ongoing support for Manston as an infrastructure hub for UK airfreight importation.*
>
> *Finlays had been a customer of Manston airport through its various ownerships for a period of approx 17 years up to it closure a few months ago. Finlays brought in a large quantity of freight (approx 400t) on various carriers weekly through the airport, as they had become specialists in handling perishable cargo. Since Manston's closure this Finlays cargo (and other importers cargo) has been transferred to other London airports increasing their traffic, and placing strain on their resources to deal with an additional 1000 tonnes each week. Cargo capacity constraints continue to*

mount at airports in the south east of England, which has adversely affected our business. The main factors we see specific to Manston are as follows:

- *Manston were unique in being able to offer such a quick turnaround of getting airfreight onto lorries, with suitable perishable handling facilitates, and flexibility in dealing with freight day or night. The freight that we now have arriving at Stansted (approx 2 hours closer to Finlays sites by lorry than Manston) is regularly arriving 6 hours later than the equivalent Manston vehicles.*
- *Manston is one of only 5 UK airports to have a BIP (EU Border Inspection Post) facility. Trade has moved and is still moving to Europe as a consequence of the shutdown.*
- *The overall limits of air freight capacity and restricted handling services in the South East continue to increase, and for the perishable air freight business, other airports are struggling to match the quality and speed of service for which Manston was renowned.*
- *Manston's location to major roads and ports meant that the development of more trade was a distinct possibility and its unique air freight handling service makes it very desirable to the cargo business. In addition Customs, Port Health, FERA and other agencies were all in place to facilitate the airport's operation.*

In our dealings with Manston over the last decade or more we have been very satisfied and actively supportive by putting our cargo business there. It was with deep regret that Manston management took the decision to close the airport. It is noted that other interested airport operators have shown serious interest about taking on Manston as an airport, we strongly hope that a future for Manston can be found. "

4.2.27 As with past operations at Manston Airport, the main target markets for imports will include Africa, particularly East Africa. East Africa has a population of some 125 million and, since the 1980s, has undergone considerable economic reforms to stimulate growth in the private sector. Agriculture is the leading sector and the area exports flowers, fruit, and vegetables. East Africa has eight international airports:

- Bujumbura International Airport (BJM) in Burundi
- Jomo Kenyatta International Airport (JKIA), Mombasa International Airport (MIA) and Eldoret International Airport in Kenya
- Dar es Salaam International Airport (DIA), Kilimanjaro International Airport (KIA) and Zanzibar International Airport (ZIA) in Tanzania
- Entebbe International Airport in Uganda

4.2.28 Discussions by one interviewee (Securitas) with the Algerian Embassy indicate the intention of the Country to export perishable items including fruit and vegetables to the UK. Whilst Algerian airlines are currently experiencing issues with air freight, these problems are expected to be resolved soon.

4.2.29 Fresh flowers also originate in South America with Colombia being the second largest flower exporter in the world after the Netherlands. Other South American countries exporting flowers include Ecuador, Chile and Peru. This area also exports berry and stone fruits as well as salmon, particularly from Chile, and asparagus from

Peru. Additionally, pineapples are imported from Ghana, with green beans and flowers originating in Kenya.

Fish and live animals

4.2.30 By weight, fresh salmon is the top export from Heathrow Airport. During Operation Stack, a considerable amount of Scottish salmon was transported through the Channel Tunnel, a situation that is not ideal for the quality and therefore the price that can be achieved for this fresh fish. According to a number of interviewees, Manston Airport is expected to pick up a proportion of this air freight, particularly perishable goods such as fish and shellfish. One interviewee reported that, in the season, 14 pallets of fish are air freighted to Dubai per fortnight as well as twice-daily flights for spider crabs (Securitas).

4.2.31 There is a considerable market in live animal transportation by air, particularly for racehorses and breeding stock. According to an interviewee, around 260 Arab racehorse flights take place between Dubai and the UK per year (Securitas). One of the interviewees reported problems flying pet animals into Heathrow Airport, as they tend to cause delays to operations (Securitas).

Other imports and exports

4.2.32 In the UK, imports exceed exports (in June 2016 the difference was £48,928 million compared with £43,844 respectively[13]). However, the research undertaken to compile the demand forecast for Manston identified a considerable export market for airlines that operate in developing markets. For example, Kent has a substantial biotech sector, with a hub located at Discovery Park in Sandwich, very close to Manston Airport. One interviewee mentioned the advantage for the pharmaceutical and biotechnology companies in East Kent using a local airport (Locate in Kent). Another interviewee talked about transporting medicines for clinical trials (DHL). As such, particularly in the early years, exports are expected to exceed imports, facilitating the opportunities for UK businesses (see Section entitled 'Onshoring of manufacturing in the UK' at paragraph 6.3.9 onwards for more details).

4.2.33 Exports from the UK are increasing, reaching what was an all-time high of £44.9 billion in April 2016[14] to £49.63 billion in July 2017[15]. The top five export commodities from London's Heathrow include precious metals (£26 billion), aircraft turbojets (£3.3 billion), jewellery (£3 billion), pharmaceuticals and medicines (£2.8 billion), and art (£2.4 billion)[16]. By weight, next to fresh salmon, the top exports from Heathrow are books and other printed material. The continued growth of the British fashion industry is also a notable export market for the UK. One interviewee mentioned that increasing volumes of high-end fashion items are being air freighted by companies such as Jimmy Choo (DHL).

4.2.34 Several interviewees discussed the large Russian market, which comprises over 140 million consumers with an emerging middle class with a taste for luxury goods. Russia has huge infrastructure needs and exports from the EU to Russia include machinery and transport equipment, chemicals, medicines and agricultural products.

[13] http://www.tradingeconomics.com/united-kingdom/exports
[14] http://www.tradingeconomics.com/united-kingdom/exports
[15] https://tradingeconomics.com/united-kingdom/exports
[16] http://www.lloydsloadinglist.com/freight-directory/news/UK-exports-via-Heathrow-rise-9.7/64745.htm#.V7nmwWXmugQ

The UK exports more products to Russia than it imports and the majority of imports include non-air freightable items such as oil and gas.

4.2.35 One of the freight airlines interviewed (Coyne Airways) said they carried mostly oil and gas extraction equipment and commercial consumer goods including clothing and electronics. They carry almost entirely exports from the UK and fly to places where demand for passenger flights is low including Baku in Azerbaijan, Iraq, Georgia, etc. Iraq is likely to be the next big market but rates to the Country are already quite low (Coyne Airways). Africa is also the continent to consider as the opportunities are limitless – "*people will start ordering mobile phones and electronics*" (Coyne Airways).

4.2.36 The Middle East is a growing market to and from Europe and imports include live animals, particularly race horses, breeding stock, and luxury cars during the summer months. Exports include a variety of products including high value cargo such as electronics and machine parts as well as fresh fish and seafood.

4.2.37 The Indian subcontinent is also a potential exporter and importer of goods to the UK. One interviewee mentioned the potential for airlines from Pakistan to use Manston Airport (Securitas). Pakistan mainly exports clothing and imports consumer goods.

4.2.38 Trade with the US is mature and includes electronics and machine parts including spares for aircraft and oilrigs and Manston Airport is in an ideal location to act as a hub between the USA and the rest of Europe, Russia, Africa and the Middle East. One of the interviewees, a shipper (ACC), said that the US is their strongest market with main hubs in Atlanta, New York, Chicago and Houston. Their air freight includes commercial and hazardous goods. Shipping problems for ACC include delays at Customs and getting goods out of the airport, usually Heathrow or Manchester, which can take many hours and is getting worse.

4.2.39 Aircraft parts are frequently carried by air (Active Transport). Formula One cars (DHL) are also shipped by air, as are luxury cars from the Middle East countries. August is known as Supercar Season with around 300 vehicles per year being flown into London, (Securitas). The press report that fleets of gold covered vehicles including Bentley, Rolls Royce and Lamborghinis frequent the streets of West London. This niche market could potentially be attracted to Manston Airport.

4.2.40 Other types of air freight mentioned included specialist one-off and rather unpredictable opportunities such as transporting the equipment for bands playing at concerts all over the world. Indeed, the Rolling Stones used Manston Airport on a number of occasions. Outsized items (i.e. more than 1.6 metres high) will not generally fit into the belly of a passenger aircraft so air freighters are used to fly these goods. Indeed, other evidence collected during the statutory consultation indicates that this niche market is poorly served by UK airports.

4.2.41 One interviewee mentioned specialist freight carriers such as Harrods Aviation, which has FBOs at Luton and Stansted airports with an engine shop at Farnborough.

4.2.42 Since most intra-European passenger flights use narrow-bodied aircraft that cannot hold much freight, a market has sprung up for freighters flying around Europe (Coyne Airways). Indeed, wide-bodied freighters fly a few routes around Europe every night (Coyne Airways). At present, most of the UK freight is trucked to Amsterdam, Frankfurt or Milan to join these intra-European flights (Coyne Airways).

Integrator services

4.2.43 Increasingly, success in business depends on getting the right goods to the right place at the right time and without holding expensive stocks of either inbound parts and materials or stock ready for distribution but as yet unsold. The use of Just-in-Time (**JIT**) and Build-to-Order (**BTO**) approaches aim to eliminate both inbound and outbound inventories. However, these means of controlling inventory places increasing reliance on rapidly response and reliable transportation from suppliers, distributors and customers around the world. Indeed, around 10% of manufacturers' costs are associated with organising the supply of incoming parts and materials and the distribution of outgoing products[17]. Parcel delivery is therefore a hotly contested business with UPS, FedEx, DHL and TNT vying for position as market leaders.

4.2.44 One interviewee noted how e-commerce has greatly helped SMEs (small and medium sized enterprises), driving the trend for their increasing use of the services of integrators (FedEx). Whilst most integrator business has been business-to-business, the business-to-consumer market, probably linked to the growth in e-commerce, is growing and integrators are trying to adapt (Fedex). It would seem that the industry generally is migrating to express cargo with increasing demand for rapid delivery of freight (DHL). One interviewee talked about the high operational costs of 'last mile' delivery, which are key to ensuring profitability for the company (FedEx).

4.2.45 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 reluctance has perhaps been exacerbated because the large integrators do not tend to get bumped from belly-hold on passenger flights and are given preference over smaller organisations (DHL).

4.2.46 The benefits integrators (FedEx) look for from an airport include:

- Excellent transport links by road and rail with connections to London and the rest of the UK
- A location close to London, particularly to the east of London and the Canary Wharf commercial and business districts and with the ability to access the whole of London quickly so companies can compete globally
- Sufficient runway length for larger cargo-only aircraft with available slots
- Situated at the centre of a key UK regional economy

4.2.47 The big issue for integrators at Heathrow Airport is the lack of storage and land availability generally (DHL). Many leases come up for renewal in 2019 (DHL). Slot availability is also a problem and one interviewee mentioned that Chinese freight airlines would like to fly direct to the south east of the UK but cannot get slots (DHL). Security is a big issue for freight integrators and shippers and one of the interviewees said his company was so concerned that they had written to both the French and UK governments on the subject (FedEx). This interviewee also mentioned inconsistencies across Europe, which leads to administrative burdens for the integrators.

4.2.48 One of the integrators (FedEx) discussed the growth markets around the world. His analysis was that:

[17] http://www.economist.com/node/1477544

- India is not growing at the moment. The big difficulty is infrastructure on the ground and that many people are without an address.
- Africa could be a growing market if the infrastructure problems could be resolved. As with India, many consumers do not have an address. For both India and Africa, 'last mile' delivery is expensive as there are few domestic players in the market and the countries are plagued by road accidents.
- The Middle East, Far East, and the US are growing markets
- China and Europe have reached saturation
- Russia and the Balkans are big importers of luxury goods although changes to regulations can impact this market (such as restrictions on imports per person per month, which the carrier has a responsibility to report)

Military and humanitarian operations

4.2.49 Outbound flights from Manston Airport are likely to include military movements and humanitarian operations. With the absence of any information to the contrary, it is reasonable to predict both military and humanitarian operations will be similar in terms of numbers to those previously handled at Manston Airport. According to previous Air Traffic Controllers, these numbers are in the region of 30 movements per year for military operations and 20 per year for humanitarian and medevac flights. One interviewee also talked about the need for slots for deportation flights (Securitas).

Comparison to Frankfurt Main Airport

4.2.50 An analysis of freight movements at Frankfurt Main Airport provides an interesting example of a successful European freight operation. Frankfurt has restricted operating hours, which do not permit night flights. All services, including night airmail, now operate between 0500 and 2300. The airport handled more than two million tonnes of cargo in 2015, a reduction from 2010, due mainly to night-time restrictions, of around 193,000 tonnes, some 8%. Whilst there was no doubt a downturn in tonnes handled, these figures contradict the generally held assumption that successful cargo operations need to operate with 24-hour licenses.

4.2.51 In contrast to the operation at Leipzig, Frankfurt has little integrator traffic with the exception of FedEx movements. Leipzig Airport is only able to function as an almost 100% integrator operation because it does not have a curfew. Leipzig handles around one million tonnes of freight per year, a huge increase from 101,000 tonnes in 2007[18] when DHL moved its European hub to the airport.

4.2.52 The Frankfurt and Leipzig figures show the difference between a true market, where capacity is available to attract any number of freighter flights, and a constrained market such as that in London. This example underpins the findings outlined in previous sections, providing support for the rationale behind the forecasting method chosen. Projections based on the constrained London markets do not provide an accurate picture of the potential in the South East. The unconstrained operations at Leipzig and Frankfurt provide a much more accurate estimation of the feasibility of Manston Airport. Another point of interest from the data from Frankfurt Main is the limited types of freight aircraft that use the airport.

[18] https://www.leipzig-halle-airport.de/en/company/about-us/facts-and-figures/traffic-statistics-158.html

4.2.53 The Frankfurt Main data shows that cargo-only airlines seem content to operate during the day, if suitable slots are available and off load and turnaround times are expedient. Frankfurt handles a large number of freighters. Examples of those arriving and departing the airport on the 9 and 10 October 2016 are shown in Table 4. For Manston, focusing on the freighter market, and providing slots without the need to preference large numbers of passenger flights, can be key to a successful UK operation.

Table 4 Frankfurt freighter schedule

Airline		Example origin-destination
Aerologic	Worldwide	Bangkok, Chicago, Delhi, East Midlands, Hong Kong, Leipzig, Los Angeles, Mumbai, Taschkent
Air Algerie	North Africa	Algiers
Air Bridge Cargo	Europe	Helsinki, Leipzig, Moscow (multiple times per day)
Air China	Far East/US	Beijing, Chicago, Shanghai
Asiana Airlines	Far East	Seoul
Cargo Logic Air	Eurasia	Moscow
Cathay Pacific	Far East	Hong Kong
China Airlines	Far East	Taipei
China Southern	Far East	Guangzhou and Shanghai (multiple times per day)
European Air Transport (EAT)	Europe	East Midlands, Heathrow, Leipzig
Egypt Air	North Africa	Cairo
Emirates	Worldwide	Amsterdam, Atlanta, Dubai (multiple times per day), Mexico City
Etihad	Middle East	Abu Dhabi
Fedex	Worldwide	Cologne, Memphis, Milan, Paris
Korean Airlines	Eurasia, Far East	Navoi (Uzb.), Seoul
LAN Cargo	US	Miami
Lufthansa Cargo	Worldwide	Almaty (Kaz.), Atlanta, Bangalore, Cairo, Chicago, Curitiba (Brazil), Dakar, Guangzhou, Hong Kong, Istanbul, Johannesburg, Mexico City, Miami, Moscow, Mumbai, Nairobi, New York, Riyadh, Sao Paolo, Shanghai, Tokyo
MNG Airlines	Eurasia	Tekirdag (Turkey)
Night Express	Europe	Birmingham
Qatar Airways	Middle East	Doha
Saudia	Middle East	Dammam, Riyadh
Turkish Airlines	Eurasia	Istanbul
United Airlines	Europe	Frankfurt Hahn
Uzbekistan Airways	Eurasia	Navoi (Uzb)

Source: Fraport website http://www.frankfurt-airport.com/en/b2b/cargo-hub.overview.flights.html#flightschedules/type=departure/page=1/time=2016-10-19T17%3A00%3A00

4.2.54 With Manston envisioned as primarily an air freighter hub, the Frankfurt Main data leads to two powerful implications. The first is that dedicated cargo carriers do not require night movements. Frankfurt averages over 60 movements per day of dedicated cargo carriers with a full night time restriction between 23:00 and 05:00. With its

dedicated runway for cargo and the ability to service its customers quickly, cargo carriers are clearly able and willing to carry out their business within an 18-hour daily window. The second implication is that the high level of activity at Frankfurt can only mean that a significant amount of cargo landing at Frankfurt is destined for locations other than Germany. 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 Airport could readily handle this business in a more cost effective and timely manner, with less environmental impact than trucking from Frankfurt to the UK.

4.3 Channel Crossings market share

4.3.1 One interviewee (Equinus) provided historic data that details the passenger, tourist vehicle, coach, and HGV traffic using the Port of Dover and Eurotunnel between 1995 and 2014. This data is shown in Table 5 and Table 6, which detail the number of movements and percentage change, year-on-year. Colour coding is used to show where movements have increased (green cells) or decreased (red cells), and indicate the peak years for traffic volumes (black cells). Table 5 shows an increase in HGV traffic to more than 2.6 million movements per year in 2017. This represents an increase in HGV movements over the past five years of some 18%, 13% over 10 years and 71% (more than one million movements) over the past 20 years.

Table 5 Port of Dover historic traffic figures

Year	Passengers		Tourist Cars		Coaches		HGV	
1995	17,872,712		2,893,835		158,167		1,075,965	
1996	18,979,719	6%	3,054,781	6%	153,642	-3%	1,071,602	0%
1997	**21,463,570**	**13%**	**3,558,355**	**16%**	**165,002**	**7%**	1,602,863	50%
1998	19,441,608	-9%	3,300,283	-7%	153,700	-7%	1,522,948	-5%
1999	18,276,988	-6%	3,003,364	-9%	156,725	2%	1,667,942	10%
2000	16,232,191	-11%	2,594,824	-14%	148,285	-5%	1,618,184	-3%
2001	16,002,464	-1%	2,554,931	-2%	136,702	-8%	1,771,826	9%
2002	16,442,680	3%	2,632,182	3%	147,549	8%	1,854,234	5%
2003	14,681,003	-11%	2,581,573	-2%	125,224	-15%	1,782,857	-4%
2004	14,333,663	-2%	2,506,667	-3%	128,464	3%	1,980,662	11%
2005	13,348,829	-7%	2,554,772	2%	107,541	-16%	2,045,867	3%
2006	13,797,874	3%	2,647,060	4%	105,774	-2%	2,324,598	14%
2007	14,287,318	4%	2,837,559	7%	105,336	0%	2,363,583	2%
2008	13,893,118	-3%	2,830,238	0%	97,851	-7%	2,307,821	-2%
2009	13,090,309	-6%	2,775,174	-2%	81,209	-17%	2,300,468	0%
2010	13,154,638	0%	2,818,380	2%	86,035	6%	2,091,516	-9%
2011	12,764,699	-3%	2,653,127	-6%	84,938	-1%	2,069,945	-1%
2012	11,921,671	-7%	2,400,471	-10%	84,246	-1%	1,952,138	-6%
2013	12,753,343	7%	2,471,193	3%	90,478	7%	2,206,728	13%
2014	13,295,492	4%	2,456,817	-1%	96,576	7%	2,421,537	10%
2015	13,008,400	-2%	2,335,531	-5%	96,592	0%	2,539,918	5%
2016	12,059,538	-7%	2,179,331	-7%	87,023	-10%	2,591,286	2%
2017	11,723,411	-3%	2,180,611	0%	79,638	-8%	2,601,162	0%
Last 10 Years		-16%		-23%		-19%		13%
Last 5 Years		-8%		-12%		-12%		18%

Source: Compiled from Port of Dover reports

4.3.2 The Eurotunnel figures shown in Table 6 shows huge growth in HGV movements - around 30% in the five years to 2017. Total HGV movements HGV channel crossings from Dover and using Eurotunnel are more than 4.2 million per year. Eurotunnel estimates an equivalent in tonnes of freight carried at 21.3 million in 2017. Additionally, just over 2,000 rail freight trains carry 1.22 million tonnes of freight. In January 2018, Le Shuttle Freight set a new record, carrying 144,272 trucks, an increase of 10% compared to the same month in 2017.

Table 6 Eurotunnel historic traffic figures

Year	Passengers		Tourist Cars		Coaches		HGV	
1995	4,081,000			1,246,000			391,000	
1996	7,909,000	94%		2,136,000			519,000	33%
1997	8,653,000	9%		2,383,000			268,000	-48%
1998	**12,901,000**	**49%**		3,448,000			705,000	163%
1999	11,898,000	-8%		3,342,000			839,000	19%
2000	11,198,000	-6%		2,865,000			1,133,000	35%
2001	10,717,000	-4%		2,605,000			1,198,000	6%
2002	10,043,000	-6%	2,335,625		71,911		1,231,100	3%
2003	9,857,205	-2%	2,278,999	-2%	71,942	0%	1,284,822	4%
2004	9,266,325	-6%	2,101,323	-8%	63,467	-12%	1,281,207	0%
2005	9,550,503	3%	2,047,166	-3%	77,267	22%	1,308,786	2%
2006	9,109,663	-5%	2,021,543	-1%	67,202	-13%	1,296,269	-1%
2007	8,260,980	NA	2,141,573	6%	65,331	-3%	1,414,709	9%
2008	9,113,371	10%	1,907,484	-11%	55,751	-15%	1,254,282	-11%
2009	9,220,233	1%	1,916,647	0%	54,547	-2%	769,261	-39%
2010	9,528,558	3%	2,125,259	11%	56,507	4%	1,089,051	42%
2011	9,679,764	2%	2,262,811	6%	56,095	-1%	1,263,327	16%
2012	9,911,649	2%	2,424,342	7%	58,966	5%	1,464,880	16%
2013	10,132,691	2%	2,481,167	2%	64,907	10%	1,362,849	-7%
2014	10,397,894	3%	2,572,263	4%	63,059	-3%	1,440,214	6%
2015	10,399,267	0%	2,556,585	-1%	58,387	-7%	1,483,741	3%
2016	10,011,337	-4%	2,610,242	2%	53,623	-8%	1,641,638	11%
2017	10,300,622	3%	2,595,247	-1%	51,229	-4%	1,637,280	0%
Last 10 Years		13%		36%		-8%		30%
Last 5 Years		2%		5%		-21%		20%

Source: Complied from Eurotunnel Group. Note that passenger figures from 2007 only include Eurostar passengers, excluding coach passengers and journeys between Paris and Calais and Brussels and Lille. Figures prior to 2007 provided by Bob Parsons

4.3.3 With the UK's exit from the EU, more stringent border control procedures can be expected. The Eurotunnel and Dover figures highlight the potential impact of delays and increased transit times on the more than four million annual HGV movements across the Channel. The figures shown above are consistent with the accounts of other interviewees that attest to freight being trucked to airports in northern Europe. Given increased friction at the border crossings, this market is more likely to consider moving to air freight.

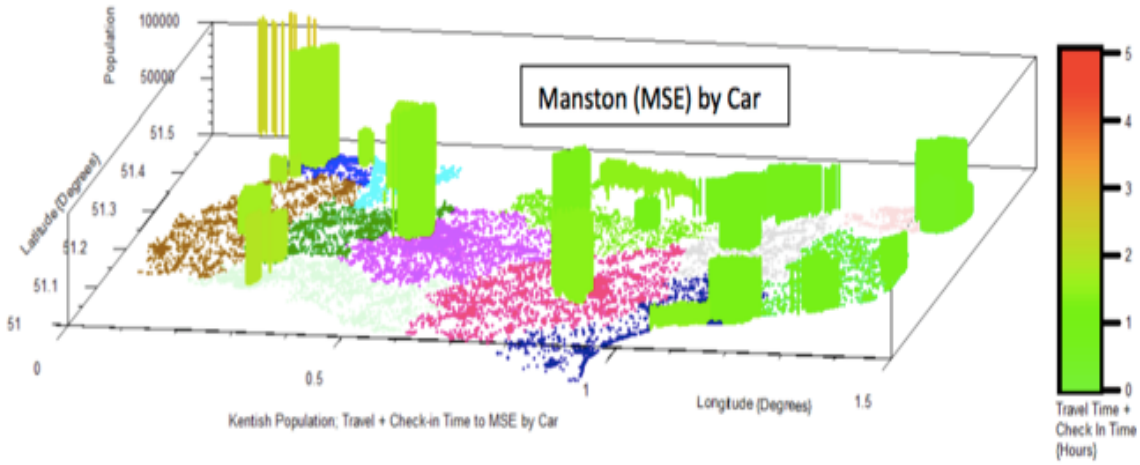
4.4 Passenger-focused findings

4.4.1 This section outlines the main findings related to passenger flights. There are currently estimated to be just in excess of 1.5 million people living in Kent[19]. In 2008, 11,000 local residents completed a survey run by Kent International Airport and KOS Media[20]. 86% of respondents said they were very likely to use scheduled commercial passenger flights from Manston Airport. A further 11% said they were somewhat likely to use flights from the airport. Time saving and locational benefits were given by the majority of respondents as their reasons for wanting to use Manston.

4.4.2 It seems that Manston Airport, with its easy access to both the passenger terminal and from the terminal to the aircraft, may be a huge attraction to older travellers. The Association of British Travel Agents (**ABTA**) recently found that elderly people are missing flights because of the long walk they face at airports. If assistance is not pre-booked, these less able people are required to walk up to a mile between the check-in desk and the departure gate[21].

4.4.3 In terms of time taken for travel and check-in, research shows that many people should find it quicker to access Manston Airport than either Gatwick or Heathrow airports. Indeed, the proposed opening of the Lower Thames Crossing widens Manston's catchment area to include Essex and North London. The drive and rail times from the main towns in Kent to Manston Airport are shown in Figure 13 and Figure 14.

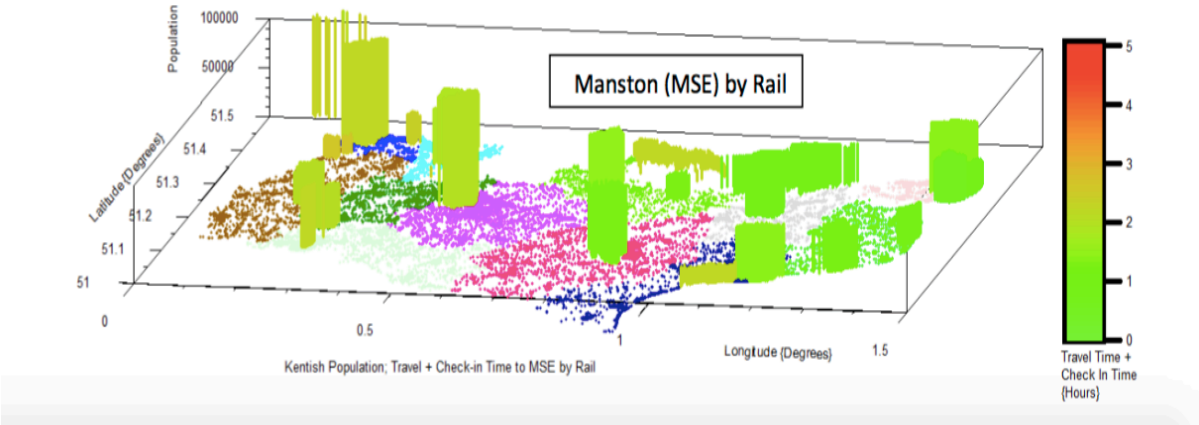
Figure 13 Drive times to Manston Airport



Source: Lab-Tools Ltd.

[19] http://www.kent.gov.uk/about-the-council/information-and-data/Facts-and-figures-about-Kent/population-and-census
[20] http://www.uk-airport-news.info/kent-airport-news-310708.htm
[21] Daily Telegraph, 27 September 2016, "*Older travellers miss flights due to airport walks of almost a mile*"

Figure 14 Rail travel times to Manston Airport



Source: Lab-Tools Ltd.

4.4.4 These figures were compiled from population-postcode data for the 12 Kent districts derived from the 2011 census. Travel times for both road and rail were measured at the middle of the day[22] and include all aspects of the journey to the queue for the check-in or bag-drop desk. The times assume a 30-minute check-in at Manston, two hours at Gatwick for European flights and three hours at Heathrow for long haul. Even with shorter check-in times at Gatwick and Heathrow for passengers who use online services, travel times remain competitive.

4.4.5 Manston's location means that flights to and from 'sunshine' destinations such as Alicante and Malaga have a reduced flying time compared to other UK airports. For airports in the north of England and Scotland, this can be as much as one hour less in the air for each sector. Less flying time means less fuel and crew time, reducing the cost of each flight for the operator and allowing more rotations per day.

KLM

4.4.6 Between 2013 and 2014, KLM operated twice daily flights (four movements per day) between Manston and Schiphol in Holland. This operation connected passengers from East Kent and from the wider Kent and South East area. In 2013, KLM handled over 40,000 passengers. Tourism in both directions (inbound and outbound) was "*just getting going and had a huge amount of support from all the tourism agencies*" (Visit Kent).

4.4.7 Unfortunately, the company was forced to pull out of the airport before the more lucrative summer season. As such, it is difficult to estimate what passenger numbers would have been if KLM had been able to continue operating from Manston. Emails between the Managing Director of KLM Cityhopper, Boet Kreiken and one of Manston Airport's former Air Traffic Controllers, Andy Wilby, show how KLM felt about their operation from Manston Airport:

[22]http://www.lab-tools.com/SMA/Manston_Airport_Kent_has_major_travel_advantages_-_v2b.pdf

> "*Every time we hear about Manston we feel the lost opportunity for the UK, the Kent region, local employment and our lost venture which did not get the time to materialise with a full summer season. . . . The UK has to come to grips soon with her policy for regional airports and these airports (and e.g. amongst others our Klc operations) and airline connections are a vital lifeline for a modern economy and society as yours is. . . . we are convinced that definitively destructing such a runway and location as Manston is in the long run not such a wise decision as understatement in the greater and continuously expanding London area as well as of a relatively booming South East England. Many regional airports now vie for our connections to Europe and the world.*"

4.4.8 Given the current capacity issues at other South East airports, RiverOak have a reasonable expectation that a carrier such as KLM will operate a twice-daily schedule from Manston. Indeed, KLM have reiterated their desire to recommence operations from Manston. Their schedule is likely to resume as before, with a twice-daily service from Manston to Schiphol Airport, Amsterdam. KLM previously used Fokker 70 aircraft, which have a capacity of 80 passengers. Four movements per day, seven days per week equates to around 1,460 movements per year. This type of service provides local people with access to a major hub from where they can fly to destinations around the world.

Low cost carriers

4.4.9 In addition to the KLM flights, RiverOak expect at least one low cost carrier to operate from Manston, basing two aircraft at the airport. Indeed, in 2005, when EUJet, a low cost carrier, was operating from the airport, Manston handled around 207,000 passengers. A new theme park is planned for construction in Kent on the Swanscombe peninsular between Dartford and Gravesend. The proposed 872-acre London Resort entertainment complex would include a large indoor water park, theatres, live music venues, cinemas, rides, restaurants, and 5,000 hotel rooms. The park is expecting 50,000 visitors per day. Visit Kent, the County's tourism organisation, believes Manston would provide a gateway for visitors to the theme park. Accessing Kent from the east would encourage visitors to see more of the County rather than venturing no further than London. It is expected that this attraction will help drive demand for the services of KLM and low cost carriers.

4.4.10 Ryanair have given RiverOak an indication that they will base two aircraft at Manston in the first three years of operation. These aircraft would be likely to operate a timetable serving 12 to 14 destinations throughout the year, including domestic and leisure routes, offering five rotations in the summer months and four in winter. From the fourth year of operation, Ryanair would consider basing three aircraft at the airport.

4.4.11 With the arrival of EasyJet, Southend Airport has developed a successful passenger operation, increasing from around 4,000 passengers per year prior to 2012 to 900,000 in 2015. However, the 2015 figure is 18% down on 2014 traffic. The short runway and restricted land available for development may mean that some airlines could look to Manston to expand their operations. In particular, should EasyJet, who operates to 16 destinations from Southend, around 10,000 movements per year, consider entering the long haul market, Manston would make an ideal choice, given its location. However, this service has yet to be announced and so no low cost carrier long haul flights can be included in the demand forecast for Manston Airport.

Resident passenger carriers

4.4.12 The CAA calculates that 1.9 million passengers are carried by marginal airlines at Heathrow (CAA, 2013, p. 22). Marginal airlines are defined as, "*those most likely to*

switch away from the airport in light of a 10 per cent price increase" (*ibid*, p. 20). These airlines are shown in Table 7. Whilst the CAA describe these airlines as marginal, they note their analysis may be an overestimation since airlines may incur significant switching costs or they may consider their operations at Heathrow to be of strategic significance and would therefore be prepared to bear any increase in costs. This is particularly pertinent if the carrier is part of a strategic alliance or has an interlining agreement in place. For example, Vueling is an unaligned LCC airline, with only 5% connecting passengers. However, it has signed an interlining agreement with BA whereby passengers landing in Barcelona with BA will be able to connect directly to Vueling's 74 destinations offered from its hub in Barcelona's El Prat Airport[23].

Table 7 Marginal airlines at Heathrow Airport

Airline	Surface passengers	Connecting passengers	Total passengers	% connecting passengers	Unaligned
Biman Bangladesh Airlines	73,920	8,101	82,021	9.9	X
Air France	608,646	66,361	675,007	9.8	
Arik Air	109,537	11,723	121,260	9.7	X
Turkish Airlines	509,287	49,815	559,102	8.9	
KLM	701,117	66,320	767,437	8.6	
Etihad Airways	462,823	43,234	506,057	8.5	X
Aegean Airlines	381,479	33,993	415,472	8.2	
Delta	1,101,098	97,573	1,198,671	8.1	
Air Astana	17,438	1,491	18,929	7.9	X
Alitalia	773,475	58,643	832,118	7.0	
Contact Air	91,928	6,749	98,677	6.8	
Vueling	246,477	14,036	260,513	5.4	X
Royal Brunei Airlines	164,500	8,243	172,743	4.8	X
Air Botnia (Blue 1)	91,085	4,288	95,373	4.5	X
Air Seychelles	13,135	545	13,680	4.0	X
Aeroflot	237,340	7,788	245,128	3.2	
Tunis Air	43,523	1,267	44,790	2.8	X
Pakistan International Airlines	287,051	8,220	295,271	2.8	X
Uzbekistan Airways	22,743	501	23,244	2.2	X
All charters	53,800	747	54,547	1.4	X
Air China	144,653	-	144,653	0.0	
Azerbaijan Airlines	16,673	-	16,673	0.0	X
EVA Airways	188,837	-	188,837	0.0	X
Syrian Arab Airlines	14,757	-	14,757	0.0	X
Total (Italics)			1,908,695		

Source: CAA Passenger survey 2011
Note: EVA Airways to join Star Alliance in 2013.

Source: CAA, 2013, p. 21

4.4.13 However, the CAA says that:

[23] http://www.vueling.com/en/we-are-vueling/press-room/press-releases/corporate/vueling-flights-from-el-prat-barcelona-to-connect-with-british-airways-broad-network

> "*24 out of 85 airlines at Heathrow (in 2011) carried less than 10 per cent connecting passengers on their services. For these airlines, it is unlikely that the loss of connecting passengers would be a significant switching cost. These airlines accounted for approximately 6.8 million (10 per cent) of the passengers at Heathrow. Of these, airlines accounting for approximately 1.9 million passengers do not belong to an alliance.*" (CAA, 2013, p. 35)

4.4.14 Since there is no indication that Heathrow will exercise its market power, no demand for the movement of any of these airlines to Manston has been made as part of the outcome of this research.

4.4.15 However, since capacity at Heathrow and Gatwick is constrained, with Luton and Stansted set to follow, RiverOak would expect to attract other carriers in the medium term. It is also expected that Manston will become the base for one or more regional carriers with three 30 to 50-seater aircraft. These aircraft will serve six to eight business-orientated and niche leisure routes.

4.4.16 In October 2016, the UK and China signed an agreement that increases the current limit of 40 direct flights per week between the countries to 100 in both directions. The new agreement also lifts the restriction on the number of airports that were covered by the previous deal. Previously only six airports in each country could offer direct flights between the UK and China. This means that not only can flights take off and land from other UK airports but will provide direct access to destinations throughout China. One of the interviewees (Visit Kent) in particular felt the Chinese market into Kent is a particular opportunity. Indeed, this interviewee mentioned the announcement of two services into Gatwick and two into Birmingham from China with operators looking for additional slots. This, coupled with the government's strategy to move tourism to the regions, means, "*there is lots of energy to spread the benefit of inbound tourism*" with funding available (Visit Kent).

Charter flights

4.4.17 As well as daily scheduled flights and regular low cost carrier flights, Manston was previously served by a number of holiday companies including Newmarket Holidays and a Saturday service operated to Jersey. It is expected that Manston would attract at least one holiday company offering flights as part of a package during the season.

4.4.18 According to one interviewee, prior to its closure, the airport was approached by a Romanian airline that wanted to operate two flights per day during the season. The target market for these flights would be agricultural and other workers from Romania and Poland, many of whom come to work within 50 miles of Manston Airport. Therefore, due to the capacity available and constraints at other South East airports, demand at Manston is likely to include a number of charter passenger services, expected to operate at peak times across the year.

4.4.19 There are a number of infrastructure projects that, once complete, will reduce even further the travel times to Manston Airport and widen its catchment area (Visit Kent). These include the proposed Lower Thames Crossing and improved rail travel times to a London terminus. Additionally, the construction of the proposed London Resort and Ebbsfleet Garden City could provide additional passengers for Manston Airport.

4.4.20 An email of support for Manston Airport from the Manager of Passenger Sales at National Airlines based in Orlando, Florida dated 23 January 2017 reads:

> *"Just as a follow up to our conversation on the Manston Airport. Having used it as an alternative to LGW, LHR and STN when we did the State Farm incentive flying from 12 U.S Cities, I can say with experience, that our customers were absolutely blown away with the service offered by the Manston Airport staff, and were equally impressed with the ease of getting into downtown London. We even tested and timed coaches to and from LGW and STN to downtown and Manston always came out as a shorter total commute both coming and going.*
>
> *National has looked at, and continues to evaluate niche scheduled service city pairs, and should Manston decide to reopen, it would probably enter into our overall evaluation as an alternative to the congested airports that presently serve the greater London area."*

4.4.21 As such, a forecast for charter flights has been included in the Manston demand for passenger flights.

Cruise passengers

4.4.22 In the past, Manston Airport has worked with The Port of Dover, bringing cruise passengers from the USA to join ships departing from Kent. Indeed, "*Renaissance Cruises were very successful with overwhelmingly positive passenger feedback*" (Visit Kent). The Port of Dover has huge expansion plans for cruise ships (Visit Kent) and "nowadays cruise passengers are looking for faster transit from the US" (Visit Kent). Indeed, on their website[24], the Port say that:

> "*Joint initiatives between airports and ports have become more important in recent years. The inter-operability and inter-connections between the two has led to an increase in visitor numbers to countries and regions, and can be a very attractive element in, for example, developing cruise services, linking air and sea in ways that cruise ship operators demand when looking to new services from certain countries and ports*."

4.4.23 Manston Airport is located only 17 miles from the cruise terminal at Dover Harbour, the second busiest in the UK. In previous years, a well-received service operated between the US and Dover via Manston Airport. Passengers left the aircraft at Manston on bonded coaches, which allowed them to use the immigration services at Dover and porterage, which reconciled them with their luggage when they reached their cabin on the cruise ship. This service saved passengers the time and inconvenience of travelling through a more distant London airport, and handling luggage between the airport and the coach transfer. Therefore, demand for one return flight per week during peak cruise times is predicted. These services are expected to originate in the US.

4.5 Other potential revenue streams

4.5.1 In addition to the air freight and passenger operations, interviewees mentioned a range of other potential revenue streams for Manston Airport. These include a maintenance, repair and overhaul facility (MRO), aircraft recycling, establishing an Enterprise Zone, re-establishing a flying school, and a business jet fixed base operation.

[24] http://www.doverport.co.uk/consultancy/airport-port-connectivity/

Interviewees were also keen to mention Manston's role in the resilience of the UK's airport network.

Maintenance, Repair and Overhaul (MRO) facility

4.5.2 Aircraft MRO includes scheduled maintenance to aircraft and unscheduled maintenance due to damage, component and engine failure, mandatory modifications, and upgrades to the cabin interiors, systems or other components.

4.5.3 Several interviewees mentioned the importance of a maintenance base at Manston Airport and indeed it seemed almost taken-for-granted that the airport operator would ensure an MRO facility was available. Not only does an MRO encourage airlines to use an airport but also generates revenue for the operator and creates employment in the region. A study undertaken by the Department for Business, Innovation and Skills (**BIS**) in 2016 shows the impact of the MRO sector on the UK economy:

> "*The UK has a 17 percent global market share in aerospace industry revenues, which is the largest in Europe and second only to the US in worldwide terms. In terms of MROL we find that there are over 1,300 companies supporting the UK Maintenance, Repair, Overhaul and Logistics (**MROL**) sector. Together these companies have a turnover of around £15 billion, and they employ around 57,000 people in the UK.*" (BIS, 2016, p. 7)

4.5.4 The report by BIS concludes that:

- *There is some consensus that the UK MROL sector is highly regarded throughout the world for: the quality of its work; its aerospace heritage; having a highly skilled, knowledgeable and flexible work force; and the presence of an effective regulator with good excellent regulatory compliance.*
- *The majority of the larger MROs endorse the need for on-going training through apprenticeship schemes*
- *In an international market place, the UK MROL sector is thought to have a particular strength in the provision of high value, sophisticated and advanced MROL services. Building on this capability, the UK MROL industry has the potential to make a significant contribution to the UK Government's intention to double UK exports to £1 trillion by 2020.*

4.5.5 AvMan Engineering has been operating a facility from the Hangar One at the airport since 2009. The company focus on the maintenance of BAE 146/RJ aircraft, as well as the repair and maintenance of Honeywell ALF 502/LF 507 Series engines. The interviewee from AvMan mentioned advances in MRO practices including the use of drones for inspection of aircraft, currently being used by EasyJet.

Aircraft recycling facility

4.5.6 There are an estimated 12,000 aircraft due for retirement in the next two decades[25]. With a focus on environmentally sound practices, the aircraft recycling industry offers many opportunities for jobs creation and training opportunities. A key part of the RiverOak strategy and discussed by interviewees, movements are likely to be in the region of 10 per year. It should be noted that these are inbound-only movements.

[25] https://afraassociation.org

4.5.7 One interviewee was particularly keen to return to Manston Airport as his company see huge potential from operating in Thanet (SmartLynx). When asked why they prefer Manston as a location, they report that the location, close to Heathrow and Gatwick but without slot restrictions, is the main reason. The company previously employed around 80 people onsite, most of who were from Thanet. He said that the location of Manston Airport for aircraft recycling is, "*absolutely ideal*". The following is a letter of support from Thorir Kristinsson of SmartLynx Airlines.

"***To: The Managing Director, Manston Airport***
From: Thorir Kristinsson, SmartLynx Airlines

Date: 28 November 2016

I am writing to support retaining Manston as an operational airport. I have over forty years' experience of working in aircraft engineering and my accreditation details are as follows:

Aircraft Technician Licence: ICAA, FAA A&P, Licence number: 3566

From 2001 to 2004 I was the Accountable Manager for Aviaservices Ltd and the five JAR 145 workshops owned and operated by the company in the Manston area. I was also the responsible manager for Air Atlanta Icelandic's stores depot and the line maintenance station at Manston in several buildings occupying a total of 70,000 sq.ft. Then from 2004 to 2006 I was Senior Director Maintenance at Air Atlanta Icelandic.

As far as I remember we had 70-80 permanent staff but I might be able to connect you with our former HR manager Mrs. Dianne Potter who would have this in much better details as she did an excellent job of pushing for training and hiring the locals with an apprentice program for the workshops.

Most of the work performed was related to a fleet of B747's B767's B757's and in the beginning L1011's aircraft which flew in to Manston for all kind of maintenance works, limited of course as in those days we never had access to a hangar. In busy seasons, usually between contracts of the aircraft, we employed with contractors and mechanics coming with the aircraft - often 100 + people. We maintained around 50 aircraft per year and also salvaged around 5 or 6 aircraft each year. We handled wheels and brakes, battery equipment, catering and cargo equipment, safety equipment, and avionics such as communication and lighting. Our company had CAA approval.

The operation was gradually scaled down because the people who bought the airport in 2005 never really understood the potential of the aircraft maintenance and re-cycling business and without a hangar we were facing all sorts of operational and environmental challenges. Looking back I see it as a lost opportunity because, for a time, the operation was successful and profitable, as well as offering employment opportunities to local people.

In recent weeks I have had conversations with colleagues with many years' experience in aircraft engineering and re-cycling and I can say that there is a real interest in setting up a new business when Manston re-opens.

It's also clear to anyone who understands the air freight business that Manston has huge potential as a cargo hub. It can free up slots in LHR and

STN, it's close to the Channel Tunnel and it now has much better rail connections with London. Actually the location is absolutely ideal and I look forward to being able to use Manston Airport again soon."

Enterprise Zone

4.5.8 The Manston Airport site provides the opportunity to derive income from activities other than freight and passenger flights. For example, in the 2011 Budget, the Government announced the creation of a number of Enterprise Zones across England. Enterprise Zones define a geographical area where fiscal incentives and simplified planning controls encourage businesses to flourish by reducing the barriers to growth. Enterprise Zones have been established to include or be based around a number of airports including Manchester, Luton, Newquay and Cardiff.

4.5.9 The Government's Aviation Policy Framework (DfT, 2013b, pp. 75-76) outlines the effect of Enterprise Zone Status on airports including transforming airports into international business destinations, creating jobs, and attracting investment to boost air connectivity and maximise economic impact. Should Manston Airport re-open, it may be possible to apply to the Government for Enterprise Zone status, providing incentives for businesses to locate to the area, bringing additional employment and economic benefits to Thanet.

Flying School

4.5.10 Manston was home to TG Aviation flying school for over 30 years. When Manston closed, the school moved to Lydd Airport. For many years prior to Manston's closure, TG Aviation operated a popular and highly regarded flying school founded by the late Ted Girdler. The company temporarily re-located to Lydd Airport and has expressed a strong desire to return to Manston when the airport re-opens for business.

4.5.11 TG Aviation's former premises comprise a hangar, offices, and a reception area. In discussions with the TG Directors, RiverOak have agreed that, with suitable investment in the buildings, the business should be re-opened but this time as a FBO for executive jets as well as a flying school.

Business jet operation

4.5.12 In addition to the planned FBO, Polar Helicopters operate a fleet of three helicopters, which is due to increase to four. Their core business is in training and helicopter charter and a helicopter connection to Battersea for a client landing at Manston in an executive jet would take around 35 minutes. The interviewee from Polar Helicopters reported that she would be very interested in working in tandem with an FBO operation on the site.

4.5.13 Polar have been at Manston for 10 years, and in Hangar 10 for seven years. Although a well-established business at Manston, Polar Helicopters have not found it easy to operate from a non-operational airport. Indeed, this interviewee expressed the opinion that very little investment was made to improve the cargo operation or any other aspect of Manston as an operational airport except for the equestrian centre.

Diversion airport

4.5.14 Several interviewees mentioned the importance of Manston to the resilience of the UK's airport network (AvMan, Baltic Exchange, Securitas). Manston had previously provided a diversion airport for aircraft either in difficulties or because of conditions (such as fog, snow or problems on the runway) at the original destination airport.

According to one interviewee, Manston was the diversion airport for BA, KLM and Virgin Airways (AvMan). Since the closure of the airport, airlines have great difficulty providing an en-route diversion airport in their flight plan and this impacts on them commercially. In particular it was reported that BA has a problem on the A380 transatlantic routes.

5 Discussion

5.0.1 The aim of this section is to consider the findings from the research, as detailed in the previous section, and to discuss their influence on the likely demand for Manston Airport. The sections first consider the air freight findings, looking at the reasons why Manston Airport will prove attractive to freight operators, before looking at the market opportunities and demand sectorally and geographically. The potential freight demand is then considered against a range of potential scenarios that may impact the sector. Next, the likely demand for passenger flights is discussed before summarising the discussion section.

5.1 Attracting air freight to Manston Airport

5.1.1 The findings have provided a rich variety of information about what might attract air freight to Manston Airport. These include both 'push' and 'pull' factors. 'Push' factors cover those that may lead customers away from other airports or change current transport models and include the issues at Heathrow and the Channel crossings, increasing problems with security, and potential changes to the current dominance of belly freight in the UK. 'Pull' factors work to attract customers due to the offering made by the airport and include speed of turnaround achieved by Manston, cutting edge security clearing, and the location of the airport.

5.1.2 The analysis of Frankfurt Main Airport demonstrates how an unconstrained airport can attract considerable air freight movements. This airport handled more than two million tonnes of cargo in 2017 without operating at night. Contrary to the view that cargo-only airlines prefer to operate at night, Frankfurt shows that if suitable slots are available during the day and turnaround times are expedient, a daytime operation can be successful.

Issues at London Heathrow Airport

5.1.3 Many interviewees discussed the problems they face using Heathrow Airport. These problems include being bumped from belly freight, sometimes up to four times before freight is transported. This causes uncertainty and considerable stress when the items are required urgently, such as parts for aircraft, oil rigs, or valuable machinery. Delays in delivery cause lost revenue for the parties involved. Indeed, delays are common at the airport, with trucks queuing to on- and off-load their cargo. These problems are likely to get worse once work on upgrading and realigning the M25 motorway to meet the demands of the new runway commences.

5.1.4 There seems to be a considerable problem with security screening outsized air freight in the UK. This results in the trucking goods to northern Europe for screening. Securitas, one of the larger organisations involved in security clearing air freight, estimates substantial numbers of truck loads per year are having to undertake this journey. For example, Swissport sends a minimum of 11 trucks daily from all over England and Scotland. This figure can rise as high as 40 in peak seasons, with an estimate of an average of 16 daily over a year, seven days a week from just one handler (Securitas). Together with the bottlenecks at Heathrow, these issues are having a substantial impact on the air freight market. Overcoming these problems provides Manston Airport with an opportunity to attract a considerable market, particularly perishable and time-sensitive items.

5.1.5 There seem to be very limited slots for freighters available at Heathrow. Many interviewees pressed this point, which is a considerable advantage for Manston until

capacity is increased at Heathrow. By the time the third runway becomes available, not likely to be before 2030, Manston is likely to be well established. It is also possible that demand for passenger traffic will be sufficient to fill the third runway at Heathrow, continuing to create a push effect for Manston.

5.1.6 The situation at Stansted seems set to continue to preference passenger traffic, particularly in the period before the third runway at Heathrow is open for business. This is a concern for organisations such as TfL, who are working to improve surface transit to Stansted for passengers.

Channel crossings and trucking

5.1.7 There are more than four million truck movements across the Channel every year. Haulage companies and freight airlines report severe delays, mainly associated with the situation in Calais, now largely resolved. These delays impact profitability and particularly affect the carriage of perishable items that lose their value the longer they remain in transit. Post Brexit, it may be that delays are inevitable as increased customs and immigration checks have to take place at border crossings. Many interviewees talked about the security issues they face when trucking through the Channel crossings.

5.1.8 Any increase in delays may precipitate a move away from trucking to the continent, particularly for high-value time-sensitive goods. Indeed, if trade restrictions are such that the UK has increasingly to look to markets outside the EU, trucking will not be an option. Air freight would then be in competition with shipping, a much slower albeit cheaper form of transit. Even without the impact of Brexit negotiations, York Aviation are forecasting a shortfall equivalent to 2.1 million tonnes of air freight capacity in the UK by 2050 (York Aviation, 2015, p. 19). TfL predict that the South East will be short of capacity for around 54,000 air freight movements (TfL, 2013). The implications for Manston therefore look very positive, with considerable demand potential for air freight movements.

Security issues

5.1.9 Security was a key issue for many interviewees with concerns that the problems currently being experienced will worsen in the future. The carriage of lithium batteries is becoming increasingly problematic, with moves to impose a ban on passenger aircraft. This would affect the ability to use belly-hold space and may have implication for Manston as a specialist freight airport.

5.1.10 Aside from the impact on security from threats of terrorism, other issues included problems with outsized cargo screening. Some airport's inability to screen outsized items can cause delays and frustration. If Manston Airport were equipped to handle and screen these niche items that are often high-value and time-sensitive, the airport would be able to attract specialist freight carriers.

5.1.11 RiverOak are in negotiation with Securitas to operate a canine freight screening operation from the site. Securitas currently truck in the region of 50,000 HGV loads of air freight from UK airports to Rotterdam or a European airport equipped with screening for freight. Given the volume of air freight involved and the considerable advantages of using a UK airport with the specialist equipment required to security clear freight, Manston is likely attract a considerable amount of these movements.

Changes to preference for belly freight

5.1.12 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 the LCC model, which generally focuses on rapid turnarounds, precluding 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.

Speed of turnaround

5.1.13 Speed of turnaround was mentioned as a key attraction for a freight airport. Manston has a history of rapid turnarounds, often cited as the best in the industry. There can be little doubt that the future operators of Manston would want to focus on providing this excellence of service, which, if well publicised, should attract those involved in time-sensitive markets.

5.1.14 Manston's location means that aircraft heading south make a saving in time and fuel. This saving is in the region of 45 minutes to one hour in terms of time and between $2,000 and $3,000 per flight. There are also savings to be made in crew time. These savings increase the benefits of using Manston and may act as a powerful marketing opportunity for the airport.

5.2 Market opportunities for Manston Airport

5.2.1 Many of the interviewees mentioned the markets they believe exist for Manston Airport. These include both sectoral and geographical markets.

Sectoral markets

5.2.2 The niche market opportunities that interviewees identified for Manston include perishables such as fruit, vegetables and flowers, the traditional focus for the airport and fish and shellfish. Timely delivery of fresh produce is vital to supermarkets, which require the maximum shelf life to reduce wastage and increase profit margins. Imports are likely to originate particularly from Africa and South America. The export markets for fish and shellfish, including oysters, and spider crabs that are plentiful in the waters around the south of the UK, include Spain, France, and the Middle East.

5.2.3 It seems Manston would be well placed to dominate niche markets such as Formula One cars, luxury cars from the Middle East, rock band stage sets, live animals such as breeding stock and racehorses, oil and gas equipment, and outsized cargo. These markets should provide considerable business for the airport. Additionally, Manston Airport has a history of handling military and humanitarian operations and these can be expected to return to Manston when the airport is operational.

5.2.4 There seems to be strong interest in aircraft recycling market and, although this would provide only a limited number of movements per year, would provide Manston with many opportunities to increase revenue and to create jobs and increase skills in the region.

Geographic markets

5.2.5 Interviewees identified a number of geographic markets they believe have growth potential. These include both import and export markets with a focus on the

sectoral markets identified and described in the section entitled 'Sectoral markets' at paragraph 6.2.2 onwards above. These markets include:

- Africa particularly for the import of flowers, fruit and vegetables
- Algeria for the import of fruit and vegetables
- China for the import of consumer goods and export of luxury items
- Middle East particularly for export markets
- Pakistan including the export of clothing and the import of consumer goods
- Russia for gas and oil equipment and the export of luxury items
- US for a range of import and exports

Attracting integrators and freight forwarders

5.2.6 Whilst integrators, like many businesses, are generally averse to change, there are a number of potential benefits that may make Manston Airport attractive to this market. In addition to the benefits described previously such as rapid turnaround of aircraft and the availability of slots at Manston, the airport offers other attractions. These include the availability of warehousing and office space either onsite or close to the airport. The connectivity of the airport is also excellent, with a number of interviewees talking about this benefit. The presence of an integrator at Manston would dramatically increase the number of freighter movements from the airport. This scenario is discussed further in the section entitled 'Integrator/forwarder base' at paragraph 6.3.21 onwards.

5.3 External environment scenarios

5.3.1 The external environment in which any airport operates is dynamic and change inevitable. These changes may affect the behaviour of potential users and therefore, in order to enhance the assessment of demand, a range of alternative scenarios has been considered. These scenarios detail key triggers that may impact the air freight industry and Manston's ability to attract air freight. Research from both secondary sources and from the interviews undertaken has been used to identify these triggers. Nine potential scenarios specific to the air freight market for Manston Airport have been identified. These scenarios are:

1. The UK's position in Europe
2. Changes to fuel prices
3. The availability of more efficient aircraft
4. Onshoring of manufacturing in the UK
5. Changes to logistics and transport systems in Kent
6. Dramatic changes to economic performance
7. Manston becomes a major integrator/forwarder base
8. Manston becomes an Amazon base
9. Manston becomes a hub for drone activity

5.3.2 The following sections discuss the potential impact of these scenarios on the demand for air freight at Manston Airport identified through the research undertaken for this report.

The UK's position in Europe

5.3.3 The UK has made one of the most momentous decisions in its history – to exit the EU. Until negotiations between the UK and the EU are complete, it is difficult to predict the impact on air freight to and from the UK. The British Government has

identified three potential options for relationships between the UK and the EU post Brexit. These are:

- Membership of the European Economic Area (**EEA**). This model is used by Norway and ensures full access to the Single Market. In terms of aviation, membership of the EEA would provide membership of the European Common Aviation Area (**ECAA**) and continued access to the Single Aviation Market.
- Bespoke bilateral arrangements, such as those between the EU and Switzerland. For aviation, a UK-EU comprehensive agreement would entail a bespoke arrangement such as the EU-US and EU-Canada agreements.
- A World Trade Organization (**WTO**) relationship, which would mean no special arrangement with the EU is negotiated. For aviation, whilst this would provide the UK with maximum policy freedom with only ICAO's Chicago Convention framework in place, it would exclude the UK from European initiatives such as the Single European Sky.

5.3.4 Table 8 highlights the characteristics of these various options. It is highly likely the airline industry will lobby the Government to retain the Single Aviation Market. Without the freedoms of the air currently in place, air freight operators are likely to experience added costs, more restrictions and increased bureaucracy.

Table 8 Key characteristics of post-Brexit UK-EU models

	Access to Single Aviation Market	Validity of EU horizontal agreements	Influence on EU policy	Policy freedom
Continued EU membership	Full access	Full validity	High	Very limited
ECAA membership	Full access	Would likely remain valid	Very limited	Limited
UK-EU comprehensive	Access	May need to be renegotiated	None	Potentially limited
No formal agreement	Would need to be negotiated	Would need to be renegotiated	None	High

Source: IATA, 2016b, p. 6

5.3.5 A complete exit from the EU would force the UK to negotiate aviation and trade accords with many countries that have to date been covered by EU treaties. However, a "hard" Brexit solution for other policy areas may make a "soft" Brexit for aviation more difficult to negotiate. All commentators have in common the opinion that it is far too early to predict what the outcome of Brexit will be. In terms of Manston Airport and the demand for freight and passengers, no changes to the current findings are proposed until the result of negotiations is clearer. The current demand picture does not contain any intra-EU traffic, although, most cargo airlines do not fly point-to-point, picking up and dropping off on non-direct routes to their final destination. Without this ability, if no formal agreement is reached, freight forecasts may well have to be adjusted, not just for Manston but also for the whole UK and European airport network.

Changes to fuel prices

5.3.6 Fuel costs are one of the largest expenses for the airline industry, around one third of operating costs. Oil prices have been relatively low since mid 2014 but have not

necessarily helped air freight carriers because of the effect of hedging[26]. This effect should start to drop away and both freight and passenger carriers may tend to be more aggressive with their pricing. Lower fuel costs have allowed some operators to open up new routes, particularly long haul, that were previously unaffordable. However, since fuel is priced in US Dollars, the value of Sterling against the US Dollar is critical.

5.3.7 Since airlines use hedging to protect them from fuel price fluctuations, price hikes are unlikely in the short-term. Indeed, the general trend has been for prices to reduce over time and more efficient aircraft and operating practices seem set to ensure this trend continues. As such, an increase in the choice of air freight over other means of transportation may arise. However, given the uncertainty around the value of Sterling against the US Dollar, the demand identified for Manston has not been changed.

Availability of more efficient aircraft

5.3.8 Aircraft continue to become more efficient, improving fuel consumption and reducing emissions through new engine, aerodynamic devices and aircraft design, and through lighter weight on-board equipment. The Boeing 787 Dreamliner and the forthcoming Airbus A350 are much more efficient than previous generation aircraft. Instead of metal, these aircraft are constructed almost entirely from composite materials, reducing their weight considerably. Whilst these economies should be passed on to the customer, reducing the cost of air freighting, no increases to the demand identified for Manston have been included over the period of the study.

Onshoring of manufacturing in the UK

5.3.9 Since the end of the 1970s, the number of jobs in manufacturing has declined from 25% of the UK workforce to around 8%. Less than three million people now work in UK manufacturing compared with more than three times that number 40 years ago. However, one of the effects of the referendum vote to leave the EU has been a weakening of Sterling. This makes British goods cheaper for overseas customers relative to foreign competitors. Sterling's fall in value and global growth have led to the UK's manufacturing output expanding at its fastest rate since early 2008. January 2018 recorded a ninth consecutive month of growth[27]. However, economic growth has slowed due to the risk to the economy from Brexit.

5.3.10 Technological changes such as robotics are eroding the comparative advantage of low labour cost countries such as China. Aside from cost issues, many companies are concerned with the cost-quality balance of their production and the challenge of protecting intellectual property. Manufacturing overseas makes it easier for ideas to be stolen and products to be copied, crowding the market and diluting brand names.

5.3.11 Onshoring is therefore predicted to bring manufacturing back to the UK in industries such as vehicles, clothing, and high tech products. Agility is key to competitive advantage, with speed to market and more flexibility required from suppliers. Locating production so far from the market does not allow for agile responses. Whilst the UK looks set to return to some manufacturing, not the mass production of the past but as part of a leaner, more efficient value chain.

5.3.12 Since Just-in-Time practices are likely to be required in these manufacturing processes, the use of air freight may well increase. However, the impact on the

[26] Hedging is a risk-management strategy that is used to reduce possible loss incurred due to adverse price movements, in this case in fuel prices

[27] https://www.ft.com/content/5a223fe4-237f-11e8-add1-0e8958b189ea

manufacturing sector from the UK's exit from the EU is uncertain and therefore it is too early to precisely predict the potential increase to the demand for Manston at this time. However, demand seems to show that exports will exceed imports and this is, in part, a reflection of this expected increase in the UK's manufacturing and exporting ability.

Changes to logistics and transport systems in Kent

5.3.13 Foreign Direct Investment (**FDI**) figures for 2015 to 2016 showed the UK had a record number of inward investment projects, created the second highest number of jobs ever, and was the top European destination for investment from emerging markets[28]. However, FDI flows into Britain shrank considerably during 2017 and it is too soon to predict the impact of the UK's withdrawal from the EU and its effect on FDI in the future. Should the situation improve, Kent's lower property costs, around 60% cheaper than in London[29], and the County's good transport links including the Channel Tunnel and the Port of Dover, Kent makes a good location for logistics and transportation companies. Indeed, plans for a Lower Thames Crossing will make Kent even more accessible to the east of the Country.

5.3.14 The presence of a vibrant freight-focused airport is likely to stimulate demand for warehousing and office space in the East Kent area, creating a transport and logistics hub around the airport. Under the direction of RiverOak, Manston could play a key role in the supply chain at local, regional and national levels. This objective is in line with the vision IATA has for the air cargo industry. They say:

> "*To address the competitive pressures facing air cargo, the industry challenged itself in 2014 to meet an important objective by 2020: seeking to optimize the air cargo supply chain for every commodity type transported by air to provide shippers with greater transparency, reliability and predictability. Such industry optimization will help to not just protect the value proposition of air cargo, but will enhance it.*
>
> *One goal of supply chain optimization could be the reduction of the average end-to-end shipping time by 48 hours, where the customer so demands. To meet this goal, air cargo must modernize its processes, improving quality and reliability, and widen the range of services offered. Key factors of success are data integration, process integration and supply chain partnerships based on common and mutually beneficial scenarios.*" (IATA, 2015, p. 8)

5.3.15 Figures are difficult to predict but in the medium- to long-term increased demand due to improvements to transportation and logistics in Kent should been taken into account in forecasting demand for Manston Airport.

5.3.16 Issues at Calais have highlighted the pressures on Kent's current infrastructure. Kent Channel crossings have suffered delays in past years. These have centred on ferry worker strikes on the French side and the situation with migrants and refugees trying to enter the UK through the Channel Tunnel. These delays have had a huge impact on industry and local people. Operation Stack parks freight traffic on the M20, causing chaos on local roads as traffic attempts to use other ways to navigate the area.

[28] https://www.gov.uk/government/news/uk-remains-number-one-investment-destination-in-europe
[29] Locate in Kent

5.3.17 The Fresh Produce Consortium estimated that, due to Operation Stack, £10m of fresh fruit and vegetables was thrown away during the first six months of 2015[30]. Eurotunnel has estimated their costs and lost revenue of the refugee crisis at Calais in 2015 at €29m (£23m), sending a bill for this amount to the British and French Governments[31]. Exact estimates of the impact on UK industry are hard to find but commentators generally talk of costs to the UK economy in millions of pounds.

5.3.18 These delays may well prompt shippers to switch to air freight, particularly if a local freight-focused airport was available. In terms of an increase to the demand for Manston, this may well represent an increase in the short to medium-term if capacity allowed. These movements would be in addition to the previously discussed (see section entitled 'Channel crossings and trucking' at paragraphs 5.1.7 and 5.1.8) estimates for the FTA and TfL that show around 2.1 million tonnes of freight would be diverted from South East UK airports due to lack of capacity by 2050 (York Aviation, 2015, p. 19).

Dramatic changes to economic performance

5.3.19 One of the most important influences on air freight is economic performance at global, European and national levels. Whilst air traffic tends to fall faster than world trade at the start of an economic downturn and increase quicker on the up-cycle, it seems that each 1% increase in world economy gives rise to a 2% increase in air traffic activity (Morrell, 2011). Since air transportation usage and economic activity are interdependent, any dramatic change would impact both passengers and freight flights.

5.3.20 Regulatory frameworks, such as changes to taxation and environmental mitigation strategies, also affect air transportation. However, it is always difficult to predict changes to economic performance but the UK's situation is particularly uncertain following the decision to exit the EU. How the UK decides to conduct its future relationship with Europe will affect how much freedom the UK has to decide its own policies. For example, the ICAO Assembly has agreed to develop and apply a global market-based mechanism to address international aviation emissions by 2020. The EU's Emissions Trading Scheme (**ETS**) application and its impact are currently reduced and carbon prices are low. It is therefore expected that impact on flight demand will be relatively small in the short to medium-term[32]. No changes from this scenario to the demand identified for Manston are therefore proposed.

Integrator/forwarder base

5.3.21 An analysis of the origin-destination airport choice of freight operators shows that the presence of forwarding facilities at an airport is the primary deciding factor (Kupfer *et al*, 2016). Freight forwarders act as third party agents to arrange the carriage of goods often without owning or managing transportation assets. By contrast, integrators such as FedEx, DHL and TNT, arrange cargo movements like a forwarder but also own the transportation assets.

[30] C. Johnston, The Guardian, 4 July 2015 available from http://www.theguardian.com/world/2015/jul/04/migrants-try-to-storm-channel-tunnel-sparking-further-delays

[31] http://www.independent.co.uk/news/business/news/refugee-crisis-eurotunnel-sends-29m-claim-to-british-and-french-governments-to-cover-calais-costs-a6882801.html

[32] https://www.eurocontrol.int/sites/default/files/content/documents/official-documents/forecasts/seven-year-flights-service-units-forecast-2014-2020-feb2014.pdf

5.3.22 Manston Airport and the Thanet area offer a range of opportunities for the development of warehousing and office space[33]. It therefore seems feasible that forwarders and particularly integrators, who would be able to base aircraft at the airport, may choose to locate to Manston. The demand for the airport could therefore include the presence of one integrator basing two aircraft at Manston from the second year of operation and four from the fourth year. If this scenario were correct, integrator movements would be likely to increase from year 10 of operation due to the pressure predicted to be on Stansted for passenger flights by this time.

5.3.23 If Manston became an integrator base for more than one airline or if one integrator based a larger number of aircraft at the airport, this would rapidly increase the number of movements at the airport. This, of course, would have to be in line with capacity available at and around the airport and subject to relevant consents. Subject to these arrangements, demand could potentially increase considerably from year five or six of operation.

Amazon base

5.3.24 Amazon, the online retailer, now has a fleet of some 40 freighters. The Air Transport Services Group began operating ten 767 freighters for Amazon around the middle of 2015, initially as a test network. It has now leased twenty aircraft to Amazon for a period of five to seven years. Atlas Air is also phasing in twenty 767-300s, which they will operate for Amazon. On the 4 August 2016, Amazon unveiled their first liveried freighter, a 767-300ER, which bears the Prime Air logo and is operated by Atlas. Most of the 40 767 freighters in the Amazon Prime Air fleet will operate on a hub-and-spoke basis from Ohio's Wilmington Airport. RSP is in discussion with Atlas Air who have expressed their support for Manston Airport.

5.3.25 Whilst there is still no news about Prime Air's operation in Europe, Amazon is tailoring its route network to meet the needs of the company and to improve delivery times for customers. The company states that it is creating an air transportation network, as evidenced by the $1.4 billion investment in Cincinnati Airport, and it seems likely this will include Europe. Amazon began posting vacancies for roles with Prime Air based in Cambridge in mid 2016. Cambridge is the UK home of Amazon's drone development (see Section entitled 'Drone hub' at paragraph 5.3.26 onwards for further detail). Whilst Amazon has not taken part in this research, this scenario suggests consideration of Amazon basing for one aircraft from the second year of operation, increasing to two aircraft from year 4. If Amazon based more aircraft in the UK at Manston, the number of movements could increase considerably if capacity allowed.

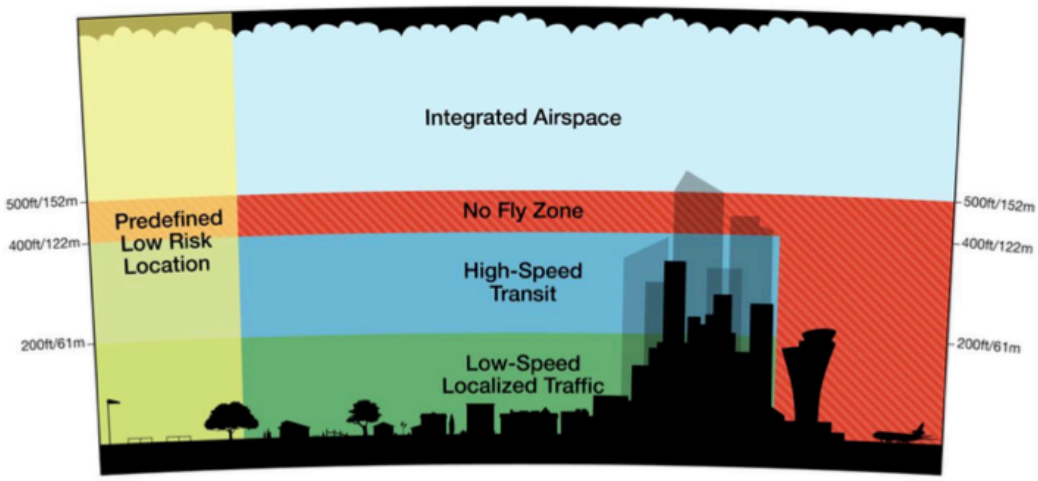
Drone hub

5.3.26 Amazon Prime Air is the company's vision of its future delivery system, using small, unmanned aerial vehicles or drones to get packages to customers. The Amazon drones will carry packages up to five pounds in weight using "sense and avoid" technology to operate beyond the line of sight up to distances of around 10 miles. Amazon proposes the development of an air traffic system that allows drones to operate in civil airspace without interference with other aircraft. They have put forward a design, as shown in Figure 15, that segregates civil airspace below 500 feet. Airspace up to 200 feet would be designated for low-speed traffic, between 200 and 400 feet for high-speed transit, with a no fly zone between 400 and 500 feet.

[33] Locate in Kent provides a database of opportunities

5.3.27 The CAA has granted Amazon permission to test its drones in the UK. The company's UK operation is currently based in Cambridge with testing reported to be at a location outside the City. An integrated drone/airport operation, whilst fraught with safety problems and many years from CAA certification, could potentially reduce the number of trucks on the UK's roads. Using Manston Airport and its location close to the Thames Estuary may provide an exciting future for Thanet, putting the Island at the heart of the UK's distribution network. However, because the use of this technology is some way from implementation, no change to the demand for Manston has been made to reflect this possibility.

Figure 15 Airspace design for small drone operation



Source: Amazon, Revising the Airspace Model for the Safe Integration of Small Unmanned Aircraft Systems. Available from https://images-na.ssl-images-amazon.com/images/G/01/112715/download/Amazon_Revising_the_Airspace_Model_for_the_Safe_Integration_of_sUAS.pdf, page 2.

Summary of scenario impacts

5.3.28 Table 9 summarises the impact of each of the identified scenarios on the Manston air traffic forecast.

Table 9 Impact of scenarios on the Manston forecast

Scenario	Impact
The UK's position in Europe	Unknown therefore demand unchanged
Changes to fuel prices	Unchanged demand
The availability of more efficient aircraft	No increase over period of investigation made
Onshoring of manufacturing in the UK	Taken into account where possible
Changes to logistics and transport systems in Kent	Taken into account where possible
Dramatic changes to economic performance	No change proposed
Manston becomes a major integrator/forwarder base	Part incorporated but demand likely to increase further
Manston becomes an Amazon base	Considered a possibility for Manston
Manston becomes a hub for drone activity	No change proposed

5.4 Manston Airport passenger demand

5.4.1 Whilst RiverOak will be focusing on the development of Manston as an air freight airport, passenger services will be encouraged to provide an amenity for the local area. The airport could provide landing slots at convenient times that are not available at other airports in the South East. Infrastructure is planned to handle both passenger and air freight traffic.

5.4.2 This research highlighted what the CAA considers to be the marginal airlines at Heathrow (see Table 7 on page 49). However, since there is no particular intelligence that suggests these airlines might move to Manston if the airport was operational, no demand from these airlines has been taken into account. Issues concerning passenger flights that have been considered include:

- Reduced sector length making operations more cost effective
- Access to a major passenger hub through KLM
- Base for a number of low cost carrier aircraft
- Seasonal flights to and from Eastern Europe
- The forecast doubling of flights between the UK and China
- Cruise ship flights
- The theme park formerly known as London Paramount (now London Resort) and Ebbsfleet Garden City development

5.4.3 Specific demand refers directly to the findings shown in section 4.4. This demand includes:

- KLM resuming operations twice daily to Amsterdam
- A LCC base two aircraft at Manston
- The charter market resuming with services to European and potentially US destinations
- A scheduled service by an airline struggling to find slots at other airports
- Flights from the US that tie up with cruise ships leaving from Dover

6 Conclusions

6.0.1 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. Without additional runway capacity, the UK is missing out on potential trade, particularly with non-EU countries. More than four million HGV movements are currently made on Eurotunnel and through the Port of Dover. The advent of Brexit and potential restrictions and delays at the Channel crossings will be a cause of concern for those freight shippers reliant on this form of transport. As such, and with Manston Airport reopened, there may be a change in the model used, away from trucking to Europe and onto aircraft.

6.0.2 Manston Airport, operational for 100 years until its closure in May 2014, has the potential to attract and accommodate considerable cargo movements and to handle a number of passenger flights, connecting Kent to the rest of the world. Indeed, due to its size, location and lack of airspace constraints, Manston is the only viable option in the South East.

6.1 Recommendation

6.1.1 It is recommended that the airport operator incorporate the opportunities shown below into their future development and marketing plans

6.1.2 A number of issues have been identified through this research. These provide opportunities for Manston Airport to attract aircraft movements and include:

- Lack of available slots at other South East airports
- Bumping of freight from passenger aircraft
- Security issues particularly with outsized cargo
- Speed of turnaround

6.1.3 A number of markets for Manston Airport have been identified through this research. These include:

- 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 and the oil and gas industry
- Humanitarian and military flights

6.1.4 Additionally, there are opportunities in aircraft recycling and other revenue generating operations including MRO, a FBO, and a flying school. If warehousing and office space can be made available locally, there is potential to attract an integrator to the airport. Manston is well located to play a vital role in the supply chain activity that will be stimulated by initiatives such as the proposed Lower Thames Crossing and the Thames Estuary 2050 Growth Commission.

6.2 Implications for policy

6.2.1 The UK's policy for aviation should pay more attention to air freight than has been the case in the past. The government consulted widely as they move towards

developing an Aviation Strategy but there remain many unanswered questions. Whilst UK governments no longer operate airports or build runways, they play a key role in ensuring capacity is built or retained where it most benefits the national interest. Government must therefore use its powers to make sure a framework for aviation is always in place, seamlessly migrating between changes of administration. This will, as Philip Hammond said (DfT, 2011, p. 5), rely on moving beyond the sterile debate of many years and working towards a broad consensus on the UK's long-term view of the significance of aviation to the Country.

6.2.2 Issues of global environmental impact, such as aircraft emissions, cannot be dealt with by airport managers alone but must be the province of national government in partnership with other world leaders. These issues are frequently raised during public consultations but innovative solutions are most likely to result from industry-wide efforts. Noise is a ubiquitous concern around airports, particularly from night flights, and the government must make clear their policy and the mitigations they deem appropriate and achievable so that airport managers can implement best practice across the UK. Repeating the same debate time after time does nothing to improve dynamism in the airport sector.

6.2.3 There can be no doubt that the UK needs a National Air Freight Demand Model just as it has a passenger equivalent in the National Air Passenger Demand Model (**NAPDM**). It is hoped this document will support the development of such a national model, which, as with the passenger version, would have a sister allocation model to allow forecasts to be made at airport level. Indeed, one of the recurrent questions raised during this research was around freight traffic forecasting and there seems to be wide confusion about demand in the UK. Some stakeholders quote a stagnation of air freight in the UK, failing to grasp the correlation between demand and a lack of capacity. Improved demand models would help all parties understand the true air freight picture in the UK.

6.3 Implications for RiverOak

6.3.1 The extensive research that informed this report have been a costly and time-consuming exercise and are only a part of the work being undertaken to secure the future of Manston as an operational airport. This report confirms the robustness of RiverOak's proposals for Manston Airport, providing evidence that the airport has the location, airspace, capacity potential and demand required to persuade the Secretary of State to make the decision to grant a DCO that would allow the redevelopment and reopening of the airport.

6.3.2 The findings from this research can play a key role in informing government policy on air freight in the UK. It also provides a platform for lobbying government and industry organisations and RiverOak will no doubt continue to press for a political environment that is conducive to the vitality of the aviation sector. Such an environment will allow airport management to focus on resolving local concerns and harnessing opportunities for innovation.

6.3.3 This research shows that there is widespread support, and often passion, for Manston Airport, from people in all types of organisation. Manston Airport is in a unique position in the UK, having support from the local community and from a number of airlines and other organisations. It is essential for RiverOak to continue to harness the interest of the local community and to work with them to ensure the area gains the maximum benefit from a vibrant operational airport. In a time of cynicism towards participation, RiverOak is fortunate that the local community is willing and able to

engage in the multiple debates that surround airport operations. Providing rewarding business and employment opportunities, and working with local providers to ensure high quality education and training for local people will be a fitting acknowledgment of their continued commitment to Manston Airport.

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MANSTON AIRPORT: A NATIONAL AND REGIONAL AVIATION ASSET

VOLUME III
The forecast

JULY 2018

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Disclaimer

Whilst every effort has been made to ensure the accuracy of the material in this document, neither RiverOak Strategic Partners Ltd (**RiverOak**) nor the report's author will be liable for any loss or damages incurred through the use of the report.

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Executive Summary

This report sets out the forecasts for Manston Airport, for freight and passengers for the first 20 years of operation (currently projected to be 2020 to 2039), and detailing the infrastructure required to deliver the forecast. The report provides the necessary data to underpin the proposal to retain Manston as an airport and re-develop the site as a Nationally Significant Infrastructure Project (**NSIP**).

Manston Airport is located in the South East of the UK where aviation industry demand is highest and most constrained. The airport has a long runway; an ideal airspace location; benefits from easy surface access to London and the rest of the UK; and can provide rapid handling and turnaround times for air freight (see Volume I of this body of work for further detail). The airport would provide almost immediate relief to the pressing situation that is causing considerable loss of potential trade to the South East each year the UK remains without additional runway capacity.

Table 1 Summary 20 year freight and passenger forecast

	Freight moves	Pax moves	Total moves	Inbound tonnage	Outbound tonnage	Total tonnage	Passenger numbers
Y1	0	0	0	0	0	0	0
Y2	5,252	0	5,252	39,865	56,687	96,553	0
Y3	5,804	4,932	10,736	47,335	61,218	108,553	662,768
Y4	9,700	5,024	14,724	76,326	90,765	167,092	679,868
Y5	9,936	5,064	15,000	81,455	92,286	173,741	686,672
Y6	10,144	6,702	16,846	85,832	95,604	181,436	965,295
Y7	10,872	6,754	17,626	92,357	100,551	192,908	975,591
Y8	11,184	6,754	17,938	96,979	103,694	200,673	975,591
Y9	11,392	6,754	18,146	98,585	104,660	203,245	975,591
Y10	11,600	6,754	18,354	102,609	109,742	212,351	975,591
Y11	12,064	6,966	19,030	107,592	114,785	222,377	1,011,587
Y12	12,547	7,186	19,733	114,034	120,473	234,508	1,049,022
Y13	13,048	7,416	20,464	118,691	125,999	244,690	1,087,954
Y14	13,570	7,654	21,224	125,949	131,039	256,989	1,128,444
Y15	14,113	7,902	22,015	133,064	137,515	270,579	1,170,553
Y16	14,678	8,160	22,837	140,889	143,015	283,904	1,214,347
Y17	15,265	8,428	23,693	146,524	150,070	296,594	1,259,892
Y18	15,875	8,707	24,582	156,271	156,073	312,344	1,307,259
Y19	16,510	8,997	25,507	162,522	162,316	324,838	1,356,521
Y20	17,171	9,298	26,469	171,949	168,809	340,758	1,407,753

Table 1 shows a summary of the freight and passenger forecasts for the first twenty years of operation, from 2020 to 2039, following the reopening of Manston Airport. It should be noted that these forecasts are considerably more conservative than those derived by a macro level, 'top down' method. These forecast have been compiled using a 'bottom up' approach and refer to specific types of traffic. Exports are forecast to slightly exceed imports, particularly in the early years of operation.

Manston Airport is also strategically well located to play a vital role in the supply chain that will be stimulated by initiatives such as the proposed Lower Thames Crossing and the Thames Estuary 2050 Growth Commission. What is clear from this report and the others in the series is that Manston Airport is capable, in terms of its geographic and airspace position, of making a substantial contribution to the future economic and social well-being of the UK. The research conducted to derive the forecasts shown in this report indicate that the opening of Heathrow's proposed third runway will not hamper Manston Airport's viability, whenever the additional capacity at Heathrow becomes operational.

Whilst RiverOak's focus is on the air freight market, the airport is also forecast to handle a considerable number of passengers. Driven by the lack of capacity at southeast airports, passenger numbers at Manston Airport are forecast to commence at around 660,000 per year, rising to 1.4 million by Year 20 of operation. Manston Airport can provide a base for a number of low cost carrier aircraft, host seasonal charter flights, and work with Dover Harbour Board to receive passengers destined for cruise ships. The proposed London Resort and Ebbsfleet Garden City developments are also expected to increase demand for both in and outbound flights.

Infrastructure requirements are scheduled to match forecast demand and construction will take place in four phases. These will be prior to operations commencing, in Years 2 to 4, Years 5 to 11, and Years 12 to 18. Operations will commence with eight stands for freighters. Phase two will see the construction of three stands for passenger aircraft, which will be operational prior to commencement of passenger services in Year 3. The number of freighter stands will rise to 14 in phase 2, 16 stands in phase 3 and 19 stands in phase 4. Passenger aircraft stands will increase from three to four in Year 15. Warehousing and fuel storage will be provided to meet the demand forecasts.

In light of the business case described in this report, there can be little doubt that, in an increasingly competitive economic climate, the UK simply cannot afford to lose one of its long-serving airports. Indeed, this report shows that Manston Airport is a very valuable local, regional and national asset, capable of providing infrastructure badly needed by the UK and playing a role in helping Britain's connectedness and trade with the rest of the world. In short, Manston comprises critical national infrastructure, important for the economic well-being of the UK.

Definitions and abbreviations

ACI	Airports Council International
Air freight	The carriage of goods by aircraft
AFTK	Available freight tonne kilometre
ATM	Air Transport Movement and/or Air Traffic Movement
Backload	The transportation of cargo on a return trip to the originating airport
Belly-freight	Cargo stowed under the main deck of a passenger aircraft
CAA	Civil Aviation Authority
Cargo	The term cargo and freight are used interchangeably in this report and refer to goods carried by road, sea or air
Consolidator	A person or company who combines small volumes of commodities from different originators so they can be shipped together and who usually owns the aircraft used for transport
CTK	Cargo tonne kilometre
DCO	Development Consent Order
Dedicated carrier	An aircraft that transports only freight (not passengers)
DfT	Department for Transport
EU	European Union
Eurostat	A Directorate-General of the European Commission that provides statistical information to EU institutions and promotes the harmonisation of statistical methods across member states
FBO	Fixed Base Operation
Freight	The term freight and cargo are used interchangeably in this report and refer to goods carried by road, sea or air
Freight forwarder	A person or company that organises the shipment of commodities from an originator (manufacturer, producer, etc.) to a destination (customer, etc.) but generally does not own the aircraft used in the transport
FTK	Freight tonne kilometre
LCC	Low cost carrier
Long haul	No generally agreed definition as 'long' or 'short' is subjective. In Europe, a flight taking more than four hours to complete and/or originating/destined outside Europe is considered long haul
MRO	Maintenance, repair and overhaul facility
NSIP	Nationally Significant Infrastructure Project
Pax	Passengers
RTK	Revenue tonne kilometre
Short haul	As per long haul above. Short haul in Europe generally indicates a flight within Europe so taking around four hours or less to complete
TfL	Transport for London
UK	United Kingdom
USA	United States of America

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1 Introduction

1.0.1 This report presents the air traffic forecasts that have been made for Manston Airport. These forecasts include freight and passenger movements for the first 20 years of operation of the airport, from 2020 to 2039. The report also outlines the infrastructure requirements the airport would require in order to deliver the forecast demand.

1.0.2 This report is the third in a series of documents that make the case for Manston Airport to return to full operation. These reports cover:

- Volume I: The need for airport capacity in the South East of the UK and the potential role of Manston Airport as part of the UK's airport network
- Volume II: The findings from a qualitative study that identifies the push and pull attractors for Manston Airport and details the opportunities and the sectoral and geographical markets the research uncovered
- **Volume III: The forecast for air freight and passenger traffic for Manston Airport over the first twenty years of operation**
- Volume IV: A description of the socio-economic impacts of the operation of Manston Airport as described by the forecast in the third volume of this body of work

1.1 Background

1.1.1 Unmet demand for freight carrier slots in the South East makes forecasts based on extrapolation of past activity potentially inaccurate. Rather than merely extrapolating past activity, studies that have focused on the 'lost' or suppressed demand include York Aviation's work (2015, p. 19). Their report, prepared for the Freight Transport Association and Transport for London (**TfL**), considers the potential long-term effects on the UK economy of changes in the UK air freight industry resulting from different potential development scenarios for runway capacity in London. York Aviation's significant report calculates that by 2050 with no additional airport capacity, 2.1 million tonnes of freight (potentially equating to 80,000 freighter movements) may have to be trucked elsewhere, particularly to northern Europe, to find airport slots (York Aviation, 2015).

1.1.2 Examples of unconstrained freight-focused airports in Europe show the difference between a true market, where capacity is available to attract freighter flights, and a constrained market such as that in London. However, forecasts are usually calculated for a region or country before allocating a proportion to individual airports, missing any currently unmet demand. The work detailed in this report takes a different approach by using a qualitative method, identified from the literature review as a more reliable means of forecasting. The approach identifies potential users of Manston Airport and builds a forecast from this intelligence.

1.2 Aim and objectives

1.2.1 The RiverOak vision is to establish Manston Airport as a successful freight-focused airport with supplementary passenger operations. The aim of this report is to provide the forecast figures that underpin the proposal and supports business planning and development at Manston Airport.

1.2.2 There are a number of objectives set out for this work and in particular the results will:

- Provide the information required to support the Development Consent Order (**DCO**) application
- Inform stakeholders during consultation
- Provide information for Government and industry organisations

1.3 Report structure

1.3.1 The report commences by providing the background to the forecasting method chosen to assess the air freight and passenger demand for Manston Airport. Having established the background, the forecasts are presented, shown by freight movements and tonnage, and by passenger movements and numbers. Next, details of the infrastructure required to deliver the forecast are shown. The report concludes with a summary of the case for Manston Airport.

2 Forecasting methods

2.0.1 This section describes the way in which both air freight and passenger forecasting methods were derived and details the models used in the short, medium, and long term.

2.1 Air freight forecasting method

2.1.1 Whilst methodologies for passenger air travel forecasting are well developed, freight markets are much more problematic. As Ishutkina, of the MIT International Center for Air Transportation (**ICAT**), says:

> "*freight markets are generally more liberalized when compared to the passenger markets. Therefore, national carrier data do not accurately depict the cargo flows taking place to and from a particular country due to the dominance of only a few major international cargo carriers such as DHL, FedEx and UPS. In addition, aggregate freight data may misrepresent the traffic flows for a particular country because they do not capture the asymmetry, which is often present in cargo flows between economies. In other words, the national cargo carrier data are not representative of the freight flows to and from a particular country*." (Ishutkina, 2009, p. 55)

2.1.2 A detailed review of air freight forecasting literature is presented in the report, 'Manston Airport: A National and Regional Aviation Asset, Volume II: A qualitative study of potential demand'. This review showed that a qualitative approach was the most appropriate method through which to gather data on the potential demand for an individual airport. The data collected is also shown in Volume II of this series of reports.

2.1.3 However, in order to provide a detailed picture of the potential air freight and passenger demand for Manston Airport, it was necessary to convert this information into a quantitative forecast. This type of forecasting can, of course, be handled in a number of ways and there is unlikely ever to be consensus on either the approach or the data used. There were two main options for forecasting freight at Manston Airport. The first was to use forecasts from one or more sources (such as Eurostat, the Department for Transport (**DfT**), etc.) and 'divert' a proportion of national and international (Northern Europe including France, Belgium, Holland) traffic to Manston. The issue with this approach is the difficulty in identifying a realistic formula by which to divert air freight to Manston.

2.1.4 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.

2.1.5 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).

The Airports Commission also recommends using the Delphi Method[1], pointing out that relying on, "*a single, central-point forecast would be a risky approach*" (Airports Commission, 2013, p. 8).

2.1.6 Thanet District Council, in their response to the 2017 Manston Airport statutory consultation raised the issue of optimism bias. They say, "*No optimism bias has been allowed for in these estimates*" (p. 2). Optimism bias is defined as, "*the difference between a person's expectation and the outcome that follows*" (Sharot, 2011, p. 941). There is little research on the subject, particularly as it pertains to air traffic forecasting. However, in order to avoid any bias (optimism or pessimism), efforts to quality assure the analysis should be made. For this study, the methodology used to forecast air freight traffic has been peer reviewed by Loughborough University and by the RiverOak consultancy team including Northpoint Aviation, Osprey Consulting and Viscount Aviation. The methodology used was also subject to consultation and only the Thanet District Council comment shown above was received. It should also be noted that the Council's own forecast by AviaSolutions made no mention of either optimism or pessimism bias.

Primary data collection

2.1.7 A qualitative approach forms the basis for the short and medium-term (years one to ten, 2020 to 2029) air freight forecast at Manston Airport. The collection and analysis of this data is described in Volume II of this series of reports and consisted of face-to-face interviews with representatives from key stakeholder groups including:

- Kent transport infrastructure
- Government and public sector
- Industry associations
- Freight forwarders and consolidators
- Local businesses who import/export
- Cargo airlines

2.1.8 The freight forecast for Manston Airport is split by:

- Air Traffic Movements
- Aircraft type (wide and narrow-bodied)
- Number of tonnes or passengers
- Imports and exports by tonnage

Secondary data

2.1.9 Secondary data was used to provide an overview of the industry, which allowed the primary data to be put into a global and national context. Secondary data was also used to provide information on macro-level growth in the industry, which allowed a percentage increase, year-on-year in the long-term (from Years 11 to 20) to project growth from the short- and medium-term market data forecasts.

2.1.10 IATA data[2] shows global freight tonne kilometres (**FTKs**) up 9% in 2017. In terms of capacity, IATA data shows that, in 2017, demand grew three times faster than freight capacity, which increased by 3.0% from the previous year. This is the slowest rate in available freight tonne kilometres (AFTK) growth since 2012.

[1] A forecasting method based on gathering opinions from a panel of experts
[2] http://www.iata.org/publications/economics/Reports/freight-monthly-analysis/freight-analysis-dec-2017.pdf

2.1.11 Boeing's traffic and market outlook describes an air cargo market recovery that began in 2014. Their market outlook 2016-2035 (Boeing, 2016a) forecasts air cargo traffic, measured in revenue tonne-kilometres, at 4.2% although there are differences between the forecasts for regional pairs. For example, Asia-Europe is forecast to show growth of 4.6% (Boeing, 2016b, p. 16). Airbus forecast growth at 4% globally (Airbus, 2016). The Boeing and Airbus forecasts are based on the opinions of experts who summarise the world's major air trade markets and identify key trends. These organisations present comprehensive forecasts between and within each of the air freight markets as well as for the world freighter airplane fleet.

2.1.12 Of interest to the forecast for Manston Airport is an observation made by Boeing, who refer to the continued requirement for dedicated air freight operations:

> "*dedicated freight services offer shippers a combination of reliability, predictability, and control over timing and routing that is often superior to that of passenger operators. As a result, freighters are expected to continue carrying more than half of global air cargo traffic to satisfy the demanding requirements of that market.*" (Boeing, 2014)

2.1.13 The CAA produces airport statistics by month and by year. Their 2017 statistics show that around 355,000 tonnes of freight was carried on dedicated freighters at the London airports during the year, an increase of 7% over the previous year. Freight carried on passenger aircraft, which fell by 1% during 2015, increased by 3% in the London area in 2016 and by 10% in 2017.

2.1.14 Freight airlines do not publish timetables, with only some scheduled freighter operations being shown in OAG (an air travel intelligence company based in the UK) information. This makes gathering base data difficult and forces a number of assumptions to be made by those who forecast air freight using a 'top down' quantitative approach. It is perhaps for this reason that the DfT do not model freight in detail (DfT, 2017, para 2.56). Nonetheless, their aviation modelling assumes that, at individual airport level, the number of freighter movements will remain unchanged from 2016 across the system (*ibid*). The DfT have been made aware that there are other evidence-based views that do not support this zero per cent growth assumption[3].

2.2 Short- and medium-term freight forecasting model

2.2.1 For this project, short-term is defined as years one to five and medium-term as years six to ten of operation. For Manston, these years are 2020 to 2024 for short-term and 2025 to 2029 for medium-term. 2030 to 2039 are defined as long-term for the purposes of this forecast.

2.2.2 The qualitative data collected for this research and discussed in Volume II of this series of reports, highlights the 'push' and 'pull' factors that are likely to drive demand for Manston Airport. 'Push' factors are those that may lead customers away from other airports or prompt a change to current models. These factors include the bumping of belly-freight at Heathrow, issues with the Channel crossings, increasing problems with security, and potential changes to the current dominance of belly-freight in the UK. 'Pull' factors work to attract customers to the airport. These may include the speed of turnaround achieved by Manston, cutting edge security clearing, and the geographic location of the airport and its airspace.

[3] See paragraph 2.3.6 for further details

2.2.3 Whilst one of the key drivers for demand at Manston is a lack of capacity at other airports in the South East, there are a number of push and pull attraction factors to take into account. Indeed, the current UK air freight model is for shippers to preference belly-freight, which can take up to a week to arrive and dispatch from some of the Country's airports. The qualitative research detailed in Volume II of this research describes the frustrations associated with this model and the impact at all levels of the supply chain. It seems likely, therefore, that the model will change, much as the model for passenger flights changed some decades ago with low cost carriers now dominating many airports, operating point-to-point at competitive prices.

2.2.4 In addition, the qualitative findings indicated several issues that present opportunities for Manston Airport. These include:

- The sufficiency of slots at South East airports
- Bumping of freight from passenger aircraft
- Security issues particularly with outsized cargo
- Speed of turnaround and bottlenecks for air freight a particular concern due to, "*longer processing time because of security*" (ACI-NA, 2013, p. 5)
- Review of current regulatory controls on the charges and services Heathrow offers to airlines, due to expire at the end of 2018

2.2.5 Interviews undertaken as part of the qualitative research also indicated a number of potential markets for Manston Airport. These include:

- 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

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. The forecast includes ten aircraft of various types that will be recycled at Manston Airport. These aircraft will arrive without cargo.

2.2.7 Outputs for the freight forecast show the number of movements and the tonnage by year for imports and exports. Tonnage figures have been calculated from the maximum payload for each aircraft type and multiplying by 65%[4] to give an indication of tonnage for the main route (either import or export). 65% is an average figure that intends to cover both full loads and out-of-gauge (cargo that exceeds the internal dimensions of a container by length, width or height) rush parts (such as critical parts for oil rigs, aircraft, etc.).

2.2.8 Industry standard load factors are usually expressed as freight capacity used, in tonnes, typically dividing FTKs by ATKs. However, focusing on tonnes carried rather than on capacity as a volume (in cubic metres) may be understating how full an aircraft

[4] Industry standard figure provided by Viscount Aviation

is. Aircraft are constrained by both the maximum weight they can carry and by their maximum volume. A small but heavy load might reach maximum payload but with little volume, whereas a light load may fill an aircraft by volume. Some commentators[5] believe that combining the volume and weight load factors would result in a considerably different, more successful, picture of the air freight industry.

2.2.9 Backloads (tonnes carried on the return flight) have been calculated by applying a small percentage, sometimes zero in the early years, increasing over time dependent on the potential in that market in the longer-term (see paragraph 3.2.3 for further details). An indication of origin/destination pairs is also provided. The freighter fleet mix is shown using the ICAO aircraft design code, which are:

- Code C – ATR-72, B727, B737, A310, A320, etc.
- Code D – B757, B767, etc.
- Code E - B747, L-1011, MD-11, DC-10, A330, etc.

2.2.10 Additionally, the costs of switching airports have been taken into account when considering the likelihood of integrators and freight forwarders moving to Manston Airport. These include (CAA, 2013, p. 26):

- The cost of physical relocation
- Cancellation of long-term contracts
- Loss of economies of scale, although if an entire operation is switched, economies of scale would be gained at the new airport
- Market effects such as marketing new routes and a potential loss of custom in the early years following the switch
- Network effects lost by switching to a smaller airport
- Capacity constraints at other airports, particularly in slot allocations
- Sunk costs such as an airline's investment in the airport from which they are switching

2.3 Long-term freight forecasting model

2.3.1 For this project, long-term is defined as in excess of ten years of operation (from 2030). Whilst the proposed third runway at Heathrow may become operational during this timeframe, capacity constraints are predicted to continue in the South East during the forecasting period. These constraints will make operating from the hub airports increasingly difficult and potentially more expensive. Recent research by SEO Amsterdam Economics and Cranfield University shows that every 10% increase in airport congestion leads to an aggregate 1.4% to 2.2% increase in airfares[6]. Additionally and as Ishutkina says:

> "*secondary airports have several other advantages over the major airports. These include lower-cost facilities and less congestion which allows rapid turnaround times and hence more efficient aircraft operations*" (Ishutkina, 2009, p. 91).

2.3.2 In the long-term, forecasts generally have less reliance on qualitative methods. Any trends flagged during the interviews with specialists have been taken into account

[5] See for example https://theloadstar.co.uk/open-letter-iata-lies-damned-lies-loadfactor-statistics/

[6] http://www.airport-world.com/news/general-news/6028-the-cost-of-congestion-at-europe-s-busiest-airports-sky-high-air-fares.html

by adjusting the forecasts in the short and medium-term. Therefore, from Years 11 to 20 an annual percentage growth has been applied to the figures derived for Year 10.

2.3.3 In order to specify a percentage to apply to Year 10 figures, a number of sources were examined. For example, Boeing states that:

> "*While 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. The share of cargo carried on freighters remains high in markets across the world, especially in the world's two largest trade routes, Asia–North America and Asia-Europe, where more than 70 percent of total air cargo traffic is carried by freighter airplanes.*" (Boeing, 2016b, p. 3)

2.3.4 Despite exogenous shocks from economic and political events, and natural disasters, world air-cargo volumes grew at an average of 5.2% per year over the three decades to 2016[7]. Global air freight grew 9% (measured in FTKs) in 2017. Europe performed particularly well, with year-on-year growth in FTKs at 11.8% in 2017[8], with 9% growth in the UK[9]. The air freight market is quite sensitive to economic cycles and the global economic slowdown led to a period of stagnation in the market. Boeing described this as a "*temporary situation*", as confirmed by recent figures, saying:

> "*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. World air-cargo volume, in spite of exogenous shocks arising from economic and political events and natural disasters, grew an average of 5.2 percent per year over the last three decades.*" (Boeing, 2016b, p. 16)

2.3.5 Air freight is measured by both actual cargo moved and by capacity available, as well as by revenues. These measures are:

- Freight Tonne Kilometres (**FTK**) measures actual freight traffic where one FTK is one metric tonne of revenue load carried one kilometre (note that Cargo Tonne Kilometres (**CTK**) includes unaccompanied baggage and mail)
- Available Tonne Kilometres (**ATK**), the number of tonnes of capacity available for the carriage of cargo multiplied by the distance flown, is a measure of capacity
- Revenue Tonne Kilometres (**RTK**) shows the revenue load in tonnes multiplied by the distance flown

2.3.6 The most recent DfT figures show that:

> "*Total freight carried at the UK airports in the department's model rose from 2.9 million tonnes in 2011 to 3.1 million tonnes in 2016, with a growth of 4% in cargo tonnage on freighter aircraft and 5% increase in bellyhold freight on passenger aircraft*" (DfT, 2017, p. 67).

[7] https://ec.europa.eu/transport/sites/transport/files/2016_eu_air_transport_industry_analyses_report.pdf
[8] http://www.iata.org/publications/economics/Reports/freight-monthly-analysis/freight-analysis-dec-2017.pdf
[9] https://www.bifa.org/news/articles/2018/jan/air-freight-demand-up-9-in-2017-strongest-growth-since-2010?l=y

However, the DfT are currently assuming no growth in the all cargo market from 2016 (DfT, 2017, 2.5.6), Azimuth Associates has queried this figure with the DfT[10], which seems unreasonable for a number of reasons:

- All other industry forecasts (see 2017 figures from IATA and CAA for example) show considerable growth in the cargo market. Other indicators, such as demand for cargo charters, confirm the market is buoyant (for example, UK-based Air Charter Service reports an increase of 11% in 2017, to 4,300 cargo charter contracts, some 15,000 flights[11]).
- It is unclear whether the potential impact of the UK's exit from the EU and the single market has been factored into the DfT's assumptions. The creation of regulatory barriers to trade with Europe may mean considerable delays for trucks entering and leaving Britain's seaports, potentially increasing demand for air freight, particularly for time sensitive and high value goods. The UK's refocus on non-European markets would mean that trucking is not an option for transporting goods, also increasing the demand for air freight.
- The full impact of e-commerce and on-hand inventory reduction strategies has yet to be felt. Shortening the time between order placement and receipt of goods by the customer, and increasing the velocity of cash in businesses, are now vital and increasing sources of competitive advantage.

2.3.7 In summary, there was an 8% increase in the number of freighters between 2010 and 2015, and a 9% growth in FTKs in the dedicated freighter segment in 2017 globally and in the UK. In the absence of global and European cargo-only ATM forecasts, these indicators are used as a proxy guide to future performance in the sector. The full impact of e-commerce is yet to be felt but, to be conservative, a 4% uplift has been used to extrapolate Year 10 figures to provide the long-term forecast for Manston Airport.

2.3.8 The potential for an airline to upgrade the aircraft in their fleet has been taken into account in the forecast. Aircraft are becoming more efficient and quieter, achieved by increasing engine efficiency, reducing airframe weight, and potentially switching to fuel sources other than kerosene. For the purposes of this forecast, a migration from one aircraft type to the upgrade has been factored into the model. For example, humanitarian and medevac flights are initially forecast to use 747-400s but will upgrade around Year 13 (notionally 2032) to 747-8s. However, it should be noted that only known aircraft types have been used in the model: no aircraft currently proposed or in development have been incorporated.

2.4 Passenger forecasting method

2.4.1 As with the air freight forecast, the short to medium-term passenger model is built from market information, which allows specific airline movements and associated aircraft to be used in the forecast. Instead of attempting to either extrapolate from past movements or to allocate overspill from capacity-constrained airports in the South East, intelligence was sought from airlines and experts on the potential markets Manston Airport could attract. Interviews were carried out to establish these potential markets for the airport, which include:

- Resumption of scheduled service twice daily to a hub airport
- A LCC base for two aircraft at Manston rising to three

[10] Meeting held on the 25 January 2018 and letter dated 8 February 2018
[11] https://aircargoworld.com/allposts/air-charter-services-cargo-charters-soar-in-2017/?goal=0_1711f92e66-16658a24b0-39626945

- The charter market resuming, stimulated by regional developments such as the proposed London Resort and Ebbsfleet Garden City developments, which are expected to increase demand for both in- and outbound flights
- Flights from the US that tie up with cruise ships leaving from Dover

2.4.2 Further information can be found in the document "Manston Airport: A National and Regional Aviation Asset, Volume II: A qualitative study of potential demand. Following this qualitative step, a quantitative assessment of the likely movements per annum was estimated through discussion with the airlines involved, by examination of previous schedules and potential demand, and in discussion with RiverOak and their consultants including Viscount Aviation.

2.5 Passenger forecasting model

2.5.1 The passenger forecast for Manston has been calculated from specific airline movements except for the charter market, which is derived from an estimate of the number of movements Manston is likely to handle. As described above, market intelligence has been used to calculate the short to medium-term forecasts.

2.5.2 IATA figures show that for 2017, the annual growth in passenger volumes (RPKS) was 7.6% with load factors increasing to a record calendar year high of 81.4%[12]. Boeing forecast passenger traffic growth to 2035 at 4.8%[13] annually. DfT figures released in October 2017 show that the underlying demand for passenger traffic increased by 84% (75% low/99% high) between 2016 and 2050 (DfT, 2017, p. 90). Between 2030 and 2040, the long-term range in this forecast, the DfT figure is 1.8% per year.

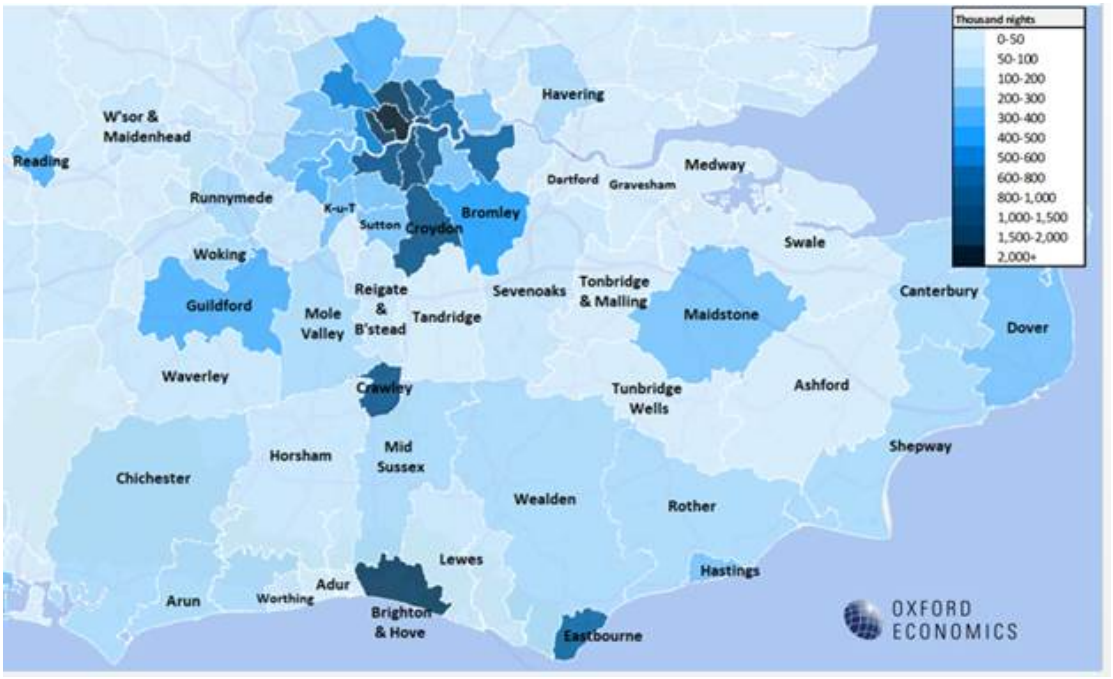
2.5.3 However, the DfT figure reflects national demand and may not apply locally to Manston. The demand for Manston Airport is expected to increase in response to continuing capacity constraints at other airports in the South East. As such an increase of 4% has been applied to the Year 10 forecast to derive the forecasts in Years 11 to 20. It should be noted that AviaSolutions, in their 2016 work for Thanet District Council, used an average growth figure of 10% between 2018 and 2050 to produce their forecast for passengers (AviaSolutions, 2016, p. 39).

2.5.4 A recent study by Oxford Economics (2018) for the Gatwick Growth Board shows the location of nights spent by overseas visitors during 2017 by local authority. Figure 1 shows that Maidstone and Dover benefit from between 300,00 and 400,000 nights and that Thanet, Canterbury and Shepway receive 100,000 and 200,000. In terms of tourism, the Gatwick study indicates the potential local demand from overseas visitors, with East Kent already attracting considerable numbers of visitors.

2.5.5 The calculation used to forecast the number of passengers per movement takes the capacity of each aircraft type and applies an average load factor of 65% for the scheduled KLM flight (gauged from previous Manston figures) and 90% for all other services, an industry norm. These load factors are applied on inbound and outbound movements.

[12] http://www.iata.org/pressroom/pr/Pages/2018-02-01-01.aspx
[13] http://www.boeing.com/commercial/market/long-term-market/traffic-and-market-outlook/

Figure 1 Distribution of nights spent by London Gatwick Airport overseas visitors, 2017



Source: Oxford Economics, 2018, p. 15

3 Manston Airport freight forecast

3.0.1 The previous sections have described the work carried out to determine a forecast for Manston Airport. RiverOak plan to focus on freight, where demand is demonstrable and considerable. There is clear demand for perishable goods, particularly fruit, vegetables, flowers, fish and shellfish. The perishable market has been a staple for Manston in the past, and the airport, with reduced flying time compared with other airports, has a reputation for the speed at which cargo can be offloaded onto trucks. Timely delivery of fresh produce is vital to supermarkets, which require the maximum shelf life to reduce wastage and increase profit margins.

3.0.2 Manston Airport is also well placed to be active in niche markets such as the movement of luxury cars from the Middle East and Formula One cars globally. Manston Airport is also capable of handling live animals such as breeding stock and racehorses. The airport will be able to security screen outsized cargo including oil and gas equipment, which cannot currently be scanned at other airports. These niche markets can provide considerable business for the Airport.

3.0.3 Manston has a history of handling military and humanitarian operations and these are expected to return to Manston when the airport is operational. A forecast that matches past operations has therefore been included. There is strong interest in aircraft recycling at Manston and, although this provides only a limited number of movements per year (around ten), would provide the airport operator with many opportunities to derive revenue, create jobs and increase skills in the region.

3.0.4 The forecasts shown in this section commence in the second year of operation for freight and the third for passengers. This delay in commencing operations is to allow time for extensive development to take place at the airport, as detailed in Section 5.

3.1 Freight forecast by movements

3.1.1 The freight movements shown in the forecast relate to particular carriers where possible although this level of detail is not possible in all cases. These findings have been used to calculate the short and medium-term forecasts. From Year 11, an incremental growth rate of 4% per annum has been applied (see Section 2.3 for full details). Table 2 shows the number of freighter movement by year from the first to 20th year of operation by ICAO aircraft design code. These codes are, for example[14]:

Code C: ATR-72, B727, B737, A310, A320
Code D: B757, B767
Code E: B747, L-1011, MD-11, DC-10, A330, B777X

3.1.2 It should be noted that one movement is either one landing or one take off. A 'flight' often refers to two movements – one take off and one landing or vice versa. The forecast includes 10 aircraft of various types that will be recycled at Manston Airport. These aircraft will arrive without cargo. All forecasts have been produced in conjunction with RiverOak's consultants including Viscount Aviation.

[14] Dr. A. Trani, Virginia Tech, "Aircraft Classifications" (undated). Available from http://128.173.204.63/courses/cee5614/cee5614_pub/acft_classifications.pdf

Table 2 Freighter movements by year by ICAO design code

Freighter movements	Code C	Code D	Code E	Recycling	Total
Y1	0	0	0	0	**0**
Y2	1,872	1,974	1,396	10	**5,252**
Y3	2,184	2,052	1,558	10	**5,804**
Y4	3,640	4,314	1,736	10	**9,700**
Y5	3,744	4,314	1,868	10	**9,936**
Y6	3,848	3,144	3,142	10	**10,144**
Y7	4,472	1,870	4,520	10	**10,872**
Y8	4,680	1,948	4,546	10	**11,184**
Y9	4,888	1,948	4,546	10	**11,392**
Y10	4,992	2,026	4,572	10	**11,600**
Y11	5,192	2,107	4,755	10	**12,064**
Y12	5,399	2,192	4,945	11	**12,547**
Y13	5,615	2,257	5,165	11	**13,048**
Y14	5,840	2,346	5,372	12	**13,570**
Y15	6,074	2,440	5,587	12	**14,113**
Y16	6,317	2,538	5,810	13	**14,678**
Y17	6,569	2,640	6,043	13	**15,265**
Y18	6,832	2,745	6,284	14	**15,875**
Y19	7,105	2,855	6,536	14	**16,510**
Y20	7,389	2,969	6,797	15	**17,170**

3.1.3 York Aviation's work for TfL (York, 2013) talks of diverting 14,000 air freight movements to airports outside the London airspace such as Manston. There are no other airports such as Manston in the South East.

3.2 Freight forecast by tonnage

3.2.1 Further information on how these markets were identified can be found in Volume II of this series of reports. Markets include:

- Global import and export for parcels and packages
- Africa particularly for the import of flowers, fruit and vegetables
- China for the import of consumer goods and export of luxury items (included under niche freight operations but, due to a lack of concrete evidence the forecast is extremely conservative)
- Middle East particularly for export markets including fish and shellfish
- Pakistan including the import of clothing and the export of consumer goods
- Russia for gas and oil equipment and the export of luxury items
- South America for the import of perishable fresh produce
- US for a range of import and exports

3.2.2 The freight forecast by number of tonnes and ICAO design code for exports from Manston Airport is shown in Table 3. The method used to calculate tonnage from movements is shown in Section 2.2. Tonnage figures have been calculated from the maximum payload for each aircraft type and multiplying by 65% to give an indication of tonnage for the main route (either import or export). Air freight carriers generally calculate the price of the main route to cover their costs. Backloads therefore generate additional profit for the airline (as well as the airport and others in the supply chain) but

are not essential to the operation of the route since the cost has been covered by the main journey. All forecasts have been peer reviewed by RiverOak's consultants including Viscount Aviation.

Table 3 Export tonnage by year and ICAO design code

	Code C	Code D	Code E	Total outbound freight
Y1	0	0	0	**0**
Y2	2,474	23,312	30,901	**56,687**
Y3	3,961	24,453	32,804	**61,218**
Y4	4,340	50,268	36,157	**90,765**
Y5	4,543	50,268	37,475	**92,286**
Y6	5,056	46,339	44,209	**95,604**
Y7	6,206	29,903	64,442	**100,551**
Y8	6,544	31,044	66,106	**103,694**
Y9	6,882	31,044	66,734	**104,660**
Y10	7,936	32,185	69,621	**109,742**
Y11	8,254	33,472	73,059	**114,785**
Y12	8,584	34,811	77,078	**120,473**
Y13	8,927	35,472	81,600	**125,999**
Y14	9,284	36,891	84,864	**131,039**
Y15	9,656	38,367	89,492	**137,515**
Y16	10,042	39,902	93,071	**143,015**
Y17	10,444	41,498	98,128	**150,070**
Y18	10,861	43,157	102,055	**156,073**
Y19	11,296	44,884	106,136	**162,316**
Y20	11,748	46,679	110,382	**168,809**

3.2.3 In terms of imports/exports and backloads (i.e. on the return leg, which can be empty), the following conservative assumptions and calculations have been used:

- Dedicated freight airlines (US) – 80% import/20% export
- Dedicated freight airlines (Africa) – 100% import with a 5% backload from Year 3, rising to 10% in Years 5 and 6, with an additional 5% increase added every two years. The African market showed 24.8% growth in FTKs in 2017 (IATA, 2017).
- Integrator movements – 100% outbound with a backload (import) calculation of 20% included in Years 2 and 3, rising by an additional 5% every two years
- Integrator feeders – 100% inbound (import) traffic with 10% backload possibility added to Year 5, 15% to Year 9, and 20% thereafter
- Fresh fish and spider crabs – 100% export with a backload potential of 5% from Year 3 with an additional 5% added every two years thereafter
- Middle East airlines – both import and export with backload possibilities. The Middle East market showed 8.1% FTK growth in 2017 (IATA, 2017).
- Live animal operations – both in and outbound to show return journeys for most animals
- Pakistani airlines – export from Manston with backloads starting at 10% rising slowly to 30%
- Postal Services – export with a possibility of small backloads starting at 5% and rising gradually to 20%

- Russian airlines – export from Manston with strong backload possibilities starting at 50%, rising to 70%
- Niche freight operations – generally imports with backload potential commencing at 10% rising to 30% over time
- Military movements – outbound only
- Humanitarian and medevac – outbound only

3.2.4 The freight forecast by number of tonnes and ICAO design code for imports from Manston Airport is shown in Table 4. These figures have been calculated using the same principles as for exports shown above.

Table 4 Import tonnage by year and ICAO design code

	Code C	Code D	Code E	Total inbound freight
Y1	0	0	0	**0**
Y2	4,462	13,241	22,162	**39,865**
Y3	5,138	13,983	28,214	**47,335**
Y4	9,092	32,676	34,558	**76,326**
Y5	9,768	32,676	39,011	**81,455**
Y6	10,444	15,286	60,102	**85,832**
Y7	14,669	10,698	66,990	**92,357**
Y8	16,021	12,481	68,477	**96,979**
Y9	17,542	12,481	68,562	**98,585**
Y10	18,218	14,264	70,127	**102,609**
Y11	18,947	14,834	73,811	**107,592**
Y12	19,705	16,616	77,713	**114,034**
Y13	20,493	17,280	80,918	**118,691**
Y14	21,510	19,257	85,182	**125,949**
Y15	22,371	20,582	90,111	**133,064**
Y16	23,266	22,795	94,828	**140,889**
Y17	24,196	23,707	98,621	**146,524**
Y18	25,164	26,783	104,324	**156,271**
Y19	26,171	27,854	108,497	**162,522**
Y20	27,218	30,595	114,136	**171,949**

4 Manston Airport passenger forecast

4.0.1 Whilst RiverOak will be focusing on the development of Manston as a freight-focused airport, passenger services will be encouraged to increase revenue potential and to provide a service to local people. The airport could provide landing slots at convenient times that are not available at other airports in the South East. Infrastructure will be developed to handle both passenger and air freight traffic, as shown in Section 5.

4.0.2 Southend Airport grew quickly from just over 4,000 passengers per year in 2010 to over one million in 2017. Glyn Jones, Chief Executive of Stobart Aviation attributes the success of Southend Airport to passengers preferring, "*the relaxed, simple, easy and speedy airport experience we can offer rather than the bigger airports*"[15] The Southend Airport example also highlights the importance for a regional airport of an airline basing aircraft at the airport.

4.0.3 The passenger forecast for Manston has been calculated from specific airline movements and, for the charter market, an estimate of the number of movements Manston is likely to handle. Market intelligence has been used to calculate the short to medium-term forecasts, with a 4% increase, year-on-year from Years 11 to 20. This 4% increase is conservative when compared to other airports' passenger forecasts. For example, Liverpool's John Lennon Airport's forecast, peer reviewed by York Aviation, "*represents over 50% growth from current activity by 2030 and 120% growth by 2050*." (John Lennon Airport, 2017, p. 29)

4.0.4 The calculation used to forecast the number of passengers to be handled takes the capacity of each aircraft type and applies an average load factor of 65% for the scheduled KLM flight (gauged from previous Manston figures) and 90% for all other services, an average industry norm.

4.0.5 Specifically, the forecast shown in Table 5 includes:

- Scheduled carrier (such as KLM) operating a twice-daily service to a major hub. This equates to four movements per day, seven days per week totalling 1,456 movements per year in Years 3 to 20.
- A LCC basing two aircraft at Manston during Years 3 to 5 and three aircraft thereafter. These aircraft are forecast to operate with five daily movements during the summer months and four during the winter. LCCs account for 3,276 movements per year from Years 3 to 5 and 4,914 thereafter to Year 10. An incremental increase of 4% has been applied from Year 11 to Year 20.
- Charter flights include for one flight per day (two movements) for 12 weeks of the year and others operating five flights (10 movements) per day for five days of the week and for twenty weeks of the year. This totals 200 movements in Year 3, 240 in Year 4, and 280 from Year 5 to Year 10 with an incremental increase of 4% thereafter.
- Cruise ship flights for 26 weeks of the year commencing with one flight (two movements) per week, increasing to two flights from Year 7. This totals 52 annual movements from Years 4 to 6 and 104 from Years 7 to 10 with a 4% increase thereafter.

[15] http://www.eadt.co.uk/business/record-year-for-london-southend-airport-as-passenger-total-tops-1m-1-5358346

4.0.6 Table 5 shows the 20-year passenger forecast by movements and numbers for each ICAO design code of aircraft. All forecasts have been produced in conjunction with RiverOak's consultants including Viscount Aviation.

4.0.7 It should be noted that the forecast for passengers shown here is rather more conservative than the AviaSolutions forecast produced for Thanet District Council (AviaSolutions, 2016, p. 39). Their figure for 2020 is for just over one million passenger movements, rising to 1.7 million by 2025 and 3.6 million by 2050. This forecast takes account of a third runway at London Heathrow Airport and the AviaSolutions figures show this impact between 2030 and 2045.

Table 5 Manston Airport 20-year passenger forecast

	Code C Moves	Code C Numbers	Code D Moves	Code D Numbers	Total passenger movements	Total passenger numbers
Y1	0	0	0	0	**0**	**0**
Y2	0	0	0	0	**0**	**0**
Y3	4,932	662,768	0	0	**4,932**	**662,768**
Y4	4,972	669,572	52	10,296	**5,024**	**679,868**
Y5	5,012	676,376	52	10,296	**5,064**	**686,672**
Y6	6,650	954,999	52	10,296	**6,702**	**965,295**
Y7	6,650	954,999	104	20,592	**6,754**	**975,591**
Y8	6,650	954,999	104	20,592	**6,754**	**975,591**
Y9	6,650	954,999	104	20,592	**6,754**	**975,591**
Y10	6,650	954,999	104	20,592	**6,754**	**975,591**
Y11	6,858	990,171	108	21,416	**6,966**	**1,011,587**
Y12	7,074	1,026,749	112	22,272	**7,186**	**1,049,022**
Y13	7,299	1,064,791	117	23,163	**7,416**	**1,087,954**
Y14	7,532	1,104,354	122	24,090	**7,654**	**1,128,444**
Y15	7,775	1,145,500	127	25,053	**7,902**	**1,170,553**
Y16	8,028	1,188,291	132	26,055	**8,160**	**1,214,347**
Y17	8,291	1,232,794	137	27,098	**8,428**	**1,259,892**
Y18	8,564	1,279,078	142	28,182	**8,707**	**1,307,259**
Y19	8,849	1,327,212	148	29,309	**8,997**	**1,356,521**
Y20	9,144	1,377,272	154	30,481	**9,298**	**1,407,753**

5 Infrastructure requirements

5.0.1 This section presents the infrastructure forecasts that have been made by Viscount Aviation, Osprey Consulting Services and the RPS Group. The section considers the infrastructure requirements for freight, passengers, and for aviation fuel. A series of assumptions have been made in order to produce the schedule of infrastructure requirements. For example, it is assumed that the airport operator will provide direct handling services for all operations except in the case of integrators. For integrators, it is assumed that the integrator will provide handling either directly or through a contracted third party, with the integrator renting premises from the airport. It is also assumed that the airport will operate an aviation fuel farm, directly buying fuel on the open market.

5.1 Air freight infrastructure requirements

5.1.1 Infrastructure requirements at the airport for freight include stands for aircraft, warehouse space, and parking for trucks. These requirements are linked to the forecasts shown in the previous section and are detailed by year of operation in Table 6.

Table 6 Freight infrastructure requirements

	Freight stands	Warehouse space m²	Truck parking
Y1	0	0	0
Y2	7	9,903	16
Y3	8	11,427	18
Y4	12	18,064	28
Y5	13	29,305	29
Y6	13	20,736	30
Y7	14	22,695	32
Y8	14	24,324	33
Y9	14	27,096	46
Y10	14	27,400	35
Y11	15	29,650	37
Y12	15	32,346	39
Y13	16	34,956	41
Y14	16	38,072	43
Y15	16	41,628	45
Y16	17	45,425	47
Y17	17	49,432	49
Y18	18	54,321	52
Y19	18	59,061	54
Y20	19	64,906	57

5.1.2 These infrastructure developments will be carried out in four building phases, which will ensure Manston Airport is prepared to meet the forecast demand. These building phases are:

- Phase 1: prior to opening the airport;
- Phase 2: Years 2 to 4;
- Phase 3: Years 4 to 10; and
- Phase 4: Years 11 to 18.

5.1.3 There will be no traffic in Year 1, as effort will be focused on accelerated redevelopment of the airport. This traffic-free environment will allow construction to take place without the disruption from an operational airport schedule. The number of stands for freighter aircraft will increase from 8 at commencement of operations, increasing to 14, then 16, and to 19 by the end of phase 4. Warehousing will be increased in line with these building phases.

5.1.4 The forecast shown has been annualised but mapping a daily schedule requires assumptions to be made to reflect likely arrival and departure schedules. Aircraft are unlikely to arrive and depart evenly throughout the day but tend to coincide at busy times. This means that infrastructure plans must take account of the need to handle higher than average numbers of aircraft at peak times.

5.2 Passenger infrastructure requirements

5.2.1 Passenger traffic infrastructure requirements include aircraft stands, terminal capacity for departures, arrivals and landside activities, and car parking. These requirements are shown by year of operation in Table 7.

Table 7 Passenger infrastructure requirements

	Stands	Terminal capacity (pax per hour)			Car parking
		Departures	Arrivals	Landside	
Y1	0	0	0	0	0
Y2	0	0	0	0	0
Y3	3	124	31	62	1,069
Y4	3	171	43	85	1,097
Y5	3	171	43	85	1,108
Y6	3	171	43	85	1,557
Y7	3	171	43	85	1,574
Y8	3	171	43	85	1,574
Y9	3	171	43	85	1,574
Y10	3	171	43	85	1,574
Y11	3	171	43	85	1,632
Y12	3	171	43	85	1,692
Y13	3	171	43	85	1,755
Y14	3	171	43	85	1,820
Y15	4	171	43	85	1,888
Y16	4	171	43	85	1,959
Y17	4	171	43	85	2,032
Y18	4	171	43	85	2,108
Y19	4	171	43	85	2,188
Y20	4	171	43	85	2,271

Source: Provided by RPS and Viscount Aviation

5.2.2 As the forecast shows, passenger infrastructure will not be in place for the first two years of operation. This is to allow the operator to focus on air freight markets and to ensure passenger infrastructure, particularly a new terminal building, is in place before the commencement of passenger operations. Table 7 shows that operations will start with three stands for passenger aircraft, with a fourth being added in Year 15.

5.2.3 In terms of the passenger terminal, which is separated into departure, arrival and landside areas, Table 7 shows the forecast requirement for the number of

passengers per hour that will need to be accommodated. The car-parking requirement is also shown in Table 7.

5.2.4 The current parking for passenger aircraft is sufficient to allow space for three stands, which will be sufficient for operations until Year 15 when a further stand will be required. Terminal capacity provided from commencement of operations is forecast to be sufficient until at least Year 20.

5.3 Fuel storage and transport

5.3.1 The airport also requires fuel storage so that aircraft can refuel before departure. The volume of fuel required is calculated on the number of movements, type of aircraft, and their forecast destination. Table 8 shows the volume of fuel required to be stored at Manston Airport by year. The table also shows the forecast for delivery of fuel to the airport by road and rail, by year and per day. The forecast uses an average truckload of 38,000 litres whilst the rail forecast averages 19 containers per train carrying 43,000 litres per container. It is assumed that road transportation will be used in the early years with RiverOak investigating other options including rail and sea transportation in the longer term.

Table 8 Fuel storage requirement

	Volume (KLitres)	Storage (Litres)	Road delivery (38,000 litres)	Road delivery per day	Rail delivery (19x43,000 litres)	Rail delivery per day
Y1	0	0	0	0	0	0
Y2	98,457	600,000	2,591	7.10	121	0.33
Y3	118,904	700,000	3,129	8.57	146	0.40
Y4	176,859	1,000,000	4,654	12.75	216	0.59
Y5	181,305	1,000,000	4,771	13.07	222	0.61
Y6	198,072	1,100,000	5,212	14.28	242	0.66
Y7	189,271	1,000,000	4,981	13.65	232	0.63
Y8	192,141	1,000,000	5,056	13.85	235	0.64
Y9	192,513	1,100,000	5,066	13.88	236	0.65
Y10	195,197	1,100,000	5,137	14.07	239	0.65
Y11	201,215	1,200,000	5,295	14.51	246	0.67
Y12	209,209	1,200,000	5,506	15.08	256	0.70
Y13	217,383	1,200,000	5,721	15.67	266	0.73
Y14	226,024	1,300,000	5,948	16.30	277	0.76
Y15	235,010	1,300,000	6,184	16.94	288	0.79
Y16	244,356	1,400,000	6,430	17.62	299	0.82
Y17	254,076	1,400,000	6,686	18.32	311	0.85
Y18	264,185	1,500,000	6,952	19.05	323	0.89
Y19	274,698	1,600,000	7,229	19.81	336	0.92
Y20	285,620	1,600,000	7,516	20.59	350	0.96

The reduction in requirement for fuel between Years 6 and 7 reflects forecast upgrades to more efficient aircraft, including swaps from the Boeing 767 to the Airbus 330.

6 Conclusion

6.0.1 This report presents the forecasts for Manston Airport and establishes the rationale for retaining Manston as an airport that is essential to the UK's national airport network. Manston Airport can be operational in as little as two years from the transfer of its ownership to RiverOak. Its location, its 100 previous years of operation, and the considerable local backing mean it is without comparison in the UK. Although there will always be those who are against aviation and airport development, Manston receives the on-going support of a large number of the residents of Thanet as demonstrated in the Consultation Report (see document reference TR020002/APP/6.1).

6.0.2 This report and the others in the series, show that Manston Airport is a valuable local, regional and national asset, providing airport capacity badly needed by the UK. Without additional runway capacity, the UK is losing potential trade, particularly with non-EU countries. Due to its size, location and lack of airspace constraints, Manston Airport is the only viable option in the South East.

6.0.3 The forecasts presented in this report show that freight movements at Manston Airport will increase gradually, in line with capacity, to a forecast 17,000 by Year 20. In addition, the airport will be able to handle a number of passenger flights, connecting Kent to the rest of the world. Passenger flights are expected to start in Year 3 of operation with the airport handling around 660,000 passengers, increasing to around 1.4 million by Year 20 of operation. Infrastructure requirements include stands for freighter and passenger aircraft, warehousing, a passenger terminal, and fuel storage. Construction will be undertaken in four phases to meet the forecast demand.

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MANSTON AIRPORT: A NATIONAL AND REGIONAL AVIATION ASSET

VOLUME IV
The economic and social impacts of airport operations

JULY 2018

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Disclaimer

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Executive Summary

This report has been produced in conjunction with three other volumes that provide an overview of why the redevelopment of Manston Airport is a nationally significant infrastructure project. This fourth volume looks at the economic and social impacts of Manston Airport and the forecasts for air freight and passenger traffic that are provided in Volume III. As such, the forecast level of freight and passenger movements has been used as a base from which to predict the impacts on the economy.

The local economy

Kent, known as the Garden of England, performs below the South East average. However, economic performance varies across the County, with some areas, particularly West Kent much more affluent than others, skewing the overall picture. The socio-economic gap between East Kent and Medway (both part of the Thames Estuary region) and the more affluent mid- and West Kent is increasing. Thanet, in particular, has many issues associated with deprivation and ranks as the most deprived area of Kent and one of its wards, Cliftonville West, is ranked 4th out of 32,844 Lower Super Output Areas (**LSOAs**) in England (2015 figures). Thanet performs consistently behind the rest of Kent with lower wages, lower productivity, higher unemployment and low participation in Higher Education.

Kent County Council wants to address this disadvantage and aims to deliver critical infrastructure that will create the conditions for economic growth across Kent, particularly in East Kent and Medway. The Council aims to raise aspirations, and to encourage businesses to invest in the County. The creation of the Thames Estuary 2050 Commission and its inclusion of Thanet should serve to boost productivity, attract and retain skilled workers, and capitalise on major infrastructure improvement works.

Thanet District Council is also working to transform the local economy and has an ambitious vision for the future of Thanet. This includes increasing participation in work, workforce skills, productivity, wages, and ultimately GVA and GPD. Most modern economies rely on the economic benefits delivered by airport operations and no other proposal is likely to be able to provide the volume and quality of jobs and other economic benefits that a fully operational Manston Airport could bring to Thanet. In addition to job creation, there are numerous other social and economic benefits that a successful airport operation could provide, including:

- Connectivity: Increased connectivity improves the GDP of a region and Manston Airport would dramatically improve the connectivity of the area, which is even more essential with the advent of the UK's exit from the EU.
- Attracting inward investment: The presence of an airport supports inward investment and business location decisions.
- Generating wealth: GDP figures based on the airport's impact have been calculated together with the tax revenues the projected job creation it is likely to produce.

In terms of aviation, Kent County Council's strategy for airports was to oppose the construction of a new Thames Estuary Airport and also the second runway at Gatwick, preferring to maximise use of existing airport infrastructure. The reopening of Manston Airport fits with Kent's strategy. Operations at Manston Airport can provide the impetus for the improved internationalisation of Kent businesses, particularly if an enterprise zone is linked to the airport to leverage the benefits of exporting.

Job creation

The importance of air freight operations to the creation of jobs and to increasing economic and social prosperity has been demonstrated frequently around the world. The socio-economic impacts of an airport's operations include direct, indirect, induced and catalytic effects and there are a number of formulae that can be used to calculate these impacts.

This report describes how the number of jobs created by airport operations at Manston has been forecast. Direct on-site jobs are predicted to be 2,150 by Year 5, of which the airport operator will create 697 posts. The direct employment figure is forecast to rise with increasing freight tonnage and passenger numbers. By Year 5, the indirect and catalytic jobs forecast to result from the operation at Manston Airport are 3,870 and 8,600 respectively. Forecasts for Year 20 are approximately 3,420 direct jobs, 6,150 indirect/induced jobs and 13,700 catalytic jobs. These figures represent a wide range of long-term, aspirational career opportunities.

Construction jobs required in the redevelopment of Manston Airport are shown separately since these are impermanent positions. Before RiverOak reopens Manston Airport, a total of eight freight stands and three passenger stands for aircraft will be constructed as well as warehousing and fuel storage to meet the forecast demand. Further construction will take place in phases, where Phase 1 is prior to reopening the airport; Phase 2 takes place between Years 2 and 4; Phase 3 between Years 5 and 11; and Phase 4 between Years 12 and 18 (see Volume III for details). The numbers of construction workers required is forecast to be between 600 and 700. There are also likely to be additional jobs created for off-site work by local construction companies.

Education and training

Education and training will be vital to maximise the employment opportunities for local people from the redevelopment and operation of Manston Airport. To ensure local providers are engaged, RiverOak is working with Higher and Further Education representatives to leverage opportunities associated with the Manston Airport's future potential operation.

Raising the aspirations of young people will be essential, particularly in areas of deprivation like Thanet. It is hoped that Manston Airport can stimulate the desire to continue in education and training, encouraging young people to improve their life chances and realise their full potential.

Tourism

This report considers the effect on tourism of airport operations at Southend, Southampton and Bournemouth and draws the conclusion that an operational airport at Manston is likely to support tourism in Thanet.

Conclusion

This report shows that the reopening of Manston Airport is likely to be in the public interest. The reopening of the airport is forecast to support the local and regional economies and create a considerable number of direct, indirect, induced and catalytic jobs. Additionally, other socio-economic impacts that can accrue from an airport's operation, such as education and training opportunities, raising the aspirations of young people, providing connectivity, attracting inward investment, supporting inbound tourism, and generating wealth would benefit the area.

Definitions and abbreviations

ACI	Airports Council International
Air freight	The carriage of goods by aircraft
B&B	Bed and Breakfast accommodation
Cargo	The term cargo and freight are used interchangeably in this report and refer to goods carried by road, sea or air
CPO	Compulsory Purchase Order
DCO	Development Consent Order
EU	European Union
FDI	Foreign Direct Investment
FE	Further Education
Freight	The term freight and cargo are used interchangeably in this report and refer to goods carried by road, sea or air
FTA	Free Trade Agreement
GDP	Gross Domestic Product
GVA	Gross Value Added
HE	Higher Education
HGV	Heavy Good Vehicle
ICT	Information and communications technology
IMD	Index of Multiple Deprivation
JIT	Just-in-time, a manufacturing system that allows materials or components to be delivered just as they are required in the manufacturing process, thereby minimising storage costs
KCC	Kent County Council
MRO	Maintenance, Repair and Overhaul of aircraft and aircraft parts
NEET	Not in education, employment or training
NVQ	National Vocational Qualification – work-based qualifications
SME	Small and Medium-sized Enterprise
STEM	Science, technology, engineering and mathematics
TDC	Thanet District Council
UK	United Kingdom
ULD	Unit Load Devices

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1 Introduction

1.0.1 RiverOak has a vision to revive Manston Airport as a successful freight-focused airport with supplementary passenger operations. A Development Consent Order (**DCO**) is being sought by RiverOak to secure the rights and consents necessary for the airport's development as required by the Planning Act 2008. This means that, at the end of a process overseen by HM Government's Planning Inspectorate, the Secretary of State at the Department for Transport will decide the future of Manston Airport.

1.1 Background and rationale

1.1.1 This report is the fourth in a series of documents that make the case for Manston Airport to return to full operation. These reports cover:

- Volume I: The need for airport capacity in the South East of the UK and the potential role of Manston Airport as part of the UK's airport network
- Volume II: The findings from a qualitative study that identifies the push and pull attractors for Manston Airport and details the opportunities and the sectoral and geographical markets the research uncovered
- Volume III: The forecast for air freight and passenger traffic for Manston Airport over the first twenty years of operation
- **Volume IV: A description of the socio-economic impacts of the operation of Manston Airport as described by the forecast in the third volume of this body of work**

1.1.2 It should be noted that this report is not intended to replicate a government/public sector appraisal of a transport project. The reopening of Manston Airport is a privately funded endeavour. Therefore this report does not assess the social welfare benefits and costs of the operation of the airport relative to the 'do nothing' option. The forecast of socio-economic impacts shown here are not estimates of the 'wider economic benefits' including impacts from the presence of imperfect competition (see DfT, 2005 for definitions) of this transport project. Instead, they focus on applying industry standard formulae for socio-economic impacts including job creation, compare the impact of an airport on tourism, and outline RiverOak's intention to ensure relevant training and education is available in the local area.

1.2 Aim and objectives of the report

1.2.1 As a key part of the process of gaining the necessary permissions to acquire and reopen Manston as an airport, the aim of this report is to define the impact on the local and regional economies of Thanet, East Kent, and the wider Thames Estuary area. There are a number of objectives set out for this work and in particular the results will:

- Provide a forecast for the jobs created on the airport site and in the wider economy
- Set out the total jobs that are expected to be created by the airport operator
- Describe the potential economic and social impacts of Manston Airport
- Inform the statutory consultation by ensuring stakeholders have the necessary information to assess the public benefit of an operational Manston
- Continue to gain support from industry stakeholders
- Open dialogue with academic institutions from Higher and Further Education
- Provide the information required to support the DCO application

1.3 Report structure

1.3.1 The report is structured as follows: First the local economies of Thanet and East Kent are described. Next, the socio-economic benefits of an airport's operations are detailed together with a description of how these are forecast. The employment forecasts for Manston follow and include direct, indirect/induced and catalytic jobs as well as those created by the airport operator. The training and education opportunities associated with the airport's operation are next discussed. The potential impact on tourism in Thanet is then discussed before the penultimate section describes the other socio-economic benefits of the airport. The report concludes with a summary of the assessed benefits of the operation of the airport.

2 The local economy

2.0.1 This section describes the economies of Kent, in particular East Kent and Thanet, providing a context by which to envision the potential impacts of the redevelopment at Manston Airport. Estimates of the possible impacts are set against the forecasts for freight and passenger traffic provided in Volume III of this series of reports.

2.1 The Kent economy

2.1.1 Kent, the 'Garden of England', has a land area of 1,368 square miles with 85% classed as green space, and over 350 miles of coastline. Figure 1 shows outline of the County, which extends from just inside the M25 to the north, Margate to the east, the Romney Marshes in the south, and Tunbridge Wells and Sevenoaks to the west. Including the unitary authority of Medway, Kent has a total population of 1,801,200 (KCC, 2016) and a workforce of around 951,000 (Oxford Economics, 2016).

Figure 1 Map of the County of Kent

Source: Google Maps

2.1.2 The County ranks 100 out of 152 county and unitary authorities in the English Indices of Deprivation 2015 (ID2015). This puts Kent towards the bottom third of the counties in England. Kent's economy is based around small and medium-sized businesses. Table 1 illustrates Kent's relative economic performance in the UK. It should be noted that some areas of Kent, particularly the west of the County including towns such as Tunbridge Wells and Sevenoaks, are much more affluent than East Kent, skewing the overall picture.

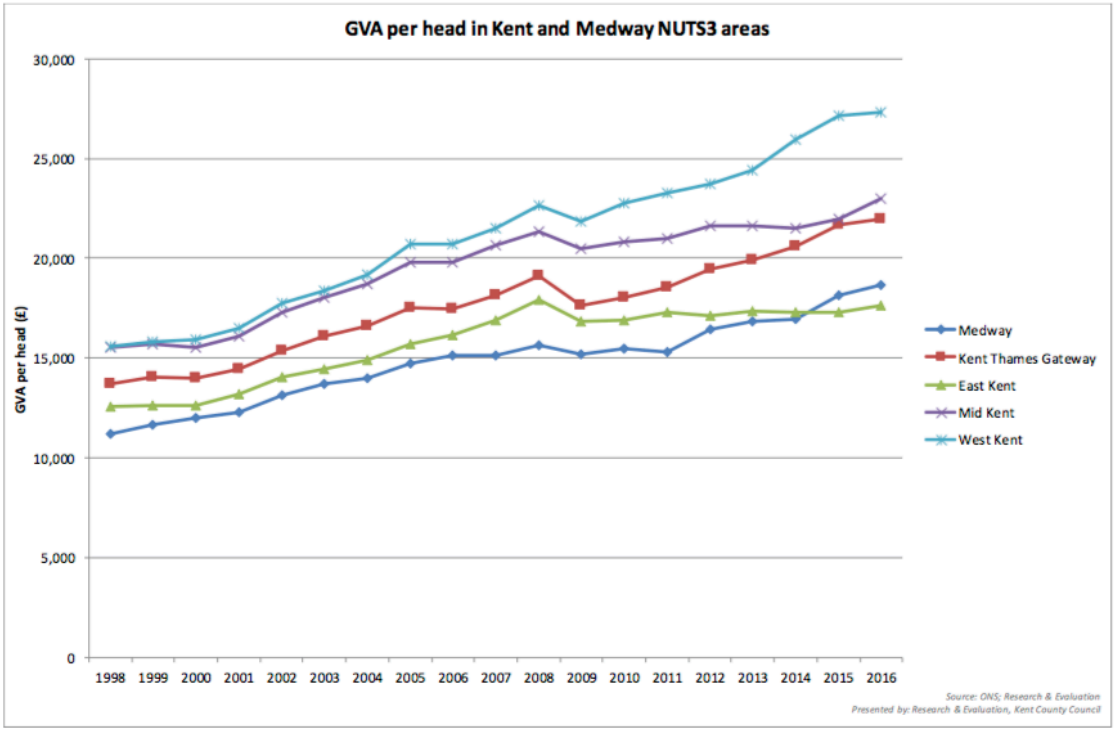
Table 1 Kent competitiveness indicators

Performance Indicator	Kent	UK	Date
Gross Value Added per head	£18,994	£24,091	2013
Gross median weekly earnings	£541.50	£520.80	2014
Economic activity	78.6%	77.4%	2015
NVQ 4 or above – working age	32.4%	36.0%	2014
Claimant unemployment rate	1.3%	1.7%	2015

Source: Kent County Council *et al*, 2015, p. 5

2.1.3 Figure 2 compares the GVA per head of population from 1998 to 2016 for the Kent areas including Medway, East, Mid, and West Kent and the Kent Thames Gateway areas. The figure clearly shows that Medway and East Kent lag behind the rest of the County with the gap between East Kent and Mid and West Kent widening over time.

Figure 2 GVA per head in Kent and Medway by area to 2016



Source: KCC, 2018b, p. 5

Kent's vision for the future

2.1.4 The 'Vision for Kent 2012-2022' (Kent Forum, 2012) outlines three main ambitions for the County:

1. To grow the economy: For Kent to be open for business with a growing and successful economy and jobs for all.
2. To tackle disadvantage: For Kent to be a county of opportunity, where aspiration rather than dependency is supported and quality of life is high for everyone.
3. To put citizens in control: For power and influence to be in the hands of local people so they are able to take responsibility for themselves, their families and their communities.

2.1.5 These ambitions match with the operation of a successful airport in the County. Indeed, within the first of these visions - growing the economy - the Kent Forum identified their top three commitments. At this level of detail it is clear that a fully operational Manston Airport is entirely consistent with the commitments made by the leaders of the 14 Local Authorities in Kent who make up the Kent Forum. These commitments are:

1. To deliver the critical infrastructure that will create the conditions for economic growth across Kent. This means:

- Providing access to high speed broadband that encourages economic growth in our rural areas

- Improving the strategic road networks within the county, and also those linking Kent to the rest of the UK
- Maximising the opportunities of high speed rail and Kent's airports and ports that will reduce journey times to London and improve Kent's connectivity with London, UK and Europe
- Improvements in integrated public transport that gives access to employment and improved workforce mobility without burdening our road networks

2. To raise the career aspirations of Kent's residents, from early years through to adulthood, and to meet those increased aspirations with a range of learning opportunities, apprenticeships and internships that meet future business need.

3. To be business friendly and the county of choice for inward investment and expansion by:

- Providing sector-specific support for business, particularly in areas of potential growth
- Sell Kent as the place to do business, emphasising and enhancing its gateway location and natural assets
- Offer inducements (financial and other) for inward investment and expansion
- Maximise the amount that public sector partners procure from Kent companies and that use Kent workforce
- Minimising the bureaucracy placed on business and champion the removal of unnecessary regulation (Kent Forum, 2012, pp. 4-5)

Kent's strategy for airports

2.1.6 Several documents outline Kent's strategy for airports. As detailed above, the 'Vision for Kent 2012-2022' (Kent Forum, 2012) includes maximising the opportunities of Kent's airports to improve Kent's connectivity. In their response to the Airports Commission consultation, Kent County Council declared the following:

> "*We have engaged with the work of the Airports Commission and robustly oppose proposals for a new airport in the Thames Estuary and a second runway at Gatwick. As an alternative, Kent County Council supports better use of existing airports, including regional airports, improved surface access to airports by rail, and expansion of existing airport infrastructure (with the exception of a second runway at Gatwick, which it opposes) in order to meet the UK's aviation needs.*"[1]

2.1.7 Kent has two main airports within the County; Manston and Lydd. Rochester Airport with its grass runways is located in the Unitary Authority of Medway, and Biggin Hill resides within the London Borough of Bromley. Kent has a number of airfields including Headcorn, Maypole, and Farthing Corner. Only Manston and Lydd airports are capable of commercial services. Unlike Manston, Lydd is constrained by a short runway (1505 metres), considerable approach issues (including MOD Hythe firing range and proximity of Dungeness Power Station), a rural location and relatively poor surface transport connectivity.

Internationalisation of Kent businesses

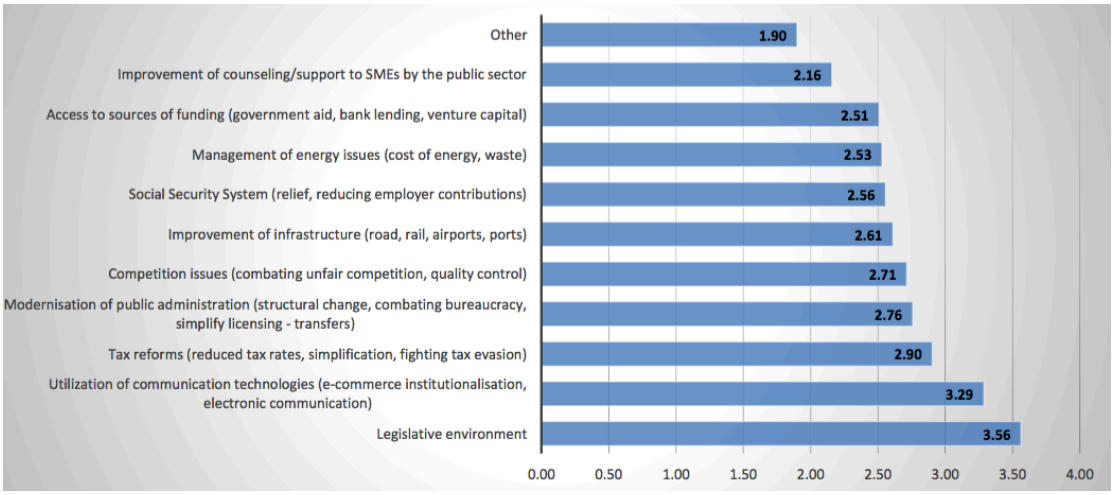
2.1.8 A study by Dr Fragkiskos Filippaios (2017), Reader in International Business at Kent Business School, commissioned by Kent County Council, provides useful insights into the internationalisation of Kent businesses. 35% of Kent businesses export with

[1] http://www.kent.gov.uk/about-the-council/strategies-and-policies/transport-and-highways-policies/aviation/aviation-strategy

manufacturing, professional sciences, and information technology sectors having a significant number of firms that rely heavily on exports.

2.1.9 Dr Filippaios' study found that of those who export, 85% export to the EU, 43% to the US and 21% to the UAE. 25% of the businesses in the study import, most of whom also export with only 14% importing only. Key import markets are the EU at 72%, the US at 42% and China at 36%. The dominance of the EU for both imports and exports and uncertainty of the post Brexit regulatory environment are a cause for concern for Kent businesses.

Figure 3 External factors influencing company development



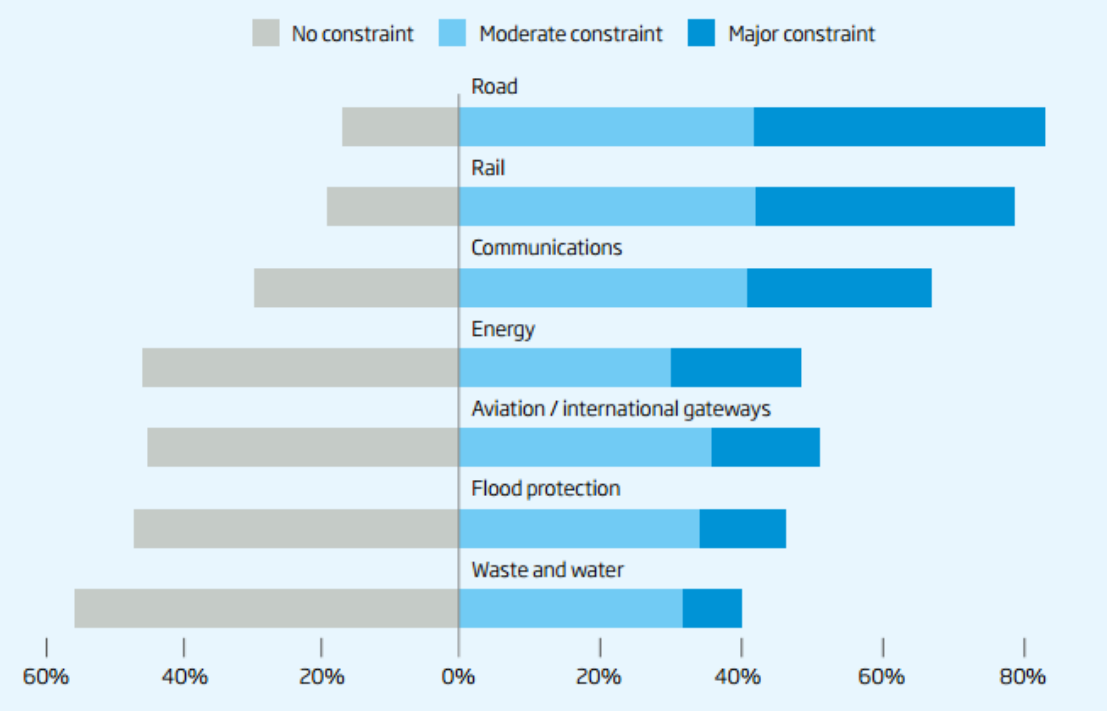
Source: Filippaios, 2017, p. 15

2.1.10 Key external factors that facilitate international trade include the legislative environment and reduction of bureaucracy. However, Dr. Filippaios' research showed that companies would prefer the government to take the role of facilitator rather than supporter as they make efforts to internationalise. Of particular note is that Kent businesses mentioned the need to improve infrastructure including airports, as shown in Figure 3 (where the x-axis shows relative influence based on the output of factor analysis). In terms of business support mechanisms, the research found that:

- A substantial number of support mechanisms exist, often without any significant coordination. The Federation of Small Businesses, Institute of Directors and Kent Invicta Chamber of Commerce are the most recognisable ones by Kent SMEs (small and medium sized enterprises) but UK Trade and Investment (Department for International trade) and Gov.UK emerge also as significant support mechanisms specifically for exporters.
- Despite the relatively high awareness of their existence, there is little use of these support mechanisms. The diversity of mechanisms creates confusion for SMEs that do not wish to spend substantial time searching for the most appropriate support.
- In terms of effectiveness the general support mechanisms tend to score high in the wider population but for exporters more specialised mechanisms, such as UK Export Finance, Export Britain and Federation of Small Businesses are considered very effective. (Kent SME Internationalisation Study 2016/2017, Summary of Findings)

2.1.11 A study by the Royal Academy of Engineering in 2017 asked 38 professional engineering organisations, supporting 450,000 engineers, a series of questions. Their findings show that aviation and international gateways are seen as a crucial constraint to the economic growth of regions, behind only road, rail, and communications. Around half of those questioned found aviation/international gateways to be either a moderate or major constraint. Figure 4 shows the range of constraints and how the engineering organisations ranked them as constraints to economic growth.

Figure 4 The extent to which infrastructure constrains economic growth

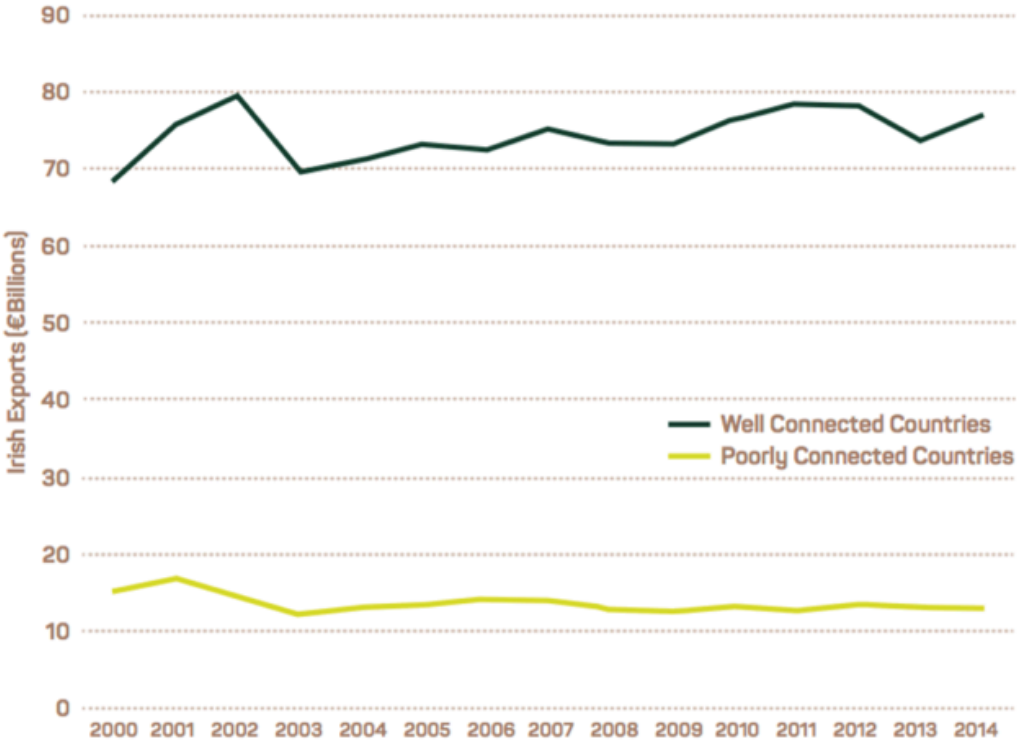


Source: Royal Academy of Engineering, 2017, p. 39

2.1.12 Whilst businesses in the region need to take responsibility for their excellence and ability to compete internationally, it is important to develop an international profile of the region as an attractive place for businesses and people to locate. Resumed and vastly improved operations at Manston Airport can provide the impetus for internationalisation, particularly if an enterprise zone is linked to the airport to leverage the benefits of exporting. This point is made in a study for Dublin Airport (Intervistas, 2017), which shows how connectivity is linked to Ireland's exports. Figure 5 shows the disparity between the value of goods exported from Ireland to countries with a frequent air service and to those countries with limited or no connections from Dublin. Intervistas says:

> "*The value of exports with the well-connected countries is five to six times that of trade with poorly connected countries. While air connectivity alone cannot create trade, it is a necessary requirement for trade development. Poor air connectivity to a country will hinder the ability to develop business contracts, service clients and to compete with businesses in more connected countries.*" (Intervistas, 2017, p. 27)

Figure 5 Ireland's exports and direct services from Dublin Airport 2000-2014



Source: Diio Schedule Data, Central Statistics Office Ireland and U.N. Comtrade Database. 2014 is the most recent data available.

Source: Intervistas, 2017, p. 28

2.1.13 The 2017 Dublin Airport study indicates the potential benefits to Kent business of an airport at Manston. Operating in a constrained cargo market impacts logistics, potentially delaying imports and exports if trucking to northern Europe for air freighting has to be factored into delivery times (see Volume II for evidence of these delays). Connectivity also has a positive impact on passenger travel, with faster transit for business travellers to destinations that would be served from Manston Airport.

2.2 The East Kent economy

2.2.1 The term 'East Kent' is frequently used to describe the area to the southeast of the UK. However, there seems to be no formal definition of the area, with some including the Medway towns and the Isle of Sheppey. Recently, there have been moves to merge the local authorities in East Kent into a single district authority. These authorities included Canterbury, Thanet, Dover, Shepway and Ashford, corresponding approximately to the Diocese of Canterbury. However, Ashford pulled out of the plan in January 2017 and Shepway voted to reject the plan in March 2017.

2.2.2 For the purposes of this study, East Kent includes the city of Canterbury, the Isle of Thanet, and the towns of Deal, Dover, Faversham, Herne Bay, Sandwich and Whitstable as shown in Figure 6. The area includes numerous historic sites including Canterbury Cathedral.

Figure 6 Map of East Kent

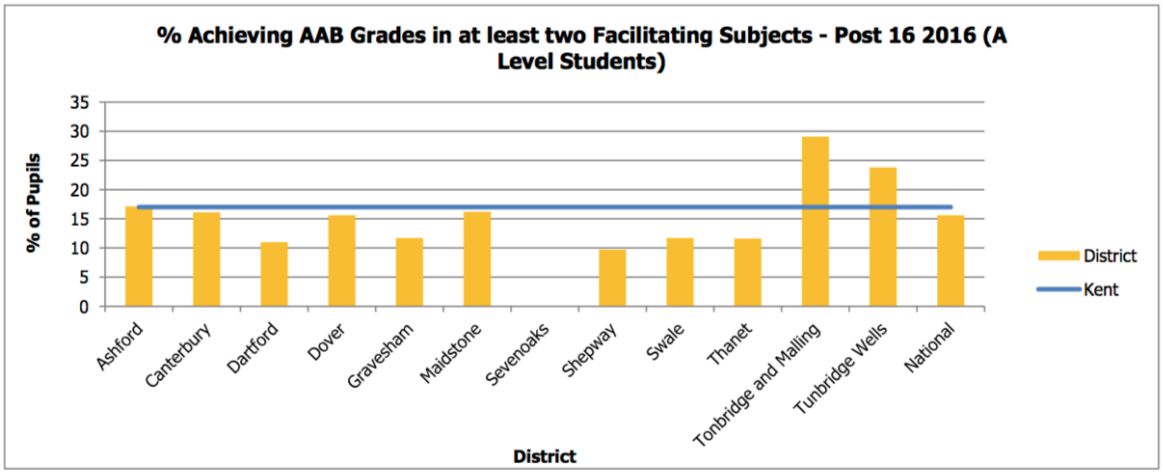
2.2.3 The 2011 Census from the Office for National Statistics (**ONS**) shows that Local Authorities in the east of Kent have a total population as follows:

- Ashford 117,956
- Canterbury 151,145
- Dover 111,674
- Shepway 107,969
- Swale 135,835
- Thanet 134,186

2.2.4 Kent's average unemployment rate (May 2018) is 2.0%, below the 2.2% rate for Great Britain. However, East Kent and specifically Dover, Shepway, Swale and Thanet have higher rates at 3.2%, 2.4%, 2.8% and 4.9% respectively (KCC, 2018a). Rates are particularly high for young people between the ages of 18 and 24. Kent ranks within the 50% least deprived of all counties and unitary authorities in England but East Kent fairs worse. Indeed, Thanet continues to rank as the most deprived local authority in Kent, and Ashford and Swale have experienced the largest increase in deprivation relative to other areas in Kent (KCC, 2015).

2.2.5 In terms of post-16 educational attainment, specifically the percentage achieving two or more AAB grades at A Level, whilst Canterbury ranks near to the Kent average, Shepway, Swale and Thanet are considerably below. The post-16 attainment for 2016 is shown by area and district in Figure 7.

Figure 7 Post-16 A Level attainment by area and district for 2016



Data is for students at the end of advanced level study who during 16-18 study were:

Level 3 - entered for at least 1 academic qualification equal in size to at least half an A Level or an extended project (size 0.3), or applied general or tech level qualification;

A Level - entered for at least 1 A/AS Level, applied double A/AS level or combined A/AS Level;

Source: DfE Statistical First Release 2016 and Nova

Contact: management.information@kent.gov.uk

Source: https://www.kelsi.org.uk/__data/assets/pdf_file/0005/69872/Final-Booklet-2017.pdf

2.3 The Thanet economy

2.3.1 Thanet, the most easterly part of Kent and includes the towns of Broadstairs, Margate and Ramsgate as shown in Figure 8.

Figure 8 Map of Thanet

Source: Google Maps

2.3.2 Thanet has good rail and road connections. The high-speed rail link, HS1, runs from Ramsgate, passing close to the Manston Airport site and on through Canterbury and Ashford en route to London St Pancras, taking about one hour and 15 minutes. There is also a route via the coastal and Medway towns to London St Pancras taking about one hour and 40 minutes. There is also a service from Thanet via the coastal

towns, Chatham and north Kent to London Victoria. Road access to the M2 is via the Thanet Way, which is a dual carriageway.

2.3.3 Thanet benefits from a number of blue flag beaches and historic landmarks. The area is noted for its connections to Charles Dickens and JMW Turner. Thanet has an out-of-town shopping and entertainment centre at Westwood Cross near Broadstairs.

2.3.4 The 2011 Census shows that Thanet has a population of 134,186. By 2020, this figure is predicted to be around 140,000 with a workforce of 79,100 (Oxford Economics, 2016).

Deprivation and unemployment

2.3.5 The Isle of Thanet has particular problems associated with deprivation including relatively high unemployment, low wages and low participation in higher education. As described previously, Thanet continues to rank as the most deprived local authority in Kent (KCC, 2015). Indeed, figures published by the Department of Communities and Local Government ranked Thanet as the 28th (out of 326) most deprived area in England in 2015, the second poorest local authority area in the South East, and the poorest in Kent.

2.3.6 Thanet's ranking has deteriorated from 49th to 28th since 2010, showing a worsening of its deprivation relative to other areas in England. These figures are based on the Index of Multiple Deprivation (**IMD**), which include income; employment; health and disability; education, skills and training; barriers to housing and services; living environment; and crime. Within Thanet, the Cliftonville West ward is ranked 4th out of 32,844 LSOAs in England placing it within England's most deprived 1%. In terms of LSOAs, Margate Central ranks 21st.

2.3.7 Unemployment in Thanet is higher than the other East Kent districts, Kent as a whole and Great Britain, as shown in Table 2. Thanet's unemployment rate for 18 to 24 year olds is 7.3%, by far the highest rate in Kent, which averaged 3.0% in May 2018. Thanet ranks below the national average in all indicators except employment rate (KCC, 2018b, p. 25). The employment rate in Thanet is 75.0%, just higher than that in Kent overall at 74.7% (*ibid*, p. 5).

Table 2 Comparative unemployment in Thanet

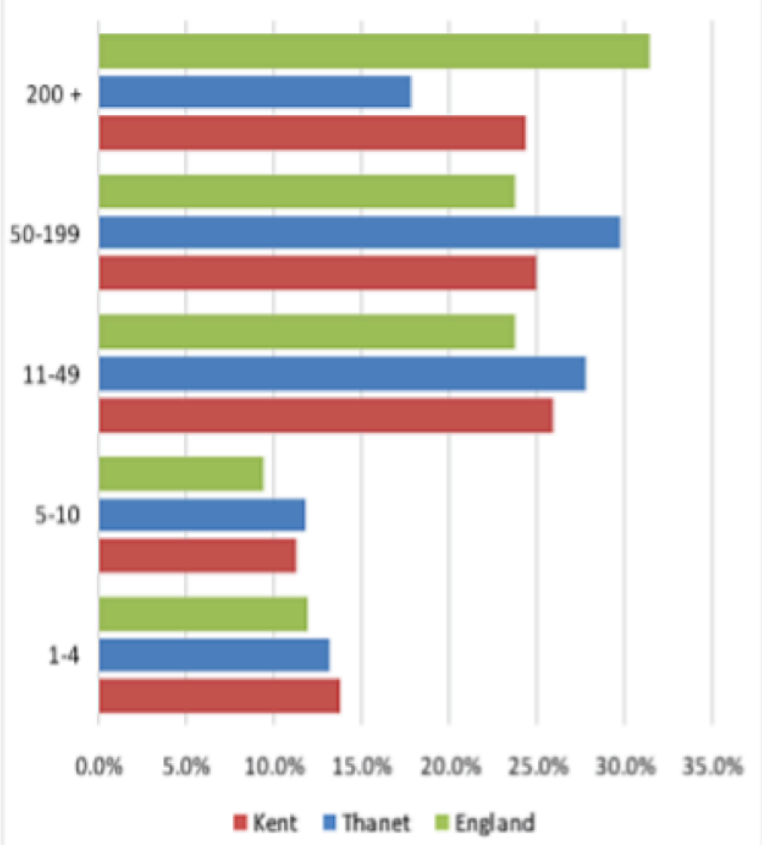
	May 2018		Since April 2018	Since May 2017
	Unemployed	% of workforce	%	%
Thanet District	4,040	4.9%	-3.7%	41.5%
Dover District	2,205	3.2%	-7.2%	45.5%
Canterbury	1,430	1.4%	-2.7%	12.6%
Shepway	1,590	2.4%	0.0%	11.6%
Kent	18,420	2.0%	-2.8%	12.9%
Great Britain	797,525	2.0%	3.2%	17.8%

Source: KCC, 2018a

Employment and productivity

2.3.8 Thanet has fewer large firms (employing more than 200 people) than Kent and England. Indeed, the Thanet economy is dominated by small firms (TDC, 2016, p. 8) as shown in Figure 9.

Figure 9 Employment by size of firm

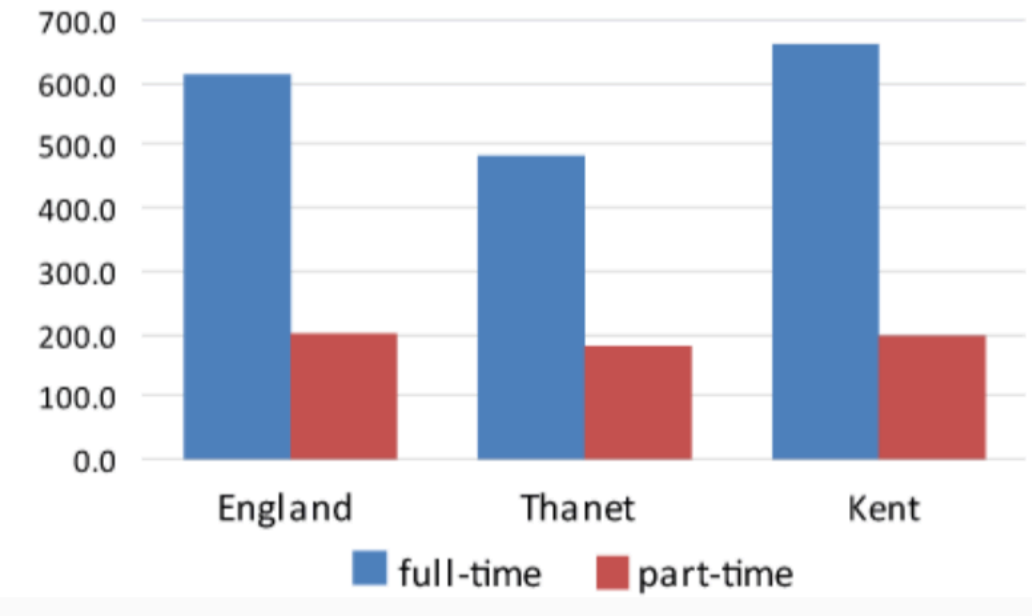


Source: Thanet District Council, undated, p. 7

2.3.9 Productivity in Thanet is around 80% that of the Kent average and will need to grow at 3.5% per annum until 2031 to reach this county average (TDC, 2016, p. 16). The link between productivity and wages means that organisations will have to step up their productivity if wage levels are to rise sufficiently to increase the quality of life within the District. Indeed, in 2016, GVA per capita in Thanet was only 63% of the County average and closing this gap will necessitate growth at a rate of 5.2% per annum to 2031 (TDC, 2016, p. 16).

2.3.10 Wages in Thanet are lower than both the England and Kent averages for both full-time and part-time workers as shown in Figure 10.

Figure 10 Average gross weekly wage in Kent and Thanet



Source: Thanet District Council, undated, p. 6

Economic growth strategy for Thanet

2.3.11 The Draft Economic Growth Strategy for Thanet (TDC, 2016) describes the local economy:

> "*Thanet has a distinctive local economy with substantial opportunities for sustainable and high quality economic growth. Particularly with HS1 in place, Thanet now has significant locational advantages deriving from its proximity to both London and continental Europe. It has outstanding cultural assets, epitomised particularly through the Turner Contemporary. It has a very high quality natural environment, especially its coastline.*
>
> *Looking ahead, there is real potential linked to the port and historic marina at Ramsgate and emerging opportunities in the fields of advanced manufacturing, agri-tech and the creative sector. While there are some challenges – relating particularly to the creation of jobs locally and workforce skills – the opportunities are real ones, particularly in the wider context of significant planned housing and population growth*." (TDC, 2016, p. 1)

2.3.12 However, Thanet continues to face many challenges and the Economic Growth Strategy (TDC, 2016) as the Council says:

> "*The skills profile could be strengthened; too many jobs are "low wage" and part time in character; and the number of jobs within the District needs to grow. There is also a need to diversify the business base so it is less reliant on 'public sector' type roles (36% in health, education and public administration).*
>
> *However, Thanet is full of ambition and confidence. A great deal has been achieved over recent years and much more can be accomplished through the delivery of a forward looking and focused Economic Growth Strategy*."

2.3.13 Thanet has benefited from EU funding under a number of programmes including the European Regional Development Fund. Access to this funding for deprived areas will be lost when the UK exits the EU, rendering Thanet more reliant on private sector investment to ensure the creation of high quality jobs. The reopening of Manston Airport would provide economic growth for Thanet and the UK, by providing the opportunity for activities that are currently and increasingly being diverted to airports in mainland Europe, to be diverted to Manston Airport instead. An operational Manston Airport will provide jobs in an area of high unemployment, with knock-on educational, training, and social benefits.

The Thames Estuary Growth Commission

2.3.14 In the 2016 budget, the Chancellor of Exchequer announced a new Thames Estuary 2050 Growth Commission. Unlike its predecessor, which excluded East Kent, this initiative includes 40-miles of the Thames Estuary from Canary Wharf to Southend on the north side and Thanet on the south as shown in Figure 11. The Thames Estuary region has a population of more than three million people and in Kent covers the areas of Canterbury, Dartford, Gravesham, Medway, Swale and Thanet.

Figure 11 Map of the Thames Estuary area

Source: https://www.gov.uk/government/news/lord-heseltine-thames-estuary-plan-to-unleash-growth-for-decades-to-come

2.3.15 The aim of the Commission is to boost productivity, attract and retain skilled workers, and capitalise on major infrastructure works. In his budget statement, The Chancellor of the Exchequer said:

> "*The Commission will develop an ambitious vision and delivery plan for North Kent, South Essex and East London up to 2050. This will focus on supporting the development of high productivity clusters in specific locations. It will examine how the area can develop, attract and retain skilled workers. It will also look at how to make the most of opportunities from planned infrastructure such as the Lower Thames Crossing. It will report back in Autumn Statement 2017 with a clear and affordable delivery plan for achieving this vision.*" (HM Treasury, 2016, para 6.21)

2.3.16 The Government confirmed the priorities of the Thames Estuary 2050 Growth Commission in December 2017[2]. These confirm that connectivity will be a priority, including planned investments such as the Lower Thames Crossing but also assessing further river crossings and extending the Elizabeth Line to Ebbsfleet. Equipping people with the right skills and creating internationally competitive centres of excellence will also be priorities. The Commission published its final report and recommendations to Government in June 2018. Particularly relevant is the focus on medical research, productive agricultural landscapes, and niche tourism in the North Kent Foreshore. All these sectors rely on transportation of goods (particularly pharmaceutical products and perishable food) and visitors by air.

2.3.17 Azimuth Associates on behalf of RiverOak has submitted a proposal to the Commission for an aviation academy to be based on or near the Manston Airport site. Further details can be found in Section 6.6 of this document. Not only will this provide people with the skills required by the airport and its supply chain but ensure that local people have access to training to ensure they are highly marketable to other employers.

[2] https://www.gov.uk/government/news/thames-estuary-2050-growth-commission-priorities-confirmed

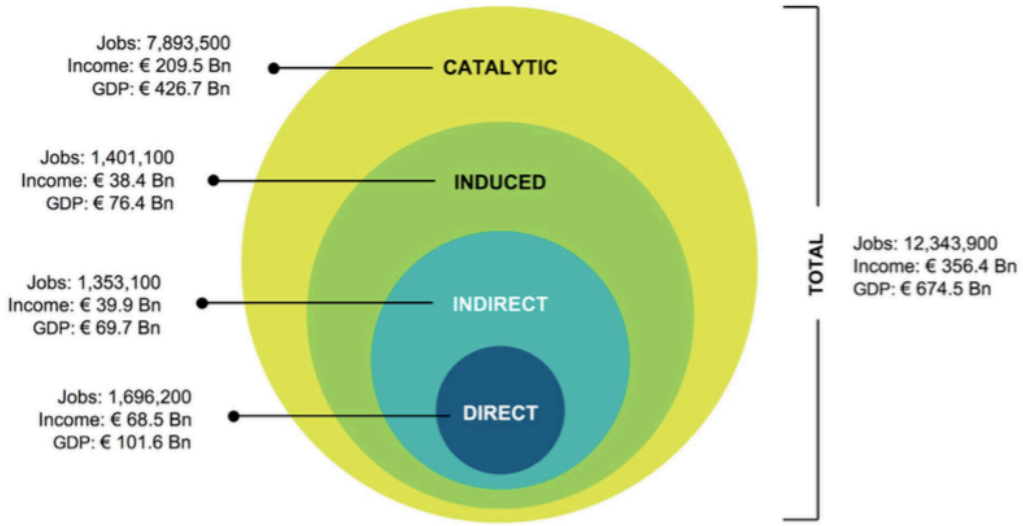
3 The socio-economic impact of airports

3.0.1 This section considers the impact airports make on their local, regional and national economies. As the DfT says, "*Transport investments can, and generally do, affect the economy. They can in particular affect the location and pattern of economic activity, and be used to reduced regional disparities.*" DfT, (2005, p. 3). The economic impact made by airports is a vital component of modern economies.

3.1 Types of impact made by airports

3.1.1 The impact made by an airport is measured by employment, income, and contribution to GDP. Figure 12 shows the impact of Europe's airports on jobs, income and GDP.

Figure 12 Economic impact of European airports

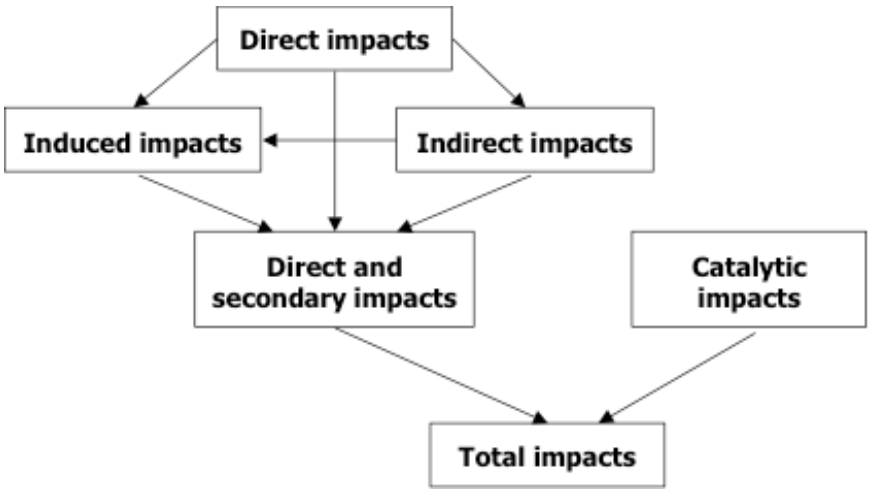


Source: Intervistas, 2015, p. VI

3.1.2 Figure 12 indicates the four types of impact on economies that are made by airports. These have been well documented and are shown in Figure 13 and described in the following paragraph (Graham, 2001). However, an airport's relationship with the economy in which it operates is interdependent and an airport's activity depends on economic factors in that economy. Indeed, air travel is driven by a number of factors including:

- GDP, disposable income, and living standards;
- Reducing air travel costs;
- Globalisation; and
- Deregulation

Figure 13 The economic impact of airports



Source: Graham, 2001, p. 185

3.1.3 In terms of jobs, the categories of employment generation are:

Direct: Employment associated with the operation and management of activities at the airport. This includes the jobs created by the airport operator as well as other airport-related businesses located elsewhere on or near the airport site. These other businesses include airlines, general aviation, handling agents, airport security, immigration and customs, retail and food concessions, aircraft maintenance, and a range of other activities at the airport.

Indirect: Employment in the supply chain such as wholesalers providing food for in-flight catering, aviation fuel supply, travel agents, cleaning and maintenance contractors, construction, and accounting and legal services.

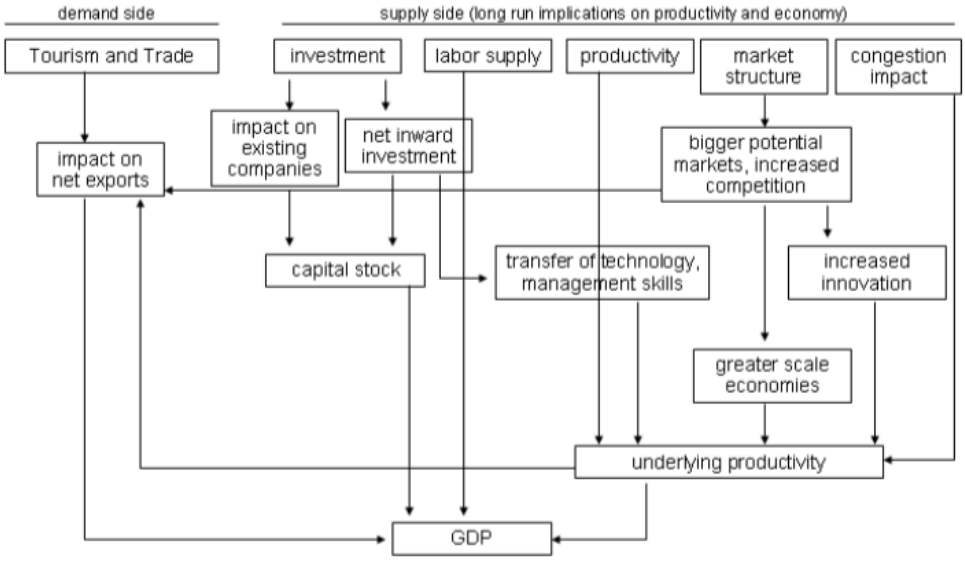
Induced: This category covers the employment created directly or indirectly as a result of those connected to the airport spending their income in the local or national economy. Induced employment therefore includes a wide range of jobs such as retail, entertainment, hospitality, childcare, health care, building and home renovations for example.

Catalytic: Catalytic impacts are associated with the aviation sector outside the local economy in which the airport operates. Air transportation facilitates employment and economic development in the local and national economy and jobs in this category therefore capture a wide range of opportunities. For example, air transport contributes to tourism and therefore impacts tourist spending in the economy. Air transport also impacts trade, facilitating the import and export of goods by air and therefore their manufacture and distribution, as well as productivity. Air transport also positively impacts location and business decisions by other organisations and stimulates innovation, thereby having a long run impact on productivity and GDP.

3.1.4 Other catalytic effects of air transportation, as shown in Figure 14, include the impact on the supply chain through the creation of larger potential markets and increased competition, technology transfer, increased innovation, and upskilling of the workforce. For freight-focused airports, inbound air cargo provides businesses that rely on fast delivery (such as airlines, oil rig maintenance, etc.) with a reliable transportation

mode for high-value equipment, machinery and spare parts. Air transportation also supports Just-in-Time practices, particularly for high value to weight goods with short product lifecycles (Ishutkina, 2009) such as electronic equipment. Businesses involved with perishable goods of all types, including not just electronic components but agricultural products such as flowers, fruit and some vegetables, are enabled by their use of air transportation.

Figure 14 Economic catalytic impacts of air transport



Source: Ishutkina, 2009, p. 40

3.2 Connectivity

3.2.1 The Airports Council International (**ACI**) draws attention to the growing link between connectivity and economic growth. They say:

> "*Alongside the virtual connectivity afforded by the internet and the digital revolution,* ***aviation is the prime and unsurpassed enabler that connects the people, places and products of the real world****. This means that trade, tourism, foreign investment and increased productivity are all closely related to the level of air connectivity.* (ACI, 2015, p. 1, bold from the original).

3.2.2 Indeed, and of particular relevance to the UK post Brexit, ACI continues:

> *For Europe, air connectivity is of an even greater strategic relevance. The past decades have seen a gradual shift occurring in the global economy, with new economic powerhouses moving the pillars of trade eastwards. Europe will not be able to avoid this shift, but we can still ensure that we remain closely connected to the new potential sources of prosperity*." (*ibid*, p. 1)

3.2.3 Many studies have shown how airports specifically impact on their local, regional and national economies. For example, Intervistas found a 10% increase in a country's air connectivity to be associated with a 0.5% increase in GDP per capita (Intervistas, 2015, p. XIII). Steer Davies Gleave report the multiplier effect of airports on GVA to be 3.66, meaning that a £1 increase in aviation GVA translates to £3.66 in GVA for the UK economy (Steer Davies Gleave, 2010, p. 105).

3.2.4 One of the effects of reduced air freight connectivity due to capacity restrictions in the UK is the impact on transportation costs. The wider economic benefits of transportation projects are:

> "*benefits that are from accessibility improvements in the transport markets and accrue in the form of productivity gains due to agglomeration effects, increased outputs in markets with imperfect competition*[3] *and improvements in labour supply*" (Bose et al, 2008, p. 2).

Indeed, in 2017, Amsterdam Schiphol replaced London Heathrow as the primary airport in Europe in terms of direct connectivity (ACI-Europe, 2017, p. 6). Frankfurt remains the hub airport with most connectivity in the world, followed by Schiphol, Dallas Fort Worth, Paris Charles de Gaulle and Atlanta. Heathrow is ranked in 8th place (*ibid*).

3.2.5 Wider economic benefits can also include the additional value the government may place on employment, particularly in regeneration areas (DfT, 2005, para. 55). The improved connectivity of Manston Airport would provide business time and reliability savings, leading to increased competition and improved efficiency.

3.3 Location and investment decisions

3.3.1 The presence of an airport encourages large employers to locate nearby. Indeed, for Bristol Airport, a survey indicates that the presence of the airport was a factor in the location decision of one in five businesses in the West of England (Atkins, 2017, p. 80). As the DfT says:

> "*2.1 International connectivity, underpinned by strong airports and airlines, is important to the success of the UK economy. It is essential to allow domestic and foreign companies to access existing and new markets, and to help deliver trade and investment, linking us to valuable international markets and ensuring that the UK is open for business. It facilitates trade in goods and services, enables the movement of workers and tourists, and drives business innovation and investment, being particularly important for many of the fastest growing sectors of the economy.*
>
> *2.2 International connectivity attracts businesses to cluster round airports, and helps to improve the productivity of the wider UK economy. Large and small UK businesses rely on air travel, while our airports are the primary gateway for vital time-sensitive freight services. Air travel also allows us ever greater freedom to travel and visit family and friends across the globe, and brings millions of people to the UK to do business or enjoy the best the country has to offer.*" (DfT, 2017b, p. 13)

3.3.2 Bel and Fageda (2008) found a 10% increase in the supply of air services at an airport was associated with a 4% increase in the number of large firms headquartered nearby. Arndt *et al* (2009) found air connectivity to be one of the four most important factors affecting location decisions. IATA (2006) report that 30% of Chinese firms changed investment decisions due to constraints on air services.

[3] Imperfect competition occurs in a market where additional production is higher than the cost of producing the good. Production costs include transportation and therefore a transport scheme that reduces freight time and cost would be expected to increase production.

3.3.3 Airports are also linked to increases in business investment and Foreign Direct Investment (**FDI**). Cooper and Smith (2005, p. 36) found that a 10% increase in air transportation usage increases business investment by 1.6%. PWC (2013) found that a 1% increase in international seat capacity was associated with a 0.47% increase in FDI inbound and a 0.19% increase in FDI outbound and that a 10% change in the growth rate of seat capacity in the UK leads to approximately a 1% change in the growth rate of the UK's GDP.

4 Forecasting jobs created by airport operations

4.0.1 In an ideal world, there would be standard formulae for calculating the number of direct, indirect, induced and catalytic jobs created by airport operations but unfortunately this is not the case. A number of agencies have provided well-research relationships between jobs and passengers and freight handled but these formulae vary widely. Alternatively, a comparator airport could be used to provide a comparator for jobs created by a particular type of airport operation. Both approaches are investigated in this section.

4.1 Forecasting formulae

4.1.1 The most widely used estimate for jobs created at airports was the formula one million passengers or 100,000 tonnes of freight corresponds to 950 direct jobs (Airports Commission, 2014, p. 15; Thanet District Council, 2013, p. 2). York Aviation, in a study for the ACI in 2004, added to this formula, providing estimates of the indirect and induced jobs. They say:

> "*On the basis of the evidence we estimate that, on average, for every 1,000 on-site jobs supported by European airports there are around 2,100 indirect/induced jobs supported sub-regionally. Given that there are 950 on-site jobs created per million passengers, once we factor in the direct, indirect and induced jobs, we concluded that for every million passengers (workload units), European airports support around:*
>
> - *2,950 jobs nationally;*
> - *2,000 jobs regionally; or*
> - *1,425 jobs sub-regionally*." (York Aviation, 2004, p. 9)

4.1.2 Intervistas found that for small airport (less than one million traffic units), 1,200 jobs were created per 1,000 traffic units. For medium-sized airports such as the proposal for Manston Airport, the figure is 950 jobs, and for large airports, each additional 1,000 traffic units created 850 extra jobs (Interavistas, 2015, p. x). Intervistas (2015) allow calculations to be made for all four types of economic impact, as shown in Figure 12, The Intervistas figures can be extrapolated in relation to direct jobs:

- Indirect: One direct job is equivalent to 0.8 indirect jobs
- Induced: One direct job is equivalent to 0.8 induced jobs
- Catalytic: There are 4.65 catalytic jobs for every one direct job or 4,650 per 1,000 direct jobs

4.1.3 An Airports Council International European study (2015) shows that 1,200 direct jobs are created for the first one million passengers and 0.95 jobs per 1,000 extra passengers thereafter. The study also shows that for every million passengers, European airports create around 2,100 indirect and induced jobs nationally.

4.1.4 In terms of catalytic impacts, ICAO (2000, p. 2) suggests that:

> "*In the global economy, every $100 of output produced and every 100 jobs generated by air transport trigger additional demand of some $325 and 610 jobs in other industries.*"

4.1.5 A study by Steer Davis Gleave (2015) for the EU Commission, which encompassed airports across Europe, found the ratio between direct employment and passengers to be one job per 1,240 passengers. However, the Steer Davis Gleave (2015) study notes that smaller airports are less efficient than larger airports in terms of the ratio between passengers and employment. This is because there are minimum levels of employment needed to provide a complete airport service and economies of scale are not realised as they are with large airports. This may mean that the forecast employment figures for Manston could be higher than those calculated using their ratio.

4.1.6 There is, of course, the potential for new technologies or working practices to affect the theoretical calculations for job creation. In particular, Thanet District Council has raised the issue of potential automation for cargo handling:

> "*No optimism bias has been allowed for in these estimates, nor has the growth in automation been considered in this academic study. Without any information about who is going to deliver the freight tonnage and therefore create the job numbers stated we question whether the economic benefits of the airport in terms of job creation can be considered deliverable*." (Thanet District Council's response to RiverOak's Statutory Consultation, p. 2)

The issue of optimism bias is addressed in Volume III section 2.1.6 of this series and the following paragraphs provide a response to the remaining points.

4.1.7 The growth in automation has clearly taken place in passenger processing, including security body scanners, bag drop, and self-printed boarding cards. However, cargo handling has thus far been less automated. One exception is the automatic package routing that integrators have adopted in their warehouses. This automation has largely taken place and is reflected in the calculations made. The recent trials to automate the loading and unloading of Unit Load Devices (**ULD**) from belly operations are not relevant to the all-freight sector that will provide the focus for Manston Airport. The process used to handle all-freight aircraft requires relatively low levels of manpower compared to passenger handling (and this is reflected in the employment calculations). Therefore any automation would have a relatively small impact. Additionally, the investment in Research & Development and implementation required to make a significant impact on the job creation forecasts shown in this report is unlikely to be commercially viable.

4.1.8 Specific details of air freight operators are not included in this or any other forecasts of this type. For example, this level of detail is not included in air traffic forecasts such as those calculated by the Airports Commission, those for Heathrow in support of the proposed third runway, and for Gatwick for their proposed second runway. Nonetheless job creation is still derived from these figures. Unlike these forecasts, a considerable level of detail is provided in Volume III of this set of reports, including category of aircraft and the routes expected to be flown. These have been subject to enquiry during the statutory consultation. Jobs created by the airport operator are shown in detail, including job function, in the forecast (see Table 6).

4.1.9 To summarise, the following estimates of the relationship between direct employment and one million passengers/100,000 tonnes of freight moved through airports has been shown by various studies to be:

- 1,200 jobs (ACI-Europe, 2015)
- 950 jobs (Thanet District Council, 2013; York Aviation, 2004)

- 865 jobs at large airports (Intervistas, 2015)
- 806 jobs (Steer Davis Gleave, 2015)

The relationship between indirect and induced jobs and direct jobs has been shown to be:

- Around 2,100 indirect and induced jobs nationally per 1,000 on-site jobs (ACI-Europe, 2015; York Aviation, 2004)
- 1,600 per 1,000 direct jobs (Intervistas, 2015)

The relationship between direct jobs and catalytic jobs has been calculated as:

- 4,650 per 1,000 direct jobs (Intervistas, 2015)
- 4,000 (6,100 less 2,100) per 1,000 direct jobs (ICAO, 2000)

4.2 Comparator airport figures

4.2.1 East Midlands and Stansted airports are currently the main UK airports handling dedicated freighters, making them the most obvious choice when seeking a comparator for Manston Airport. A review of the *East Midlands Airport Sustainable Development Plan: Economy and surface access* found that for 309,000 tonnes of cargo and 4.5 million passengers (East Midlands Airport, 2015, p. 2), 6,730 people were employed on the airport site (*ibid*, 2014, p. 5). This is a ratio of one million passengers or 100,000 tonnes of freight to 887 direct jobs. (For clarity, the calculation made here is 6,730/(3.09 + 4.5) = 886.69). Indirect/induced and catalytic multipliers have not been calculated.

4.2.2 Stansted Airport's planning application, made in March 2018, forecasts an increase in direct employment of 5,400 jobs relative to an additional eight million passengers giving a ratio of 675 jobs per one million passengers. For indirect/induced jobs a multiplier of 1.8 has been used. This is the same figure as used by Luton Airport. Calculations for catalytic job creation have not been specified. Whilst the Stansted Airport figures are the most recent, the Planning Application seeks to increase the number of passenger ATMs and numbers, with little increase in freight. For this reason, the multiplier used to forecast direct jobs may not be an ideal comparator for Manston Airport.

4.2.3 York Aviation, in reviewing an earlier version of this report, says that, "*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.*" (York Aviation, 2017, p. 61) York Aviation has provided their formulae, based on their experience at other airports, particularly Glasgow Prestwick. These are:

- Direct jobs: 650 per one million passengers or 100,000 tonnes of freight
- Indirect/induced: A multiplier of 0.4 on direct jobs. This figure is in contrast to the 2.1 multiplier used in 2015 by York Aviation in their work for ACI Europe
- Catalytic: A multiplier of 3.46 and 3.76, inclusive of the direct impact.

4.2.4 However, Glasgow Prestwick Airport is not a suitable comparator for Manston Airport for a number of reasons, mainly due to scale of operation and location. Table 3 compares 2016 CAA figures for Prestwick Airport with the forecast for Year 10 for Manston Airport.

Table 3 Comparison between Glasgow Prestwick Airport and Manston Airport

	Prestwick Airport	Manston Airport
Freighter ATMs	652	11,600
Passenger ATMs	4,631	6,754
Freighter tonnage	10,323	212,351
Passenger numbers	673,232	975,591

4.2.5 As Table 3 shows, whilst Manston Airport's forecast for passengers is similar to Prestwick, its freight operation would be considerably greater. Prestwick has around 10,700 square metres of capacity for warehousing[4], whereas Manston would have more than double, at around 27,400 square metres, by Year 10. It should also be noted that Manston Airport is within an hour's drive time from London, one of the world's major conurbations, whereas Prestwick is located on the west coast of Scotland, near Ayr, approximately an hour's drive from central Glasgow.

4.3 Formulae used to forecast jobs at Manston Airport

4.3.1 Earlier versions of this report used the following formulae:

- 887 direct jobs per one million passengers or 100,000 tonnes of freight (East Midlands Airport figures)
- 2,100 indirect/induced jobs for every 1,000 direct jobs (York Aviation for ACI Europe, 2015)
- 4,000 catalytic jobs (6,100 less 2,100) per 1,000 direct jobs (ICAO, 2000)

4.3.2 As York Aviation (2017, p. 61) point out, it is difficult to identify an ideal comparator for Manston by which to gauge the airport's potential as a job creator. RiverOak's proposition for Manston Airport is unique; it is located relatively close to London's overcrowded airport system, would have multimillion-pound investment in state-of-the-art cargo facilities, and provide Kent, a traditionally underperforming County when compared with the rest of the South East, with international connectivity, promote inward investment, and stimulate growth in many sectors. As such, neither Stansted nor Prestwick would seem to be suitable comparator airports.

4.3.3 Therefore, in terms of a multiplier for direct job creation, the East Midlands example, whilst not ideal, seems to provide a reasonable predictor for Manston. It is noted that there is potential for productivity improvements and therefore an allowance should be made to the direct job calculations. York Aviation (2017, p. 62) suggest:

> "*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.*"

Therefore a 2% annually increasing allowance has been made from Year 11, the 10th year of cargo operations and 9th for passenger operations. Since Manston Airport would be a new operation and relatively small, it is likely that operations would take a number of years to settle into an operational phase where productivity substantially affects job numbers. As Steer Davis Gleave (2015) point out, there are minimum levels of

[4] Figure of 115,000 square feet provided by Viscount Aviation

employment needed to provide a complete airport service and economies of scale cannot be realised in the same way as with large airports.

4.3.4 In line with Stansted and Luton Airports, a multiplier for indirect/induced employment of 1.8 has been used in place of the original 2.1.

4.3.5 The catalytic impact on jobs is perhaps the most difficult and controversial forecast to produce. York Aviation's opinion is that:

> "*The multiplier used* [in earlier versions of this report] *is taken from out of date research for ICAO 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 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*." (York Aviation, 2017, p. 62)

It should be noted that earlier figures were caveated as national rather than regional or sub-regional/local impacts. The Wood Group (formerly Amec Foster Wheeler) has carried out further more detailed work on local socio-economic impacts (see Chapter 13 of the Environmental Statement, document number TR020002/APP/5.2-2).

4.3.6 Catalytic impacts are more complex than the other categories of impact because they are so wide ranging. They include:

- Tourism including accommodation, catering, attractions, shopping, etc.
- Trade in imports and exports
- Location/investment decisions
- Business operations and productivity, market structure, innovation
- Improving labour supply
- Reducing the congestion at other South East airports and reducing the negative affect on catalytic impacts of this congestion

As such, accurately calculating catalytic impacts at airport level is a complex exercise. With a unique airport such as Manston, which is not currently operational, this is made more complex by a lack of data to capture and from which to extrapolate. However, what is known and generally accepted is that the catalytic contribution to the economy is greater than the combined direct, indirect, induced impact (for example ICAO, 2017; Intervistas, 2015 and 2017; Oxford Economics, 2005). This means that any multiplier that is less than the combination of the other three categories of impacts is unlikely to cover the full range of catalytic effects. York Aviation's calculations (2017, p. 64) are invalid since they show the catalytic impact on jobs as less than the direct job figure alone. Whilst the ICAO work undertaken in 2000 has its drawbacks, it is more conservative than the 2015 Intervistas figure and has been applied to the Manston forecast for this reason.

4.3.7 It should be noted that the forecast for catalytic jobs created by airport operations comes with a number of caveats. Firstly, these figures are generalised from

European airports and may or may not be accurate in a UK setting. Secondly, the proposed redevelopment of Manston Airport is unique, given the extent of planned investment, the airport's location in an area of relative deprivation, and the capacity constraints at other South East airports. As such, the full impact on the wider economy would require extensive research, which is outside the bounds of this report.

4.3.8 Table 4 in the following section shows the results of using these calculations as estimates for the potential job creation at Manston.

5 Employment forecasts for Manston Airport

5.0.1 The causality between air traffic and economic development is well established and the previous section has indicated the extent to which airports are employment generators. For example, in written evidence to the Transport Select Committee (AS 70), the Royal Town Planning Institute says:

> "*Airports are hugely important to the areas in which they are located, for example Heathrow Airport is a major employment generator in outer west London and is integral to the local economy. Similarly smaller regional airports can also be vital to local economies.*" (1.2)

5.1 Forecast job creation resulting from operations at Manston Airport

5.1.1 The employment created by the operation of an airport includes direct, indirect, induced and catalytic jobs, as described in Section 3.1. Direct jobs include employment by the airport operator as well as by airlines, general aviation, handling agents, airport security, immigration and customs, retail and food concessions, and aircraft maintenance, for example.

5.1.2 Indirect employment includes jobs in the supply chain such as wholesalers providing food for in-flight catering, aviation fuel supply, travel agents, cleaning and maintenance contractors, for example. Induced employment covers a wide range of jobs created as a result of those connected to the airport spending their income in the local or national economy.

5.1.3 Catalytic employment includes those jobs in organisations that are facilitated by the operation of the airport such as tourism and companies that import and export goods by air. It should be noted that, in the interests of providing a conservative forecast, catalytic jobs are not forecast until Year 3 to allow for impacts to be felt throughout the national economy.

5.1.4 A 'top-down' approach has been used, applying the findings from other studies in each job category (direct, indirect/induced, and catalytic) to the Manston Airport air traffic forecast. However, for job creation by the airport operator, which forms a part of the total direct jobs, a 'bottom-up' approach has been applied to provide additional detail and transparency. Full details of this are shown in Section 5.2. These airport operator employment figures have been compiled using extensive knowledge of airport operations of this type.

5.1.5 The airport operator job figures have not been used to adjust the direct jobs calculation, which is derived from the 'top-down' calculation, but form a part of the figure shown in the column headed 'Direct Jobs' in Table 4 (i.e. the figures should not be added together to give a total direct employment figure). However, in addition to the calculations applied, a forecast of 116 direct jobs has been included in Year 1. The actual employment figure is forecast to be in the region of 464 in the fourth quarter of Year 1 and has been annualised to give the figure of 116. This figure indicates employment by the airport operator in advance of commencement of operations. This is expected to take place towards the end of the year to allow for the recruitment process and training to take place before the start of operations. In order to remain conservative, the forecast postpones the creation of any catalytic jobs until Year 3 of the operation to allow the impact of the airport to take effect.

5.1.6 Table 4 shows the result of applying the forecast calculations defined from the previous section. The table shows the freight tonnage and passenger numbers that were used in the calculation (see Volume III for further information), from the first to twentieth years of operation. The table defines jobs as direct, indirect/induced, and catalytic, as previously described in Section 3.1 using the calculations shown in 3.5.2 above.

Table 4 Forecast job creation

	Freight tonnage	Passenger numbers	Direct jobs	Indirect/ induced jobs	Catalytic jobs	Total job creation
Y1	0	0	116	0	0	**116**
Y2	96,553	0	856	1,542	0	**2,398**
Y3	108,553	662,768	1,551	2,791	6,203	**10,545**
Y4	167,092	679,868	2,085	3,753	8,341	**14,179**
Y5	173,741	686,672	2,150	3,870	8,601	**14,621**
Y6	181,436	965,295	2,466	4,438	9,862	**16,766**
Y7	192,908	975,591	2,576	4,638	10,306	**17,520**
Y8	200,673	975,591	2,645	4,762	10,581	**17,988**
Y9	203,245	975,591	2,668	4,803	10,673	**18,143**
Y10	212,351	975,591	2,749	4,948	10,996	**18,693**
Y11	222,377	1,011,587	2,812	5,062	11,249	**19,124**
Y12	234,508	1,049,022	2,890	5,202	11,561	**19,653**
Y13	244,690	1,087,954	2,947	5,305	11,789	**20,042**
Y14	256,989	1,128,444	3,018	5,432	12,072	**20,522**
Y15	270,579	1,170,553	3,094	5,570	12,378	**21,042**
Y16	283,904	1,214,347	3,164	5,695	12,656	**21,515**
Y17	296,594	1,259,892	3,224	5,802	12,894	**21,920**
Y18	312,344	1,307,259	3,301	5,942	13,205	**22,448**
Y19	324,838	1,356,521	3,349	6,029	13,397	**22,775**
Y20	340,758	1,407,753	3,417	6,151	13,668	**23,235**

5.1.7 These figures are lower than the previous forecasts, which are shown in Table 5 and result from the consultations undertaken by RiverOak.

5.1.8 In Europe, direct jobs at airports generally breakdown as follows (Intervistas, 2015, p. 27 – percentage does not add to 100 due to rounding):

- Airlines 28%
- Ground handling 14%
- Airport and Air Traffic Control 14%
- Retail and other in-terminal services 6%
- Airport security and passenger screening 6%
- Customs, immigration and government jobs 5%
- Ground transport 5%
- Food and beverage 8%
- Maintenance, Repair and Overhaul (MRO) 6%
- Other 7%

Table 5 Forecast job creation used in prior editions of this report

	Freight tonnage	Passenger numbers	Direct jobs	Indirect/ induced jobs	Catalytic jobs	Total job creation
Y1	0	0	116	0	0	**116**
Y2	96,553	0	856	1,798	0	**2,655**
Y3	108,553	662,768	1,551	3,257	6,203	**11,010**
Y4	167,092	679,868	2,085	4,379	8,341	**14,805**
Y5	173,741	686,672	2,150	4,515	8,601	**15,266**
Y6	181,436	965,295	2,466	5,178	9,862	**17,505**
Y7	192,908	975,591	2,576	5,411	10,306	**18,293**
Y8	200,673	975,591	2,645	5,555	10,581	**18,782**
Y9	203,245	975,591	2,668	5,603	10,673	**18,944**
Y10	212,351	975,591	2,749	5,773	10,996	**19,517**
Y11	222,377	1,011,587	2,870	6,027	11,479	**20,375**
Y12	234,508	1,049,022	3,011	6,322	12,042	**21,375**
Y13	244,690	1,087,954	3,135	6,584	12,542	**22,261**
Y14	256,989	1,128,444	3,280	6,889	13,122	**23,291**
Y15	270,579	1,170,553	3,438	7,220	13,753	**24,412**
Y16	283,904	1,214,347	3,595	7,550	14,381	**25,527**
Y17	296,594	1,259,892	3,748	7,871	14,993	**26,613**
Y18	312,344	1,307,259	3,930	8,253	15,720	**27,903**
Y19	324,838	1,356,521	4,085	8,578	16,338	**29,000**
Y20	340,758	1,407,753	4,271	8,970	17,085	**30,326**

5.1.9 The figures shown in this section outline the estimated overall number of direct jobs created by the presence of an operational airport at Manston. The following section considers the proportion of employment created by the airport operator only.

5.2 Forecast number and type of jobs by the airport operator

5.2.1 Job opportunities created by the airport operator will include a wide range of positions as detailed in Table 6, which shows the estimated number of jobs at Manston Airport by job function. These figures have been calculated based on previous experience with similar operations at other airports. They have not been extrapolated from the figures shown in Table 4 and anomalies are therefore likely between the calculations derived from different methods. In particular, the ACI breakdown of jobs by employer shown previously can only be used as a guide.

5.2.2 As identified above, the figures include an estimate of recruitment ahead of operations commencing in Year 2. The headcount for Year 1 is an annualised figure and the forecast is for four times the number shown, all employed in the fourth quarter only. The headings shown in Table 6 refer to jobs including:

- Pax – passenger services
- Frei't – Freight services
- ATS – Air Traffic Services
- RFFS – Rescue and Fire Fighting Services
- Ops – Airport operations
- Maint – Maintenance

- MT- Motor Transport
- Sec – Site and freight security
- Adm – Administration

Table 6 Estimated job creation by the Manston Airport operator by function

	Pax	Frei't	ATS	RFFS	Ops	Maint	MT	Sec	Adm	Total
Y1	0	49	6	14	6	8	8	11	14	**116**
Y2	0	196	25	57	24	31	31	45	14	**423**
Y3	99	215	25	57	29	38	38	55	15	**571**
Y4	102	302	25	57	31	41	41	59	15	**673**
Y5	103	322	25	57	32	41	41	60	16	**697**
Y6	145	256	25	57	33	43	43	62	16	**680**
Y7	146	288	25	57	33	43	43	63	16	**714**
Y8	146	307	25	57	33	43	43	63	16	**733**
Y9	146	357	25	57	34	44	44	64	16	**787**
Y10	146	331	25	57	34	44	44	64	16	**761**
Y11	152	347	25	57	34	44	44	64	16	**783**
Y12	157	361	25	57	34	45	45	65	16	**805**
Y13	163	376	25	57	35	45	45	66	16	**828**
Y14	169	391	25	57	35	46	46	67	16	**852**
Y15	176	413	25	57	36	46	46	68	16	**883**
Y16	182	430	25	57	36	47	47	68	16	**908**
Y17	189	447	25	57	36	47	47	69	16	**933**
Y18	196	469	25	57	37	48	48	70	17	**967**
Y19	203	488	25	57	37	48	48	71	17	**994**
Y20	211	507	25	57	38	49	49	71	17	**1,024**

Source: Figures calculated by Viscount Aviation, March 2017

5.2.3 In terms of shift numbers, an assumption has been made that 35% of the total number of staff on the payroll would be on duty during peak daily operations. Most operational staff would be rostered in 12-hour shifts once airport operations commence. Shift changes would be likely to be at 07.00 and 19.00 hours. In terms of the daily staffing pattern, shifts would generally be four days on and three off, then three on and four off, allowing for an average 42-hour working week.

5.3 Jobs forecast by location

5.3.1 A study of the economic impact of Luton Airport (Oxford Economics, 2015) shows the total employment of the airport in 2013 by location. Table 7 shows a summary of the Oxford Economics' findings (it does not include the level of detail by local area/town except for Luton as the nearest town).

5.3.2 The findings from the Luton Airport study show that the impact of all direct employment is local – in this case all within Luton. For Luton Airport, direct jobs equated to 34.7% of the total indirect and induced jobs. The Manston forecast, which used the formulae shown in 3.5.2, has the proportion 32.3% direct jobs to total indirect and induced jobs. Since this proportion is within a reasonable tolerance, the Luton Airport 2013 figures have been used as a guide to the potential employment impact by location for Manston Airport.

Table 7 Total employment impact of Luton Airport, 2013

Locations	Direct	Indirect	Induced	Total
UK	9,437	7,682	10,088	**27,207**
Three Counties sub-region	9,437	2,038	4,408	**15,883**
Bedfordshire	9,437	943	2,781	**13,161**
Buckinghamshire		386	441	**827**
Hertfordshire		708	1,186	**1,894**
London Thameslink Corridor		150	163	**313**
Luton	9,437	751	1,598	**11,786**

Source: Oxford Economics, 2015, p. 78

5.3.3 The figures in Table 4 are UK-wide figures, as with the first line of Table 7. It should be noted that, "*there is no commonly agreed definition of the local area for this purpose, with different definitions suitable for different airports and dependent on the type of impact being assessed*." (Airports Commission, 2014, p. 11) For the purposes of this study, the local area is defined as Thanet (shown in Figure 8) and the rest of East Kent (shown in Figure 6). The Luton Airport study shows that all direct jobs impact the local area and this may be the case with Manston Airport. However, it may take time for local people to acquire the necessary skills to fill these roles. It is for this reason that it is imperative to work with local education providers to ensure local people have access to a wide range of aviation-related training (see Section 6 for further details).

5.3.4 In terms of indirect/induced employment, the Luton Airport example from 2013 shows a wide spread of employment impact. For Manston, the impact of this type of job creation may be felt across the 'wider Thames estuary' area, which is shown in Figure 11, and across Kent. Areas that benefit from good transport links to the airport are most likely to feel the impact of those indirect/induced jobs that are created close to the airport site. In addition to East Kent, these include Shepway, Swale, Medway and potentially Dartford and South East London.

5.3.5 Catalytic employment impact is likely to be UK-wide, with perhaps a focus on the South East and London.

5.4 Construction jobs

5.4.1 It should be noted that the forecasts shown in Table 4 and Table 6 do not include construction jobs required to redevelop the airport. RiverOak's plans are for eight freight stands and three passenger stands for aircraft to be constructed prior to commencement of operations. Warehousing and fuel storage to meet the forecast demand will also be constructed. Further construction work will take place in Years 2 to 4, Years 4 to 10, and Years 11 to 17 (see Volume III for details). As with house building, these types of construction jobs are not permanent and as such are not been included in the previous forecasts but shown here separately.

5.4.2 In order to predict the number of construction jobs required to meet the redevelopment specifications, comparisons with similar projects (i.e. with an annual turnover of between £30 to £40 million per annum) have been made. The forecast derived from these comparisons, calculated by the RPS Group[5], is as follows:

- Average number of workers on site at any time 210
- Peak time is likely to be three times the average figure 630

[5] http://www.rpsgroup.com

- Total equivalent people years over the whole project 1,475 years

5.4.3 It should be noted that the redevelopment project has been planned in four discontinuous phases. Therefore, construction jobs will be recreated at each of the four phases. The total on-site construction figure of between 600 and 700 jobs, as shown above, does not include the effect on the local supply chain or the number of jobs created off-site by local construction companies.

5.5 Other direct jobs

5.5.1 Should TG Aviation return to Manston Airport, they would bring a total of around 21 full-time, part-time and freelance/consultancy jobs. These roles include engineering, flying instruction and administration. Before having to leave Manston, TG Aviation were expanding the engineering side of their business, building on a great reputation built up over many years. However, the company has raised concerns about the availability of local qualified engineers, vital if they are to be able to grow the company. They believe an engineering training facility at Manston would address this problem.

5.5.2 Polar Helicopters, who have continued to operate from Manston since the airport's closure, will remain at the airport. They currently have four helicopters - two R22s, one R44 and one Jet Ranger. Their focus is on flying lessons and trial flights with some charter work. With plans to expand, Polar Helicopters will continue to provide employment on the Manston Airport site.

5.5.3 In addition to the continued presence of AvMan Engineering on the site, RiverOak plan to attract a major aircraft recycling operation to Manston and this would increase the employment opportunities on-site. Previous recycling operations by Aviaservices Ltd on the Manston site[6] employed around 70 to 80 full time staff. Airbus has around 7,000 aircraft in operation and Boeing 12,000 including both commercial passenger airliners and freighters[7]. Aircraft have around 25 years of use before being taken out of service, generally due to excessive operational costs, high fuel consumption, legislative demands requiring expensive technology upgrades, and difficulties in obtaining spare parts. Figures suggest that around 14,000 aircraft are due to retire in the next 20 years[8].

5.5.4 An estimate of 10 aircraft per year are forecast to be recycled at Manston. Not only will this this put a considerable amount into the local economy, it is also likely to create a significant number of jobs, particularly in engineering.

5.5.5 Additionally there is the opportunity to locate a MRO facility at Manston. MRO services are carried out on civil and military aircraft with airlines generating around 68% of MRO providers' revenue[9]. Almost $100 billion (around £0.75 billion) is spent on aircraft MRO annually with Europe taking 28% of the market (Strair, 2005). The industry continues to expand, stimulated by demand for passenger transport. Aircraft fleets are also ageing due to reduced orders during the financial crisis, and older aircraft generally require higher levels of MRO services. A successful MRO operation at Manston would generate a number of skilled job opportunities.

[6] See Volume II section 5.5.7 for further details
[7] http://cordis.europa.eu/result/rcn/164345_es.html
[8] http://ec.europa.eu/environment/life/publications/lifepublications/flippingbook/jobs_skills/files/assets/basic-html/page14.html
[9] https://www.ibisworld.co.uk/market-research/aircraft-repair-maintenance-overhaul.html

5.5.6 Should the government decide to give Manston Enterprise Zone status (see TDC, 2016, p. 9), it is likely that business would be stimulated in the area, creating more employment opportunities.

6 Training and education

6.0.1 One of the key challenges identified in the Thanet Economic Growth Strategy (TDC, 2016, p. 7) is the need to invest in workforce skills. As such, it will be imperative for local government to work with the airport operator to ensure local people are given the skills, training, and education necessary for them to fulfil their potential and take advantage of the employment opportunities at the airport and in the supply chain. As a study by York Aviation says:

> "*Airports are major centres of employment generating a demand for a wide range of skills. This means that airports can contribute significantly to the training and skill development of the labour force of their catchment areas*." (York Aviation, 2004, p. 28)

6.1 Skills shortages

6.1.1 For many years there has been discussion about skills shortages in the UK workforce and the significant impact this makes on business. Between 2013 and 2015, the number of skill-shortage vacancies rose by 43%[10]. This was particularly noticeable in the field of engineering[11]. Additionally, poor careers advice in the UK is causing students to drop out of school, college and apprenticeships[12].

6.1.2 In terms of the EU's strategy for aviation, the Commission says:

> "*It is [also] crucial to maintain leadership in aviation through a highly educated, qualified and experienced workforce. Partnerships between research, universities and industry on education will facilitate the movement of experts between these sectors, which at the end would be very beneficial for the development of the European aviation sector.*
>
> *New skills and competences, some of which are not yet broadly available, such as those of drone specialists and flight data analysts will have to be developed. Training should be given priority. In this respect, the European Aviation Safety Agency Virtual Academy will further develop a true European network of aviation training institutes*. (European Commission, 2015)

6.1.3 In Thanet, the working age population:

> "*is less well qualified than across Kent and the South East as a whole. Of its population aged 16-64, 10% have no qualifications, figures, which are lower than Kent and the South East. The proportion of the Thanet working age population holding each respective qualification level is lower than the two other comparator areas. This situation is most acute for the highest qualification level: NVQ4+*." (TDC, 2016, p. A-2)

6.1.4 The vision for Thanet is to improve workforce skills so that productivity, employment rates and wages grow in line with those of Kent generally (TDC, 2016, p.

[10] Employer Skills Survey 2015, p. 4 available from: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/499047/UKESS_Summary_report_-_for_web.pdf
[11] http://www.huffingtonpost.co.uk/news/skills-shortage/
[12] http://www.bbc.co.uk/news/education-31061905 and http://www.huffingtonpost.co.uk/news/skills-shortage/

16). In particular, the proportion of the working aged population qualified to at least degree level, currently 10% lower in Thanet than the County-wide figure, will need to increase.

6.2 Further and Higher Education in East Kent

6.2.1 Further and Higher Education (**FE** and **HE**) make huge impacts on the lives of individuals by improving life chances and opportunities, the economy through skills, innovation and stimulating inward investment, and to society generally by increasing knowledge, social mobility and cohesion. Numerous studies attest to the contribution of the education sector to economic activity, GDP and employment opportunities. For example, Canterbury City Council (2015, p. 54) estimates the economic impact of the University of Kent and Canterbury Christ Church University at over £1.1 billion per annum. Indeed, universities employ one in every eight of the Canterbury district's employees (Canterbury City Council, 2016, p. 28).

6.2.2 In addition to the University of Kent and Canterbury Christ Church University, other providers in the area include:

- East Kent College
- Canterbury College
- Hadlow College
- Hilderstone College, English Studies Centre, Broadstairs
- The University for the Creative Arts

6.2.3 Whilst both FE and HE are not part of the statutory education system, FE colleges generally offer a range of academic, vocational, technical and professional courses. Students can enrol in an FE college from 16 years. FE colleges generally offer programmes at every level from entry-level courses that do not require specific GCSE grades as entry requirements through to higher-level qualifications such as HNC/HND and even some degree courses. HE Universities provide degree and post graduate courses for students from 18 years old.

6.2.4 In Thanet, the workforce has fewer vocational qualifications than the South East and England at levels two, three and four, leading to significantly lower rates of pay (Williamson, 2013, p. 5). It seems that whilst Thanet students do well at A level, they are less likely than students from Kent generally to move on to HE. As Kent County Council's Skills and Employability Service points out, "*the average points per student for Kent selective schools is 890 and the average percentage who go to selective universities is 35%. In comparison, one Thanet selective school had average exam points per student of 955 and the percentage moving to selective universities 24%.*" (Williamson, 2013, p. 16)

6.2.5 Thanet has had a university in the district since Canterbury Christ Church University formally opened its Broadstairs campus in 2000. Many students both local and from further afield have gained their degrees studying in Thanet. However, the University is closing the Thanet campus with courses moving to Canterbury over the next few years.

6.2.6 Manston Airport, operating to the levels forecast in Volume III of this series of reports, could do much to raise the aspirations of young people, key to addressing low participation levels in HE. Only by inspiring educational progression will students improve their life chances and realise their full potential. In this way, a better-educated workforce will help to realise the full economic and social potential of East Kent and the wider Thames Estuary area.

6.3 East Kent College

6.3.1 East Kent College, which now includes Canterbury College, is a Further Education college with sites in Broadstairs, Canterbury, Folkestone and Dover. The College, "*is committed to developing the prosperity and wellbeing of the communities it serves*"[13].

6.3.2 East Kent College responded to the statutory consultation and their general position is made clear in their response to the first question, to what extent do you agree or disagree with our proposals for Manston Airport:

> "*The College is supportive in principle of any development which can help secure long-term skilled employment within the district. It follows therefore that the College is broadly supportive of the proposals to develop Manston Airport, though it remains open to any other development proposals which can achieve the same aim of enhancing the economic and social prosperity and opportunities for surrounding communities. All further comments within this response should take that element into account."*

6.3.3 Several meetings have taken place between RiverOak's representatives and East Kent College. At these meetings and in their response to the consultation, East Kent College make it clear that they would like to see a "*firm commitment . . . to the development of skills and authentic collaboration with education providers*". The College particularly mention apprentices, embedding education and training in RiverOak's plans for Manston Airport, and to forging strong links between industry and education.

6.3.4 East Kent College are also supportive of an onsite education facility. This is in line with RiverOak's proposals as detailed in section 6.6. These proposals are, as yet, in draft form since neither East Kent College nor any other educational body are in a position to commit funds until the Planning Inspectorate has made their decision on the future of Manston Airport. Nonetheless, the College:

> "*believes there are a broad range of possible opportunities for its curriculum areas within the proposals, from hospitality and catering, through to engineering and construction. An education facility onsite would also help to assist in the development of a centre of excellence within related industries, which is something the College would be strongly supportive of."*

6.3.5 As such, RiverOak is committed to continuing to work with East Kent College to define an effective strategy to meet the requirements of the airport and the education and training needs of local people.

6.4 Canterbury Christ Church University

6.4.1 Located in Canterbury with a campus in Medway, *"the University's mission is to pursue excellence in higher education: transforming individuals, creating knowledge, enriching communities and building a sustainable future*." The University also has a campus in Broadstairs, close to Manston Airport, which will be closed over the next few years.

6.4.2 In March 2017, the University was recently successful in its bid for Government funding to provide a Kent and Medway Engineering, Design, Growth and Enterprise (**EDGE**) Hub. It is expected that the facility will be able to train 1,250 graduates with

[13] https://www.eastkent.ac.uk/about/our-college

higher-level engineering and technology skills, who will be ready to enter the labour market by 2024. The Kent and Medway EDGE will provide:

- Technical and professional education opportunities in engineering, product design and technology, including degree apprenticeships, undergraduate and postgraduate courses.
- A new engineering and technology innovation service that will work with small businesses, larger companies, inventors and entrepreneurs to take innovations from prototype to the market.
- Business-focused PhD, masters, undergraduate and commercial research projects to support local companies.
- Short courses and continuing professional development opportunities that are business-focused to meet the needs of small and larger companies.

6.4.3 In May 2017, a meeting was held between RiverOak representatives and the Pro Vice Chancellor, Professor Helen James, and Professor Callum Firth, Dean of Social and Applied Sciences. It was pointed out that many local 'A' level students with Mathematics and Science subjects go to universities out of area. The result is that these students, once graduated, do not return to the area, depriving local organisations of high calibre employees. Canterbury Christ Church University has a reputation for attracting students who do stay in area, making it more likely that employers would want to engage with both students and the university, helping to build relationships, careers, and course material.

6.4.4 As with East Kent College, it is not possible for the University to make any firm plans to respond to a potential relationship with Manston Airport until the Planning Inspectorate have made their decision on the future of the site. In due course, RiverOak intends to engage with the University of Kent, as a vital part of the Kent Higher Education provision.

6.5 The Manston Museums

6.5.1 The two museums at Manston Airport, RAF Manston History Museum and the Spitfire & Hurricane Memorial Museum have, "*the task of remembering the past and educating for the future through its presentation of the history of WW11 to its current and future audiences.*" (Submission to the statutory consultation on behalf of the RAF Manston Spitfire & Hurricane Memorial Trust)

6.5.2 The success of these museums depends in large part on the reopening of the airport. Indeed, the statutory consultation submission by the RAF Manston Spitfire & Hurricane Memorial Trust says:

> "*The closure of the airport in 2014 has seriously affected both its attractiveness and finances. The loss of flights has led to a substantial reduction in the number of visitors, which in turn has led to reduced income. . . The Trust sees the reopening of the airport as essential to the survival of the museum.*"

6.5.3 The RAF Manston Spitfire & Hurricane Memorial Trust has been in discussion with a specialist company about the restoration of a Spitfire to flying condition. This project would provide training and employment opportunities for a number of staff. Indeed, it is expected that, in partnership with RiverOak, there will be numerous opportunities to bolster the current educational provision by the museums. As with the

College and universities, more detailed discussion and proposals would be agreed should the DCO be successful.

6.6 A Manston Airport Training Facility

6.6.1 RiverOak's vision is for a vibrant freight-focused airport, employing local, well-trained people and supporting local, regional and national businesses. In order to meet this challenge, it is essential local people are trained and educated in line with the needs of the opportunities arising. However, the opportunity exists for a much more comprehensive vision of a facility designed to bring together the aerospace industry with academia (universities, colleges and potentially schools), in line with UK and European government policy. As such, RiverOak are keen to establish an aviation facility close to or on the Manston Airport site. This facility will allow the airport's employers to work with HE and FE providers and to link to other initiatives, particularly around science, technology, engineering and mathematics (**STEM**).

6.6.2 The concept for establishing an aviation facility at the airport is to bring together the UK aerospace industry, government and academia, providing a focus through which to develop effective and sustainable channels of communication. The aim would be to ensure the structures and provision of education, training, and life-long learning support the needs of the aerospace industry. This would move the industry forward and address concerns over innovation and skills shortages. Indeed, there is a requirement for the industry to adopt best practice in learning, people management and continuous professional development whilst also promoting itself so that it will attract and retain the highest calibre talent.

6.6.3 Previous owners of Manston Airport developed and funded a highly successful BSc Business Studies with Airport Operations degree at the Broadstairs Campus of Canterbury Christ Church University. The success of this degree course lay in the ability of the course to attract local students from first generation university families. These highly motivated students were attracted by the involvement of the airport with their local HE provider. The course acted as a pilot for a dedicated Manston facility, which will help match the need for skills by industry with provision by HE and FE and training institutions in the area. In addition and given the Government's agenda for 14 to 19 year olds, this may also include schools.

6.6.4 There are a number of successful examples of colleges working with airports to provide leading edge training for the aviation industry. These include Stansted Airport College, which is part of Harlow College. The £11 million facility will be open in the autumn of 2018. The college will provide training in aviation and business services, engineering and aircraft maintenance, and hospitality, retail and events management. At Manston Airport, RiverOak would commit to:

- Work with local providers to locate an aviation college on or close to the Manston Airport site
- Provide practical support to the long-term unemployed such as; Informal 'meet the employer' events, and help with interview preparation, CV writing, careers guidance, and public transport to interviews and training sessions
- Work with local councils and 3rd sector organisations to help promote job opportunities to local people, particularly to the long-term unemployed
- Work with FE/HE to promote apprenticeships at all levels
- Work with FE/HE to develop courses (where these are not currently available) relevant to the job opportunities created by the operation of the airport
- Work with other employers to provide 'hands on' training opportunities

- Work with other employers to provide equipment (such as out of service aircraft/aircraft parts) to support FE/HE delivery of courses

6.6.5 An aviation training and education facility at Manston would provide the Thames Estuary development area with a Centre of Excellence in a globally attractive field. This inspirational location, close to what could be a vibrant airport, and the ability to study near home should attract young people from across the area. The purpose of the Manston facility would be to:

1. Harness local enthusiasm for the airport and use this to encourage people to enter FE and HE as well as a wide range of other training opportunities.
2. Match education and training provision with the needs of the aerospace industry.
3. Raise the profile of the area as a vibrant, growing and innovative economy with industry and with Central Government.
4. Support businesses within the area by providing access to academia and training providers.
5. Help to attract inward investment by increasing the attractiveness of the area through the upskilling of the local and regional workforce.

7 Tourism

7.0.1 Thanet has a long-established tourism sector, with the main Thanet resorts consisting of the three towns, Margate, Ramsgate and Broadstairs. The tourism sector burgeoned between the 1700s, sparked by a passion for saltwater bathing, and the advent of overseas package holidays in the 1950s and '60s. Aimed mainly at the lower end of the market, car ownership, a rise in real incomes, the availability of cheap foreign travel, and changing tastes led to a sharp decline in visitor numbers by the late 1950s. Today however, tourism is one of the world's fastest growing industries. As part of this global growth, Thanet too is enjoying an upturn with the visitor economy growing by 19% in 2015[14].

7.1 Accommodation in Thanet

7.1.1 Thanet has a variety of hotels, guesthouses, and Bed & Breakfast (**B&B**) accommodation as detailed in the following sub-sections. The following sub-sections show the main hotels in Thanet and provide an idea of the number of B&B establishments in each of the main areas. These details have been gathered from Trip Advisor and are detailed below. In addition to the ongoing use of hotel, guesthouse and B&B accommodation, it is expected that construction workers will make considerable use of local accommodation during the development phases.

7.1.2 Margate has around 12 hotels and 12 B&Bs listed on Trip Advisor. Ramsgate has eight hotels and nine B&Bs listed on Trip Advisor. Broadstairs has three main hotels and 24 B&Bs in Broadstairs listed on Trip Advisor. With no hotels, Birchington has six B&Bs listed on Trip Advisor and Westgate has only one B&B listed on Trip Advisor.

7.1.3 Closest to Manston Airport, Minster has the Holiday Inn Express and the Premier Inn Ramsgate (Manston Airport). There are also three B&Bs listed on Trip Advisor. The General Manager at the Holiday Inn Express was contacted for his comments and is keen to see the redevelopment and reopening of the airport.

7.2 Non-accommodation sectors

7.2.1 In addition to tourist accommodation, the sector also includes food and drink, transport, retail, cultural, sport and recreational services. In Thanet, visitor attractions include:

- Beaches, Ramsgate Royal Harbour, and water sports including sailing events
- Arts including the Turner Contemporary Gallery
- Entertainment including Margate Winter Gardens, the casino, multiplex cinema Dreamland, which had massive Council investment
- Visitor attractions including Charles Dickens-related attractions, the Manston museums, Hornby visitor centre, Quex Park and Cotton Powell Museum, and James Bond- related attractions
- Westwood Cross Shopping Centre and town centre shopping opportunities
- Broadstairs Folk Week, which brings musicians, dancers and audiences from around the world
- The South East (Herne Bay) Air Show
- The Open at Royal St George's Golf Course in Sandwich attracts hundreds of thousands of visitors when it is held here

[14] https://www.thanet.gov.uk/the-thanet-magazine/press-releases/2016/november/thanet-tourism-booms-to-£293-million/

7.2.2 Thanet also has a number of restaurants and cafes, which benefit from tourist spending. However, despite Thanet's obvious attractions, the number of day visits to the District fell below those of other East Kent areas. Thanet recorded 3.4 million day visits with associated spend of £119.4 million in 2015, lower than Canterbury, Shepway, Dover and Ashford. As a total of day visits to Kent, Thanet accounted for just 6% in 2015 (Destination Research, 2016). In terms of overnight stays, Thanet received 351,000 trips by UK-based visitors and a further 143,000 by overseas visitors. This accounted for 11% of the total staying visits in Kent. Table 8 shows the comparisons across East Kent.

Table 8 Visitors to East Kent

	Day trips		Staying nights domestic		Staying nights overseas	
	Number (millions)	Spend (millions)	Trips ('000)	Spend (millions)	Trips ('000)	Spend (millions)
Ashford	3.9	£133.9	771	£44	457	£28
Canterbury	6.6	£215.2	1,438	£77	1,233	£69
Dover	3.9	£116.0	976	£64	479	£25
Shepway	4.1	£122.9	1,004	£62	394	£20
Thanet	3.4	£119.4	993	£54	1,066	£68

Source: Compiled from Destination Research, 2016

7.3 Employment in the tourism sector

7.3.1 The ONS shows that the median earnings for Thanet in 2016 were £24,150. Thanet is therefore at the bottom of the average pay league for all Council areas in Kent. People in Thanet earn £4,063 less than the UK average, £4,945 less than the Kent average and £9,222 less than those resident in Tonbridge and Malling. ONS 2014 figures showed that 35.1% of employees in Thanet were paid less than the living wage[15]. By far the highest proportion of the employee jobs paid less than the average wage is in the Accommodation and Food Services sector (70% excluding the London area). By contrast:

> "*Pay in aviation in both the manufacturing and service sectors compares favourably to pay in other sectors. For example, gross hourly pay in the manufacture of air and spacecraft sector was 133% of the average level of pay for all employees in the UK; in the case of the repair and maintenance of air and space craft it was 121% of the UK average; in the case of air transport services it was 141% of the UK average; and in the case of service activities incidental to air transportation (in other words running airports) it was 135% of the UK average. Except in the case of repair and maintenance, average hourly pay is also significantly higher than in the comparable manufacturing and services sectors associated with land transport and water transport. Pay levels in the aviation sector also compare well at both the 20th and 80th percentiles*." (Driver, 2017, p. 48)

7.3.2 A high proportion of jobs in the Accommodation and Food Services sector are part-time, young, non-UK born employees with below average qualifications[16]. The qualification profile of the workforce is significantly lower than the average for all industries, with 55% of workers qualified to Level 2 or below. 47% of the workforce in

[15] http://visual.ons.gov.uk/how-many-jobs-are-paid-less-than-the-living-wage-in-your-area/
[16]https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/compendium/earninglearningandbusinesschurning/revealinglondonsindustrialeconomyin2015/businessjobsandpayinlondonsaccommodationandfoodservices2015

the Tourism & Hospitality sector is in low skilled, elementary service occupations. The sector has a higher proportion of small businesses (those employing less than 49 staff) than other sectors.

7.3.3 Indeed, after the decline in tourism in the 1950/60s, the local Council worked hard to replace the jobs lost to tourism with manufacturing. However, at that time, both sectors employed unskilled or semi-skilled labour, were poorly paid and with little opportunity for career progression (Harloe *et al*, 1990, p. 133). In contrast to the Accommodation and Food Services sector, the Manufacturing sector now has a diverse workforce in terms of occupations with skilled trade occupations accounting for 22% of the workforce[17]. Thanet currently has an average representation of businesses in this sector, with around 200 businesses and 3,100 employees.

7.3.4 As such, Thanet continues to lack higher skilled work, ensuring that those who do benefit from the opportunities provided by the local HE and FE facilities are lost to the local economy, generally leaving the area to work in London or elsewhere. Research by Sheffield Hallam University (Beatty *et al*, 2014) found that, whilst many seaside areas were doing well in terms of employment, Thanet lost 1,000 tourism jobs during the six years between 2006 and 2012 (*ibid*, p. 30), the second greatest decline (behind Blackpool) in England and Wales. This research found that 9% of jobs (3,800) in Thanet were directly supported by tourism. Of these 3,800 jobs, 2,400 were in retail, 1,300 in hotels, and 100 in transport (*ibid*, p. 46). Only a few (less than 100) were employed in recreation, amusements, etc. The report highlights how above average dependence on tourist trade can restrict employment growth.

7.3.5 Coastal towns with more diversified economies such as Southend, Brighton and Worthing fair better in terms of growth. However, tourism continues to play a key role in the Thanet economy, with a 23.3% increase in jobs in the sector between 2013 and 2015[18]. In terms of sectors, 2013 ONS figures show that Thanet relies on the Retail, Accommodation and Food Services, Education, and Health sectors[19].

7.4 Comparison with other coastal areas

7.4.1 Despite extensive research, no examples could be found of a UK tourist economy that has been damaged by the introduction of an airport. A Deloitte study commissioned by VisitBritain and the Tourism Alliance in March 2008[20] suggests that the capacity and quality of infrastructure including airport, port, road and rail networks have significant impacts on the Visitor Economy. Indeed many coastal areas rely on the connectivity that airports provide. Examples include the Scottish islands, Jersey, Guernsey, and the Isle of Man. On mainland UK, the nearest coastal airports handling substantial traffic are Southend to the north and Southampton and Bournemouth to the west.

Southend-on-Sea

7.4.2 Southend Airport is located on the northern outskirts of the town, approximately two miles from Southend Central and 32 miles from Manston (84 miles by road). Southend-on-Sea Borough Council's website[21] says:

[17] http://kmep.org.uk/documents/Workforce_Skills_Evidence_Base_-_Final.pdf
[18] http://www.visitkentbusiness.co.uk/library/CM_Infographic_Thanet.pdf
[19] http://kmep.org.uk/documents/Workforce_Skills_Evidence_Base_-_Final.pdf
[20] http://www.niassembly.gov.uk/globalassets/documents/finance-2011-2016/air-passenger-duty/written-submissions/deloitte-the-economic-case-for-visitor-economy.pdf
[21] http://www.southend.gov.uk/info/200158/common_projects/493/london_southend_airport

"*London Southend Airport is a key regional and European transport hub, helping to generate important economic investment and jobs in Southend and the wider Thames Gateway*."

7.4.3 In 2016, the Southend Airport handled around 23,500 aircraft movements (of which 8,300 were scheduled and charter air transport movements) and 875,000 passengers. EasyJet and Flybe operate passenger flights from the airport to a range of European destinations. The Council has reduced the number of possible night flights per month from more than 900 to 120 and increased the night period from 6 hours to 7.5 hours.

7.4.4 Southend has around 20 hotels and 25 B&Bs (figures from Trip Advisor) including the Holiday Inn Southend, which was opened in October 2012 to coincide with the expansion of airport operations.

7.4.5 In 2008, Visit England calculated the value of tourism to Southend at £143 million[22]. By 2015, three years after the expansion of passenger flights at the airport, this figure had more than doubled. Research carried out by Destination Research[23] found the total value of tourism in Southend to be £307 million in 2015. When indirect and induced spending is included, this figure reaches nearly £400 million in total tourism value. In contrast, Thanet achieved £100 million less than Southend with a total visitor spend of £250 million and £300 million including the indirect and induced spending in 2015[24].

Table 9 Value of tourism in Southend, 2008 and 2015

	2008	2015
Accommodation services for visitors	£12 million	£14 million
Food and drink services	£41 million	£116 million
Transport	£9 million	£43 million
Cultural, sport and recreational services	£5 million	£30 million
Other products	£75 million	£101 million
People were employed in the tourism sector	7,700	8,711
% of total employment	11%	14%

Source: Southend-on-Sea Borough Council (2015 figures) and Visit Britain (2008 figures)

7.4.6 The Southend Tourism Partnership in conjunction with Southend-on-Sea Borough Council restated their tourism strategy from 2017[25]. Their vision is to be England's number one coastal destination. They say that:

[22] https://www.visitbritain.org/sites/default/files/vb-corporate/Documents-Library/documents/England-documents/summary_paper_-_sub-regional_tourism_value_updated_links_oct_2011.pdf
[23] http://mediafiles.thedms.co.uk/Publication/EE-EssW/cms/pdf/Economic%20Impact%20of%20Tourism%20-%20%20Essex%202015.pdf
[24] http://www.visitkentbusiness.co.uk/library/Economic_Impact_of_Tourism_-_Thanet_2015_FINAL_REPORT.PDF
[25] http://democracy.southend.gov.uk/documents/s11289/21%20-%20Appendix%201%20-%20Tourism%20Strategy.pdf

"*Southend's tourism offer has been growing over recent years with the emergence and development of new hotels, leisure offer and a burgeoning creative and cultural sector. Visitor numbers have been rising and associated spend increasing in line with the ambitions of the previous business and tourism strategy*."

7.4.7 Far from decrying the presence of Southend Airport, the Tourism Partnership and Council aim to make the most of air passengers. They say:

"*Passengers passing through London Southend Airport (LSA) will understand that they are not just at an international transport hub but are entering a destination in its own right*."

7.4.8 It seems that Thanet should follow the lead of Southend and ensure efforts are made to leverage the benefits of being located close to an international airport. The Southend example shows that there is much that can be done with local authority involvement to promote Thanet as a tourist destination.

Southampton

7.4.9 Southampton Airport, less than four miles from the centre of Southampton on the Hampshire coast, handles around two million passengers and 43,000 aircraft movements per year. The airport's 2006 Master Plan[26] makes clear the role the airport plays in tourism, saying:

"Our approach to running the airport responsibly extends far beyond its physical boundary. We take pride in working with a broad spectrum of stakeholders to promote this thriving region as a place for international business and growing tourism." (Page 1)

7.4.10 The Master Plan details the airport's role in facilitating the tourism, retail and leisure sectors in Hampshire:

"*2.5.1 Tourism, retail and leisure provide over 153,000 jobs in Hampshire, accounting for just over 21% of all employment. Tourism, retail and leisure are seen as key areas of the local economy, and Southampton Airport plays an important role in facilitating this. Tourism is worth £717 million to the Hampshire economy. Overseas visitors to Hampshire represent 12% of trips, and contribute £172.08 million of overall expenditure, which is a much greater spend per head than domestic tourists. Hampshire possesses a wide variety of permanent visitor attractions, heritage sites and leisure facilities, and there are increasing numbers of inbound tourists arriving in the region via Southampton Airport. The region also hosts many regular special events including the Southampton Boat Show and the Cowes Yacht Regatta where visitors arrive by aircraft from around the world.*

2.5.2 Southampton Airport is working with a number of organisations to promote this region for inbound tourism. These organisations include Eastleigh Borough Council, Southampton City Council, Hampshire County Council, Winchester City Council, Portsmouth City Council and Tourism South East.

[26] http://www.southamptonairport.com/media/1051/southampton_masterplan_final.pdf

2.5.3 The airport is also growing in popularity as the easiest way for the increasing numbers of passengers to join cruise ships based in Southampton. Negotiations are taking place with the cruise ship operators to consider the best way of providing fast track services for passengers between the airport and the cruise port. The airport has also recently developed a "left luggage" facility for cruise passengers so that they can enjoy some leisure time in this region before or after their cruise. This naturally increases opportunities for many businesses to receive additional income from cruise ship tourists during their extended stay in the area." (Page 10)

7.4.11 In 2005, TTC International and Roger Tym & Partners were appointed by the Southampton Partnership, through Southampton City Council, to undertake a study of the economic impact of cruise tourism in the Southampton area[27]. The findings show how this industry, facilitated by the presence of Southampton Airport, supports employment in cruise management and crewing; in cruise supply chain industries; and in visitor and tourism industries.

7.4.12 In 2013, a local newspaper, The News reported David Williams, Chief Executive of Portsmouth City Council, as saying[28]:

"*The council is working hard with employers in Portsmouth on regenerating the city's economy – boosting visitor numbers and encouraging new investment. Southampton Airport is a major asset to the city and the region. It is very convenient for the city, and plays a key role for business and tourism*."

7.4.13 Southampton Airport is close to major tourist attractions such as Peppa Pig World, Marwell Zoo, Portsmouth Historic Dockyard, Beaulieu, Winchester Cathedral, Thruxton Motorsport Centre, Stonehenge, the Ageas Bowl cricket venue, Southampton Football Club, and Longleat Safari and Adventure Park. The area has a wealth of hotels and other accommodation. As with Southend Airport, no evidence of a negative impact on any aspect of tourism in the area was found.

Bournemouth

7.4.14 Bournemouth Airport, located around four miles from the coast between Bournemouth and Christchurch, handles 37,000 aircraft movements per year including test and training flights. As with Southend and Southampton, no evidence of negative impacts on tourism could be found. Indeed, in 2013, Bournemouth won the British Travel Awards Best UK coastal resort award. Far from suggesting that the airport negatively affects the town, Paul Clarke, Chairman of the Bournemouth Accommodation and Hotel Association said[29]:

"*Infrastructure needs to be a key focus to increase visitors and the airport in particular needs to have routes to European countries to get the travelling Europeans, such as Germans, Scandinavians, Dutch and further afield*."

[27] https://www.southampton.gov.uk/modernGov/documents/s4389/Appendix%202.pdf
[28] http://www.portsmouth.co.uk/business/city-will-be-flying-high-with-stronger-links-to-airport-1-5202540
[29] http://www.bournemouthecho.co.uk/news/10840821._Tourism_will_save_us_from_recession___Bournemouth_experts_welcome_boost_from_town___s_visitors/

7.4.15 In a meeting of Bournemouth Borough Council's Economy and Tourism Overview and Scrutiny Panel[30], Bournemouth Airport was identified as a major investment site to accommodate business growth. The Council stated that the airport had the potential to provide, "a strategically important business park of some 59 hectares with the capacity to accommodate 10,000 new jobs."

7.4.16 Outside Greater London, Bournemouth is the biggest destination for language schools in the UK, with the sector worth around £208m to the town every year. The presence of an airport helps support this sector, which is also important in Thanet. In 2013, an economic impact survey commissioned by Thanet District Council[31] found that overseas students spent around £33.6 million in the area, supporting 905 jobs. The survey estimated that overseas students make 43,000 trips annually, accounting for 495,000 visitor nights in Thanet.

7.5 Increased connectivity and inbound tourism

7.5.1 In addition to the types of tourism shown in sections 7.1 and 7.2, East Kent benefits from 'long-term tourism' including language school students and pilgrims. In 2013, language schools contributed £33.6 million to the Thanet economy, supporting 905 jobs and accounting for almost half a million visitor-nights[32]. Canterbury Cathedral attracts around 900,000 visitors per year[33] and the Divine Retreat in Ramsgate also attracts considerable numbers of staying visitors. These long-term visits would be more readily facilitated and encouraged through the operation of passenger services at Manston Airport.

7.5.2 One of the organisations interviewed as part of the statutory consultation for the Manston Airport DCO process was St Augustine's Divine Retreat Centre in Ramsgate. The centre receives some 150 pilgrims per week, who come from Ireland, Germany, the Netherlands, Poland, and further afield. Pilgrims generally stay over a weekend, from Friday until Sunday but some stay longer. The Centre located to Ramsgate to be near to an international airport – Manston. Devastatingly for them, the airport closed soon after and they are forced to bring visitors in from other airports by coach. The Centre is therefore looking to move locations to improve accessibility. The Centre uses many of the local B&Bs and, given their expanding visitor numbers, would be looking at supporting local tourist accommodation as far afield as Deal. The relocation of this organisation would be a considerable loss to the economy of Thanet but their continued presence is dependent on an operational Manston Airport.

7.5.3 In terms of value to the economy of domestic and overseas visitors, whilst less than 30% of visitors were from outside the UK, they account for over half the number of overnight stays and nearly 56% of value. These statistics, provided through the Kent Tourism Economic Impact Study 2015 (published in November 2016) was undertaken using the Cambridge Economic Impact Model. The impact of overseas visitors on the economy is considerable and evidences the potential for the local airport to support growth in this sector of the economy whilst providing more balance in terms of the diversity of jobs the airport is likely to create.

[30]https://www.bournemouth.gov.uk/CouncilDemocratic/CouncilMeetings/CommitteeMeetings/EconomyTourismOverviewScrutinyPanel/2014/03/26/Reports/8-Growth-Deal---OS-Report.pdf
[31] https://www.visitthanetbusiness.co.uk/business-support/research/economic-impact-of-language-schools-2013/
[32] https://www.thanet.gov.uk/the-thanet-magazine/news-articles/2015/january/language-schools-contribute-336-million-pounds-to-thanet-economy/
[33] http://www.alva.org.uk/details.cfm?p=423

7.5.4 With an operational international airport at Manston, albeit focused on freight but with passenger services, it can be expected that inbound tourism would increase. In particular, providing services to and from underserved areas such as China could provide a boost to the Thanet economy. In 2012, China became the largest spender in international tourism at US$102 billion, ahead of both Germany and the United States. Tourists from China and other emerging economies such as Russia and Brazil have significantly increased their spending[34]. Working with RiverOak, Visit Kent and Thanet District Council, it can be expected that a proportion of this tourism can be captured locally.

7.5.5 The Government is currently consulting on its Aviation Strategy. A report by the Tourism Alliance in 2017[35] says that travel is the essence of tourism. Their concerns for the sector after exiting the EU include strengthening:

> "*the UK's aviation infrastructure so that it better supports the Government's Tourism Action Plan - ensuring that capacity constraints into our national hub and other South East airports are alleviated to cater for demand, and to make regional airports a more attractive proposition for both international and domestic visitors.*"

7.5.6 The Tourism Alliance also calls on the Government to boost regional domestic services and improve surface access between airports and tourists' final destinations. The Alliance does not, in any way, make a link between airport operations and a negative impact on tourism. In fact, as their report shows, the reverse is true. As an example, the following section compares Southend-on-Sea and the cooperation between the airport and its local tourist economy, with Thanet.

7.6 Manston Airport and the potential impact on tourism in Thanet and East Kent

7.6.1 There is no doubt that tourism can contribute considerably to local economies. For example, visitors to the Canterbury district were estimated to contribute £453,865,700 in terms of economic impact in 2015 and to have supported 6,810 jobs (Destination Research, 2015, p. 6). In Thanet, tourism supported 4,405 full-time equivalent jobs in 2015, an increase of 22% on 2013, and tourists spent £250 million during their visit (Destination Research, 2016, pp. 17-19).

7.6.2 Given the data shown in this report, it is hard to substantiate the argument that tourism in Thanet will be negatively affected by the reopening of Manston Airport. Indeed, the most likely conclusion that can be drawn from the evidence is that, as with Southend-on-Sea, Bournemouth and Southampton, a vibrant airport would support tourism in the area, increasing demand for visitor accommodation across Thanet.

7.6.3 Southend, which has a busy airport close to the town centre, has doubled its income from tourism between 2008 and 2015 to achieve a total tourism value of nearly £400 million. Whilst Southend is considerably smaller than Thanet, the town achieved £100 million more in total tourism value than the whole of Thanet. As with Southend, the research presented in this report in Section 7.4 shows that neither of the coastal towns of Southampton and Bournemouth have been negatively affected by the operation of their airports.

[34] http://content.tfl.gov.uk/impact-of-a-new-hub-on-airport-tourism-and-non-business-travel.pdf

[35] http://mediafiles.thedms.co.uk/Publication/EE-EssW/cms/pdf/TA_Manifesto_2017_Final.pdf

7.6.4 Therefore, in contrast to the assertion by the unnamed author of the No Night Flights response to the Manston Airport statutory consultation that, "*Many of our beaches, cafés, hotels and visitor attractions would become intolerable and unattractive to visitors"*, it seems the opposite is most likely to result. However, as this report has shown, it is vital for Thanet to maintain a balanced economy, leveraging the benefits that can be derived from a successful airport to ensure job creation at all skills levels for local people.

7.6.5 Employment in the Accommodation and Food Services sector is generally low paid, low skilled and with a high proportion of part time work. By contrast, airports provide a wide range of opportunities at all skills levels and stimulate growth and inward investment from other industries such as manufacturing. Diversifying of the Thanet economy, removing the heavy reliance on low paid, low skilled work in tourism, would have substantial benefits for the local people, ensuring that the economy is vibrant and that all sectors have a sustainable future.

8 Other socio-economic impacts

8.0.1 In addition to the jobs created and the training and education opportunities described in the previous section, this section describes the social and economic impacts of airports, and applies these to Manston.

8.1 Gross Domestic Product (GDP)

8.1.1 GDP is a monetary measure of the state of a country or region's economy. In the UK, the ONS calculates GDP from output (the value of goods and services produced in the economy), expenditure (the value of purchases made), and income (profits and wages). The Organisation for Economic Co-operation and Development (**OECD**) states that:

> "*Gross domestic product is an aggregate measure of production equal to the sum of the gross values added of all resident institutional units engaged in production (plus any taxes, and minus any subsidies, on products not included in the value of their outputs). The sum of the final uses of goods and services (all uses except intermediate consumption) measured in purchasers' prices, less the value of imports of goods and services, or the sum of primary incomes distributed by resident producer units.*"[36]

8.1.2 Based on Intervistas figures (see Figure 12 on page 16), GDP from direct, indirect, induced, and catalytic effects are calculated as follows:

Direct: 7,893,500 jobs equate to €426.7 billion in GDP
One job = €54,057/£45,408

Indirect: 1,353,100 jobs equate to €69.7 billion in GDP
One job = €51,511/£43,270

Induced: 1,401,100 jobs equate to €76.4 billion in GDP
One job = €54,529/£45,804

Catalytic: 1,696,200 jobs equate to €101.6 billion in GDP
One job = €59,899/£50,315

The conversion from Euros to Sterling has been calculated at €1 to £0.89

8.1.3 For this calculation, the term GDP is used by Intervistas to refer to the contribution to GDP provided by the airport industry (Intervistas, 2015). It should be noted that the Intervistas work covered European airports and therefore the figures are not UK-specific. However, the UK is second only to Germany in Europe in terms of direct employment at airports.

8.1.4 The Airports Operators Association (**AOA**), also produced details of the economic activity of airports and associated aviation activities in the UK for 2013. These figures show the relationship between the four categories of jobs and GDP (AOA, 2016, p. 15):

Direct: 200,000 direct jobs equate to £13.9 billion GDP
One job = £69,500

[36] https://stats.oecd.org/glossary/detail.asp?ID=1163

Indirect:	100,000 indirect jobs equate to £7.0 billion GDP One job = £70,000
Induced:	200,000 induced jobs equate to £10.4 billion GDP One job = £52,000
Catalytic:	700,000 catalytic jobs equate to £38.3 billion GDP One job = £54,700

8.1.5 Comparing the Intervistas and AOA figures shows that the Intervistas figures are considerably lower than the UK-specific AOA figures as shown in Table 10. Since the AOA figures are UK-based, there is an argument for using this calculation. However, in order to provide a range for potential GDP due to the operation of Manston Airport, both figures are shown in Table 11.

Table 10 Comparison between GDP calculations

	Intervistas	AOA
Direct	£45,408	£69,500
Indirect	£43,270	£70,000
Induced	£45,804	£52,000
Catalytic	£50,315	£54,700

8.1.6 Since the calculation used for indirect and induced jobs is combined in the forecast, the lower figure in each case has been used to ensure the estimate is as conservative as possible. As Table 11 shows, the effect of an operational airport at Manston has a considerable impact on GDP. Indeed, by Year 20 of operation, the total GDP from direct, indirect/induced, and catalytic impacts is forecast to be between £1.2 and £13 billion.

8.1.7 Thanet's Economic Growth Strategy (TDC, 2016, p. 16) includes ambitious targets for GVA[37] per job and per capita. Their figures show a considerable difference between Thanet and Kent for these measures of productivity and wealth. In order to achieve the Council's vision, the growth rate required to match the Kent average by 2031 would be 3.5% per annum for GVA per job (productivity) and 5.2% per annum for GVA per capita (wealth). These figures are almost double the growth rate based on business as usual assumptions for productivity and approaching three times for wealth. Without a major employer, whose operation generates considerable indirect, induced and catalytic impacts on the Thanet economy, the vision described by the Council will be difficult to achieve.

8.1.8 In order to estimate GVA from Manston Airport's operations, the Stansted Airport figure, as used in their March 2018 Planning Application, has been applied (RPS, 2018). GVA per person in employment for the Stansted Airport operational study area was shown to be £60,500 (RPS, 2018, section 11.59). Applying this figure to the Manston direct job forecast only would generate GVA of £166 million in Year 10 and almost £207 million in Year 20.

[37] GVA is a key indicator of the state of the whole economy. It measures the contribution to the economy of producers, industries or sectors. The relationship between GDP and GVA is: GVA + taxes on products - subsidies on products = GDP

Table 11 Manston Airport GDP and tax contribution

	Direct GDP (millions)			Indirect/ induced GDP (millions)			Catalytic GDP (millions)			Total GDP (millions)			Tax (millions)	
	Jobs	IntV	AOA	Jobs	IntV	AOA	Jobs	IntV	AOA	IntV	AOA		IntV	AOA
Y1	116	£5.6	£8.1	0	£0.0	£0.0	0	£0.0	£0.0	£5.6	£8.1		£1.85	£2.68
Y2	856	£41.2	£59.5	1,542	£70.7	£80.2	0	£0.0	£0.0	£111.9	£139.7		£37.14	£46.36
Y3	1,551	£74.6	£107.8	2,791	£128.0	£145.1	6,203	£330.7	£339.4	£533.3	£592.3		£177.05	£196.66
Y4	2,085	£100.3	£144.9	3,753	£172.1	£195.2	8,341	£444.6	£456.3	£717.0	£796.4		£238.05	£264.41
Y5	2,150	£103.4	£149.4	3,870	£177.4	£201.3	8,601	£458.5	£470.6	£739.4	£821.3		£245.47	£272.66
Y6	2,466	£118.6	£171.4	4,438	£203.5	£230.8	9,862	£525.8	£539.6	£847.9	£941.8		£281.49	£312.67
Y7	2,576	£123.9	£179.0	4,638	£212.6	£241.2	10,306	£549.4	£563.9	£885.9	£984.1		£294.13	£326.71
Y8	2,645	£127.3	£183.8	4,762	£218.3	£247.6	10,581	£564.1	£578.9	£909.6	£1,010.4		£302.00	£335.45
Y9	2,668	£128.4	£185.4	4,803	£220.2	£249.7	10,673	£569.0	£583.9	£917.5	£1,019.1		£304.61	£338.34
Y10	2,749	£132.3	£191.1	4,948	£226.8	£257.3	10,996	£586.2	£601.6	£945.3	£1,050.0		£313.83	£348.59
Y11	2,812	£135.3	£195.4	5,062	£232.1	£263.2	11,249	£599.7	£615.5	£967.1	£1,074.2		£321.07	£356.63
Y12	2,890	£139.0	£200.9	5,202	£238.5	£270.5	11,561	£616.3	£632.5	£993.8	£1,103.9		£329.95	£366.50
Y13	2,947	£141.8	£204.8	5,305	£243.2	£275.9	11,789	£628.5	£645.0	£1,013.5	£1,125.7		£336.47	£373.74
Y14	3,018	£145.2	£209.8	5,432	£249.0	£282.5	12,072	£643.6	£660.5	£1,037.8	£1,152.7		£344.55	£382.71
Y15	3,094	£148.9	£215.0	5,570	£255.4	£289.6	12,378	£659.9	£677.2	£1,064.1	£1,181.9		£353.27	£392.40
Y16	3,164	£152.2	£219.9	5,695	£261.1	£296.1	12,656	£674.7	£692.4	£1,088.0	£1,208.5		£361.21	£401.22
Y17	3,224	£155.1	£224.1	5,802	£266.0	£301.7	12,894	£687.4	£705.5	£1,108.5	£1,231.3		£368.02	£408.79
Y18	3,301	£158.8	£229.4	5,942	£272.4	£309.0	13,205	£703.9	£722.5	£1,135.2	£1,260.9		£376.88	£418.62
Y19	3,349	£161.1	£232.8	6,029	£276.4	£313.5	13,397	£714.2	£733.0	£1,151.7	£1,279.3		£382.37	£424.72
Y20	3,417	£164.4	£237.5	6,151	£282.0	£319.8	13,668	£728.6	£747.8	£1,175.0	£1,305.1		£390.10	£433.30

8.1.9 As well as GVA per job and per capita, additional jobs in the economy give rise to tax income for government. The tax-to-GDP ratio compares GDP to the amount of tax able to be collected by government. The OECD's annual Revenue Statistics report[38] found that the tax-to-GDP ratio for the United Kingdom increased by 0.7% from 32.5% in 2015 to 33.2% in 2016.Therefore, applying this ratio to the figures shown in Table 11, provides an estimate of the tax revenues generated by the operation of Manston Airport through direct, indirect, induced and catalytic job creation. These are shown in the final two columns of the table. Note that Intervistas has been abbreviated to "IntV".

8.2 Connectivity

8.2.1 Connectivity is the extent to which a location is connected to desired destinations including whether connections are direct or indirect, travel times, the frequency and reliability of services, quality and costs. Connectivity is vital to UK business and has been for many centuries. As an island nation, the UK's geographic location necessitates excellent connectivity in order for businesses to be able to export and import. Connectivity also impacts inward investment (or Foreign Direct Investment), tourism, and firms' location decisions.

8.2.2 The Draft Economic Growth Strategy for Thanet (2016) describes the importance of improved connectivity to the local economy. Access to London from Thanet has historically been slow but, with the advent of HS1, travel times have reduced to around one hour and 15 minutes to St Pancras station. Of course, Thanet has access to the continental Europe via the Channel crossings at both Dover and Cheriton/Folkestone. The proposed Thanet Parkway Railway Station, one kilometre from the airport runway, as shown in Figure 15, would provide access to central London in less than one hour (TDC, 2016, p. 4).

8.2.3 In terms of Thanet's connectivity with airports (excluding Manston), Network Rail says that:

> "*Passengers travelling from Kent can connect to services calling at Gatwick Airport at Redhill from Tonbridge. This service was extended to Gatwick Airport in the past, but it was discontinued owing to low usage levels. National Express operated a coach service from Ashford to Gatwick Airport, but this has also been withdrawn. Though the level of connectivity from Kent is lower than that from central London, the analysis undertaken as part of the Kent Area Route Study has concluded that there is no specific connectivity gap between Kent and Gatwick Airport.*" (Network Rail, 2017, 4.7.3, p. 50)

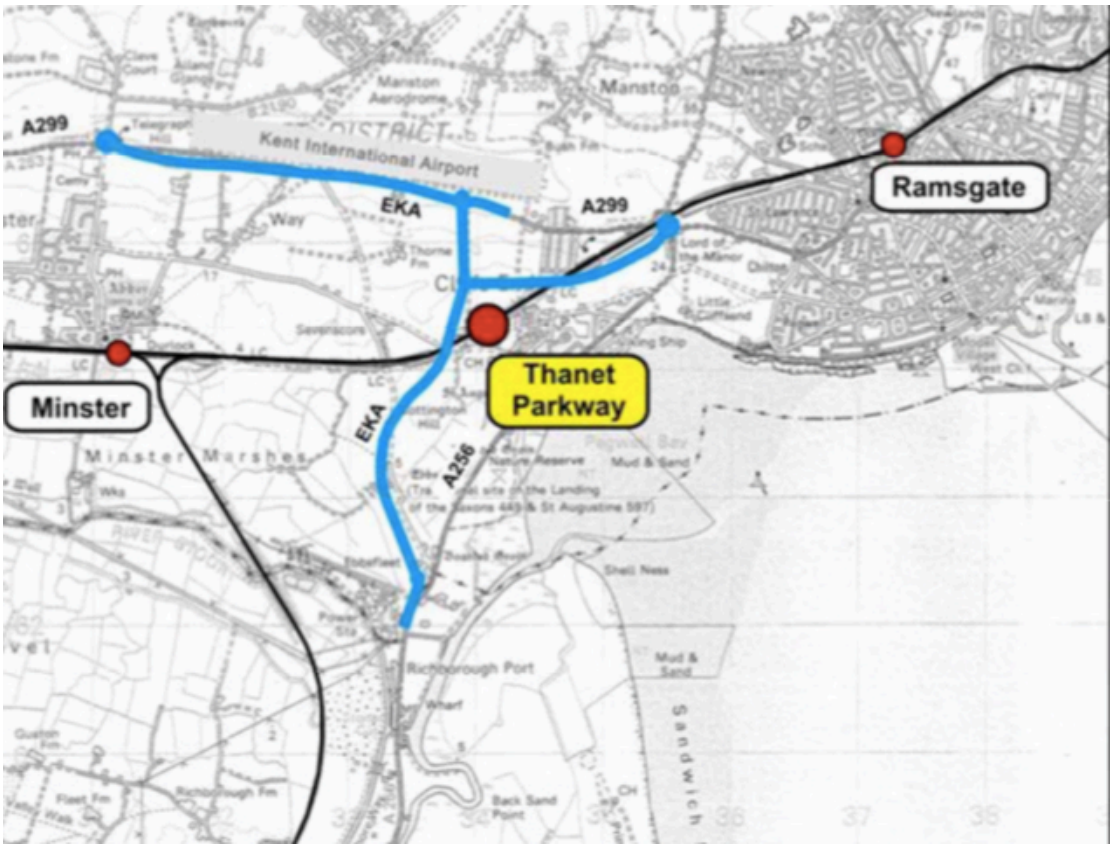
8.2.4 East Kent benefits from a major port at Dover. The Port of Dover is the busiest passenger port in the world, handling around 12 million passengers, over two million cars and 80,000 coaches, and more than two and a half million HGVs in 2017[39]. Eurotunnel also connects East Kent with France and handled 1.6 million HGVs, 2,000 rail freight trains, 2.6 million cars, 51,000 coaches, and more than 10 million passengers in 2017[40].

8.2.5 Brexit means that Britain now has to negotiate Free Trade Agreements (**FTA**) with the EU. It is possible that higher tariffs and non-tariff barriers will affect trade between the UK and the EU and increase time taken to cross borders between the UK

[38] https://www.oecd.org/tax/tax-policy/revenue-statistics-united-kingdom.pdf
[39] http://www.doverport.co.uk/about/performance/
[40] http://www.eurotunnelgroup.com/uk/eurotunnel-group/operations/traffic-figures/

and EU countries. This will particularly affect the Channel crossings where increased security checks and ensuring tariffs are paid where necessary may cause congestion and delays. Operation Stack[41] has demonstrated the impact on the surrounding area and has caused considerable problems for transporters of perishable goods. Businesses may decide to switch from trucking to air freight and Manston Airport would provide the much needed capacity in the South East.

Figure 15 Thanet Parkway Station



Source: Kent County Council in Network Rail, 2017, p. 73

8.2.6 A 10% increase in connectivity in air transport is associated with an increase in GDP per capita of 0.5% (Intervistas, 2015, p. xiii). Data provided by Bristol Airport confirms this figure (Atkins, 2017, p. 80). An international airport at Manston with both freight and passenger services, will increase the connectivity between Thanet, East Kent and much of the South East to the rest of the world.

[41] Operation Stack is the procedure used by Kent Police and the Port of Dover when services across the Channel are disrupted. Lorries are parked ('stacked') on the M20 motorway. Other vehicles are diverted onto the A20 causing congestion on local roads.

9 Conclusions

9.0.1 This report has described the socio-economic benefits deriving from the redevelopment and operation of Manston Airport to the level forecast in Volume III of this series of reports. Thanet has particular problems associated with deprivation including relatively high unemployment, low wages and low participation in HE. The presence of a vibrant airport in Thanet would help address these issues and be a great asset to the economy. As such, support from local MPs for this multimillion-pound inward investment has been unwavering.

9.0.2 The freight and passenger figures provided in Volume III allowed a forecast for the number of jobs created directly, indirectly/induced, and catalytically to be calculated. These figures show direct employment in Year 5 of around 2,150 people, rising to more than 3,400 by the twentieth year, based on East Midlands Airport figures and with productivity gains of 2% per year from Year 11. When all impacts on job creation are taken into account, using the formulae detailed in section 4.3, an estimated total of 14,600 jobs will be added to the wider UK economy by the fifth year of operation, increasing to more than 23,000 by Year 20.

9.0.3 This level of employment must be supported by training and development, and RiverOak plans to work with all relevant stakeholders to ensure local people benefit from the opportunities that an operational airport will bring. Raising the aspirations of young people in Thanet is essential if the District's vision is to be realised, particularly in encouraging progression to degree level education. RiverOak will work with local providers to ensure every opportunity is leveraged from the operation of the airport. In particular, RiverOak are keen to promote the establishment of an aviation facility in partnership with HE and FE providers.

9.0.4 Airports are an essential element of modern economies and are uniquely able to leverage a wide range of socio-economic benefits for their local and regional communities. Benefits include improving connectivity and supporting the internationalisation of local and regional businesses. The information presented in this report suggest that RiverOak's proposals for Manston Airport would increase local, regional and national GVA, encourage businesses to locate in the area, attract Foreign Direct Investment, and support the work of the Thames Gateway 2050 project.

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