MANSTON AIRPORT: A NATIONAL AND REGIONAL AVIATION ASSET

VOLUME III
The forecast

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This report has been produced by Dr Sally Dixon, an independent aviation and business research consultant. The author wishes to thank all those who contributed to the research. However, the views expressed herein are those of the author only and are based upon independent research by her.

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

Table of Contents

Table of Figures

Table of Tables

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.

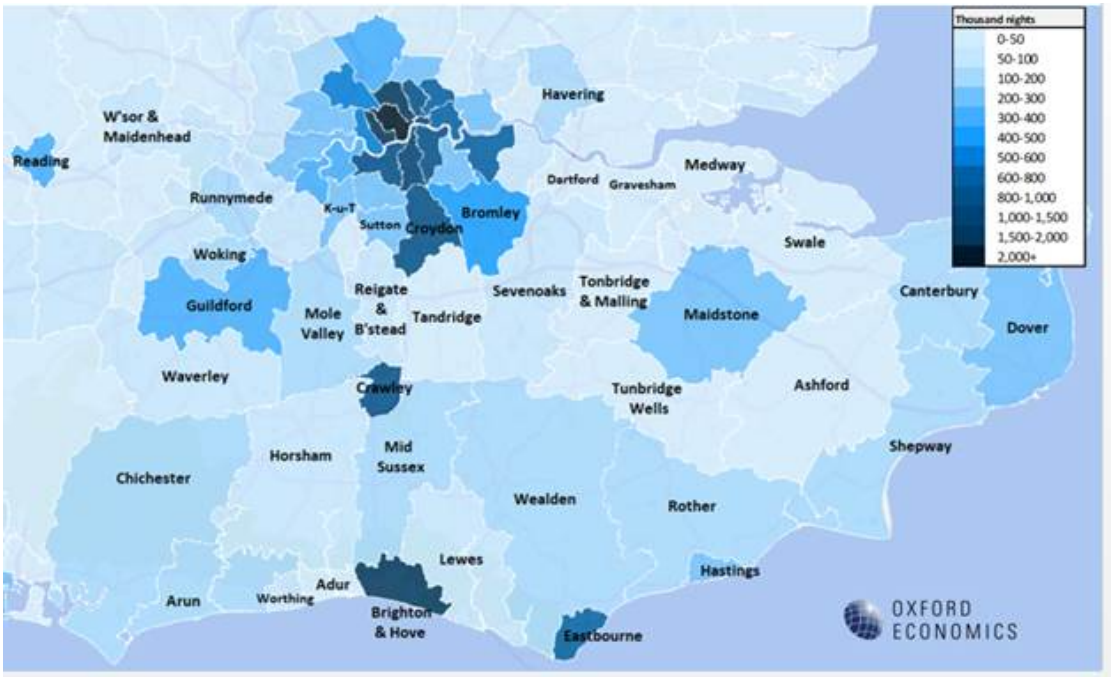
2.5.3 However, the DfT figure reflects national demand and may not apply locally to Manston. The demand for Manston Airport is expected to increase in response to continuing capacity constraints at other airports in the South East. As such an increase of 4% has been applied to the Year 10 forecast to 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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