Gatwick Airport Northern Runway Project

Needs Case Technical Appendix

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1.1. Summary

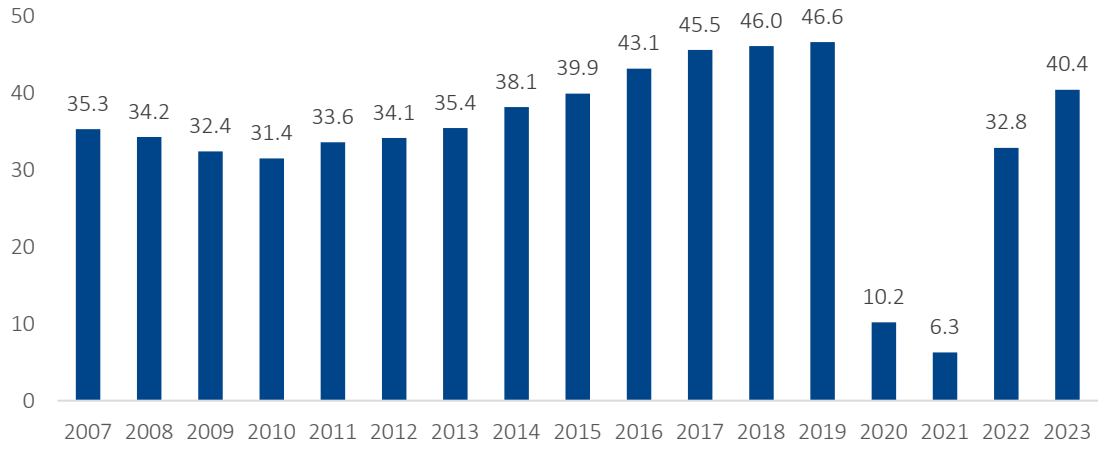
1.1.1 London Gatwick is the busiest single runway airport in the world during peak hours of operation. In 2019, the airport served 46.6 million passengers to 219 destinations on 53 different airlines following several years of sustained year on year growth. Over the decade prior to 2019, Gatwick's passenger numbers grew by over 14 million.

1.1.2 Today, Gatwick is the 7th largest airport in Europe in terms of international capacity.

1.2. Historical Performance

1.2.1 Over the decade prior to 2019, Gatwick's passenger numbers grew from 32.4 million to 46.6 million in 2019. However, the pace of growth had started to tail off from 2016 as the airport has been unable to increase operations in response to demand during peak periods of the year.

Figure 1 Gatwick Airport Passengers (millions)



Source: Gatwick/CAA Statistics

1.2.2 Whilst the COVID-19 pandemic led to a dramatic decline in passenger air traffic in 2020 and 2021, recovery is now well progressed. Gatwick is expected to recover to around 40 million passengers in 2023 although the recovery would have been stronger had it not been for supply side challenges impacting the industry.

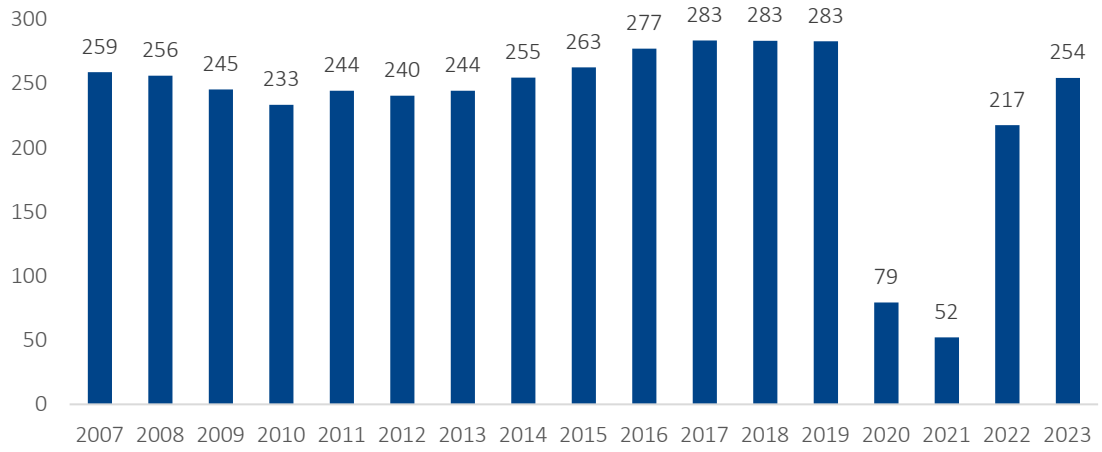
1.2.3 There were three main characteristics of growth over the decade leading up to 2019:

1. **More passengers per flight**: Average passengers per aircraft movement grew from 132 in 2009 to 165 in 2019. This was driven by higher load factors (the percentage of seats filled), and an increase in the average size (and therefore number of seats) of aircraft used.
2. **Peak spreading**: There has been a change in the profile of flights over the year, with a higher level of growth in the traditionally quieter periods of the year. This 'peak spreading' makes use of spare capacity on the runway outside of peak months and leads to a higher level of annual utilisation of the existing assets on the airport. Gatwick is still busier in the summer months than the winter months and there is therefore further potential for peak spreading trends to continue.
3. **Growth in peak runway capacity**: The maximum number of scheduled aircraft movements that can be accommodated on the runway has grown from 53 an hour in 2012 to 55 an hour in 2019. This increase has been made possible due to improvements in operating procedures and air traffic management tools which improve the efficiency in the way arriving and departing aircraft use the runway.

1.2.4 As a result of Gatwick's increasing passenger per movement trends, aircraft movements grew from 245k in 2009 to 283k in 2019. This 15% increase in movements is significantly less than the 44% increase for passenger numbers exhibited in the same period.

1.2.5 The following chart provides the annual movement trends experienced by Gatwick in the 2007-2023 period.

Figure 2 Gatwick Airport Movements (thousands)



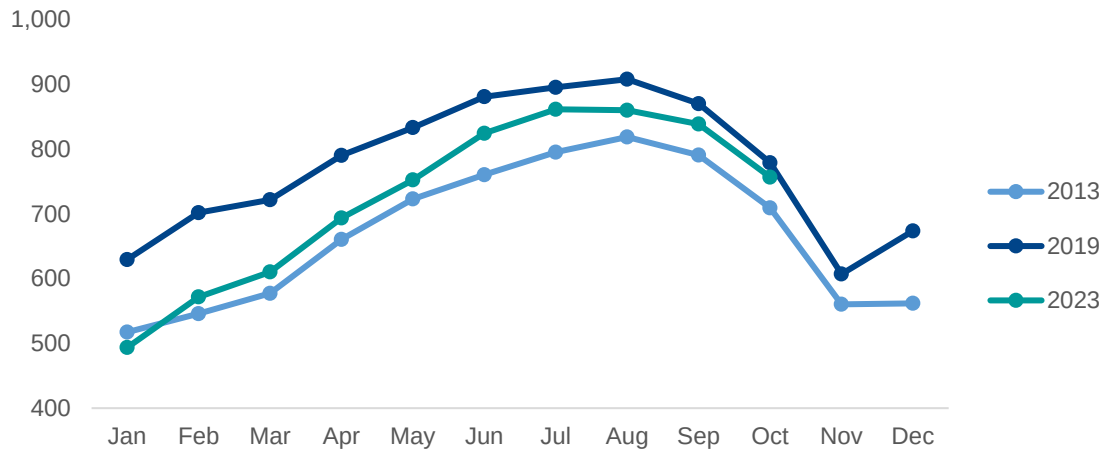
Source: Gatwick/CAA Statistics

1.3. Seasonality

1.3.1 Aviation demand is inherently seasonal reflecting demand patterns seen throughout the year with the summer peak months representing the busiest time of the year. In 2019 the average August day was 17% busier than the year-round average. This ratio has decreased over time, for example, in 2013 the average day of peak month was 22% busier than the annual average.

1.3.2 The increase in peak spreading was more marked in the 2016-2019 period as Gatwick's airlines became unable to add capacity in the peak months. The following chart and table highlight the decreasing levels of seasonality at Gatwick in the 2013-2019 period. This trend to increasingly use the off-peak is driven by the lack of capacity in the peak months. Demand spreading has also occurred within the day as historically off-peak hours are now consistently oversubscribed by airlines. Further detail has been provided in the Forecast Data Book[1] on historical trends and the drivers of peak spreading.

Figure 3 Gatwick Airport monthly ATMs (average movements per day)



Source: Gatwick/CAA Statistics

Table 1 Gatwick Airport Seasonality (ATMs, average per day)

	Peak month	Annual	Ratio (peak vs average)
2013	819	669	+22%
2019	908	775	+17%
2023	860	n/a	n/a

Source: Gatwick/CAA Statistics

[1] Forecast Data Book [APP-075] section A2.3

1.4. Airlines and Destinations

1.4.1 During the period 2009-2019 domestic volumes remained relatively flat whilst over 10 million and 4 million passengers were added in the short haul and long-haul market categories respectively. The growth in short haul markets was driven by ongoing growth from low-cost carriers (LCCs), which continue to account for a significant increase in share of the European aviation market. The long-haul growth has been driven by several new intercontinental markets being added by a range of carriers (full service and LCCs) as Gatwick continues to expand its long-haul connectivity (see Figure 1.3 below). The airport's evolving network continues in parallel with the ongoing supply side trends reflecting aircraft changes (e.g. larger and fuller aircraft).

Figure 4 Gatwick Routes (outside Europe)

Source: Gatwick/CAA Statistics

1.5. Catchment

1.5.1 London Gatwick is located in the heart of the most prosperous, densely populated and best-connected region of the UK with more than 17m people within 90 minutes of Gatwick. It has a significant passenger catchment area which produces more than 40m passenger journeys a year[2]. The airport also benefits from a significant share of the inner London catchment thanks to its excellent rail access into central London. Unlike other London airports, there are fast and convenient connections every 3 minutes, arriving at London Victoria and London Bridge in under 28 minutes. In addition to the excellent connections into

[2] Total demand from catchments where Gatwick ranks #1 as the airport of choice from inbound/outbound demand.

central London, Gatwick also offers connections down to Brighton and to Cambridge and Leeds, among others.

1.5.2 Further catchment analysis is presented later in this document.

1.6. Air Cargo

1.6.1 The supply side dynamics of the routes and carriers play a pivotal role in Gatwick's cargo performance with long-haul widebody movements to markets such as Asia and the Middle East providing significant cargo opportunity.

1.6.2 Gatwick's cargo performance has been increasing in recent years, reflecting the growth in the number of long-haul markets and carriers and the greater hold capacity of long-haul aircraft. In 2019/20 Gatwick airlines handled approximately 150,000 tonnes. Further catchment analysis is presented later in this document.

1.7. Current Airport Capacity

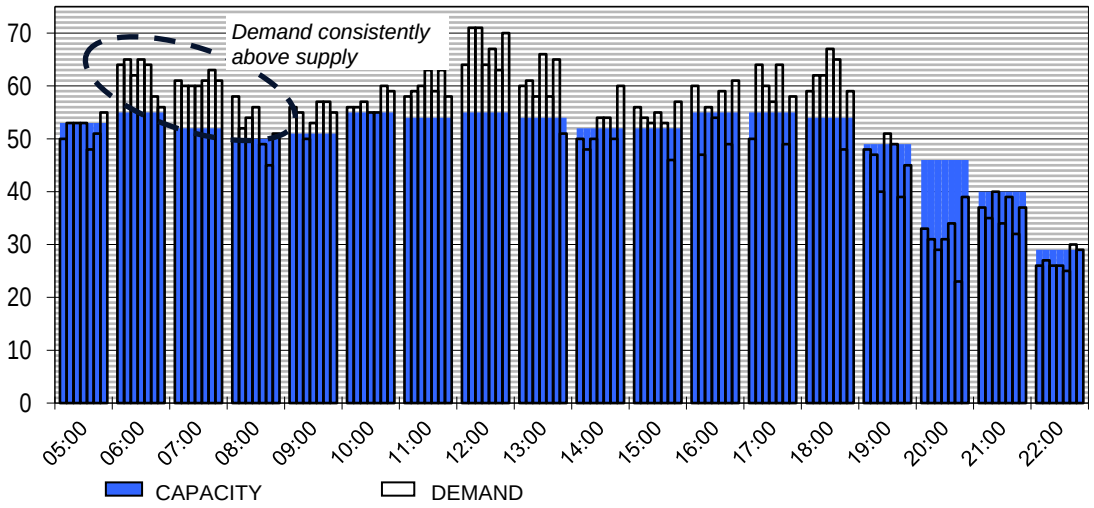
1.7.1 The airport is not currently controlled by a 'limit' on the total number of passengers, or the number of ATMs that are permitted each year.

1.7.2 Today, Gatwick can handle and has declared capacity for up to 55 scheduled aircraft movements an hour on its main runway. This has grown from 53 an hour in 2012. This increase has allowed more flights, including during the busy summer period. In peak summer months (July, August, September) Gatwick is operating with little or no spare capacity in the peak hours and even in the historically off-peak hours.

1.7.3 Demand for landing and take-off slots, especially in the peak summer period is heavily oversubscribed and an active secondary slot market has now emerged. This means that any additional capacity that is made available is rapidly taken up by airlines.

1.7.4 The following chart presents the current task faced by the slot co-ordinators ACL for summer 2024. It highlights that demand from airlines for slots routinely exceeds the airport's capacity throughout the day. This profile was witnessed at Gatwick for many years leading up to 2019 and has already returned following the pandemic. This means that Gatwick is once again 'spilling' demand that would otherwise be served with the additional capacity offered by the Northern Runway.

Figure 5 Gatwick Slot Demand and Declared Capacity



Source: ACL

1.7.5 ACL (Airport Coordination Limited), the independent slot coordinators, have provided a letter outlining Gatwick's constraints, which is provided in the Annex to this document.

1.7.6 When permission was granted for the North Terminal in 1978, restrictions were placed on the use of the Northern Runway (referred to as the 'emergency runway') by a legal agreement and a planning condition. These prevented operation of both runways at the same time. The legal agreement expired in August 2019, but the operating restriction is still in place because the planning condition still remains. The DCO application proposes to remove this condition.

2 London Aviation Market

2.1. Context

2.1.1 The London aviation market is the largest passenger aviation market in the world by all recognised measures. It is also one of the most constrained, with both Heathrow and Gatwick regularly topping global charts for being the busiest two runway and single runway airports respectively.

2.1.2 By the time any new capacity opens, the London market will have had more than a decade of extreme capacity constraints, distorting the optimal operation of airlines and airports and impacting adversely on the economy.

2.2. The London aviation market is by far the largest in the world

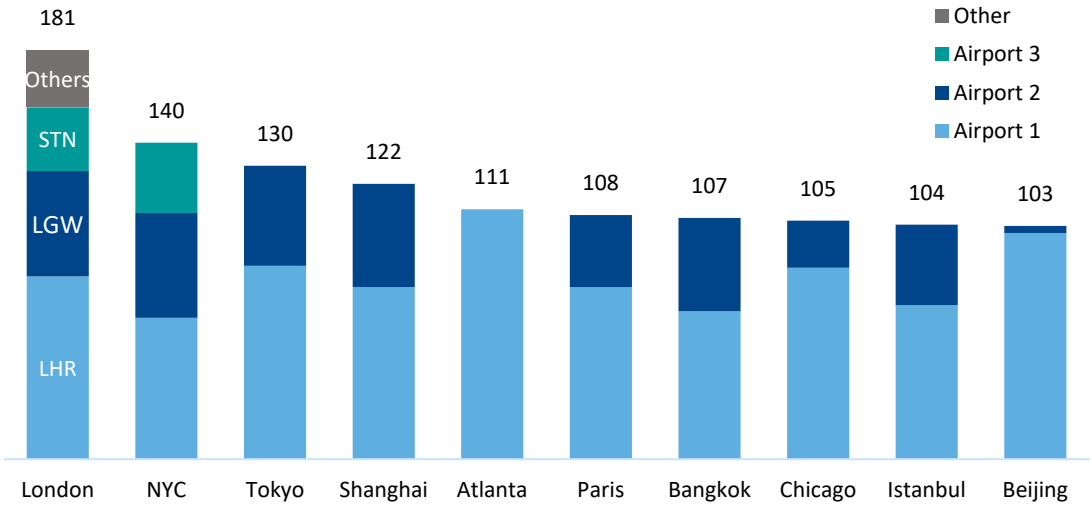
2.2.1 The London aviation market is by far the largest aviation market in the world, accounting for over 181 million passengers in 2019 despite binding capacity constraints already at play at Heathrow and Luton and practical constraints at Gatwick.

2.2.2 London is 30% larger than the second largest market (New York) and 50% larger than the largest fast-emerging markets (e.g. Shanghai). Compared to the other largest airport markets, London is on average 60% larger.

2.2.3 London is the only market large enough to support at least five airports with the largest three airports (LHR, LGW, STN) accounting for over 155 million passengers. Only New York also has more than two major airports in operation.

2.2.4 The following chart provides a comparison of the largest airport systems in the world ranked by total passengers and the split of demand across the major airports.

Figure 6 Global Ranking of Airports, Total Passengers (m), 2019



Source: ACI (Airports Council International) Statistics

2.2.5 Even with conservative growth assumptions London will retain its number one position for many years. Fast-growing markets such as those in China (Shanghai, Beijing), the Middle East (Dubai, Doha), Asia (Delhi, Mumbai) will remain behind London well into the 2030s.

2.3. Compared to peers, London dominates

2.3.1 Comparing the London aviation market to its European peers highlights the relative scale of demand. Only Paris had over 100 million passengers in 2019 with major airports like Amsterdam and Frankfurt operating with less than half the demand in the London system.

2.3.2 Excluding transfer passengers provides the volumes of 'local' demand, i.e. passengers using the airport as their start or end point on a journey. This comparison further enhances London's significance; of the 181 million passengers using the airports, approximately 160 million are considered local demand, as just 11% of passengers are transferring.

2.3.3 In other markets, higher shares of transfers are often found, meaning that London's relative performance as a genuine origin and destination market is further enhanced. For example, over half of the demand for Frankfurt is from transferring passengers, meaning that actual demand for travel to/from Frankfurt is just over 30 million, well below the local demand experienced at just Gatwick.

2.3.4 Whilst London's total aviation demand was 150% above the average of its largest European peers (181m vs an average of 73m), its demand for 'local' traffic was 200% higher (161m vs an average of 53m).

2.3.5 London also leads on other metrics including long haul capacity to many mature and emerging markets. In 2019 total long-haul capacity at the London airports exceeded 60 million seats, more than double that at Frankfurt and 50% more than the second largest market (Paris).

2.3.6 The following table provides some useful context in terms of size and make-up of the major European aviation markets.

Table 2 Benchmarking European Airports

City	Total Demand	Local Demand	Long Haul Capacity
London	**181**	**158**	**62**
Paris	108	83	42
Amsterdam	72	46	23
Frankfurt	70	33	29
Madrid	62	54	18
Barcelona	53	51	6
London vs others avg.	**+150%**	**+200%**	**+165%**

Note: EUR airports >50mppa in 2019 considered, Russia/Turkey excluded. Long haul excludes Europe/N. Africa
Source: ACI, IATA, reported airport statistics.

2.4. London Airport Performance

2.4.1 Today, Gatwick is one of six airports focused on serving the London/South-East aviation market demand. In 2019 Gatwick handled 46.6 million passengers making it the second largest airport behind Heathrow (81 million passengers pre Covid) but clearly ahead of Stansted (28 million passengers pre Covid). Other airports serving the London aviation market include Luton, London City and Southend, which handled a combined 25 million passengers in 2019.

2.4.2 Across the six airports 181m passengers and 1,139k movements were handled in 2019. Heathrow, Gatwick, and Luton all operate at their planning limits or are constrained from growth in the peak periods. The following table provides an overview of recent and current performance statistics.

Table 3 London Airport Demand / Status

Airport	Passengers, m		ATMs, k		Status	Comment
	2019	2023*	2019	2023*		
Heathrow	80.9	74.0	473	425	Full	Operates at ATM planning cap
Gatwick	46.6	38.7	283	244	Full	Full in peak periods
Stansted	28.1	26.8	173	164		Operating well below 43m cap
Luton	18.2	15.4	111	92	Full	Growth to 19mppa now approved
London City	5.1	3.4	81	48		Operational constraints
Southend	2.0	0.1	19	1		Limited market, Covid recovery
Total	**181**	**158**	**1,139**	**975**		n/a

*12 months to Jul'23
Source: CAA Statistics

2.4.3 Across the airports the characteristics of traffic accommodated at each airport differs significantly.

2.4.4 Heathrow is dominated by long haul traffic, accounting for over 41 million passengers in 2019 with short haul and domestic traffic accounting for the remaining 35 million and 5 million respectively. Within these destinations groupings Heathrow captures a sizeable transfer market connecting passengers on predominantly long-haul to long-haul, or short-haul to long-haul connecting itineraries. Pre-Covid, Heathrow reported transfer volumes accounting for 23% of total demand. Although this is below other major European hubs it reflects the size and strength of the London market.

2.4.5 As set out above, most of Gatwick's traffic is short haul traffic, accounting for over 34 million passengers in 2019. Apart from Heathrow, only Gatwick provides a viable alternative for long haul traffic with 8.9 million passengers in 2019.

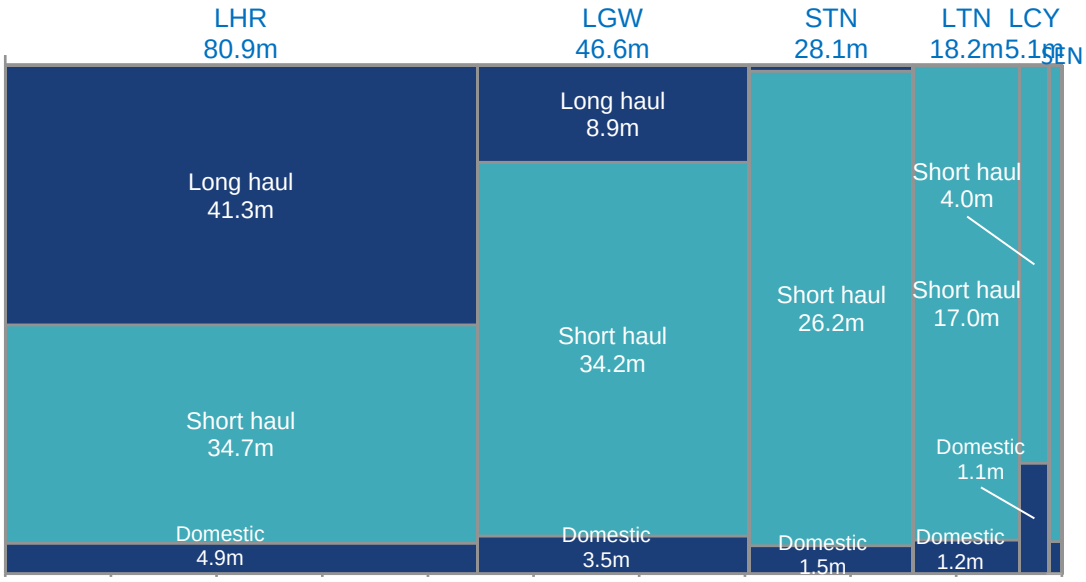
2.4.6 Stansted is dominated by the short haul market segment, accounting for 26.2 million out of a total 28.1 million passengers in 2019. The airport caters primarily for the LCC segment which accounted for virtually all the airport's demand in 2019. Very limited long-haul demand uses the airport, although the airport does have a runway capable of serving intercontinental flights.

2.4.7 Luton airport has a similar mix of traffic to Stansted, the demand is dominated by the short haul LCC market segment, accounting for over 95% of demand in 2019. The airport operates on a relatively constrained site with a short runway limiting the potential for long-haul flights. Few flights operate outside of Europe, and these are served by narrow body aircraft mainly to Israel/North African markets. Even with a potential increase to its planning limit it will not be able to serve the vast majority of the long-haul market.

2.4.8 London City and Southend are relatively small, London City has limited operating capabilities due to the short runway and focuses on regional jets flying domestic/European business-oriented markets. Southend served 2 million passengers pre Covid but has been slow to see volumes return post Covid.

2.4.9 The following chart provides a breakdown of each airport's traffic by market segment in 2019.

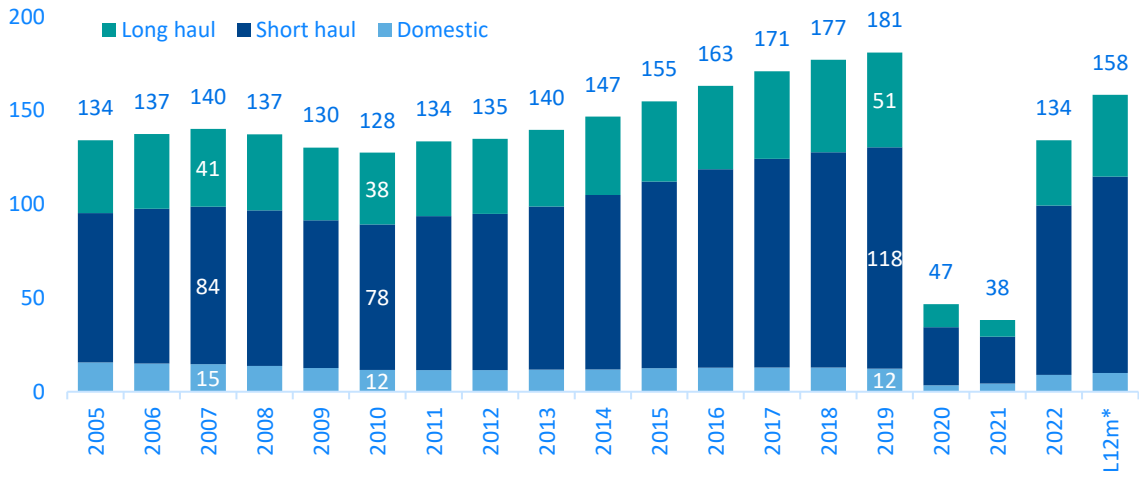
Figure 7 London Airport Performance, Passengers (m), 2019



Note: Although CAA figures for Luton exceed the planning cap this includes infants which are excluded from the cap
Source: CAA statistics

2.4.10 London airport volumes reached 181 million passengers in 2019, which was 53 million more than the throughput in 2010, a year when aviation was starting to recover from the Global Financial Crisis (GFC), as well as being impacted by airspace closures early in the year. In the 2010-2019 period traffic grew at a compound annual growth rate (CAGR) of 4.0%.

Figure 8 London Airport Performance, Passengers (m), 2019



*L12m = Last 12 months to Aug'23
Source: CAA statistics

2.4.11 Domestic volumes have been relatively stable since 2010 at 12 million passengers although they have declined from levels of 15 million before the Global Financial Crisis in 2007. Short haul traffic has undergone relatively rapid growth; in the 2007-2019 period a further 34 million passengers were added, reflecting a CAGR of 2.9%.

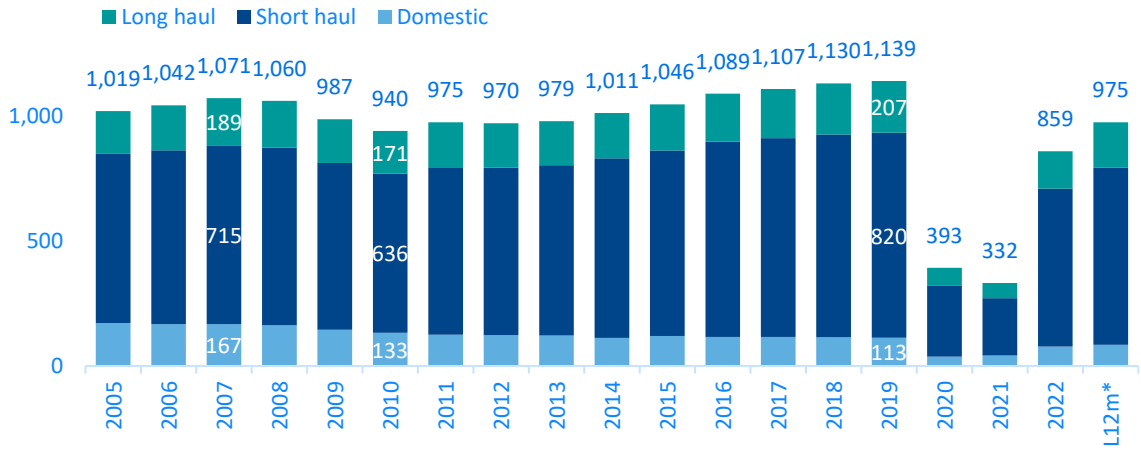
2.4.12 Long haul traffic has grown from 41 million passengers in 2007 to reach 51 million passengers in 2019. Markets in Asia (e.g., China), the Middle East (e.g., UAE) and Central / South America (e.g., Mexico) have all posted very strong growth rates, although the total long-haul market remains dominated by North America which accounted for 23 million passengers in 2019.

2.4.13 A comparable analysis for ATMs across the London airports provides a similar picture, although the relative growth is moderated as average aircraft sizes and seat load factors have grown in this period. Since 2010 the number of passenger flights has increased from 940k to over 1.1 million scheduled passenger movements in 2019.

2.4.14 If cargo flights, business aviation and other movements are included, this increases to over 1.2 million flights[3].

[3] Other flights include positioners, training, military, etc. CAA reported 1.225 million commercial and non-commercial flights in 2019 (table 3.1)

Figure 9 London Airport Performance, ATMs (k), 2005 – Latest



*L12m = Last 12 months to Aug'23
Source: CAA statistics

2.4.15 Growth across the airports has varied widely. Heathrow has been operating at its planning cap for many years with annual movements in 2019 on par with throughput more than 10 years prior. Gatwick has seen limited growth in the 2016-2019 period as growth was constrained by capacity constraints in the peak periods.

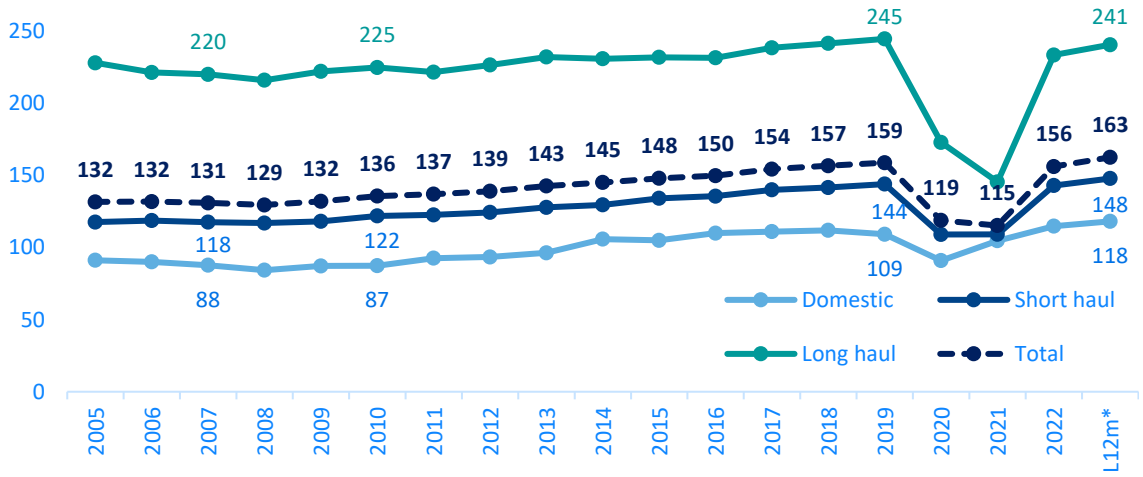
2.4.16 As was shown for Gatwick, the average number of passengers per movement has also been increasing across the London airports and in 2019 the average flight accommodated 159 passengers. This has grown 21% from 132 in 2005.

2.4.17 Domestic services are often operated with smaller aircraft types and lower load factors accounting for their lower passengers per ATM of 109 in 2019. This has increased 25% since 2010 when domestic services operated with just 87 passengers per movement. Emerging from Covid, a change in airline mix and ongoing up-gauging trends will continue to support further growth. In the 12 months to July 2023, passengers per domestic ATM had increased a further 8% to 118 passengers.

2.4.18 Short haul patterns align with the total trends. Short haul movements accounted for 72% of total ATM demand across the London airports in 2019. In 2019 passengers per movement averaged 144, although since emerging from Covid this has increased 3% to 148. This increase is driven by larger aircraft types as load factors have yet to recover to 2019 levels.

2.4.19 Long haul patterns have been more stable with passengers per ATM increasing 10% in the 2010-2019 period to reach 245. Virtually all this increase was driven by load factors which increased from 76% to 83% whilst the average aircraft size increased by just one seat to 294 seats per movement.

Figure 10 London Airport Performance, Passengers per ATM, 2005 - Latest



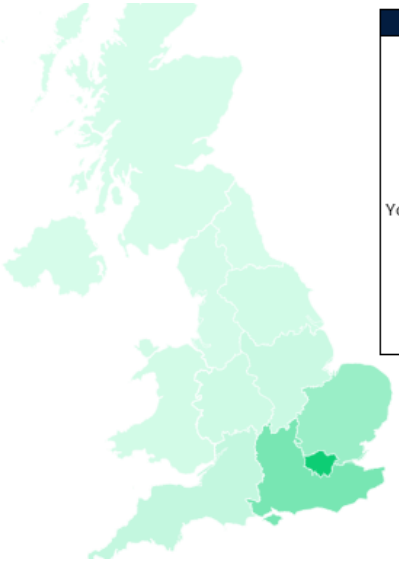
*L12m = Last 12 months to Aug'23
Source: CAA statistics

2.5. The London Airports' Catchment

2.5.1 Whilst Gatwick's catchment extends beyond the regions near the airport, the London airports also attract demand from across the country.

2.5.2 In 2019 demand at the London airports for travel to/from Greater London itself accounted for 77m passengers, or just under half of the London airports' demand. Neighbouring regions including the Southeast of England and East of England accounted for a further 59m passengers using the London airports.

Figure 11 London Airport Demand by UK Region of Origin/Destination



	Demand (m)
Greater London	77
East of England	23
South East England	36
South West England	7
West Midlands	3
East Midlands	4
Yorkshire and the Humber	2
Wales	2
North West England	1
Scotland	<1
North East England	<1
Northern Ireland	<1

Note: Excludes transfer demand. Source: CAA

2.5.3 Demand from the Southwest (7 million) and the Midlands (7 million) accounted for a further 14 million passengers, whilst regions further afield including Wales and the North of England accounted for 5 million passengers - which is equivalent to just 3% of the London airports' total demand (excluding transfers).

2.5.4 Combined, demand from across the UK accounted for nearly 160 million London airport passengers, excluding transfer passengers.

2.6. Historical airport markets shares

2.6.1 Today, Gatwick is one of six airports focused on serving the London/South-East aviation market demand. Gatwick is firmly established as the second largest airport behind Heathrow (which had 80.9m passengers pre Covid) and ahead of Stansted (28m passengers pre Covid[4]).

2.6.2 In 2019 Gatwick's share of the combined six London airports passenger demand was 26% across all market segments (domestic, short-haul and long-haul). Over the last couple of decades, the share has been relatively consistent, whilst some notable shifts have been seen within each market.

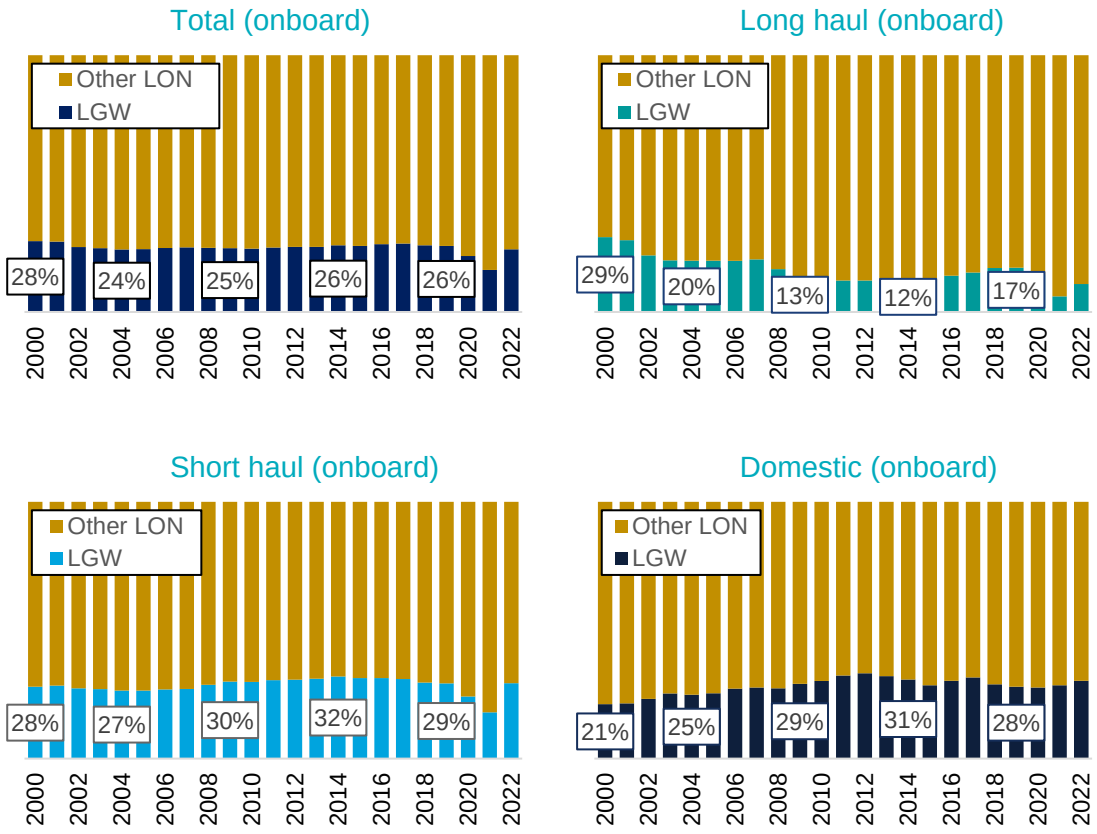
1. **Long haul**: In 2019 Gatwick achieved a 17% share of total long-haul volumes, which was 5% points above 2014 levels. Gatwick has benefited from many new carriers and markets as well as incumbents growing their long-haul networks. In this period Gatwick added 4 million long haul passengers which accounted for 43% of the total long-haul growth across the London airports.
   Before the Global Financial Crisis, Gatwick accounted for nearly 30% of long-haul volumes when carrier deployment across the London airports differed from today, for example BA operated a higher share of its long-haul network from Gatwick.
2. **Short haul:** This is by far the largest market and Gatwick achieved a 29% share in 2019, although this had been in decline since 2014 when it was 32%. During this period Gatwick has been constrained, with the result that growth has been limited and carriers have had to focus their growth at other airports. Also, some of Gatwick's carriers switched a portion of their short haul flying to long haul markets (e.g. BA, Norwegian). If Gatwick had been able to maintain its short haul share from 2014 a further 3 million passengers would have been served at the airport[5].

[4] Both Stansted and Heathrow figures refer to 2019 calendar year throughput
[5] Assumes Gatwick maintained a market share of the short haul market at 2014's levels

3. **Domestic**: Whilst this is the smallest market segment, Gatwick performs strongly with a share of approximately 30% averaged over the decade leading up to 2019.

2.6.3 The following charts provide an historical time series for each segment.

Figure 12 Historical London Market Shares, by onboard haul, % share passengers



Source: CAA Statistics

2.6.4 A further examination of Gatwick's share of London's local origin and destination markets (i.e. excluding transfers) highlights a modest improvement in share when compared to the onboard passenger volumes analysed above. For example, Gatwick's share of the domestic market increases to 32% when excluding those passengers transferring onto domestic services from other flights. A similar uplift is found for long haul volumes with Gatwick accounting for one in five long haul passengers.

2.6.5 This is summarised in the following table.

Table 4 Historical London Market Shares, by onboard haul, % share passengers

Market	Onboard Demand	Local Demand (exc. Transfers)
Domestic	28%	32%
Short haul	29%	30%
Long haul	17%	20%
Total	**26%**	**27%**

Source: CAA/IATA Statistics

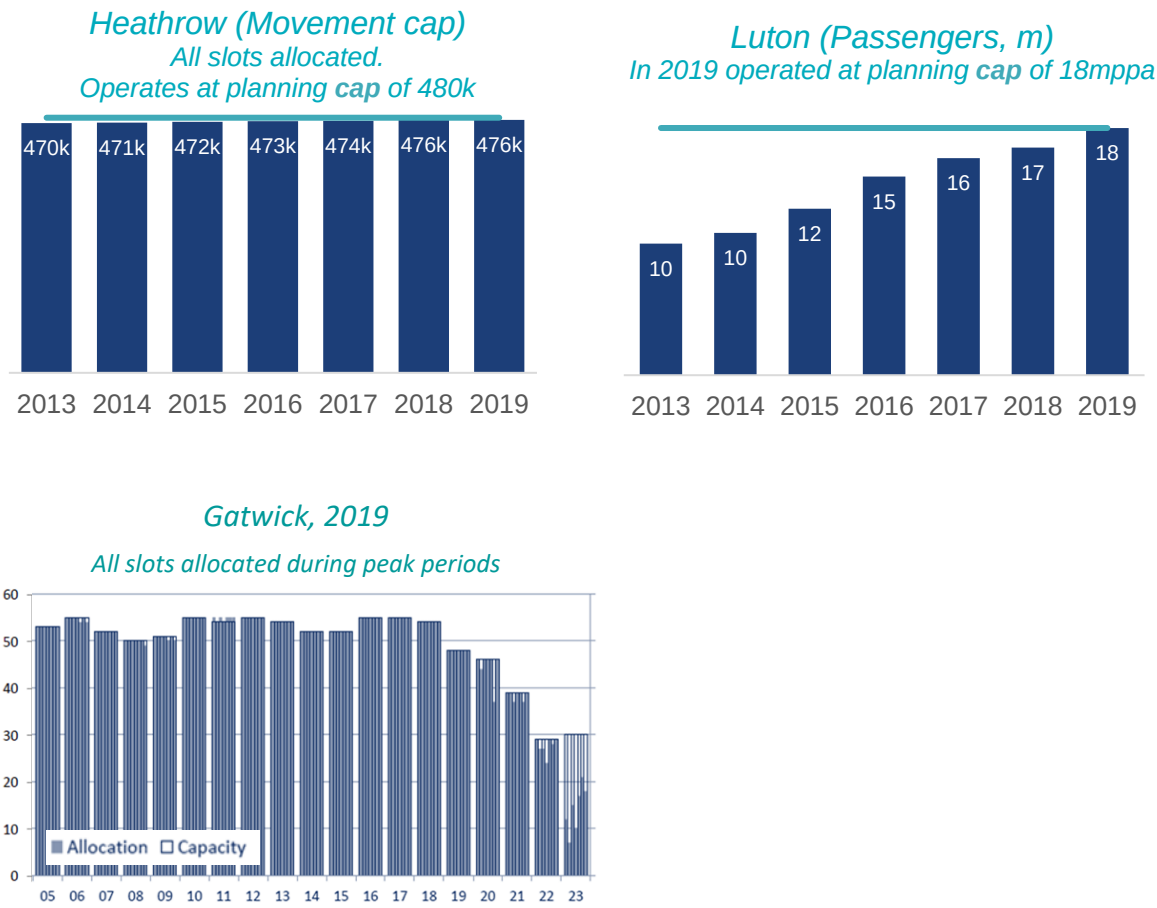
2.6.6 Future market shares have been considered against this background for Gatwick and the London airports for the Baseline and NRP forecasts. These outputs are discussed in Section 6.

2.7. Constraints

2.7.1 Unlike most other aviation markets, London has limited potential to grow, and this is evidenced by constraints experienced by several of its airports today. Heathrow has been operating at its planning cap of 480k annual ATMs for many years. Growth in passengers has however been achieved as airlines have increased the size of aircraft operating alongside higher seat occupancy rates.

2.7.2 Luton reached its planning cap of 18 million passengers in 2019. Current throughput is below these levels, however demand is expected to return within a couple of years. Luton has recently secured approval to increase its planning limit by 1 million passengers to 19 million per year. Given the ongoing up-gauging trends and wider London market constraints, Luton is expected to be limited by its planning cap within a few years. Further growth at Luton may be possible as it is currently undergoing a DCO process seeking relatively limited growth in the 2020s before a second terminal proposed under this DCO application is delivered in the late 2030s.

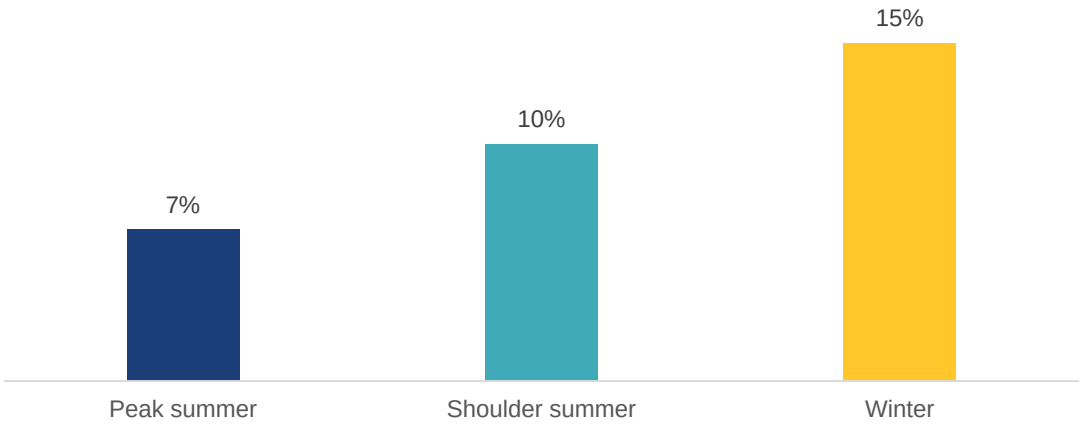
Figure 13 Major constraints of the London Airports



Source: CAA/ACL Statistics

2.7.3 Gatwick has been experiencing severe constraints during the peak season for several years which has limited growth across the year. The following chart highlights how Gatwick's throughput has only been able to grow modestly in the peak whilst the off-peak months have witnessed more than double the growth of the peak months.

Figure 14 Gatwick ATM Growth, 2019 vs 2013 (% change)



Source: CAA Statistics

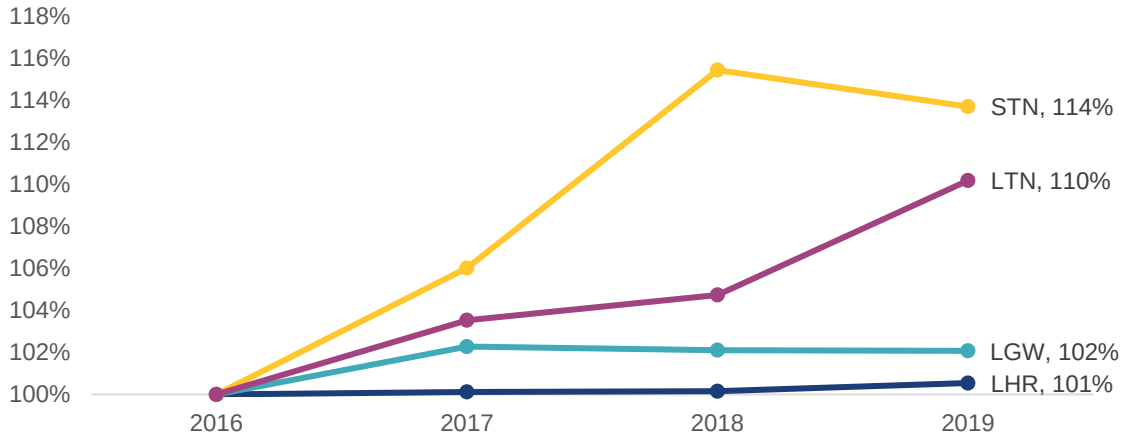
2.7.4 These constraints have resulted in several market responses:

1. Demand for Gatwick slot capacity consistently exceeds supply and airlines are routinely turned away from operating their desired services. ACL (Airport Co-ordination Limited), the independent slot co-ordinator for Gatwick has provided supporting evidence documenting the extent and nature of these constraints. ACL's letter is attached as Annex 1 to this document. This letter highlights the levels of excess demand evidenced today above the airport's current runway limits.
2. For example, London Gatwick has more slots unallocated and, on the waitlist, than the average of other London airports. Over the last 5 years of data, at initial coordination an average of over 1,000 slot requests a week were not allocated a slot which equates to >6m summer seats (Apr-Sep).
3. Gatwick has lost market share to other airports because of its capacity constraints. Leading up to 2019 many airlines were unable to grow at the airport whilst others switched short haul slots to long haul flying[6]. This resulted in Gatwick's flights to short haul destinations decreasing whilst strong growth was then experienced by other London airports. If Gatwick had available capacity to maintain its share of this market segment, then a further 3 million short haul passengers would have been accommodated at the airport.
4. The following chart highlights the lack of annual movement growth achieved at Gatwick compared to other London airports. In the 2016-19 period both Luton and Stansted were able to grow significantly whilst Heathrow and

[6] Carriers including Norwegian increased the number of long-haul aircraft at Gatwick, the slots they used for this flying came from their short haul slot portfolio

Gatwick were both limited by their constraints (planning limit at LHR and peak month runway capacity limits at LGW).

Figure 15 Gatwick ATM compared to other London Airports (2016 – 2019) (100% = 2016 throughput)



Source: CAA Statistics

5. Carriers such as Wizz / Jet2 have had to focus their growth away from Gatwick given the lack of access to the airport for any sizeable operations.
6. The scarcity of slot capacity creates serious inefficiencies for airlines who are unable to optimise their schedule by matching slots with their preferred rotations, airlines often have to accept sub-optimal schedules to gain access preferring this option to flying to less constrained airports such as Stansted.
7. Over the last decade slot trading has emerged at Gatwick, this is where airlines often pay a premium to acquire slot capacity from other airlines reflecting the lack of available capacity at a given airport. The first major slot trades occurred at Gatwick in 2011 and the value airlines have placed on these scarce slots has increased over time. Pre-Covid, Gatwick slot pairs were routinely trading at £2-3 million per daily slot pair[7]. Slot trading has only developed at Heathrow and Gatwick, other UK airports have seen very limited slot trading activity.

2.7.5 Outside of London, the major airports including Manchester and Birmingham will continue to have spare capacity for some time. Manchester benefits from two operational runways providing significant growth opportunity whilst Birmingham operates well within the potential capacity of its one runway. Further terminal development would be needed at these airports in the long term although this is already being considered as part of their longer-term master planning needs.

[7] Slot transaction at Gatwick analysed for 2011-2023 period involving airlines including Thomas Cook, Monarch, Flybe, British Airways, easyJet, Wizz Air, Vueling amongst others.

2.8. London Forecasts/Outlook

2.8.1 The forecasts used to support the latest modelling are discussed later.

2.8.2 At a macro level, however, the strength of demand for the London airports system is unlikely to change. With the South East's population set to continue growing alongside long term increases in GDP and GDP per capita; these factors will continue to support the ongoing growth of the UK outbound market.

2.8.3 The inbound market also has significant potential to grow as London increases its links to established and many emerging countries which have some of the fastest growing aviation markets. Growth in trade, inbound tourism and other demand flows will continue to offer significant long-term potential for the London aviation market.

Given London's relative attractiveness and importance for faster growing inbound markets (e.g. Asia) compared to the rest of the UK, and long-term economic growth expected to favour the Southeast, London is expected to at least maintain its leading position for aviation demand in the UK.

3 Gatwick is well placed to meet immediate need and serve future growth

3.1. Introduction

3.1.1 Of all the airports in the London aviation market, Gatwick is best placed to serve the need for additional airport capacity. Gatwick has many strengths reflecting its ability to serve all market segments and airline business models. It is also well placed to serve the future demand needs of the aviation market. This section highlights several key themes supporting Gatwick's application.

3.2. Gatwick caters for all airline business models

3.2.1 Gatwick is the only airport able to provide competition for a range of business models. Gatwick successfully serves the regional, LCC, Charter and full-service segments. Heathrow serves the more mature full-service carrier market, whilst Luton and Stansted are both dominated by LCC traffic. A split of each airport's carrier mix is provided in the following table for 2019.

Table 5 Summary of Airline business models by London airport (passengers, m)

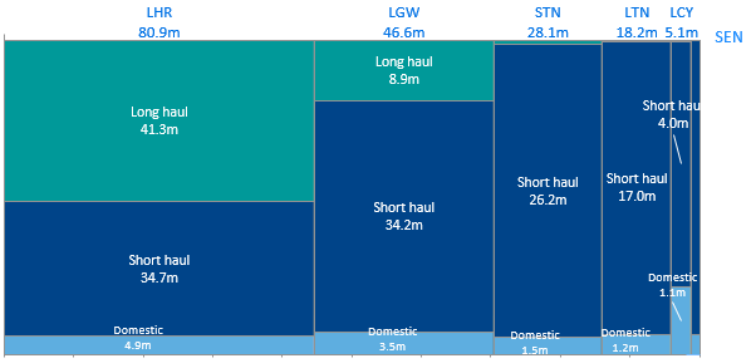
	LGW	LHR	LTN	STN
Charter	4.4	0.0	0.3	0.7
Regional	0.4	0.6	0	0.2
Full Service	13	79	0	0
LCC	29	1	18	27
Total	**47**	**81**	**18**	**28**

Source CAA Statistics

3.3. Gatwick caters for all market segments

3.3.1 As was shown in the London market section, Gatwick and Heathrow are the only airports to cater for domestic, short-haul and long-haul market segments.

Figure 16 London airport performance, passengers (m), 2019



3.3.2 Gatwick's network remains the most extensive of all the London airports. In 2019 Gatwick served 219 destinations, compared to 211 at Heathrow and 185 at Stansted and 139 at Luton. Gatwick is clearly the second ranked airport in the London system for long haul (non-

Europe) connectivity with 62 destinations compared to just 2 at Luton and 7 at Stansted.

Table 6 Number of Destinations served direct, 2019 (>60 flights per year, CAA)

	LGW	LHR	LTN	STN
Domestic	9	11	7	6
Europe	148	86	130	172
Rest of World	62	114	2	7
Total	**219**	**211**	**139**	**185**

Source CAA Statistics

3.3.3 Gatwick's proposed expansion will provide greater connectivity to London and the UK's wider international connectivity.

3.4. Gatwick provides value to airlines/passengers

3.4.1 Compared to Heathrow and other major airports, Gatwick's aeronautical charges per passenger are highly competitive, offering good value to airline users and passengers. They are currently less than half the rate being charged by Heathrow (£11 vs £27, both per passenger) and are competitive for all airline business models.

3.4.2 The Northern Runway development is a cost-effective solution for unlocking a significant volume of capacity in the London system and will allow GAL to maintain efficient and competitive charges for airline users and passengers. Prices at Gatwick are the outcome of Gatwick's contracts and commitments regulatory framework which encourages a strong level of consultation and commercial engagement between Gatwick and its airline customers.

Table 7 Summary of LGW/LHR charges

	Aero revenue/ passenger	Source
Gatwick 2019	£11	LGW annual report
Heathrow 2019	£23	LHR annual report
Heathrow 2023-27 (CAA)	£27	CAA, Mar 2023

Source: Airport Results

3.5. Gatwick's can provide growth before other airports

3.5.1 Gatwick's Northern Runway is the only scheme able to deliver new runway capacity in the current decade. Heathrow's third runway (LHR R3) has experienced a number of planning challenges over the last few decades and is no longer currently planned. Even if it is proposed, consented, and constructed,

it is unlikely it could be operational before 2035 at the very earliest, given the scale and challenges associated with the project.

3.5.2 Luton and Stansted's growth both require terminal enhancements. Luton has submitted a DCO application to increase its 19 mppa planning cap, although the earliest this is assumed (by Luton) to be delivered is 2037 (with only modest uplift assumed before then).

3.5.3 The Northern Runway at Gatwick offers the only prospect of a significant step up in capacity in the short to medium term.

Table 8 Summary of Major Airport Capacity development at London airports

	Timing	Note
Gatwick Northern Runway	2029	Timetable to bring NR into operation
Heathrow R3	2035	Earliest opening considering current status
Luton DCO	2037	2037 assumed to open new terminal

Note: London City planning to increase capacity modestly, but this is not considered significant for summary
Source: Planning documents/Gatwick

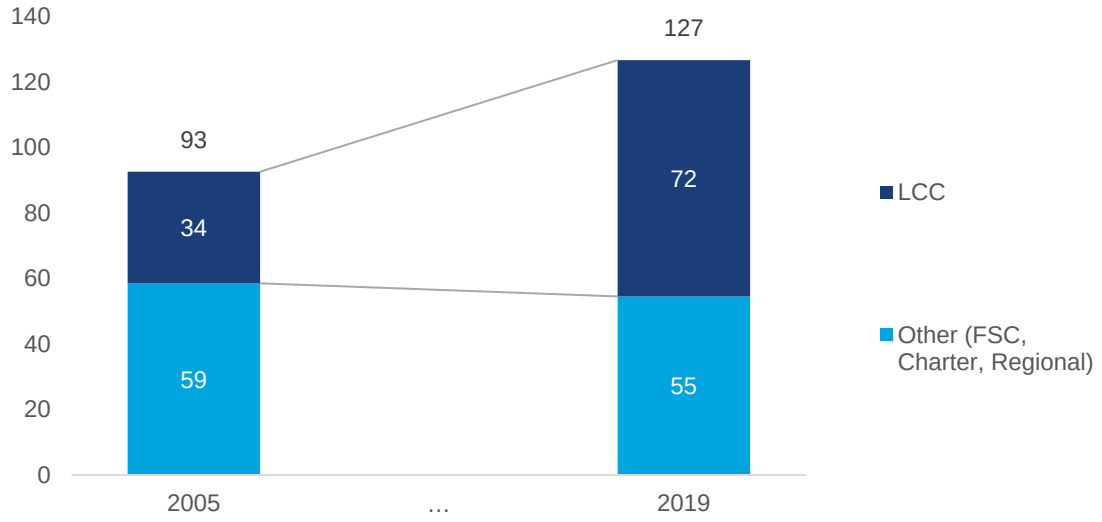
3.6. Gatwick is well placed to serve future demand

3.6.1 Like many other aviation markets, the UK's growth in demand has been driven by the short haul LCC segment. Short haul demand accounted for 130 million of the total 181 million passengers across the London airports in 2019, equivalent to a 72% share. In the 2010-19 period this segment accounted for 77% of the total demand growth (41million short haul passenger growth out of 53 million total)

3.6.2 Continuing these trends, the short haul market segment is forecast to deliver by far the largest growth in absolute passenger volumes in the London market, so it is important that this market segment can be served efficiently at London's airports.

3.6.3 In the London market in 2019, of the 130 million passengers flying on short haul routes, some 127 million were flying either domestically or to/from Europe. Of these, 72m were carried by LCCs (57% of this market segment). This market share has grown significantly as LCCs accounted for just 37% in 2005. In the 2005-2019 period, LCCs have added 38m passengers, whilst other airline business models have seen their volumes fall from 59m to 55m. Full-service carriers remained relatively flat, with charters driving the decline in the non-LCC segment.

Figure 17 Summary of short haul (Europe) market, London, 2005-19 (passengers, m)



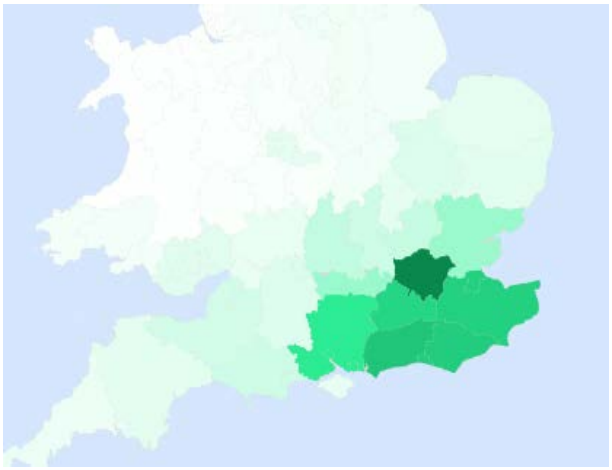
Note: Short haul includes Europe and domestic travel (North African markets not included)
Source: CAA Statistics

3.6.4 Emerging from Covid, the LCC market segment has continued to gain share, accounting for more than 60% of short haul demand in 2022. Reflecting fleet orders and growth plans, LCCs will continue to take share and drive the growth of the short haul market in London and across the wider European market.

3.7. Gatwick has a large catchment and achieves a significant share

3.7.1 Gatwick has a significant catchment drawing on demand from across the UK (inbound/outbound). In 2019 nearly 19 million Gatwick passengers originated or terminated from Greater London accounting for 42% of demand (exc. transfers). The Southeast of England was the next largest catchment, generating nearly 18 million passengers, or 40% of demand. The remaining demand originated in the East and Southwest of England, accounting for 3 million and 2 million passengers respectively, while other regions contributed the remaining 3 million. Further insight into Gatwick's catchment profile is provided in Section 6.

Figure 18 Catchment – Gatwick Airport, exc. Transfers (passengers, m)



Region	Pax	%
Greater London	18.8	42%
Southeast England	17.7	40%
East of England	3.1	7%
Southwest England	2.2	5%
East Midlands	0.7	2%
West Midlands	0.6	1%
Wales	0.5	1%
Yorkshire & Humber	0.4	1%
Other	0.6	1%

Source: CAA Statistics

4 Gatwick's DCO forecast – principles and approach

4.1. Introduction

4.1.1 As part of Gatwick's DCO application it has already submitted the Needs Case for the project and the Forecast Data Book. This section explains Gatwick's DCO forecasts at a high level. Section 5 provides a more detailed examination of the forecasts and responds to comments received relating to the forecasts.

4.1.2 This Section focuses on the main assumptions made regarding the future capacity and demand outputs.

4.2. Summary of approach

4.2.1 The demand forecasts presented in the DCO application were prepared as bottom-up forecasts, checked against top-down forecasting assumptions. The bottom-up approach is appropriate for a capacity constrained airport such as Gatwick and provides a detailed picture of how the airport and its airlines would respond to a release of capacity, in terms of future traffic mix and integration with the key parameters dictating overall available capacity at the airport. It is the most robust method for accurately allocating potential market demand, to available capacity, in a constrained airport environment.

4.2.2 The top-down approach provides the context of the wider London system demand levels and constraints at other airports. This analysis provided support for the bottom-up approach by validating the levels of excess demand across the London airports as well as informing growth assumptions for specific market segments.

4.2.3 Essentially, a high-level top-down forecast established that there is and will continue to be a shortage of capacity in the London system, relative to demand. In such a constrained market, the bottom-up approach assesses how airlines and passengers would respond to a release of capacity at Gatwick – and provides a deeper layer of granularity on how much demand could realistically be served at Gatwick, relative to available infrastructure and capacity.

4.2.4 A refreshed and more detailed top-down approach is presented in Section 6, following requests from the host authorities, although a top-down approach is likely to be more theoretical.

4.2.5 A summary of the main benefits and complementary nature of the top-down and bottom-up approach is shown below:

Table 9 Summary of top down / bottom-up approach

Top Down	Bottom up
Overall levels of demand by year	Detailed market view
Other airport capacities	Considers slot allocation process & other factors
Spill from / spare capacity at other airports	Supports passenger capacity assumptions
Interaction between demand/airports	Supported by schedule/runway assumptions
Capture impact(s) of new capacity	Improved accuracy of forecast demand capture, relative to available capacity and infrastructure parameters

4.3. Bottom-up

4.3.1 Gatwick was already heavily constrained by its own capacity limits in 2019 and had been for some time. Airlines were unable to fly the schedules they desired, and Gatwick was having to turn away excess demand due to the lack of capacity. Post Covid, many of these trends have now returned with carriers still unable to access the slots they desire.

4.3.2 Gatwick is the only airport able to deliver a sizeable addition of airport capacity before the mid to late 2030s and the lack of capacity will only become more pressing. When the Northern runway opens it will provide airlines with a strong opportunity to increase their capacity and meet unmet demand. Given the excess demand today and the levels of growth being forecast, the airport is increasingly returning to a constrained state.

4.3.3 The bottom-up forecasts create future design day schedules, informed by direct market knowledge of airline demand. The future capacity limits are defined by the runway's capability to operate up to 55 ATMs per hour in the Base and 69 ATMs per hour with the Northern Runway. The Capacity and Operation Paper provides further discussion on the runway capabilities assumed for both scenarios.

4.3.4 Gatwick considered a number of factors to support assumptions around the airline / market deployment that would result from a release of capacity. These included:

Slot Allocation: How any new capacity gets allocated is determined by ACL, the company appointed to manage LGW's slots. ACL applies worldwide slot regulations and provides an independent approach to allocating slot capacity. Determining how any new capacity is allocated is based on a range of airline/service led criteria, namely:

- Aircraft size.

- Allocation between incumbent carriers and new entrant airlines.
- The definition of new entrants.
- Period of operation: schedules in effect for a longer period are normally prioritised.
- The balance of difference services and markets is considered.
- Competition: competitive factors are also considered in the allocation of slots.
- Other factors including the requirements of the travelling public, time spent on the wait list are also considerations for ACL.

Schedules: Gatwick considered the availability of capacity throughout the day recognising that some markets will only be feasibly served at certain times of the day.

Pipeline of demand: Gatwick has extensive market knowledge and intelligence directly from the airlines currently seeking to flying to Gatwick that have been unable to get access to date.

Established operators: Gatwick is routinely in discussions with their incumbent carriers who are able to provide feedback on the levels of unmet demand already being experienced today and their desire for incremental capacity.

Emerging markets: Gatwick's commercial team works closely with regional and national airlines and governments to understand world-wide growth plans.

4.3.5 Without considering these direct, practical, commercial issues affecting airlines, markets and rules relating to the allocation of new capacity it would be challenging to provide a clear profile of the future traffic that would be expected at Gatwick under the Northern Runway or Baseline scenario(s).

4.4. Top-down

4.4.1 High level demand and capacity projections were used based on DfT forecasts for the London aviation market to determine the capability of all the airports to handle the growth in unconstrained demand, so as to determine the levels of unmet demand, or indeed excess capacity if it were to exist. For example, demand for long haul flights was recognised to be constrained at Heathrow and Gatwick (alongside constraints at other airports).

4.4.2 Overall levels of demand by segment (e.g. domestic, short haul, long haul) were forecast to understand the same issues in more detail – i.e. for each market segment was Gatwick forecast to be operating in a constrained market – and to what extent?

4.4.3 In both macro and market segment terms, the top-down forecasts showed that the constraints affecting Gatwick in 2019 would continue and strengthen. This validated and provided the context for the detailed bottom-up assessments used in the application. Gatwick was confident from its market knowledge and from the top-down forecasts that its released capacity would be filled; the bottom-up forecasts were deployed to determine how – i.e. what pattern of traffic would secure growth at the airport in response to the released capacity?

4.5. Gatwick's Forecasts

4.5.1 This section provides a high-level overview of the forecasts prepared for the DCO submission, summarised from the Forecast Data Book [APP-075].

DCO Forecasts, Passengers & ATMs

4.5.2 Passenger, ATM, and related forecasts were prepared by Gatwick out to 2047[8] with secondary forecasts prepared for the assessment years (financial years[9]) of FY29, FY32, FY38 and FY47.

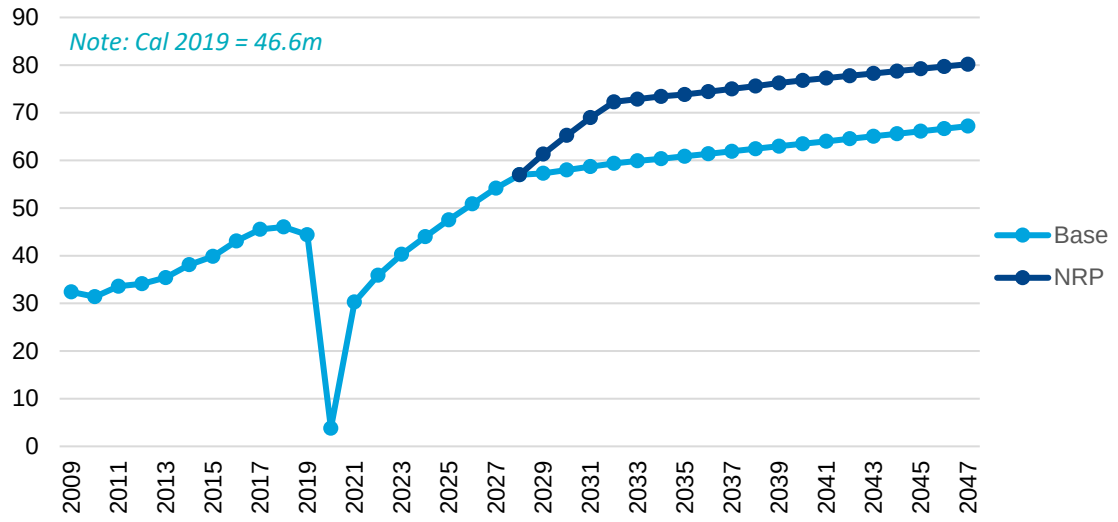
4.5.3 In the 10 years leading up to 2019 Gatwick grew from 32 million to 46.6 million passengers, adding more than 14 million passengers in this period. Currently the airport is continuing to recover from Covid with approximately 40 million passengers expected in 2023, representing nearly 85% of 2019's volumes, the DCO forecasts assume traffic is fully recovered by FY25/26.

4.5.4 Beyond the Covid recovery, even without the Northern Runway, Gatwick will continue to experience further growth. Gatwick has the potential to accommodate some further growth through factors including ongoing increases in average aircraft size and further utilisation of the off-peak periods, since the peak months are already oversubscribed today. That incremental capacity, however, falls far short of the scale of current and forecast demand.

4.5.5 Under the Baseline forecast, LGW is forecast to reach 57.0 million passengers in FY28 before growing at modest levels to reach 59.4 million in FY32, 62.4 million in FY38 and 67.2 million in FY47. Over the 2019-47 period, this equates to 20.6 million passengers being added, representing growth of 44% or a CAGR of 1.3%. (The next Chapter of this document and Chapter 9 of Forecast Data Book discusses the forecasts in greater detail)

[8] High level estimates beyond to 2050 were also discussed during the topic working group(s)
[9] Note: GAL's FY naming convention for FY19 reflects FY19-20.

Figure 19 Gatwick Passenger Forecasts (m)



Note: Gatwick forecasts prepared in financial years (E.g. FY32 for YE Mar33 is shown as 2032). CAGRS calculated off Cal 2019

4.5.6 The Northern Runway Project is assumed to deliver new runway capacity from FY29, with this capacity being released over the FY29-32 period. When the capacity is released, Gatwick will be able to grow further. By FY32, passengers are forecast to reach 72.3 million passengers which is approximately 13 million above the base case.

Table 10 Gatwick Passenger Forecasts (m)

	2009	2019	2029	2032	2038	2047	2019-47
Base	34	47	57	59	62	67	1.3%
NRP			61	72	76	80	2.0%

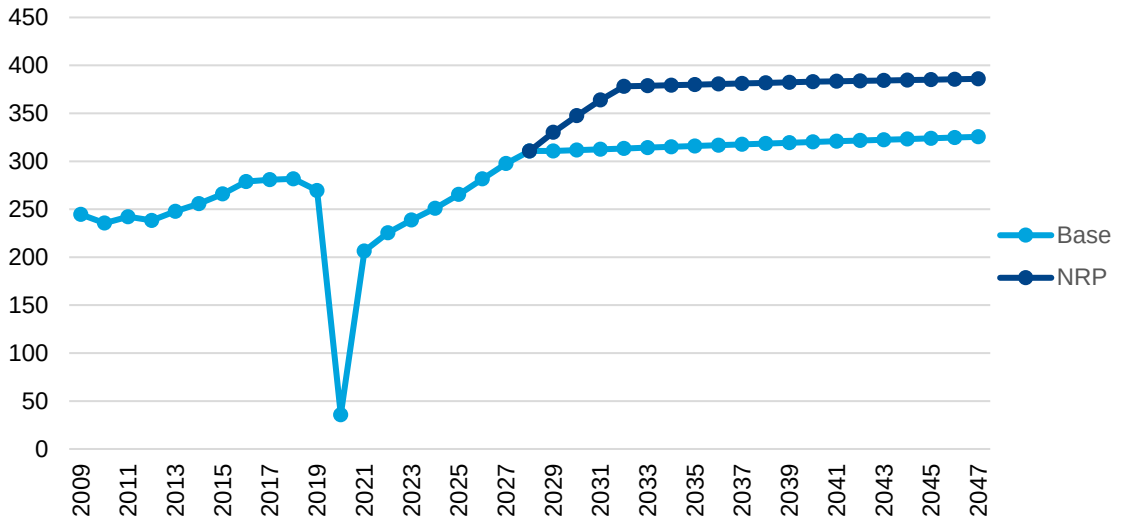
Source: Gatwick DCO Forecasts (Forecast data book chapter 9, page 14)

4.5.7 Beyond FY32, like the baseline case, the forecast growth rates are limited by runway capacity with demand reaching 75.6m in FY38 and 80.2m in FY47. Over the 2019-47 period Gatwick would add 33.6 million passengers representing growth of 72% or a CAGR of 2.0%

4.5.8 A similar view of ATM growth is provided in the following chart, although overall ATM growth is forecast to be more modest as the growth in passenger volumes reflects the continuing benefit of larger and fuller aircraft.

4.5.9 Pre-Covid Gatwick was operating with 280k annual ATMs and under the baseline scenario following the Covid recovery, throughput is forecast to reach over 310k annual movements. This will be achieved through further utilisation of off-peak periods as well as limited upside from further optimisation of the busy day (within the current limit of 55 movements per hour).

Figure 20 Gatwick Passenger ATM forecasts (m)



Source: Gatwick DCO Forecasts (Forecast data book chapter 9, page 14)

4.5.10 Under the Northern Runway forecasts, the incremental capacity offered by operating at up to 69 ATMs per hour is equivalent to 60k annual movements, or just over one fifth of 2019's throughput. By FY32 annual ATMs are forecast to reach 378k before very modest growth over the subsequent 15 years to reach 386k movements.

Table 11 Gatwick ATM Forecasts (k)

	2009	2019	2029	2032	2038	2047	2019-47
Base	245	283	311	313	318	326	0.5%
NRP			330	378	382	386	1.2%

Source: CAA/Gatwick DCO Forecasts (Forecast data book chapter 9, page 16)

5 Gatwick's DCO Forecasts – Detailed build-up

5.1. Background

5.1.1 Other airports are subject to clearly defined planning caps such as those at Luton and Stansted where annual passenger caps of 19 million and 43 million passengers are currently in place. Throughput at Gatwick is not constrained in the same way and forecasts can reflect the operational capabilities of the airport taking into account factors affecting the airlines, aircraft and markets using the airport in future years.

5.1.2 Based on high level top-down forecasts, overall demand, with or without the Northern Runway, will continue to exceed supply in the long-term at Gatwick.

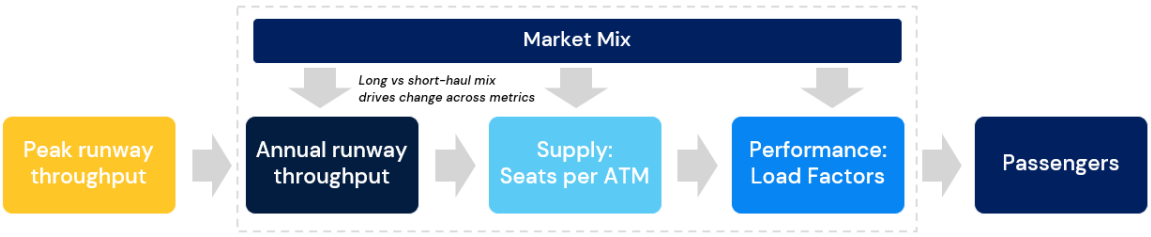
5.1.3 For these reasons Gatwick developed the future throughput and traffic profile forecasts, using a bottom-up demand and supply side analysis, for airlines and markets. This approach and the underlying assumptions around traffic are discussed in turn.

5.2. Approach

5.2.1 Gatwick's throughput is derived from a bottom-up approach considering the capacity provided by runway utilisation during peak/off-peak periods as well the nature of the traffic forecast to use the runway. Operational factors consider the size and type of aircraft, as well as how full they would be (load factor).

5.2.2 The main steps to determining future throughput are shown in the following graphic and discussed below.

Figure 21 Approach



Source: Gatwick/ICF

5.2.3 Summary of approach:

1. Firstly, **peak capacity** / **utilisation** needs to be considered to understand what the capacity potential of the airport is on a typical busy day. This is when the airport is forecast to be operating up to its runway constraints,

much like it is today during the peak summer months. This is considered for each year of the forecasts.

2. For the airlines using the airport it is important to understand how they will use the airport during the shoulder/off-peak seasons. Some airlines operate consistent year-round schedules whilst others operate more seasonal schedules (e.g. summer / winter leisure destinations). This provides the levels of **annual runway utilisation**.
3. Once the annual profile of operations is determined, then assumptions need to be made around the future fleet composition across Gatwick's key airlines. This informs the forecast on average **aircraft size**.
4. Operational performance is then considered including the **load factor** of the airlines. This reflects how efficiently the seat capacity is being filled.
5. The **mix of markets and airlines** also underpins many of these assumptions. For example, LCCs often operate different markets, aircraft types, seating configurations, with higher overall asset (aircraft) utilisation, when compared to full-service carriers.
6. Combining the above operational assumptions provides an estimated potential throughput for passenger volumes for any given year.

5.2.4 Each of these main assumptions is discussed in turn.

Peak period capacity (#1)

5.2.5 A more detailed topic working paper addresses Gatwick's utilisation/capabilities during the peak periods of operation (Airfield Capacity – Technical Appendix), although a short summary of the assumptions relating to peak period throughput is provided here.

5.2.6 Gatwick currently operates at its declared runway capacity limit of 55 movements per hour during the peak hours of operation. In the peak season, all available slot capacity is allocated to airlines during the core hours of the day. In the baseline scenario, Gatwick is assumed to continue operating at 55 movements per hour, although the number of hours in a given day that it handles this traffic is forecast to increase modestly[10] without increasing the operating window of the day[11].

5.2.7 Under the Northern Runway scenario, Gatwick will be able to handle 69 movements per hour providing operational, resilience and capacity benefits for the airport. As today, the forecasts assumed that Gatwick's future capacity will

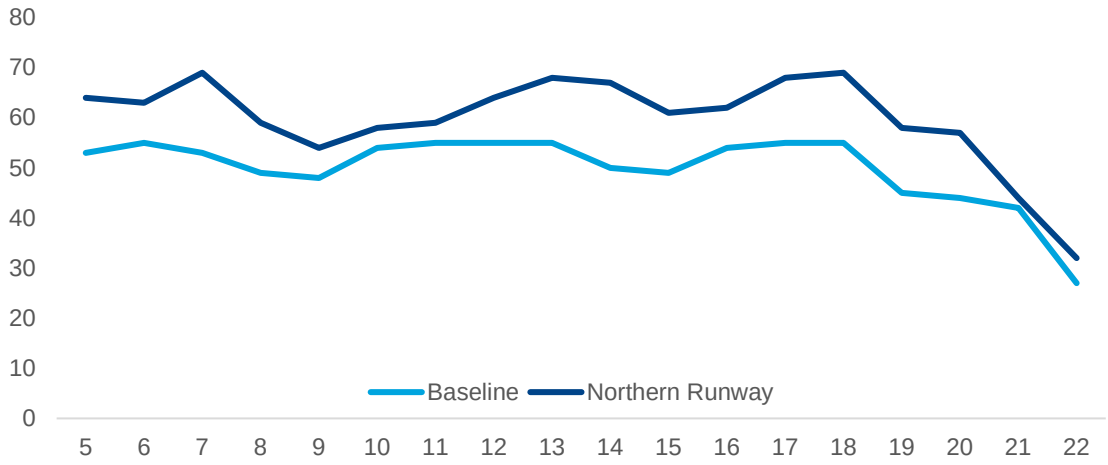
[10] Forecast data book chapter 9 Annex 7, page 3.
[11] Capacity and Operations paper provides further detail

continue to be fully utilised during peak periods of demand – an assumption supported by the wider top-down modelling.

5.2.8 To support the capacity analysis and other workstreams, Gatwick developed design day schedules providing detailed breakdowns of the operations at the airport in future years.

5.2.9 A profile of a future busy day is shown in the following chart where demand has filled virtually all the available capacity during the core hours of the day[12] .

Figure 22 Gatwick Busy Day, Hourly Runway Profile (2047)



Source: Gatwick Schedules

Peak Period Capacity Summary

5.2.10 The baseline scenario offers modest capacity growth through operational improvements whilst the Northern Runway program will provide up to 14 additional movements per hour (+25%). In the core scenarios, demand is forecast to continue exceeding supply and Gatwick will therefore readily fill the additional capacity provided by the Northern Runway. In addition to the significant excess demand experienced today, the top-down forecasts (discussed in the following section) provide further support that Gatwick will once again become constrained with the Northern Runway. Similar busy day levels of utilisation are forecast where all the available capacity is allocated to airlines during the core hours of the day.

5.2.11 The following table summarises the future assumptions under the core scenarios.

[12] Forecast data book chapter 9 Annex 7, page 3-6.

Table 12 Summary of Busy Day Slot Capacity and Utilisation, Gatwick

Year	Busy day slot demand (0500-1800)	Utilisation	Comment
2038 Baseline	740	~100%	Demand will again exceed capacity
2038 Northern Runway	885	~100%	Demand will again exceed capacity

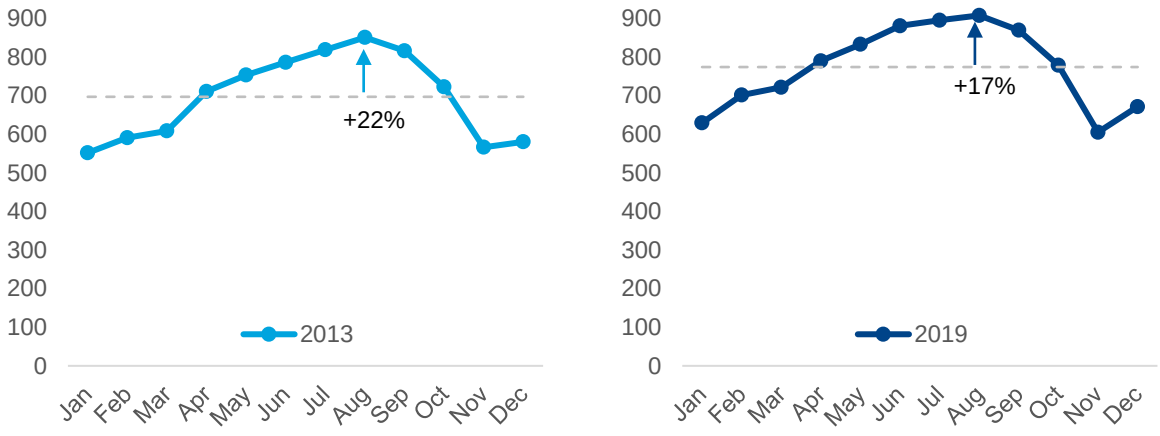
Source: Gatwick Schedules

Annual Runway Throughput (#2)

Historical trends

5.2.12 Today, Gatwick has a degree of seasonality as shown in the following chart, highlighting the average daily runway movements by month. In 2019 Gatwick averaged over 900 movements per day in August compared to a year-round average of 775, August was therefore 17% busier than the year-round average.

Figure 23 Summary of Busy Day Slot Capacity and Utilisation, Gatwick



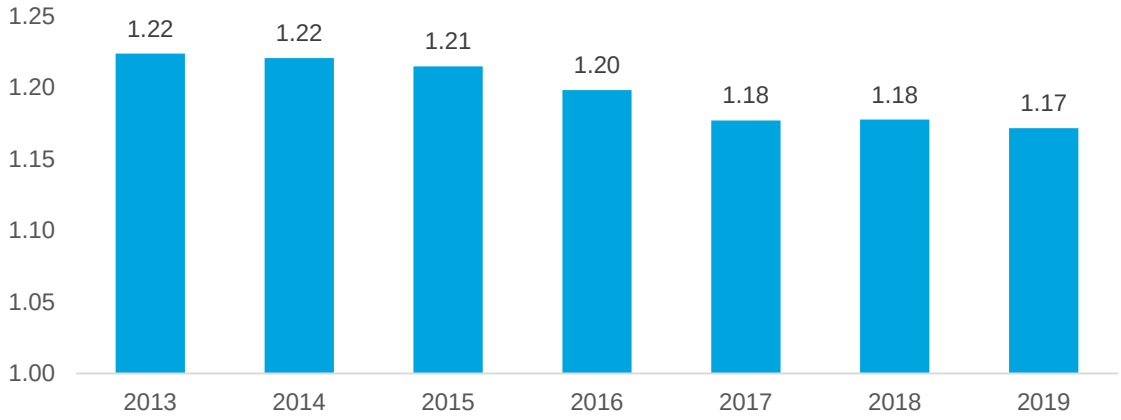
Source: CAA/Gatwick Schedules

5.2.13 In 2013 the peak month was 22% busier than the year-round average. In the 2013-2019 period, this ratio narrowed highlighting how Gatwick's airlines are incrementally 'in-filling' the off-peak periods of demand.

- In the peak periods (Jul-Sep) ATM demand grew 8% as airlines filled the additional capacity released by Gatwick as well as increasing utilisation on quieter days.
- In the off-peak (Nov-Mar) demand grew at nearly twice the rate of summer as movements increased by 15% in the same period.

5.2.14 The development of Gatwick's busy month ratio is shown in the following chart, having continued to decline on an ongoing basis across 2013 to 2019.

Figure 24 Seasonality – Ratio of peak month ATMs: Annual average

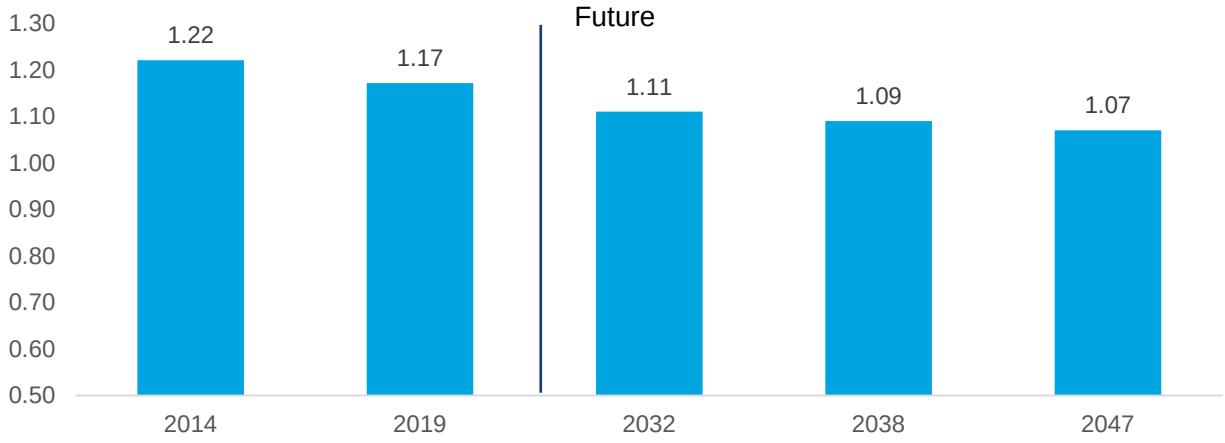


Source: CAA/Gatwick Statistics

Seasonality/Annual Profile – Base & NR Forecasts

5.2.15 Under the core forecasts, assumptions were made regarding Gatwick's future levels of seasonality. It was forecast that further peak spreading would be achieved and that by 2032 the busy month would be 11% busier than average. Longer term assumptions were taken for the future years until 2047.

Figure 25 Seasonality – Ratio of peak month ATMS: Annual average



Note: similar long-term assumptions were made for both the Baseline and Northern Runway scenarios
Source: CAA/Gatwick Statistics/Gatwick Forecasts

Seasonality/Annual Profile – Latest Outlook

5.2.16 Whilst the original assumptions were prepared in 2019, ICF/GAL have analysed the latest demand trends for some of Gatwick's key carriers, notably focused on airlines which have been able to increase their capacity at the airport compared to the pre-Covid baseline.

5.2.17 It was found for all the major carriers profiled that either:

1. **New entrants** are operating with consistent year-round schedules. Major carriers like Lufthansa, Air India, JetBlue etc. are operating with very limited seasonality which will help support further de-peaking of Gatwick's year-round profile; or
2. **Incumbents** such as Vueling, Wizz and BA are now operating in 2023-2024 with much reduced levels of seasonality. Vueling and Wizz have both significantly increased their presence at the airport which will support further peak spreading recognising the higher concentration of 'year round' markets they typically serve.

Table 13 Summary of Seasonality for major capacity changes at Gatwick

Airline	Note	2019 Ratio	2023-24 Scheduled	Comment
BA/BA EuroFlyer	BA inc. new short-haul carrier	1.20	1.11	De-peaking
Vueling	Providing strong growth with lower seasonality vs 2019	1.13	1.04	De-peaking
Wizz	Providing strong growth, operates consistent year-round program	n/a	1.05	New capacity, low seasonality
Lufthansa	New year-round services	n/a	1.02	New capacity, low seasonality
JetBlue	New year-round long-haul services	n/a	1.12	New capacity, low seasonality
Air India	New year-round long-haul services	n/a	1.01	New capacity, low seasonality
Air Mauritius	Moved services to LGW to expand and operating year-round	n/a	1.01	New capacity, low seasonality

Note: Wizz had very limited operations in 2019 at Gatwick
Source: OAG Schedules 2019, 2023/2024

Annual Runway Throughput – Summary

5.2.18 Gatwick has a well-established pattern for de-peaking in the years leading up to 2019. Virtually all the new capacity provided by airlines post Covid is operating with consistent year-round schedules.

5.2.19 Other airlines seeking consistent year-round schedules have not been able to launch operations owing to the lack of available capacity.

5.2.20 As the aviation market returns to pre-Covid levels of activity, Gatwick is expected to see further declines in the historical levels of seasonality. In the long run, growth offered by the Northern Runway as well as constraint across the London airports and the demand patterns already experienced at Gatwick will provide further opportunity to de-peak and improve utilisation during the shoulder / off-

peak periods. Further growth in year-round operators alongside a further shift to long haul traffic will support reduced levels of seasonality in the future.

5.2.21 These assumptions were made for the DCO forecasts but are still supported by recent airline deployment trends.

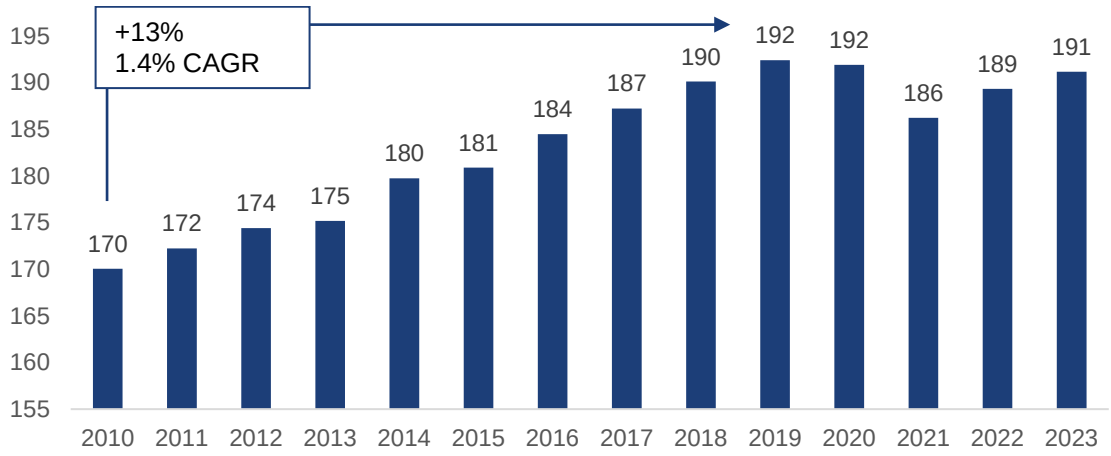
Aircraft Sizes (#3)

Historical trends

5.2.22 Average aircraft sizes have been growing across the industry and Gatwick is no exception. In the 2010-2019 period the average aircraft size at Gatwick increased from 170 to 192 seats, an increase of 13%, or +22 seats, in under 10 years.

5.2.23 The growth is slightly ahead of the UK average which saw average seats per movement increase 11% in the same period. Whilst LGW operated with 192 seats per movement in 2019 the UK average was 172, this difference is reflected by the higher share of long haul flying on larger aircraft and limited smaller regional aircraft operating from the airport.

Figure 26 Aircraft Sizes, LGW – historical trends



2023 is YTD Aug'23
Source: CAA Statistic

5.2.24 During Covid, alongside a reduction in long haul flying with larger aircraft, many airlines operated with smaller aircraft to minimise their operational costs[13]. During this period Gatwick like other airports saw a decline. Gatwick's average seats per movement is on track to return to pre-Covid levels in the next 12 months.

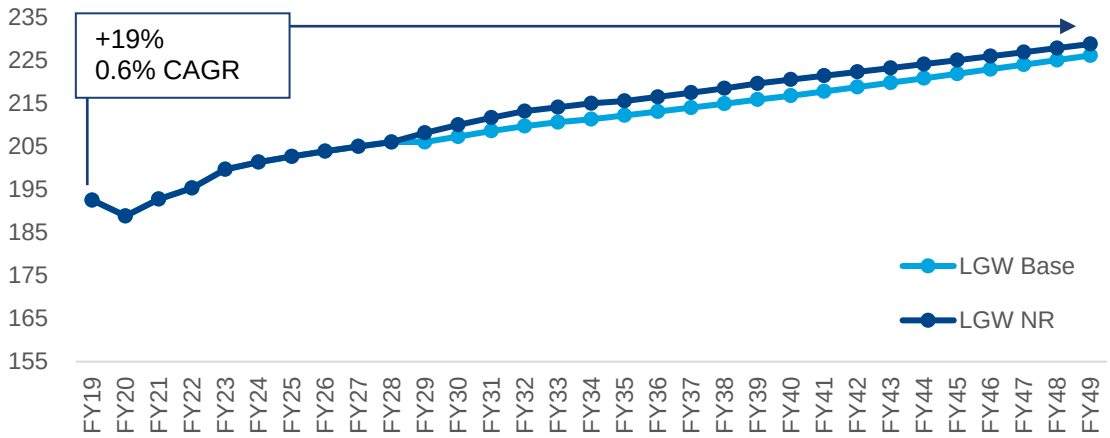
[13] For example: easyJet operated with a higher share of A319 sized aircraft

Aircraft Sizes – Base & NR Forecasts

5.2.25 In the core scenarios, the growth in aircraft size was captured by a bottom-up airline analysis examining current and future fleet transition trends. This analysis captured airline fleet orders from 2019 as well as making assumptions around the transition to future aircraft types as their current fleets age.

5.2.26 This provided a future pathway for average aircraft sizes under the Base and NR scenarios. A small difference from FY29 onwards reflects the slightly higher share of long-haul operations achieved under the NR forecasts and is shown in the following chart.

Figure 27 Average Aircraft Sizes – Baseline and NR Scenarios



2023 is YTDAug'23
Source: CAA/Gatwick Statistics/Gatwick Forecasts

5.2.27 In the FY19-FY30 period the average aircraft size is assumed to increase by 9% or 17 seats to reach 210. Beyond FY30 further growth is assumed with the average seat count reaching 229 in FY49. For context, the growth achieved in the forecasts is at a rate less than half that of the historical trends at the airport (0.6% vs 1.4%).

Aircraft Sizes – Latest Outlook

5.2.28 As part of this paper, we have revisited some of the fleet assumptions for the main airlines to compare the latest growth aspirations against those assumed in the forecasts. For this analysis, the latest fleet plans of the main airlines were considered. This is assumed to represent a reliable pathway to the early 2030s, reflecting committed fleet orders, with assumptions made beyond for further long-term insight.

5.2.29 The following charts provide the assumed future aircraft mix of easyJet (Gatwick's largest carrier) and Wizz Air (a notable growth airline at LGW),

combined they account for over half of all movements today. Recent fleet progression has seen both airlines switch focus towards larger gauge aircraft, namely the A321neo (which is the largest of the Airbus A320 family).

5.2.30 Recent industry trends have seen airlines significantly shift their focus to these larger gauge aircraft types as they offer improved seat economics as well as offering lower carbon emissions per seat. Prior to 2019, easyJet had only operated A319 and A320 sized aircraft, although a recent order for A321s saw their arrival in 2019 to easyJet's fleet. Their latest order, which accounts for deliveries into the early 2030s results in the A321neo accounting for over 30% of their fleet by 2030 and continuing to grow beyond.

Figure 28 Fleet Mix – easyJet

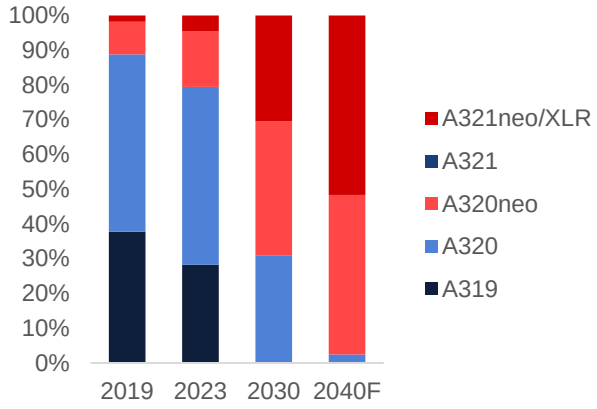
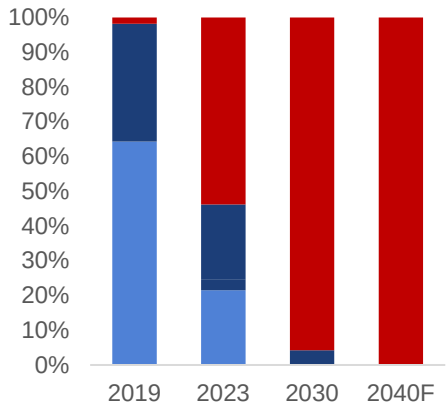


Figure 29 Fleet Mix – Wizz Air

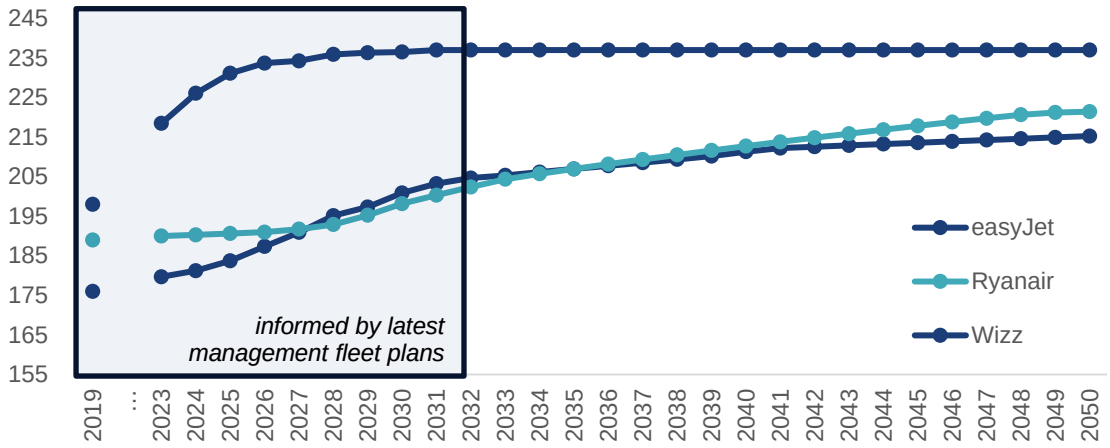


Source: Airline reports

5.2.31 Wizz has been growing at Gatwick and is expected to represent some of the incremental demand when the Northern Runway becomes operational. They are intending to convert virtually all of their fleet to A321neo aircraft by 2030 which will provide over 230 seats per movement.

5.2.32 The resulting implications for average seats per movement are shown in the following chart. The major airlines are all planning for significant up-gauging in the next 10+ years. easyJet's fleet is assumed to grow from an average of 176 seats per ATM in 2019, to over 200 by 2030. Wizz's fleet will have grown to over 230 seats per ATM by 2030, compared to under 200 in 2019, whilst Ryanair is forecast to pass 200 seats per movement in the early 2030s, up from 189 in 2019.

Figure 30 Average Aircraft Sizes



Source: Airline reports

Summary – Aircraft Sizes

5.2.33 In summary whilst Covid has impacted the delivery dates for receipt of new aircraft, airlines continue to focus on ordering aircraft that have improved economics resulting from higher density configuration (more seats). All the major short haul operators at Gatwick are likely to experience growth in average aircraft size at, or above the rates assumed in the original forecasts prepared in 2019. The latest analysis supports the original forecasts although further upside may exist for certain carriers.

Table 14 Summary Seats per ATM, LGW

	2019 (LGW)	2040 (original)	2040 (latest)	Difference 2040
easyJet	174	206	211	+3%
Ryanair	189	204	213	+4%
Wizz	n/a	210	237	+13%
BA	163	172	200	+16%

Note: BA assumes IAG's 737Max order operates at LGW.
Source: Airline investor reports / ICF analysis

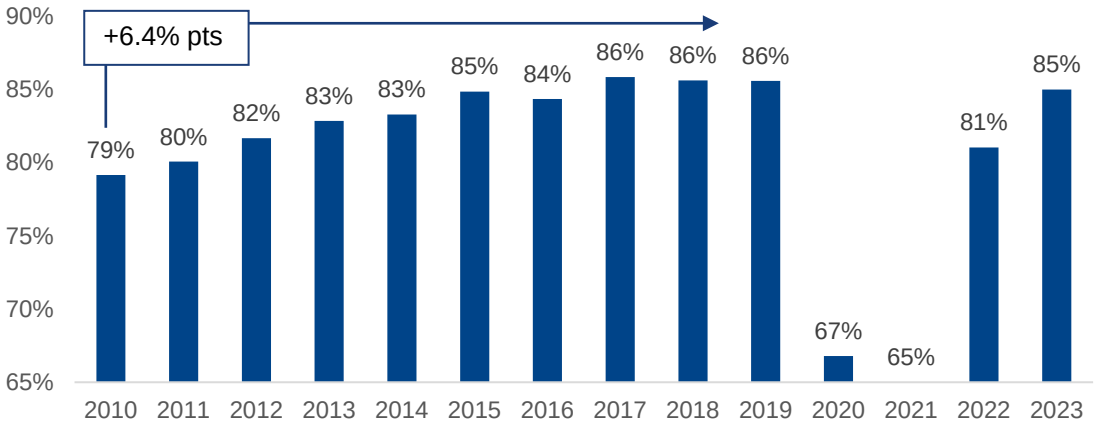
Seat Occupancy/Load Factor (#4)

Historical trends

5.2.34 Like aircraft sizes, average seat occupancy (load factor) rates have been growing across the industry and Gatwick is no exception. In the 2010-19 period the average load factor at Gatwick increased from 79% to 86%, an increase of 6.4 percentage points in under 10 years.

5.2.35 The growth is comparable to the UK average, which saw average seat load factor increase from 76% to 84% across the same period. Gatwick operated with an 86% load factor in 2019, slightly ahead of the UK average of 84%..

Figure 31 Seat Occupancy / Load Factor – Gatwick historical trends



2023 is YTD Aug'23
Source: CAA Statistics

5.2.36 During Covid, industry load factors were severely impacted, Gatwick's airlines operated with less than 70% seat occupancy during 2020 and 2021. This is reflective of the uncertain market conditions and challenges faced by airlines during periods of lock down and travel restrictions frequently changing, thereby heavily suppressing demand.

5.2.37 Gatwick's load factors are on track to return to pre Covid levels with the latest year to date (Jan-Aug) period already reporting 85% seat occupancy.

Seat Occupancy – Base & NR Forecasts

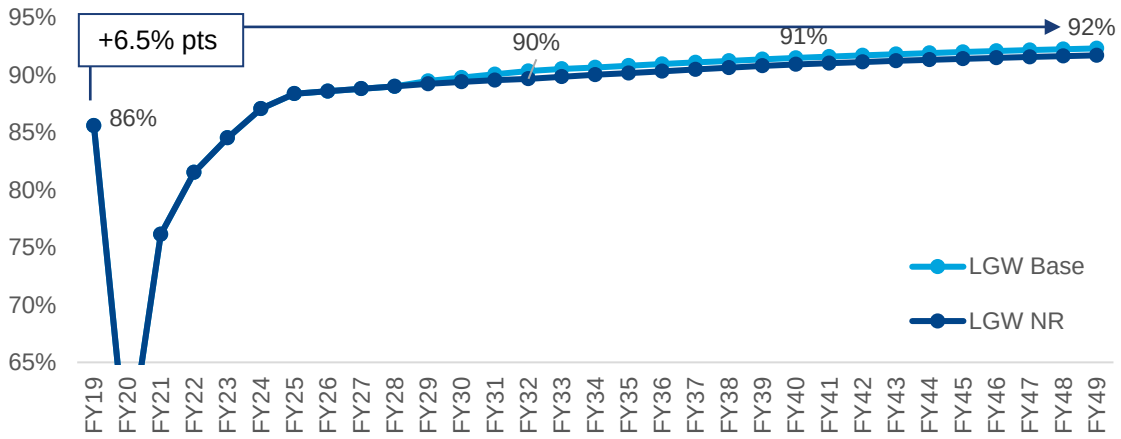
5.2.38 In the core scenarios, the growth in load factors was assumed to continue, by 2030 load factors were forecast to be around 90% before growing a further percentage point to 91% by 2040. Over the 2019-49 period a growth of 6.5% points in load factor growth was assumed. To put this into context, this is a comparable level of growth across a 30 year period, to that of what was achieved across only 9 years, up to and including 2019.

5.2.39 Growth was assumed to continue reflecting:

1. **Ongoing industry increases**: Airlines have been improving their management of flights to maximise load factors. For example, easyJet's reported load factor across their network increased from 87% to 93% in the 2010-19 period. Similarly, Ryanair's reported load factors increased by 11% points in the same period.

2. **Airline mix**: Over time, LCCs are assumed to continue growing their market share at Gatwick and across the European travel market. They operate with higher load factors than full service or regional carriers and will contribute to the assumed increases.
3. **Year-round growth**: Whilst less opportunity exists to grow load factors in the peak period, significant opportunity still exists in the shoulder/off peak seasons.

Figure 32 Seat Occupancy – Baseline and NR Scenarios



Source: Top-down forecasts

Seat Occupancy – Latest Outlook

5.2.40 As Gatwick's carriers and the wider industry return towards pre-Covid traffic volumes their load factors have also returned strongly to pre-Covid levels.

5.2.41 At Gatwick recent changes seen in the airline mix support further increases in average seat occupancy. For example, easyJet which has historically operated with year-round load factors above 90% have increased their share of capacity at the expense of other carriers.

5.2.42 Also, carriers including Wizz and other LCCs have increased their capacity at the airport, they both operate with above average load factors and will support further uplift across Gatwick's operation.

Summary – Seat Occupancy

5.2.43 Further growth in seat load factors is expected reflecting pre-Covid trends as well as the longer-term potential for carriers to further optimise their operations. Gatwick's growth will also be supported by an increasing share of LCC traffic over the long-term. Also, the constrained nature of the London/Gatwick market will support further growth outside the peak periods. Therefore, the latest

analysis supports the original forecasts for higher seat occupancy rates in the long term.

Airline / Market Mix (#5)

5.2.44 Another important consideration is the airlines and markets likely to use Gatwick in the future.

5.2.45 Whilst future assumptions around specific markets/airlines in the long term can be speculative, the short-medium term has focused on current/known opportunities identified by Gatwick's commercial team, supported by market led forecasts, considering the demand outlook to specific destinations/regions.

5.2.46 Longer term assumptions focus on the market growth potential whilst recognising the interchangeability between airlines within categories (for example, European LCC short haul carriers or Asian full-service carriers). This market growth was provided by high level top-down forecasts by region providing insight on which global regions are likely to provide long term growth prospects (E.g. China growth rates compared to Western Europe).

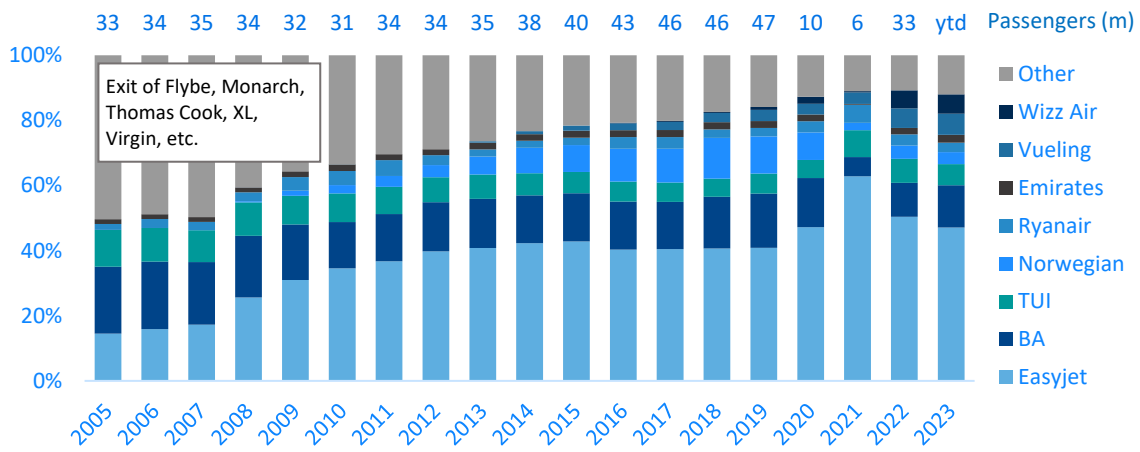
Historical trends

5.2.47 At Gatwick the mix of airlines and markets has evolved significantly in the last 15+ years reflecting the ranger of mergers, carrier exits and evolution of different airline business models.

5.2.48 Since 2017, the airport and wider market saw the exit of airlines including Flybe, Monarch, Thomas Cook and others. New airlines/business models and mergers played their part in replacing the lost carriers and driving growth to over 46 million passengers in 2019.

5.2.49 In 2023(YTD) easyJet accounted for 47% of passenger demand which is up from 41% pre Covid and significantly above the levels seen before 2010 when their share of total passengers was under 20%. Carriers such as Vueling and Wizz have recently increased their presence; in 2016 they accounted for a combined 2% of demand which has now increased to 12% of all passengers.

Figure 33 Gatwick Historical Traffic Mix (% of passengers, m)



Source: CAA Statistics

Market/Airline Mix – Baseline Assumptions

5.2.50 Under the core scenarios, the top-down forecasting demonstrated the potential for Gatwick to grow its traffic in a range of market segments. Gatwick is well placed to take advantage of future growth in its own and surrounding catchment area(s) for outbound and inbound demand.

5.2.51 The assumptions used to generate the busy day schedules reflect the evolving traffic mix, including the many detailed considerations discussed in chapter 4 relating to the allocation process for Gatwick's scarce capacity.

5.2.52 For example, the top-down forecasts provide guidance on the potential growth in long haul demand, the bottom-up schedules consider the demand and the times it is likely to operate at Gatwick given market preferences and operational considerations for the potential target airlines.

5.2.53 A summary of the growth assumed under the core scenarios is provided below. Whilst demand is considered annually, analysis for the levels of growth is focused on 2038 – a time when Gatwick and other airports are forecast to be operating at or close to their capacity limits.

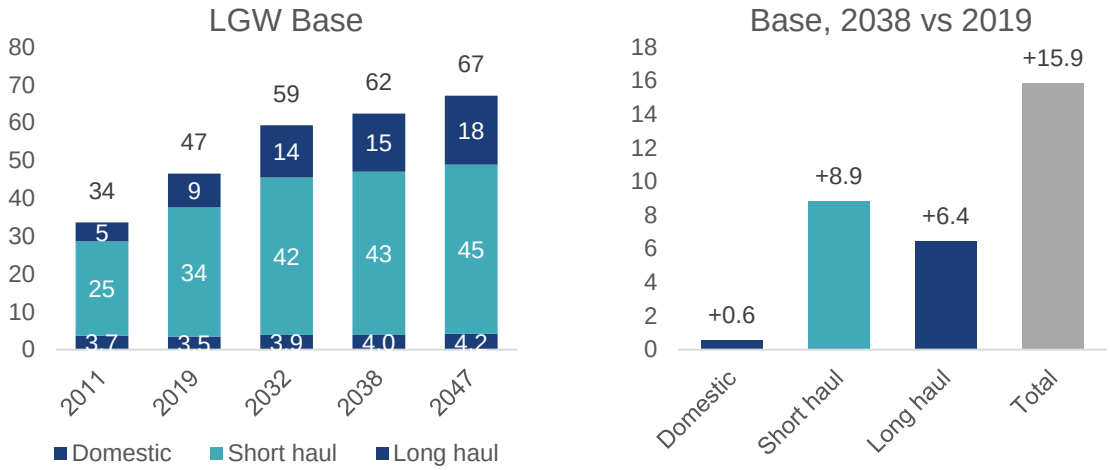
5.2.54 In the Base case, by 2038 demand was forecast to grow from 46.6 million to 62 million passengers.

Domestic: Passengers were forecast to grow <1million, primarily through larger and fuller aircraft. This segment is forecast to account for 6% of LGW passengers in 2038.

Short haul: Demand was forecast to grow >8million passengers through larger, fuller aircraft operating more consistent year-round schedules. This segment is forecast to account for 69% of annual passengers in 2038.

Long haul: Demand was forecast to grow >6 million passengers by 2038 increasing its share of Gatwick's passenger from 19% in 2019 to 25% in 2038.

Figure 34 Gatwick growth under base case (passengers, m)



Source: Gatwick Forecasts

5.2.55 From an operational / schedule perspective, growth in runway activity is forecast to be relatively modest during the peak season. Busy day ATM demand increases by nearly 30 daily movements with over 950 ATMs scheduled on a typical busy day in 2038.

5.2.56 A breakdown of the growth in ATMs in the peak month is shown in the following table. Given the excess demand experienced by short haul operators today, the growth in capacity (and demand) assumed (approx. 10 additional flights on a busy day) is modest, reflecting Gatwick's recent growth trends and the underlying demand for this market segment.

5.2.57 Long haul movements are forecast to increase by ~35 flights per day, this growth arises through a combination of some carriers continuing to convert short haul slots to long haul flying as well as very modest amounts of new capacity becoming available in the next 10+ years.

Table 15 Summary – Base, average day busy month ATM growth by 2038

Market	Busy Day ATM growth	Comment
Domestic	0	No change assumed vs 2019 baseline
Short haul	~10	Limited growth in peak periods assumed
Long haul	~35	Long haul continues to swap in for SH and grow organically

Source: Gatwick Schedules, 2038

5.2.58 Given the focus on long haul demand, a breakdown of the assumptions made in 2019 is provided in the following table highlighting which carriers/markets were assumed to operate at LGW under the baseline scenario.

5.2.59 The outputs discussed below are consistent with Annex 6 provided in the Forecast Data book.

Table 16 Summary – Long haul, baseline ATMs busy day pipeline

Airline	Markets	Busy Day ATM	Comment
BA	N. America, Caribbean, S&C America, Africa	redacted	redacted
Norwegian/Norse	N. America, Caribbean, Asia	redacted	Norse replacing Norwegian
Virgin	N. America, Caribbean	redacted	Currently exited
Charters (TUI)	N. America, Caribbean, S&C America	redacted	Similar to baseline
WestJet	N. America	redacted	Similar to baseline
Air Transat	N. America	redacted	Similar to baseline
JetBlue	N. America	redacted	Now operating
Emirates	Dubai	redacted	Increase of one freq
Qatar	Doha	redacted	Increase of freq, now operating
Ethiopian	Ethiopia	redacted	Now operating
Air India/Others	India	redacted	Now operating
redacted	China/Hong Kong	redacted	Operating pre-Covid
redacted	Asia	redacted	Long term target
redacted	Asia	redacted	Long term target
redacted	China/Hong Kong	redacted	Long term target
redacted	China/Hong Kong	redacted	Long term target
redacted	Central/South America	redacted	Long term target
redacted	Central/South America	redacted	Long term target

Source: Gatwick Schedules, 2038

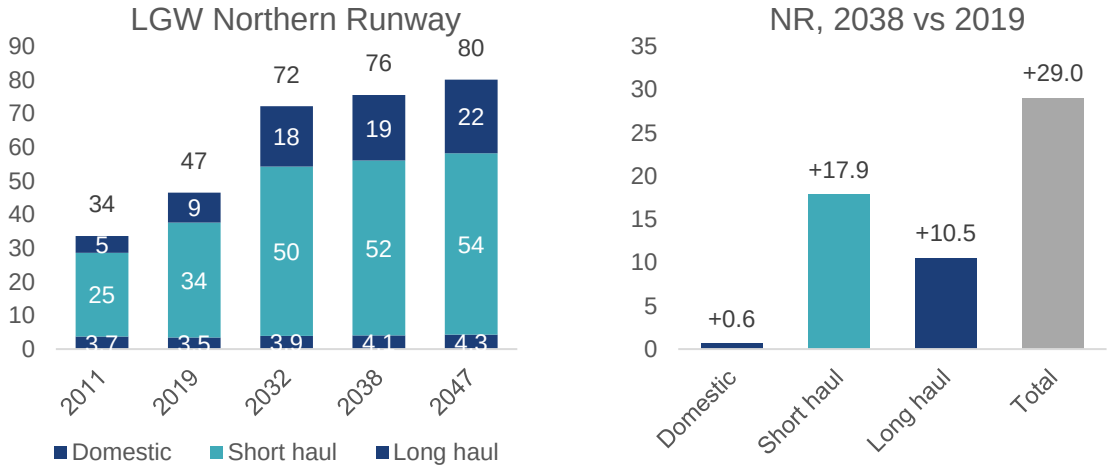
5.2.60 Whilst there has recently been churn in the mix of airlines operating at LGW, some of the targets identified by the airport in 2019 have now already commenced operations. For example, the growth assumed by JetBlue, Air India and Ethiopian airlines all of which have been targets of Gatwick's commercial team for several years. These airlines have now been able to get access to LGW and all these carriers have further ambitions to grow at LGW, although without any significant new capacity it will remain very challenging.

Market/Airline Mix – Northern Runway Assumptions

5.2.61 In the Northern Runway case, by 2038 demand was forecast to grow from 46.6 million to 75.6 million passengers.

1. **Domestic**: Like the Base, domestic passengers are forecast to grow <1million, primarily through larger and fuller aircraft. This segment is forecast to account for 5% of LGW passengers in 2038.
2. **Short haul**: Demand is forecast to grow <18million passengers through larger, fuller aircraft operating more consistent year-round schedules. This segment is forecast to account for 69% of annual passengers in 2038.
3. **Long haul**: Demand is forecast to grow >10 million passengers by 2038 increasing its share of Gatwick's passenger from 19% in 2019 to 26% in 2038.

Figure 35 Gatwick growth under Northern Runway case (passengers, m)



Source: Gatwick Forecasts

5.2.62 This results in busy day ATM demand increasing to over 1,130 ATMs scheduled on a typical busy day in 2038. Again, this is discussed in the Airfield Capacity – Technical Appendix document.

5.2.63 A breakdown of the forecast growth in ATMs is shown in the following table. Short haul demand is forecast to grow by approximately 110 daily slots, equivalent to 55 daily round trip services. This would be equivalent to approximately 20 based short haul aircraft based on current patterns. The mix of traffic is forecast to remain relatively consistent compared to today (e.g. Northern, Western, Southern Europe).

5.2.64 Long haul movements increase by ~75, this growth arises through incremental growth of incumbent carriers, and new carriers looking to expand or increase their presence in the London market.

Table 17 Summary – Northern Runway, average day busy month ATM growth by 2038

Market	Busy Day ATM growth	Comment
Domestic	+5	Modest growth vs Baseline
Short haul	+110	Segment accounting for largest share of growth
Long haul	+75	Further 40 daily ATMs compared to Baseline

Source: Gatwick Schedules, 2038

5.2.65 Like the Baseline scenario, further detail is provided on the assumed mix of future long-haul traffic. Incremental growth is assumed for the incumbents with further growth in based aircraft assumed as well as greater growth assumed, notably in faster growing aviation markets including India and China.

Table 18 Summary – Northern Runway, average day busy month ATM growth by 2038

Airline	Markets	Busy Day ATM
BA	N. America, Caribbean, S&C America, Africa	redacted
Norwegian/Norse	N. America, Caribbean, Asia	redacted
Virgin	N. America, Caribbean	redacted
Charters (TUI)	N. America, Caribbean, S&C America	redacted
WestJet	N. America	redacted
Air Transat	N. America	redacted
JetBlue	N. America	redacted
LCC	N. America	redacted
Emirates	Dubai	redacted
Qatar	Doha	redacted
Ethiopian	Ethiopia	redacted
redacted	Africa	redacted
Air India/Others	India	redacted
redacted	China/Hong Kong	redacted
redacted	Asia	redacted
redacted	Asia	redacted
redacted	China/Hong Kong	redacted
redacted	China/Hong Kong	redacted
redacted	China/Hong Kong	redacted
redacted	China/Hong Kong	redacted
redacted	Malaysia/Thailand	redacted
redacted	Asia	redacted
redacted	Asia	redacted
redacted	Central/South America	redacted
redacted	Central/South America	redacted

Source: Gatwick Schedules, 2038

Summary – Market / Airline Mix

5.2.66 Whilst the aviation market has undergone considerable change in the last 5 years, Gatwick's assumptions around the future mix of traffic remain appropriate.

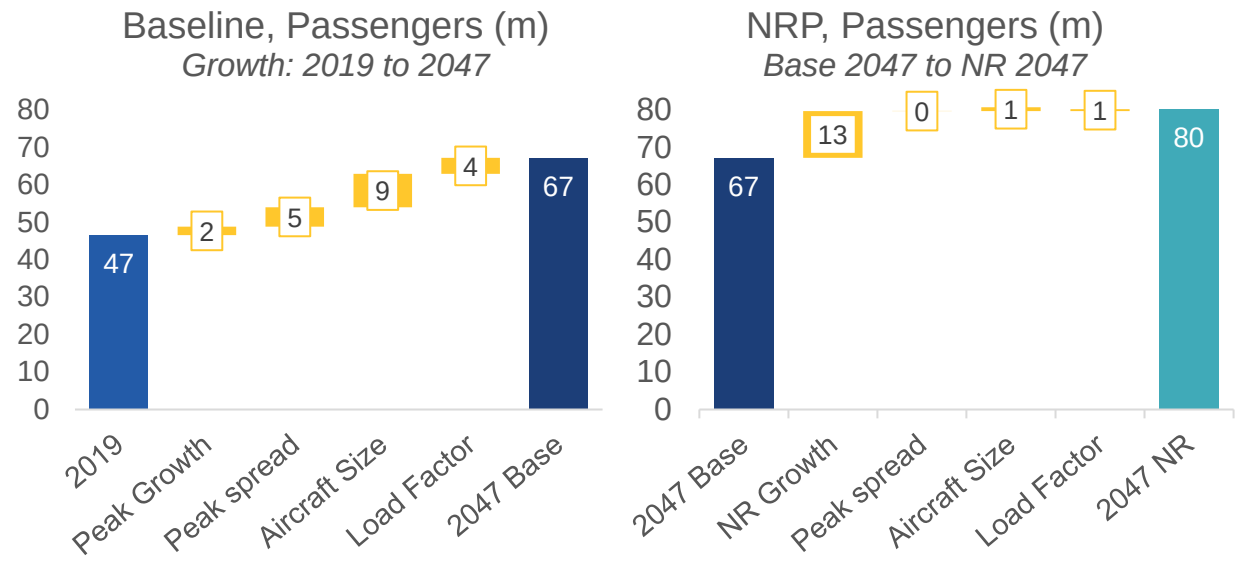
Many of the carrier / market opportunities identified pre-Covid have now been converted into scheduled services and the market regions expected to drive growth (e.g. India, Asia, Africa) are already offering growth prospects. It is only the current constraints which inhibits the establishment of these new entrants. The addition of the Northern Runway will enable Gatwick to serve some of this pent-up demand.

Summary Growth Drivers

5.2.67 A summary is provided breaking down the relative importance of each assumption for Gatwick's forecasts. Under the Baseline scenario, Gatwick is forecast to grow to 67 million passengers by 2047 an increase of approximately 20 million from the 2019 baseline. The main driver of this growth is from increasing average aicraft sizes accounting for 9 million incremental passengers. The remaining factors including greater utilisation in peak months, peak spreading and higher load factors account for the remaining 11 million passenger increment.

5.2.68 The growth from the Basline to the Northern Runway scenario results in a further 13 million passengers being handled at Gatwick. All the growth is accounted for by the increase in runway capacity permitted by the Northern Runway. Minor changes to the mix of airlines and markets explains the minor variances shown for peak spreading/aircraft size/load factors.

Figure 36 Summary – Passenger Growth Summary



Growth in peak: Additional demand added in peak summer months but operating year-round
Peak spreading: Growth off peak periods as ratio of busy month to average month decreases
Aircraft size: Impact of larger aircraft
Load factor: Impact of fuller aircraft

6 Top-down forecasts in response to York

6.1. Background

6.1.1 During discussions with York Aviation and the local councils they requested further detail in the form of a top-down forecast relating to the relative performance of Gatwick, the other London airports, and regional UK airports such as Birmingham.

6.1.2 GAL prefers its bottom-up forecasts given the constrained nature of the airport today and the airport remaining constrained in the future with or without the Northern Runway. In those circumstances, actual market insight into how airlines, passengers and markets are likely to respond to new capacity at Gatwick is more useful than a theoretical allocation exercise. But, without prejudice to that position, GAL has nevertheless undertaken top-down forecasts to meet York Aviation's request.

6.1.3 Whilst original relatively high-level top-down forecasts were used in the DCO application to validate the future levels of excess demand in the London market, in the light of the recently updated outputs from the DfT's Jet Zero workstream and greater clarity on the potential capacity at the other London airports, a more granular top-down model has been used to provide further insight on the interplay between capacity and demand.

6.2. Overview of approach

6.2.1 A top-down aviation forecast begins with the long-term aviation demand outlook for different demand segments in a given market (e.g. UK). The demand forecast is derived from an econometric model relating economic factors to the levels of aviation demand based on observation of the historical behaviour of the economy and the aviation industry.

6.2.2 Once the future levels of aviation demand have been established, a top-down model needs to consider the interaction between demand and available capacity at the airports being considered. This next stage allocates passengers from the different demand segments to individual airports taking account of any capacity and operational constraints at a given airport.

6.2.3 The approach to these updated forecasts is summarised below and discussed in the following section(s)

1. Unconstrained demand:

- Over the course of the last few years, ICF have prepared top-down forecasts on behalf of Gatwick reflecting the economic outlook of the UK and its source markets for aviation demand.
- For the purposes of this analysis, the overall levels of demand growth have been taken from the latest Jet Zero forecasts (2023)[14]. The rationale is to provide a view consistent with Government policy, although there is inherent uncertainty in any long-term forecast.

2. Capacity scenarios
   - The assessment has focused initially on the impact to LGW's NRP program under the Baseline and NRP scenarios. Further updates have also been considered as sensitivities for other London airport capacity assumptions and these are reported in Section 7.
3. Allocation and constraining
   - The demand is modelled at a catchment level area and assigned to airports undertaking several passes to reflect any capacity constraints at the airports under consideration.

6.3. Unconstrained Demand

High level demand

6.3.1 When Gatwick commenced its study for the NRP in 2019 the latest Government forecasts for aviation demand dated from 2017, some 5 years prior to the subsequently released Jet Zero 2022 demand forecasts. The DfT forecasts are designed primarily to inform longer-term policy decision-making rather than shorter-term forecasts for specific airports. They forecast UK aviation demand growing from 267m in 2016 to 494m in 2050 representing a 1.8% CAGR.

6.3.2 At the time of application, the latest Government forecasts for aviation demand available were from the UK Jet Zero projections prepared in 2022. They forecast aviation demand increasing at a CAGR of 1.7% resulting in demand for UK aviation growing from 283 to 482 mppa in the 2018-2050 period[15].

6.3.3 Previous top-down econometric led forecasts were prepared by ICF for Gatwick in 2020 and were subsequently found to align well with the Government's Jet Zero forecasts from 2022. Total aviation demand was forecast to grow at a CAGR of 1.7% in the UK (JZ'22) vs 1.8% for London (ICF).

[14] Limited detail has been provided on the breakdown of traffic projections from the latest JZ forecasts.
[15] This projection considered the Jet Zero 2022 – High ambition scenario, the current trends scenario published at the same time assumed 493 million passengers in 2050.

6.3.4 In March 2023 the latest iteration of the DfT's Jet Zero forecasts was released providing an update to the demand outlook for UK aviation to 2050. Whilst not a full update of the DfT model they were recognised in the application documents[16] and have been used to inform the "developing the UK sustainable aviation fuel mandate" consultation and the "Jet Zero strategy: one year on" document[17].

6.3.5 In these forecasts, the demand outlook for UK aviation was reduced to 430 million passengers in 2050 representing 52% growth versus the 2018 baseline, or a CAGR of 1.3%.

Table 19 Summary of Previous Forecasts

Region	When	Period	Start (Pax, m)	End (Pax, m)	2018-50 CAGR	2018-40 CAGR	2040-50 CAGR
London for LGW (exc. transfer, ICF)	2020	FY19-49	160	277	1.8%	1.9%	1.6%
UK Jet Zero forecast (DfT)	2022	2018-50	283	482	1.7%	1.8%	1.8%
UK Jet Zero forecast (DfT)	2023	2018-50	283	430	1.3%	1.5%	0.9%

Source: Top-down forecasts

6.3.6 The main change in the latest Jet Zero forecasts relate to the long-term growth assumptions beyond the 2040s. In the 2018-40 period the overall growth rate was decreased from 1.8% to 1.5% whilst in the 2040-2050 period the overall growth rate was reduced from 1.3% to 0.9%. Gatwick's forecasts, show the NRP filling close to its capacity in the 2030s, so that uncertainty over the scale of further growth into the long term beyond that is not a significant concern.

6.3.7 Given the latest status of the Jet Zero March 2023 forecasts, they have been adopted for scenario testing and sensitivity analysis for this topic paper. Whilst relatively limited detail has been published relating to these outputs, they provide a clear indication of the overall demand growth trajectory assumed by the Government for planning purposes.

6.3.8 A summary of the total 'local' demand (excluding transfer) projections being used for the top-down modelling is shown in the following table (UK Scope of 223 million local passengesr in 2018). The overall growth rate assumed for Jet Zero has been adopted for the top-down modelling.

[16] Needs Case [APP-250] at para. 5.2.19 and Forecast Data Book [APP-075] at para.7.2.
[17] https://www.gov.uk/government/publications/jet-zero-strategy-one-year-on

Table 20 Summary of Forecasts and JZ/DfT Comparison (passengers, m)

Scope	2018	2019	2040	2050	CAGR 2018-50
Total UK, JZ	283	n/a	394	430	1.3%
UK O&D Modelled	223	228	309	337	1.3%
- Of which LON (approx.)	155	158	215	235	1.3%
- Of Which Other (approx.)	68	69	94	102	1.3%

Source: DfT/Jet Zero & ICF Forecasts/Analysis
Note: UK Modelled shown in table is less than UK total used by DfT as it excludes transfers (which are still considered) and demand at airports very remote from the London airports (e.g., Scottish airports)
Note: London/non-London splits are only approximate as shares vary slightly depending on scenario

Market segmentation & selection

6.3.9 For these forecasts, the 2019 CAA survey has been used to derive an appropriate baseline for the modelling. This is a survey conducted by the CAA at a selection of airports each year interviewing passengers to determine their key characteristics which are reported at a high level on the CAA's website[18].

6.3.10 In 2019 across the four largest London airports the CAA interviewed approximately 130k passengers whose results were then scaled to align with the total passengers flying from these airports (>170 million). Whilst representing <0.1% of passengers it still provides a credible sample size for analysis.

6.3.11 This baseline is further supported with 'actual' statistics reported by other airports, Gatwick's own internal databases and other years of CAA passenger surveys.

6.3.12 Demand was considered for all the London airports as well as the relevant UK regional airports including Manchester, Birmingham, Bristol and others. Those airports either very distant from the London market (e.g. Scottish airports, Newcastle) or very small (e.g. Exeter) were not included in the modelling, although demand from these catchments was included[19] (for example a passenger driving from Cornwall to London before boarding a flight, or a passenger flying from Scotland to London before flying onwards).

6.3.13 This selection resulted in 228m passengers being considered in the model for the baseline year of 2019. Demand was segmented by residence (UK vs foreign), purpose (business vs leisure), market (domestic, short haul, long haul) and catchment (county/borough level).

[18] https://www.caa.co.uk/data-and-analysis/uk-aviation-market/consumer-research/departing-passenger-survey/survey-reports/
[19] <0.3% of passengers using the London airports originated from Scotland in 2019
(Excludes passengers flying to London to transfer onwards).

6.3.14 The catchments were derveid based on the granular CAA survey statistics providing region, county/borough/post code level data.

6.3.15 A high-level summary of the baseline demand is provided in the following table.

Table 21 UK Passenger Baseline Demand Modelled (excluding Transfers), 2019

Region	# Catchments	Catchment Examples
East Midlands	5	Nottinghamshire, Lincolnshire, etc.
East of England	6	Essex, Hertfordshire, etc.
Greater London	14	Boroughs with some groupings
North East England	3	County Durham, Tyne & Wear, etc.
North West England	6	Greater Manchester, Cheshire, Lancashire, etc.
Scotland	1	Scotland
South East England	9	West Sussex, Kent, Surrey, etc.
South West England	8	Dorset, Gloucestershire, Avon, etc.
Wales	3	South East, South West, etc.
West Midlands	6	West Midlands, Staffordshire, Warwickshire, etc.
Yorkshire & Humber	4	South Yorkshire, West Yorkshire, North Yorkshire, etc.

Note: One 'other' catchment was also assumed to account for data responses lacking detailed catchment data
Source: CAA Survey Statistics

6.3.16 Market level growth forecasts were applied to each segment to provide an annual view of demand for each catchment until 2050. Regional population growth forecasts from the ONS (office for national statistics) were evaluated to provide some further differentiation by catchment. However, since the variance by region was relatively immaterial, no differentiation in future growth rates was applied. For example, the market segment "UK resident – short haul – leisure" was assumed to grow at the same rate in Kent as in all other regions.

6.3.17 A comparison of Gatwick's catchment growth with other UK regions is shown in the following chart. Gatwick's core catchment is defined as those areas where Gatwick is ranked the number one airport for market share. It is clear that the growth by major region is comparable supporting the assumption to use comparable growth rates across the different UK regions.

Table 22 Summary of regional population growth forecasts (2018 – 2043 CAGR)

Region	2018-43
Gatwick 'core'	0.42%
Southeast	0.34%
London	0.39%
England	0.39%

Note: Gatwick 'core' catchment discussed later (catchments where LGW is ranked #1)
Source: ONS

6.3.18 This segmentation resulted in a combination of up to 792 demand categories for consideration (66 catchments x 3 hauls x 2 purpose x 2 residence). An example of the level of segmentation is shown in the following table.

Table 23 Example model level segmentation, passengers (m)

Region	UK/For	Haul	Purpose	2019	…. 2050
Kent	UK	SH	Leisure	1.88	-> Growth applied
Kent	Foreign	SH	Leisure	0.30	-> Growth applied
Kent	UK	SH	Business	0.22	-> Growth applied
Kent	Foreign	SH	Business	0.06	-> Growth applied
Etc.					

Note: SH = short haul
Source: Demand Forecast

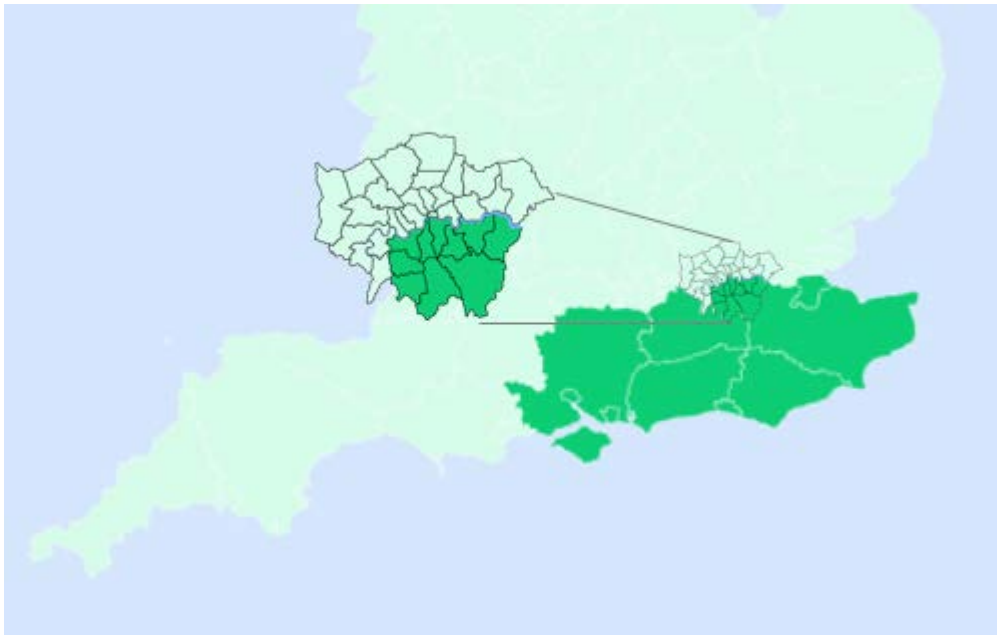
Catchments

6.3.19 Whilst relatively little difference is forecast in the relative growth rates of population across the UK, it is important to understand the market demand and performance of each catchment area. For these purposes the demand in each catchment area was analysed.

6.3.20 Each major airport in the London system draws demand from their own surrounding area where each airport is typically found to rank as the number one choice for demand. Airport catchments will naturally overlap with others where the split of passengers by airport is more clearly contested.

6.3.21 Gatwick airport performs particularly well in areas bordering the airport, for example typically 80% of demand from East and West Sussex will use Gatwick as opposed to other airports. Slightly further afield in areas such as Surrey and Hampshire the overlap with other airports becomes clear. For example, in Surrey, Gatwick and Heathrow both attract just under half of demand with virtually all of the remaining demand accounted for by the other London airports with less than 1% of demand found to ‘leak’ to non-London airports.

Figure 37 Catchment Example – Gatwick Airport



Source: CAA

6.3.22 The following table provides a breakdown of the top performing areas for Gatwick's catchment, for example 7% of Gatwick's total local demand (exc. Transfers) originates/terminates in West Sussex.

Table 24 Catchment Example – Gatwick Airport (% of total LGW passengers, exc. Transfers)

Region	Catchment	% of LGW passengers
Southeast England	West Sussex	7%
Southeast England	East Sussex	7%
Southeast England	Kent	7%
Southeast England	Surrey	7%
Southeast England	Hampshire	6%
Southeast England	Other	6%
London	Bromley/Croydon/Sutton/Merton	6%
London	Westminster	6%
London	Lambeth/Wandsworth	5%
London	Greenwich/Lewisham/Southwark/Bexley	5%
London	Camden/Islington	4%
London	Other	16%
East of England	Essex	3%
East of England	Hertfordshire	1%
East of England	Other	3%
Southwest England	All	5%
Other	All	7%

6.3.23 The analysis was repeated for the other airports under consideration and provides a clear overview of each airport's 'core' catchment. Each chart highlights where an airport accounts for the majority of demand or that the catchment provides a significant share of the airport's total passengers.

Figure 38 Catchment Example – Other London Airports (Heathrow, Stansted, Luton)

Source: CAA

6.3.24 For each demand segment the underlying profile of demand allocation across the airports under consideration was modelled. The following table compares the share of traffic originating from a region for each major London airport. For example, 42% of Gatwick's passengers originate from Greater London whilst at Heathrow, passengers from Greater London account for 55% of total LHR passengers.

Table 25 Catchment Example – Gatwick Airport

	LGW	LHR	STN	LTN
Greater London	42%	55%	50%	40%
East of England	7%	7%	32%	33%
South East England	39%	22%	8%	15%
South West England	5%	7%	2%	2%
Other	6%	9%	8%	11%

Source: CAA

Transfers

6.3.25 The latest Jet Zero growth projections provide total UK outputs reflecting expansion across several airports for total onboard demand (local and transfers). We believe it is prudent to assume that the transfer market maintains a similar share of demand as today (at the unconstrained level). Transfers form a relatively small share of total UK demand (10%), and any likely variations would not materially impact the local demand projections. A sizeable shift in transfer share is also considered unrealistic[20].

Summary of Unconstrained Demand Forecasts

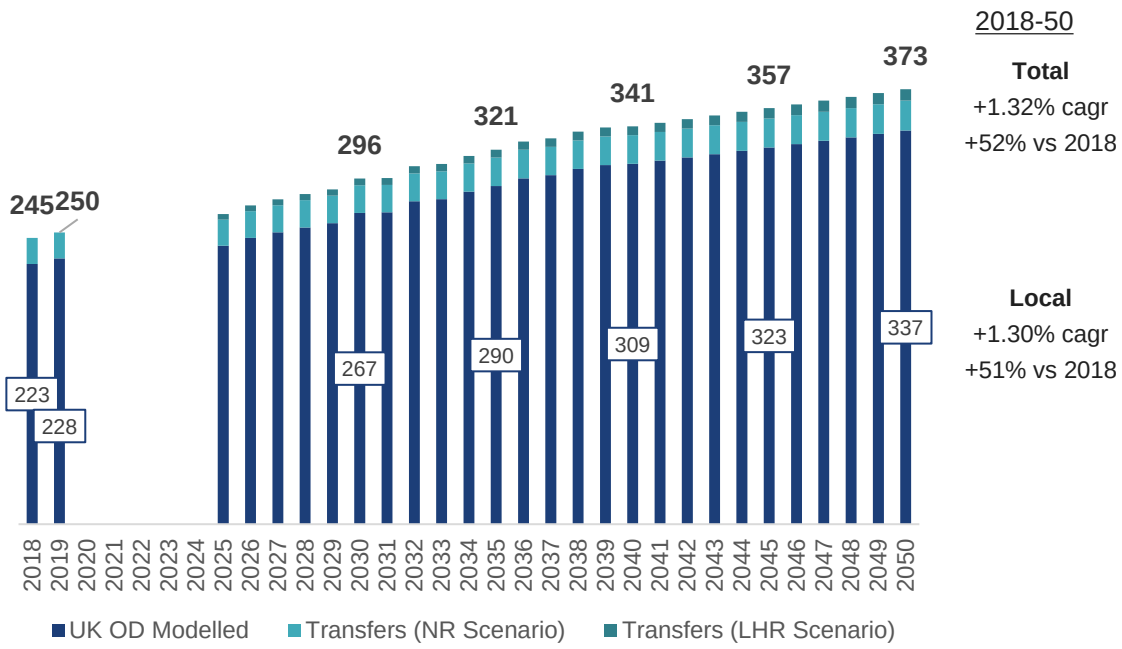
6.3.26 In summary, the unconstrained demand modelling takes into account the vast majority of demand forecast to use the UK's major airports in the 2018-2050 period. Only those airports distant or of limited scale were excluded. The forecast growth was adopted to align with the latest Government policy projections (Jet Zero 2023 outputs), although there is always a natural uncertainty in any long term forecast.

6.3.27 Whilst the Jet Zero forecasts lack granularity, robust assumptions can be made to account for the future outlook for different demand segments including transfers, business/leisure passengers, in/outbound demand, as well as the different outlooks forecast for domestic/short haul/long haul markets.

6.3.28 The following chart illustrates the levels of demand being modelled in future years for the 2018-2050 period.

[20] Consideration of the impacts of transfer shares have been considered based on previous DfT modelling outputs.

Figure 39 Summary UK Demand Projections modelled (total, local vs transfer) passengers (m)



Note: Transfers vary by scenario, for example under LHR R3 a higher share of transfers would be expected. This does not impact the local demand projections.
Source: Jet Zero, CAA/Airport Data, Top-down modelling.

6.3.29 A further summary of the forecast demand being modelled is provided below, it higlights the relative growth of selected demand segments considered within the forecast.

Table 26 Summary of Unconstrained Demand Projects, Passengers (m)

	2019	2030	2035	2040	2050	CAGR 19-50
Domestic	16	16	16	17	17	0.3%
Short haul	158	187	204	218	238	1.3%
Long haul	54	64	70	75	82	1.3%
Total	**228**	**267**	**290**	**309**	**337**	**1.3%**

Business	42	42	46	48	52	0.7%
Leisure	185	224	244	261	286	1.4%
Total	**228**	**267**	**290**	**309**	**337**	**1.3%**

6.3.30 A summary of the main unconstrained demand considerations is provided below, detailing the scope of the forecasts and the underlying demand profile.

Table 27 Summary of Main Unconstrained Demand Considerations

Area	Overview
Local Demand	Based on demand using the UK's major airports. Baseline derived from CAA, Airport, IATA and other statistics
Growth	**Total growth aligned with UK JZ projections** Mix of future growth prepared to reflect market trends including: 1) Market recovery of different segmetns (business vs leisure) 2) Differential growth rates for passenger / hauls derived from previous work For example: Domestic growth is slower than international, business traffic is slower than leisure, etc.
Airports Modelled	London Airports (LHR, LGW, LTN, STN, LCY, SEN) Non London Airports (MAN, BHX, BRS, EMA, LPL, EMA, LBA, CWL)
Passenger Segments	**Haul**: Domestic, Short haul, Long haul **Types**: Business, Leisure **Origin**: Inbound, Outbound
Catchments	All UK Catchments relevant to London Airports (>70 modelled)
Transfers	Transfers drawn from wider pool of demand forecast separately. They do not impact local demand projections.

Capacity Scenarios (core scenarios)

6.3.31 To model the allocation of demand, capacity limits are required for the airports under consideration. For these assumptions current/potential future planning limits have been used and supported by bottom-up capacity assumptions where appropriate.

6.3.32 For the core Gatwick scenarios (Base and Northern Runway), only consented capacities at other airports have been assumed. Subsequent scenarios/sensitivities are discussed in Section 7.

6.3.33 **Heathrow** (LHR): Under a no-expansion case it is assumed that growth in ATMs will remain limited as the airport will continue to operate within its annual ATM planning limit of 480k movements. Further passenger growth will be achieved through ongoing up-gauging and growth in load factors, two well established industry trends and well evidenced at LHR and other airports today.

6.3.34 Whilst some challenges will arise through the retirement of larger aircraft types using LHR in the long term (e.g. A380s), overall growth should continue to be expected. For example, further potential exists to continue up-gauging narrow

body fleets to larger types (e.g. higher share of Airbus A321s) alongside a higher share of long haul movements using larger aircraft.

6.3.35 In 2019 Heathrow handled 81 million passengers with an average number of passengers per ATM of 171. By 2040 passenger throughput is forecast to pass 90 million and continue modest growth to over 93 million by 2050.

6.3.36 **Gatwick** (LGW): As discussed earlier in the Gatwick forecast section, without expansion Gatwick is assumed to continue growing through ongoing growth in the off-peak periods alongside larger and fuller aircraft. Similarly, to LHR, the market and aircraft mix is used to drive the capacity assumptions previously discussed in the Gatwick forecasts section.

6.3.37 **Stansted** (STN): The planning cap at Stansted was recently increased to 43 million passengers and is assumed to remain in place through the forecast period.

6.3.38 **Luton** (LTN): Under a no expansion plan LTN's planning limit is assumed to increase to 19 million passengers from the current 18 million limit.

6.3.39 **London City** (LCY): Under a no expansion scenario LCY is assumed to remain capped at its current limit of 6.5 million passengers.

6.3.40 **Outside of London**, the major airports included in the modelling (e.g. Manchester) are not expected to reach their potential capacity limits. Other smaller airports (e.g. Bristol) may see future growth limited by current planning limits and the catchment from these smaller airports is relatively small in the context of the demand across the London airports.

6.3.41 A summary of the core capacity scenarios is detailed below:

Table 28 Capacity Assumptions

Region	Scenario 1 "LGW Base"	Scenario 2 "LGW NR"
LGW	Baseline	Northern Runway
LHR	R2 480k ATM	R2 480k ATM
STN	43m cap	43m cap
LTN	19m cap	19m cap
LCY	6.5m cap	6.5m cap
SEN	3m cap	3m cap

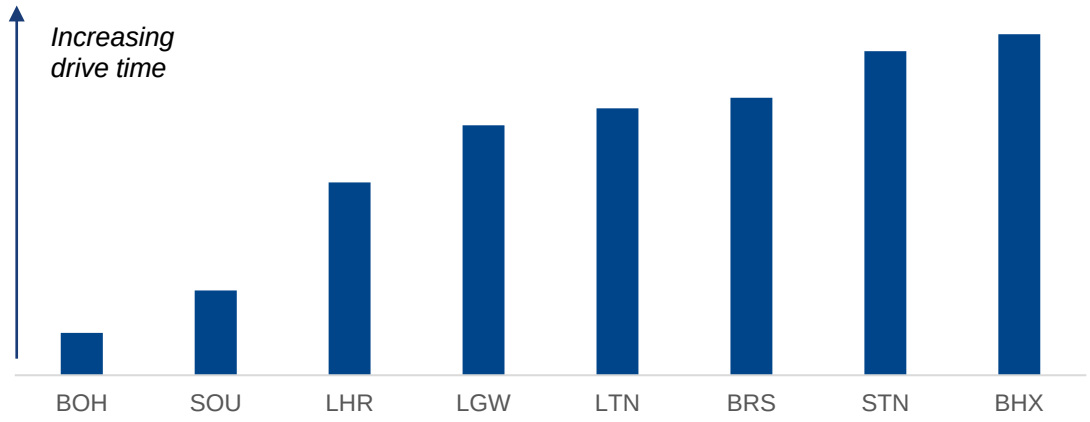
Source: Top-down model

Airport Allocation

6.3.42 To model the allocation of demand to airports an allocation approach considering the location of the airport (relative to each catchment) as well as the levels of service at each individual airport was considered. Whilst other factors such as ticket cost, carrier preferences, etc. can be relevant in airport choice, they have not been explicitly considered but assumed to be reflected within current travel patterns/behaviour.

6.3.43 For each catchment the relative travel times to individual airports is considered by taking an average of travel times for a quiet and busy period. The following chart highlights the relative surface access times assumed for Dorset with Bournemouth being used as the geographic location to model journey times.

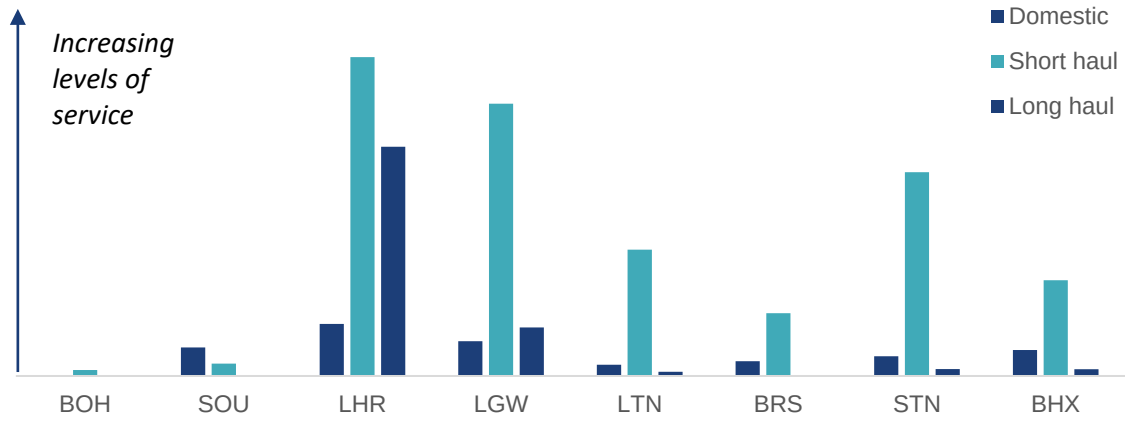
Figure 40 Example: Surface access time for Dorset (Bournemouth region) to selected airports



Note: Whilst Bournemouth airport is shown in above ranking, it is not explicitly modelled
Source: Google maps API (average of quiet / busy period)

6.3.44 The service levels at each airport are also considered reflecting the levels of capacity (seats) on domestic, short haul and long-haul markets. As was discussed in the London market section, Heathrow accounts for the majority of long-haul capacity today whilst the short haul market is more evenly spread across London and other airports.

Figure 41 Example: Service levels from selected airports



Source: CAA Statistics

6.3.45 A QSI approach (Quality of service Index) has been used to model future performance regarding allocation of traffic across the airports. This approach scores/ranks each airport's performance for surface access time and the levels of service. For example, in each catchment, the airport with the shortest surface access time scores the highest, as do airports with larger networks. These parameters can be adjusted reflecting each market segment, for example UK business passengers are assumed to place a higher weighting on travel time and frequency vs less time/location sensitive demand segments.

6.3.46 Each airport generates a score (QSI) and these scores are combined to give a market level QSI number. An airport's share of the total market QSI is the share of demand allocated to an airport (before constraints). Changes in QSI (e.g. new runway capacity) have been modelled to provide inputs for future changes to airport allocation performance compared to the baseline performance.

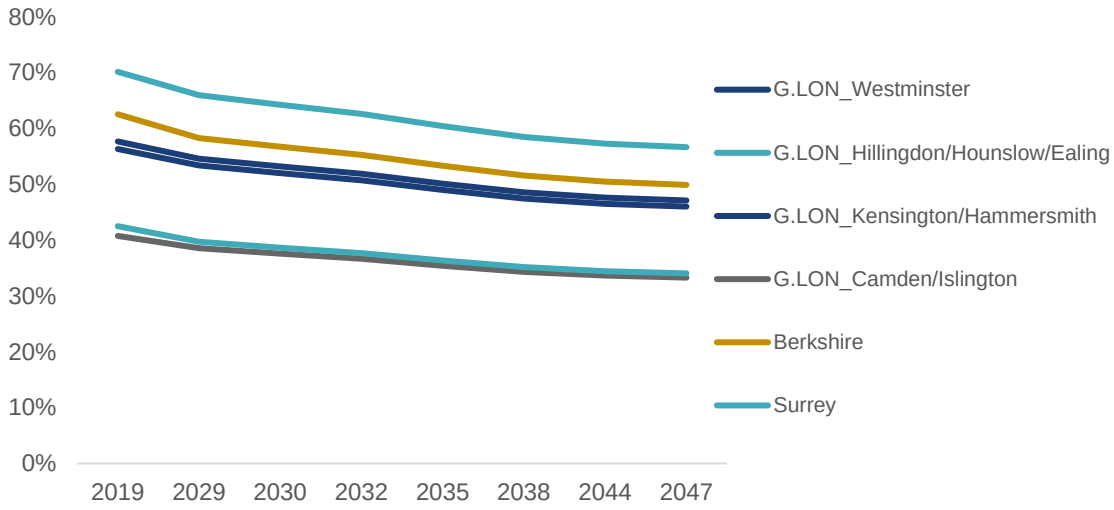
6.3.47 A first pass of demand allocation was conducted based on an airport's performance. For those airports where demand exceeds capacity, the demand is capped at the assumed capacity limits. Two further passes capturing spilt demand whilst reflecting capacity constraints were performed before outputting a constrained passenger throughput for each airport.

6.3.48 For example, the first pass may result in LHR's unconstrained demand exceeding capacity (1st pass) with the excess demand spilling across other London/UK airports which may or may not subsequently fill when benefitting from LHR's spill (2nd pass). The subsequent (3rd) pass provides further opportunity for other airports to benefit from the spilled demand in the system. As airports gradually fill up and less attractive airports are utilised, some demand is spilled

from the system. For example, if the London airports are full then only a share of the spilt demand would be accommodated by UK regional airports.

6.3.49 An example of the resulting share from some of Heathrow's core catchment is provided in the following chart. Under a constrained scenario LHR's passenger volumes can grow. However the constraints result in some demand being spilled to other airports or lost from the system. Consequently, LHR's resulting market share across its major catchments is forecast to decline over time. Other airports (e.g. Gatwick, Luton) when operating within increased capacity limits are found to increase their share of demand from the catchments whilst Heathrow is losing share.

Figure 42 Example: Share of Catchments for LHR (Base), Constrained % of Unconstrained Demand



Source: CAA Statistics/Top-down modelling

6.3.50 This modelling has been repeated across all the catchment/demand market segments and generates the outputs discussed in the following section focusing on Gatwick's total performance.

6.4. Outputs

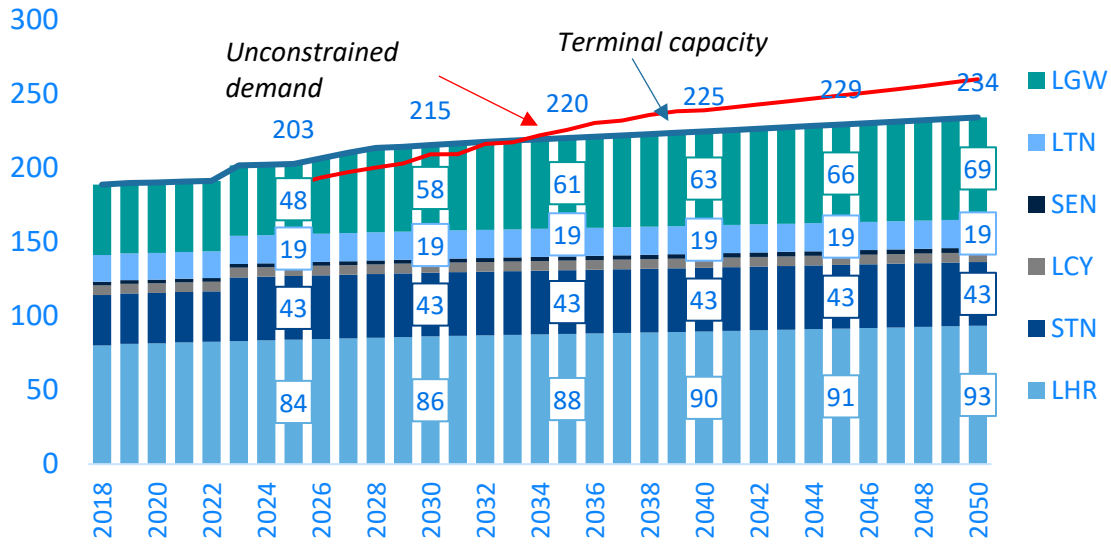
6.4.1 For each scenario the airport and market level outputs are considered. The airport outputs provide the breakdown of traffic at each airport in relation to the capacity constraints assumed under each scenario. The market outputs enable the constrained levels of total demand to be compared to the total unconstrained demand, for example, what % of the total long-haul demand is accommodated across all the airports or what share of demand each airport attracts.

Baseline

High level Demand / Capacity – Baseline

6.4.2 A high-level comparison of the unconstrained demand[21] and the assumed airport capacities is shown in the following chart for the Baseline scenario where no new expansion plans are assumed. Even if airport terminal capacity was fully utilised, then demand would exceed supply by the mid-2030s.

Figure 43 London Airport Capacity vs Demand, Baseline (unconstrained)



Source: Top-down Forecasts

6.4.3 A summarised high level top down approach like this fails to recognise that, in practice some airports will see demand exceed capacity well before the 2030s, but this still provides a guide before the allocation of demand is considered.

Airport Outputs – Baseline

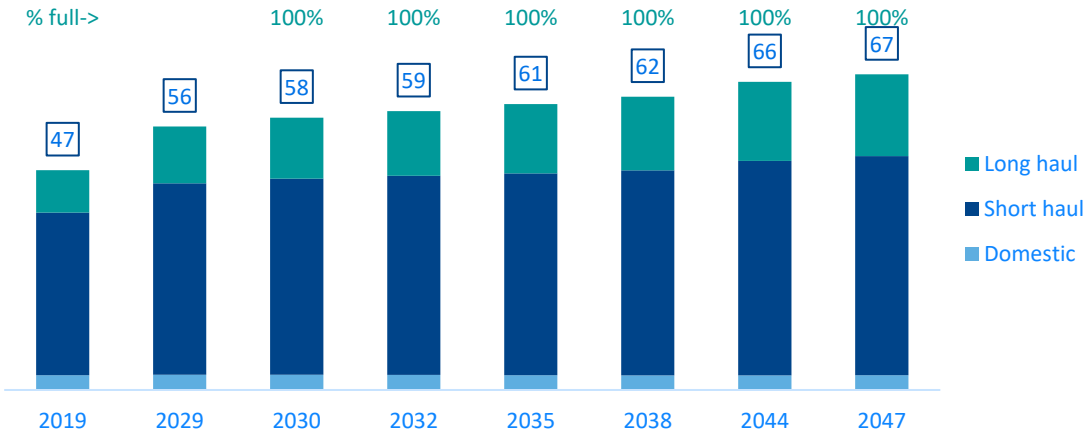
6.4.4 Under the baseline scenario, even with the latest reduced demand outlook (JZ'23), these latest top-down forecasts validate the previous bottom-up / top-down approach prepared for Gatwick.

6.4.5 With the market forecast to return to 2019 levels by 2025, Gatwick is once again forecast to be heavily constrained. Beyond 2025 Gatwick remains full through the forecast period although growth is achieved through larger and fuller aircraft with further gains achievable through market changes (e.g., more long-haul, year-round flying, etc.)

[21] Top-down modelling considers wider UK demand so estimates for unconstrained London demand are considered approximate.

6.4.6 The following chart highlights the traffic profile for several key years in the forecast. Whilst Gatwick remains full, some modest growth in long haul demand is forecast to squeeze out short haul demand with long haul demand forecast to account for a quarter of passengers in 2047.

Figure 44 Gatwick Outputs, Baseline (passengers, m)



Source: Top-down Forecasts

6.4.7 These top-down outputs align with those generated by Gatwick's bottom-up forecast approach in the core baseline scenario. A comparison of the outputs is shown in the following table. It was also found that market splits (e.g. long haul share) were comparable with the top down forecasts providing further support around the levels of future long haul connectivity assumed in the bottom-up forecasts.

Figure 45 Comparison of Top-Down and Bottom-Up Forecasts, LGW Baseline (passengers, m)

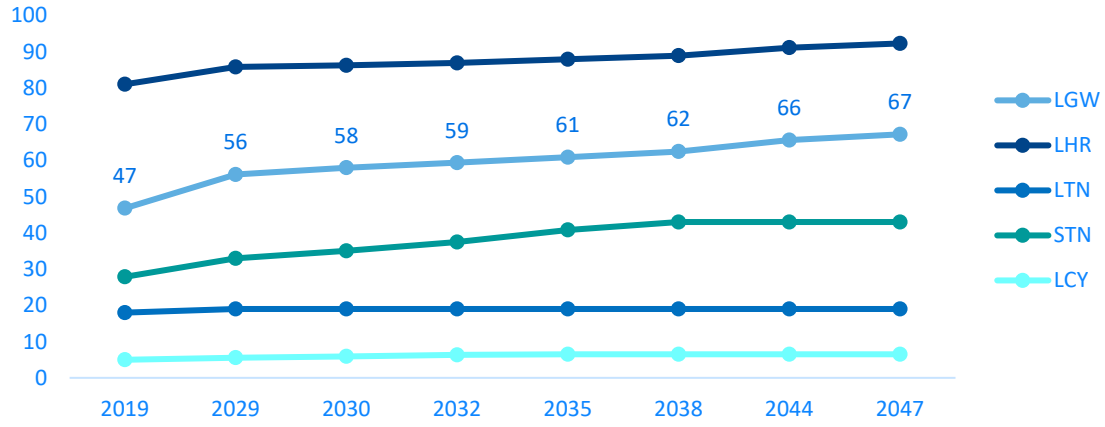
	2029	2030	2032	2035	2038	2044	2047
Bottom up	57.3	58.0	59.4	60.9	62.4	65.6	67.2
Top down	56.1	58.0	59.4	60.9	62.4	65.6	67.2
Variance	-2%	0%	0%	0%	0%	0%	0%

Note: Capacity assumptions aligned in both scenarios

6.4.8 Examining the profile of the other London airports highlights that in a 'do-nothing' scenario current capacity will significantly limit the growth of the London airports. With LHR, LGW and LTN all 'full' during the 2020s, Stansted is assumed by the forecast to reach its planning cap in the 2030s whilst non-London airports see some upside in volumes due to the constraints experienced at the London airports.

6.4.9 The constrained demand across the London airports is shown in the following chart.

Figure 46 London Airport outputs, baseline (passengers, m)



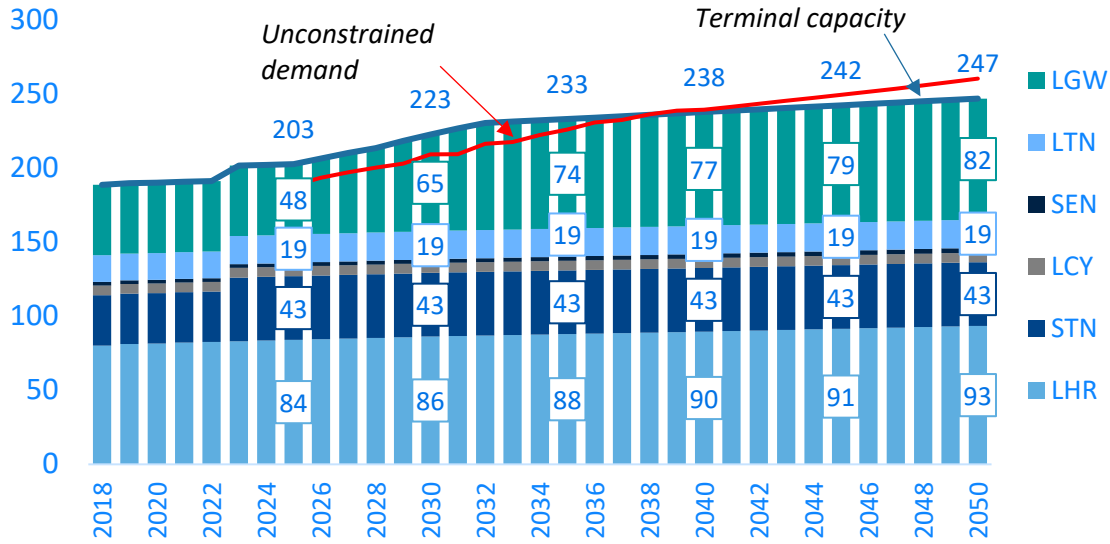
Source: Top-down Forecasts

Northern Runway

High level Demand / Capacity – Northern Runway

6.4.10 A high-level comparison of the unconstrained demand and the assumed airport capacities is shown in the following chart. Even with LGW's NR, by the early-2040s demand will again exceed the total terminal capacity of the London airports.

Figure 47 London Airport Capacity vs Demand, Northern Runway (unconstrained) (passengers, m)



Source: Top-down Forecasts

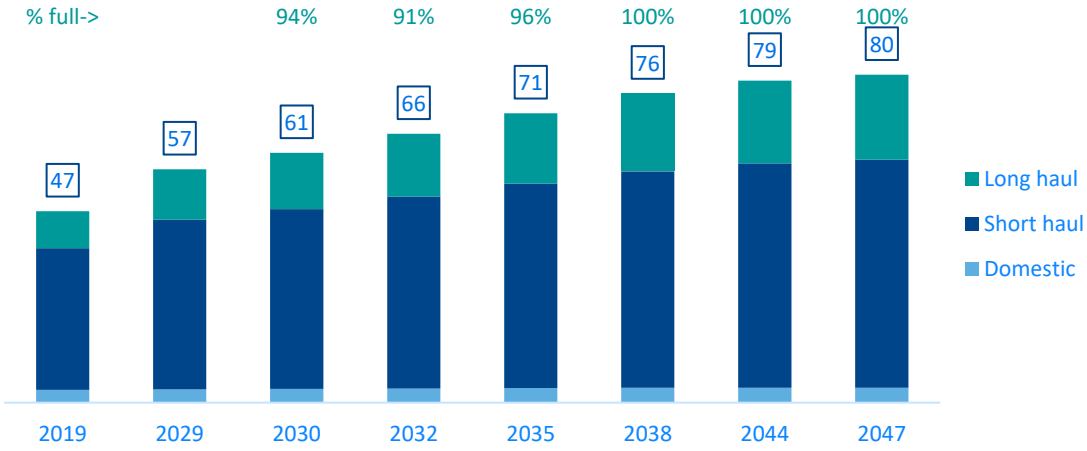
Airport Outputs – Gatwick NRP

6.4.11 Under Gatwick's NRP scenario, even with the latest reduced demand outlook, these latest top-down forecasts provide a comparable long-term profile of constrained demand at Gatwick. It is worth noting that the latest demand forecasts may imply that Gatwick takes until the mid-2030s to fill the additional capacity offered by the Northern Runway. This, however, is an annual average picture and peak hour and peak season capacity would fill more quickly.

6.4.12 Gatwick will have an opportunity to out-perform this profile through incentivising airlines to make use of available capacity, either through new services or shifting demand from other airports in their wider networks. Airlines will also recognise the one-off opportunity to establish a greater presence at the UK's second largest airport and the lost future revenues/market presence put at risk by not taking up available capacity in the constrained London market. For example, if carriers were to delay their applications for access to the new capacity offered by the NR, then they would miss out either entirely or be forced to pay a significant sum for slots at a later date, if indeed they could find a willing seller.

6.4.13 The following chart highlights the annual profile forecast for Gatwick under the NR. When the NR opens in 2029 demand increases steadily and capacity utilisation will be in excess of 90% shortly after the NR opens. By the mid-2030s there is very limited room to grow, and the future growth is again dominated by the opportunity to operate larger/fuller aircraft and more consistent year-round schedules.

Figure 48 Gatwick Outputs, Northern Runway (passengers, m)



Source: Top-down Forecasts

6.4.14 A comparison of the bottom-up and top-down outputs is shown in the following table.

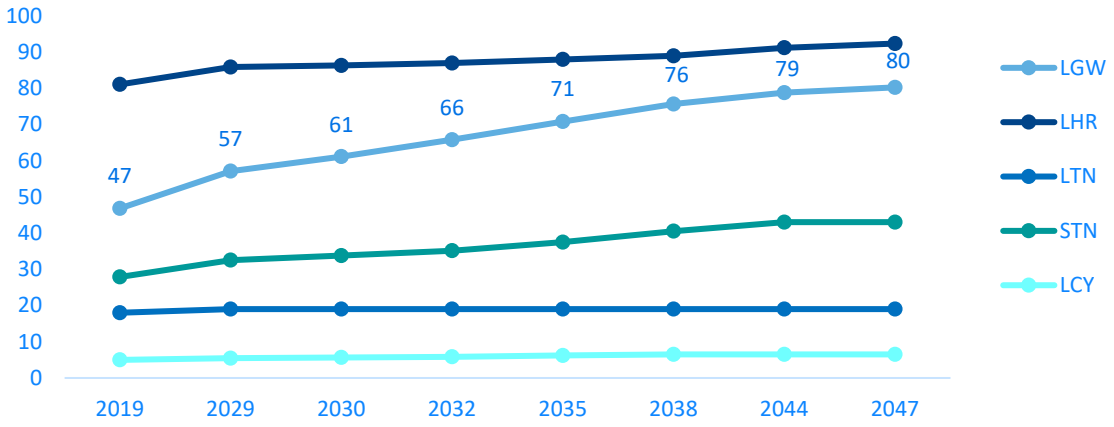
Table 29 Comparison of Top-Down and Bottom-Up Forecasts, Northern Runway (passengers, m)

	2029	2030	2032	2035	2038	2044	2047
Bottom up	61.3	65.3	72.3	73.8	75.6	78.7	80.2
Top down	57.1	61.1	65.7	70.8	75.6	78.7	80.2
Variance	-7%	-6%	-9%	-4%	0%	0%	0%

Note: Capacity assumptions aligned in both scenarios

6.4.15 Analysis of the total demand for London highlights that airports including Heathrow and Luton would be relatively unimpacted since they have experienced capacity constraints long before the NR opens. Traffic at other London airports (Stansted, London City) and non-London airports is more heavily impacted as demand that was previously being spilt by Gatwick is reaccommodated once the NR opens.

Figure 49 London Airport outputs, Northern Runway (passengers, m)



Source: Top-down Forecasts

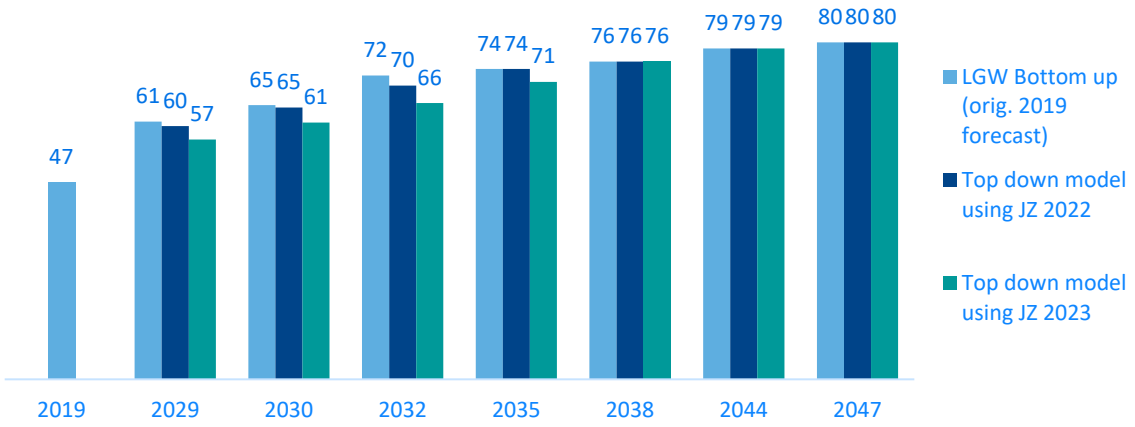
Impact of UK demand projections – Gatwick NRP

6.4.16 For the Gatwick NR scenario, the model was used to highlight the impact of the recent reduction of the outlook for the overall levels of aviation demand in the UK. For this run the overall demand was assumed to align with the previously discussed Jet Zero 2022 forecasts and not to have declined in line with the JZ 2023 forecasts. For modelling purposes this provided an additional 12% of demand to the UK by 2050 (compared to the JZ 2023 forecasts).

6.4.17 The following chart highlights how Gatwick would perform under each of the Jet Zero demand forecasts when compared with the forecasts assumed by Gatwick.

6.4.18 The modelling for LGW's NR under JZ 2022 demand conditions is closely aligned with the original Gatwick forecasts, at most a difference of just 3% is found between the forecasts using Jet Zero 2022 with the original Gatwick application demand projections. Again, there would be opportunity for Gatwick to outperform these top-down projections reflecting the ongoing scarcity of capacity in the London aviation market.

Figure 50 Comparison of NRP Forecasts (Original vs Top-Down JZ 2022 and 2023)



Source: Top-down Forecasts

6.4.19 In summary, even under the more recent and pessimistic demand scenario and the more theoretical approach of a top down model, it is apparent that London airports will not meet forecast demand without the addition of the NRP. Gatwick and the wider London market is still forecast to benefit from the addition of Gatwick's NR. More capacity will enable more destinations, services to long haul markets and passenger benefits.

6.5. Future Market Shares

6.5.1 Historical market shares highlighting Gatwick's performance within the London airport system have already been examined. Future market shares have been calculated to quantify the overall shift in demand distribution across the constrained London market that would result at Gatwick in the future baseline and NRP scenarios, assuming no additional capacity is released elsewhere.

6.5.2 Under the baseline forecast Gatwick will modestly improve its share of the long-haul market towards 23% in 2047. Over the long term, some short haul slot capacity is modelled to switch to more valuable long-haul markets. Short haul demand is forecast to increase modestly to just over 30% as other airports (e.g. Luton/Stansted/London City) have fixed planning caps so cannot benefit from ongoing up-gauging in airline operations.

6.5.3 Under the NRP forecast LGW's share of the long-haul market is forecast to increase to 27% in 2047, well below the share achieved in other market segments and towards levels previously achieved pre-Global Financial Crisis. Gatwick is forecast to achieve a 36% share of the short haul market which is just 4% points above the share achieved in 2014. The share gains achieved with the NR are viewed as relatively modest in the context of such a large, dynamic and more importantly constrained airport system.

Table 30 Passenger Market Shares (London Airports)

		Historical			Future Base			Future NRP		
		2000	2010	2019	2030	2038	2047	2030	2038	2047
Long haul	LGW	29%	13%	17%	20%	22%	23%	21%	26%	27%
	LHR	71%	86%	81%	77%	73%	72%	76%	71%	70%
	Other	0%	1%	2%	3%	4%	5%	3%	3%	3%
Short haul	LGW	28%	30%	29%	32%	31%	32%	33%	36%	36%
	LHR	47%	36%	29%	25%	24%	24%	25%	23%	23%
	Other	25%	35%	42%	43%	45%	44%	42%	42%	42%
Domestic	LGW	21%	30%	28%	31%	31%	31%	32%	34%	34%
	LHR	54%	42%	40%	33%	32%	32%	33%	31%	30%
	Other	25%	28%	32%	36%	37%	37%	35%	35%	35%
Total	**LGW**	**28%**	**25%**	**26%**	**28%**	**28%**	**29%**	**29%**	**32%**	**33%**
	LHR	**56%**	**52%**	**45%**	**42%**	**40%**	**40%**	**42%**	**38%**	**38%**
	Other	**17%**	**24%**	**30%**	**30%**	**32%**	**31%**	**29%**	**29%**	**29%**

Note: Top-down forecast

6.6. Top-down forecast summary

6.6.1 A set of more detailed top-down forecasts has been prepared in response to the request from York Aviation. The forecast makes use of the most up to date assessment of demand published by the DfT/JZ in Q1 2023.

6.6.2 A new approach in conjunction with updated capacity assumptions and a lower demand outlook has provided an updated view on Gatwick's future performance with, and without the Northern Runway.

6.6.3 Both Gatwick's original baseline and NR scenario forecasts were found to be appropriate.

6.6.4 It was only under the Northern Runway scenario that the reduced levels of demand were shown in the model to have more modest rate of filling the new

capacity in the early 2030s compared to the previous work presented in the Forecast Data Book.

6.6.5 In practice, Gatwick prefers its bottom-up approach, utilising detailed knowledge of its market and its airlines to assess how quickly the new capacity would be taken up.

6.6.6 In either modelling approach, however, the capacity would be taken up rapidly, and the expanded airport would be close to capacity by 2038.

7 Sensitivites

7.1.1 In addition to the updated modelling prepared for Gatwick's core scenarios, the top-down modelling has been used to provide insight into the other capacity scenarios discussed earlier. The first sensitivity considers an expanded LHR whilst the second considers the potential impacts from an expanded Luton and London City. Again, these scenarios use a top-down approach as requested by York Aviation and the local authorities.

7.1.2 Both LHR and LTN schemes would provide notable growth in capacity across the London airports, LHR's additional runway would cater for an additional 40+million passengers, whilst LTN's current planning application suggest an additional 13 million passengers (19 million to 32 million). In contrast London City's application is for a more modest increase from 6.5 million to 9 million passengers.

Capacities assumed for Sensitivities

7.1.3 LHR: For an expansion sensitivity, LHR R3 is assumed (optimistically) to open in 2035 with a capability for up to 740k annual movements. The assumed passenger throughput is assumed to pass 130 million in 2040 before growing towards 138 million in 2050.

7.1.4 LTN: Under potential expansion, LTN has been assumed to increase throughput to 22 million passengers in the late 2020s before new terminal/other infrastructure permits expansion to a raised passenger planning limit of 32 million in 2037.

7.1.5 LCY: Under potential expansion, LCY has been assumed to increase throughput to a new planning limit of 9 million passengers in 2031.

7.1.6 The capacity assumptions for these scenarios are presented in the following table alongside the core scenarios (1 & 2) previously discussed in Section 6.

Table 31 Capacity assumptions, core scenarios and sensitivities

Airport	Scenario 1 LGW Base	Scenario 2 LGW NR	Scenario 3 Sensitivity 1	Scenario 4 Sensitivity 2
LGW	Baseline	Northern Runway	Northern Runway	Northern Runway
LHR	R2 480k ATM	R2 480k ATM	R3 740k ATM	R2 480k ATM
STN	43m cap	43m cap	43m cap	43m cap
LTN	19m cap	19m cap	19m cap	19-22-32m cap
LCY	6.5m cap	6.5m cap	6.5m cap	9.0m cap
SEN	3m cap	3m cap	3m cap	3m cap

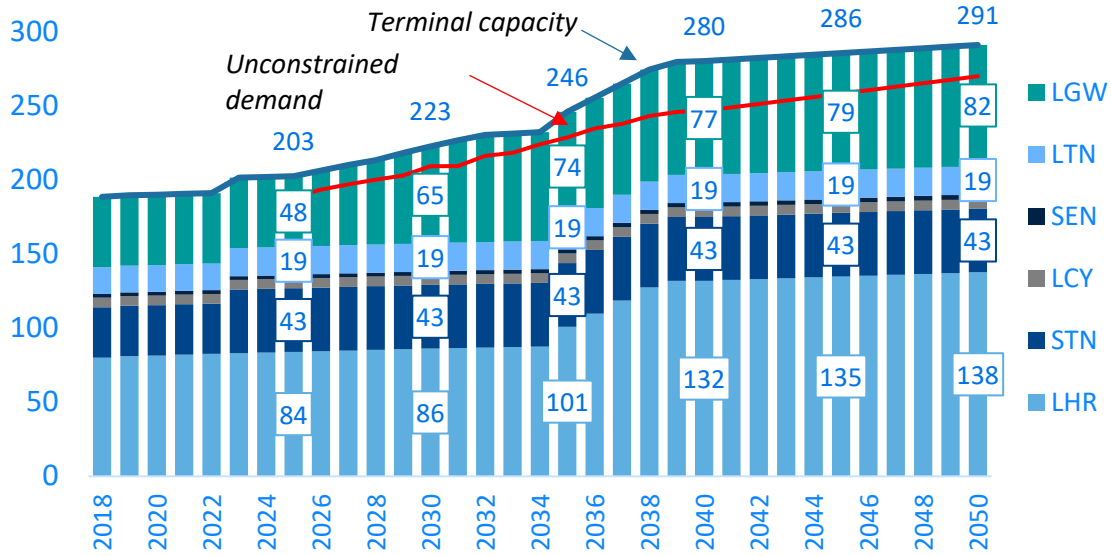
Note: Gatwick Assumptions

Sensitivity 1: LHR R3

7.1.7 The first sensitivity assumes that, in addition to LGW's Northern Runway, a LHR third runway is delivered in 2035. Whilst it is not known if LHR will develop a third runway, assuming 2035 is also viewed as optimistic given all the uncertainty around such a complex construction project.

7.1.8 A high-level comparison of the unconstrained demand and the assumed airport capacities is shown in the following chart. Assuming all other airport capacity is taken up, the combination of LGW's NR and LHR's R3 would provide sufficient terminal capacity to meet the demand projections. During the late 2030s, it is estimated that more than 30 million in spare passenger capacity would exist.

Figure 51 London Airport Capacity vs Demand (unconstrained), (passengers, m)



Source: Top-down Forecasts

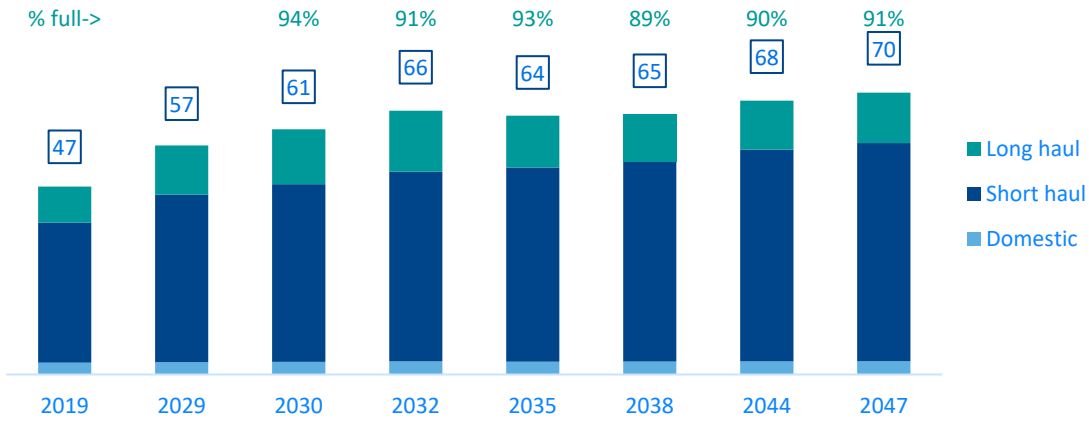
7.1.9 Prior to 2035 the market and capacity assumptions are the same as the core LGW NR scenario but once LHR R3 is assumed to 'open' there is an associated impact on LGW and other London airport traffic volumes.

7.1.10 At Gatwick two major impacts arise, firstly the opening of LHR R3 has a significant impact on long haul volumes. Secondly, the lost long-haul demand at Gatwick is in part back filled by short haul demand reflecting LGW's strong positioning within this market segment. Consequently, LGW and LHR are both forecast to be operating at approximately 90% of their capacity in the 2040s. A higher share of short haul traffic reduces Gatwick's potential passenger

throughput compared to the core Northern Runway scenario (due to higher proportion of smaller aircraft).

7.1.11 The profile of Gatwick's traffic in this scenario is shown below.

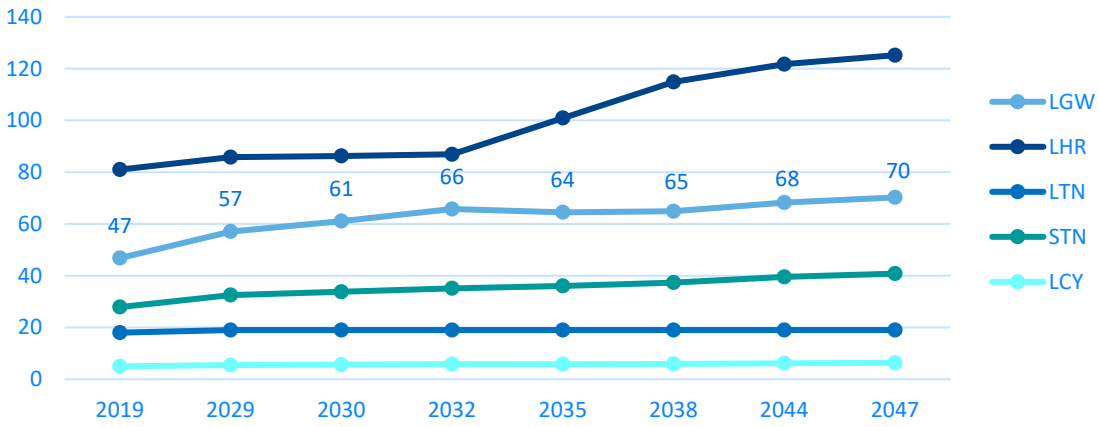
Figure 52 Gatwick Outputs, Northern Runway (passengers, m)



Source: Top-down Forecasts

7.1.12 Like the core forecasts, outputs have also been generated for the other London airports. The growth at other airports including Stansted and London City is impacted by LHR's growth.

Figure 53 London Airport Outputs, Baseline (passengers, m)



Source: Top-down Forecasts

7.1.13 Whilst the combination of the latest demand forecasts alongside a top-down allocation approach imply that Gatwick and other London airport traffic will be impacted by LHR R3, it is important to bear in mind that Gatwick will have the opportunity to outperform these implied impacts.

7.1.14 Gatwick will become proportionally cheaper compared to LHR under an R3 expansion scenario and the levels of charges anticipated at LHR may result in limited short haul markets/airlines operating successful operations. Whilst LHR has a strong track record of serving hub/City markets, it has not performed well in the short haul leisure markets which are dominated by LCCs and expected to continue to drive the growth of the short haul European travel market.

7.1.15 Gatwick's management will have the flexibility to incentivise airlines to make use of any unused capacity, whilst Gatwick does not currently have the spare capacity to heavily incentivise airlines, the potential to do so is considered significant.

7.1.16 Whilst the overall levels of demand growth for the UK O&D market are consistent between scenarios, it is likely that airlines will be able to stimulate demand at lower cost-efficient airports such as Gatwick compared to the prices required at a larger and more expensive LHR.

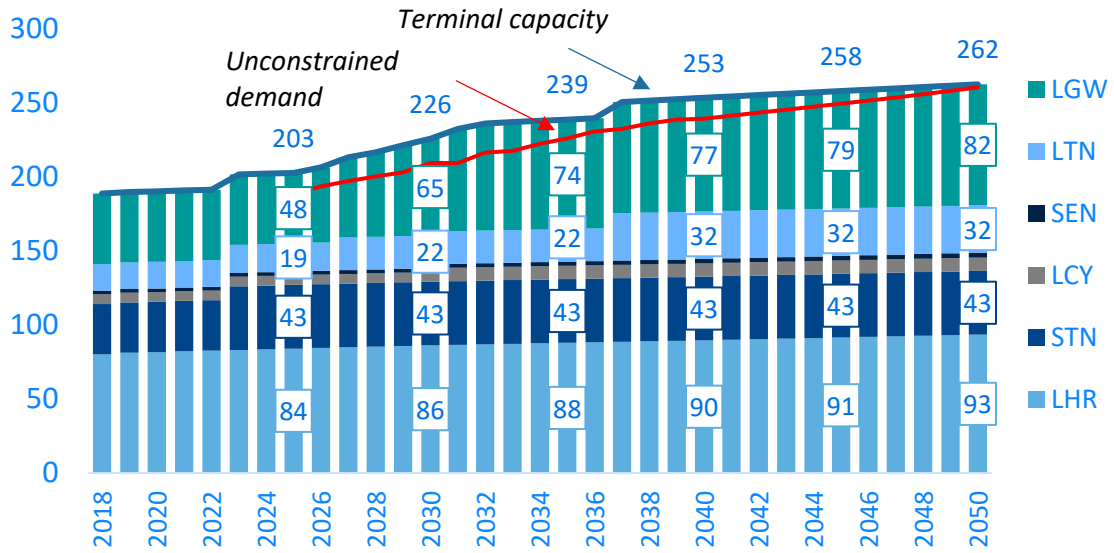
7.1.17 In summary, whilst the top-down forecasts can provide a high-level view of demand it is also important to consider other factors such as airline business models, airport charges and management strategies which are not readily covered in such models.

Sensitivity 2: LGW NR, LTN DCO and LCY

7.1.18 A scenario has been prepared considering the expansion plans at Gatwick, Luton and London City. LGW's NR is the first expansion program able to deliver a material increase in capacity. Luton's major step up in capacity to 32 million passengers is assumed in 2037.

7.1.19 A comparison of the total terminal capacity and unconstrained demand projection for this scenario is presented in the following chart. Throughout the forecast there is enough terminal capacity to accommodate the total unconstrained demand (before allocation) though by 2050 this narrows, and some modest levels of spill will be expected at the end of the forecast.

Figure 54 London Airport Capacity vs Demand (unconstrained), (passengers, m)

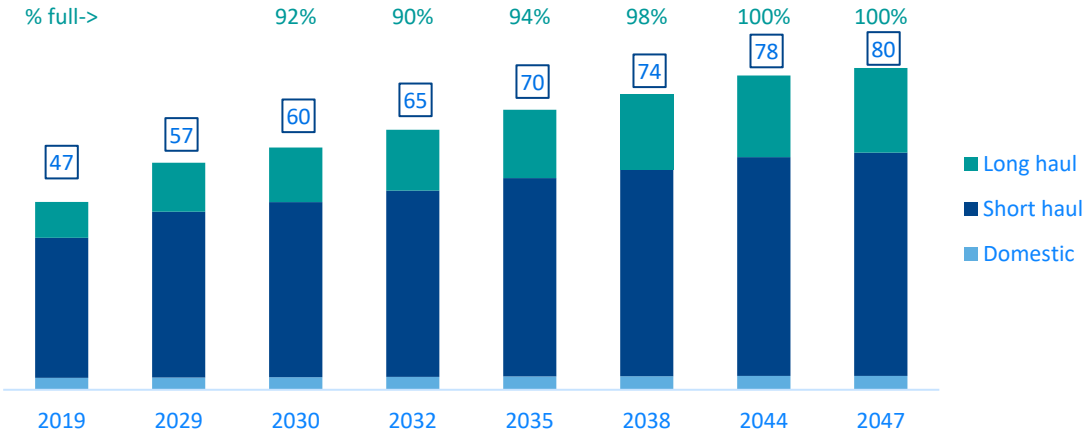


Source: Top-down Forecasts

7.1.20 When the other schemes open, under the NRP scenario, relatively limited impact is experienced by Gatwick as the airport is already operating at or very close to its capacity limits when the other schemes are introduced. Gatwick remains essentially full within a couple of % of its total theoretical maximum throughput.

7.1.21 The profile of Gatwick's traffic in this scenario is shown below.

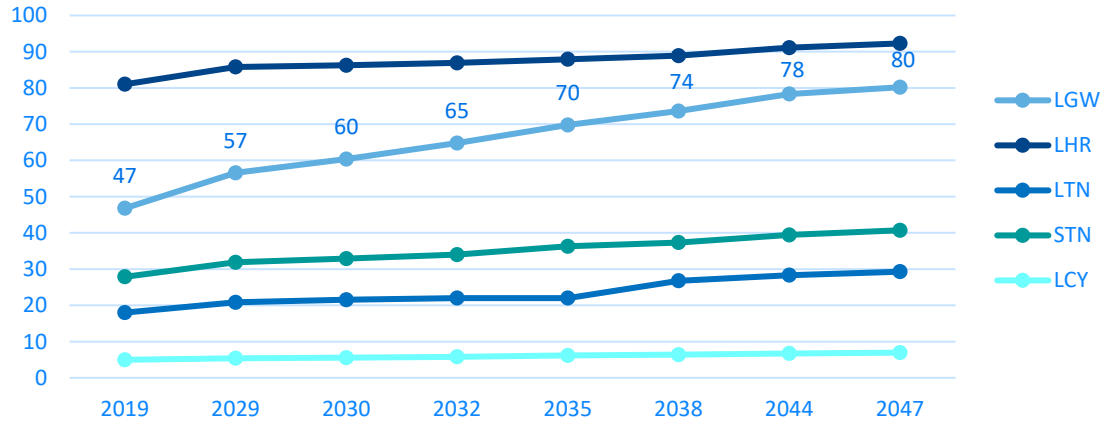
Figure 55 Gatwick Outputs, Northern Runway (passengers, m)



Source: Top-down Forecasts

7.1.22 Across the London airports, Heathrow remains unimpacted by the capacity developments although Stansted and non-London airports experience some decline in volumes compared to the core LGW NR scenario.

Figure 56 London Airport Outputs, Baseline (passengers, m)



Source: Top-down Forecasts

8 Conclusion

8.1.1 London is the largest passenger aviation market in the world by all recognised measures. Several of the airports were already constrained pre-Covid, and with demand recovering to previous levels these constraints are again apparent.

8.1.2 Demand is set to grow further which is supported by the latest Government forecasts that show UK aviation demand growing by a further 147 million passengers by 2050.

8.1.3 The London aviation market has a large, prosperous, and growing catchment. It also benefits from a strong and diverse mix of inbound markets recognising London's position as a leading destination for trade and tourism amongst many other factors supporting its leading position.

8.1.4 Of all the London airports, Gatwick serves the widest range of airlines and market segments. The airport serves long-haul and short-haul demand as well as low cost and full-service airlines.

8.1.5 Gatwick is constrained today as it was pre-Covid, the airport is unable to accommodate pent up demand already witnessed by the airport's co-ordinator of runway capacity. These constraints are only going to become more severe over time. Significant volumes of passenger demand will be unmet, with consequences for airlines, passengers, and the economy.

8.1.6 The Northern Runway will enable Gatwick to serve a further 13 million passengers when compared to the Baseline scenario.

8.1.7 Gatwick's Northern Runway would be available this decade when capacity is needed and many years ahead of any other potential development schemes in the London aviation market.

Annex - ACL

Sent by Email

Head Office
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3 Watermans Business Park
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Staines-upon-Thames
TW18 3BA
United Kingdom

Tel:
Email: [redacted]

Date: 14 November 2023

Ms Stephanie Weir
Vice President Aviation Development
London Gatwick Airport
Horley
Gatwick
RH6 0NP

Dear Stephanie

Request by London Gatwick Airport (GAL) for information on demand for slots which were not granted capacity by ACL

Further to your request for information on the historic waitlist for slots requested at London Gatwick compared with other ACL airports, please find the following summary.

Background

Airport Coordination Limited (ACL) is appointed by the Secretary of State for Transport under Article (4)(1) of the UK Slot Regulation[1] as the independent slot coordinator for the UK. ACL allocates slots at 9 UK Level 3 - Coordinated airports[2] and 10 IATA Level 2 – Facilitated airports[3]. ACL also provides coordination services at airports in Poland, Ireland, United Arab Emirates, Kingdon of Saudia Arabia, Oman, Latvia and New Zealand.

ACL's principle function is to allocate slots to airlines without exceeding the declared capacity at each airport. In doing so we must act in an independent, neutral, non-discriminatory and transparent manner. The slot allocation process is governed by the Worldwide Airport Slot Guidelines[4] (WASG), the governance of which, is managed by the Worldwide Airport Slot Board[5] (WASB) made up of airlines, airports and coordinators.

The process of slot allocation occurs twice per year as shown in Chart 1 with airlines making a request for slots at initial coordination. ACL will then assess these requests against the UK Slot Regulation and allocate slots where capacity is available. If capacity is not available airlines are added to a waitlist so

[1] AIRPORTS SLOT ALLOCATION (AMENDMENT) (EU EXIT) REGULATIONS 2021 OF DECEMBER 2021 amending Council Regulation (EEC) No 95/93 on common rules for the allocation of slots at United Kingdom airports as amended including by EU Regulation 2020/459 of 30 March 2020 and by Commission Delegated Regulation 2020/1477 of 14 October 2020
[2] UK Coordinated Airports – London Heathrow, London Gatwick, London Stansted, London Luton, London City, Birmingham Airport, Manchester Airport, Bristol Airport (from NS24) and Leeds Airport (Summer only from NS24)
[3] UK Facilitated Airports – Aberdeen, Belfast City, Belfast International, East Midlands, Edinburgh, Glasgow, Liverpool, Newcastle, Southampton and Bournemouth (From NS24)
4 The WASG can be found at the following link: https://www.iata.org/en/programs/ops-infra/slots/slot-guidelines/
5 Members of the WASB can be found at the following link: https://www.iata.org/contentassets/c1d7626d7175462ab0fc527c9e2937ce/wasb-membership.pdf

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that should slots be returned by an airline, ACL is able to re-allocate them to the next airline on the waitlist. As initial coordination is some six month prior to the start of the relevant season, airlines have the ability to optimise their schedules, remove themselves from the waitlist or add additional slot requests throughout the process.

The point at which airline schedules start to firm up and therefore as does the slot position, is the Historic Baseline Data (HBD). This is the date at which ACL sets the target for each slot that the airline must meet to secure the historic right to the same slot in the subsequent equivalent season.

We have also included the start of season data point to identify the number of slots that remained on the waitlist at the point the season commenced.

Chart 1 – Coordination Cycle

	Summer	Winter
Initial Coordination	October	May
Slot Conference	November	June
Slot Return Deadline	January	August
Monitor Slot Use	End March to End Oct	End Oct to End March
Determine Historics	September	April
Capacity Review	September	April

Waitlist Data

The following data and observations relate to the number of slots on the coordinator waitlist (Slot that were not allocated a slot and therefore could not operate as the airports concerned) at the following three data points.

1. Initial Coordination (First point at which CAL would allocate slots for the next season) – Table A (summer) & Table D (winter)
2. Historic Baseline Date (HBD) (the reference date used for the 80% usage calculation to determine historic precedence, being 23:59 UTC on 31 January (summer) and 23:59 UTC on 31 August (winter). Table B (summer) & Table E (winter)
3. Start of Season (Data held just prior to the start of the relevant scheduling season) Table C (summer) & Table F (winter)

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For the purposed on the coordination cycle, IATA season are treated independently of each other and therefore each season is shown separately.

All data is based on the data held in the coordination system for a peak week and refers to the number of slots in that week which were not allocated a slot. For a seasonal impact assessment this needs to be multiplied by the number of weeks in each season (normally 31 weeks in a summer season and 21 weeks for a winter season). The information in the database is as per that submitted by the airline.

As you will be aware, ACL does not share one airports data with another competing airport so the comparison is against other London coordinated airports (excluding London Gatwick).

IATA Summer Season

Across the three coordination milestones (Initial coordination, HBD and start of season), ACL is unable to satisfy all requests made by airlines at London Gatwick Airport and a waitlist is maintained. Table A, B and C details the number of slot requests that remain unallocated against the average for London coordinated airports (excluding London Gatwick). The closer to the start of season, the number of outstanding requests reduce as airlines adjust operations without an allocated slot. However, a waitlist remains all the way to the start of season. In most cases, London Gatwick has more slots unallocated and, on the waitlist, than the average of other London airports. Over the nine years of data, at initial coordination a total of 8,663 slot requests a week were not allocated a slot which equates to c1.7m weekly seats.

Table A: Unallocated Slots by summer season for LGW against a average for all London L3 Airports excluding LGW at initial coordination (LCY,LHR,LTN and STN)

Season	S15	S16	S17	S18	S19	S20	S21	S22	S23
LGW	507	818	499	1,082	821	1,167	1,325	1,810	634
London L3 Average Exc LGW	166	156	192	278	319	339	553	555	504

Table B: Unallocated Slots by summer season for LGW against a average for all London L3 Airports excluding LGW at HBD (LCY,LHR,LTN and STN)

Season	S15	S16	S17	S18	S19	S20	S21	S22	S23
LGW		293	260	949	649	574	1,100	707	522
London L3 Average Exc LGW	130	99	188	207	366	306	251	358	554

Table C: Unallocated Slots by summer season for LGW against a average for all London L3 Airports excluding LGW at Start of Season (LCY,LHR,LTN and STN)

Season	S15	S16	S17	S18	S19	S20	S21	S22	S23
LGW	29	191	157	683	409	208	144	340	491
London L3 Average Exc LGW	222	9	109	145	320	290	263	275	398

IATA Winter Season

Except for two seasons during the Covid 19 pandemic, the same pattern is true for the winter scheduling season. Demand for slots at London Gatwick exceeds available capacity resulting in airlines remaining on the waiting list albeit to a lower magnitude than seen in the summer season. Table D,E and F details the

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number of slot requests that remain unallocated against the UK average for L3 airports during the Summer coordination cycle at the three milestones.

Table D: Unallocated Slots by winter season for LGW against a average for all London L3 Airports excluding LGW at initial coordination (LCY,LHR,LTN and STN)

Season	W15	W16	W17	W18	W19	W20	W21	W22	W23
LGW	81	348	255	235	283	705	231	1023	299
London L3 Average Exc LGW	136	209	214	170	421	429	394	582	374

Table E: Unallocated Slots by winter summer season for LGW against a average for all London L3 Airports excluding LGW at HBD (LCY,LHR,LTN and STN)

Season	W15	W16	W17	W18	W19	W20	W21	W22	W23
LGW	130	228	177	246	156	434	231	435	280
London L3 Average Exc LGW	209	154	149	167	339	221	408	312	406

Table F: Unallocated Slots by winter season for LGW against a average for all London L3 Airports excluding LGW at Start of Season (LCY,LHR,LTN and STN)

Season	W15	W16	W17	W18	W19	W20	W21	W22	W23
LGW	67	118	101	200	174			375	N/A
London L3 Average Exc LGW	200	72	117	178	303	300	142	358	N/A

Context

For context purposes, Table G (summer) and Table H (winter) details the percentage of slots at initial coordination that were not allocated a slot at London Gatwick Airport. Over the summer season, on average 12% of requested slots were not allocated from the pool at initial coordination which is higher than any other ACL Coordinated Airport. Table H shows the equivalent data for the winter seasons.

Table G: Allocated and Unallocated Slots by summer season for LGW - Initial Coordination

Season	S15	S16	S17	S18	S19	S20	S21	S22	S23
% of requests allocated a slot	92.62%	88.80%	92.89%	85.96%	88.80%	85.12%	83.35%	78.45%	91.03%
% of requests not allocated a slot	7.38%	11.20%	7.11%	14.04%	11.20%	14.88%	16.65%	21.55%	8.97%

Table H: Allocated and Unallocated Slots by winter season for LGW - Initial Coordination

Season	W15	W16	W17	W18	W19	W20	W21	W22	W23
% of requests allocated a slot	98.40%	93.89%	95.39%	95.71%	95.00%	88.39%	95.80%	83.53%	94.53%
% of requests not allocated a slot	1.60%	6.11%	4.61%	4.29%	5.00%	11.61%	4.20%	16.47%	5.47%

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We trust this information answers the questions raised, but should you like to discuss further, please ;let me know.

Yours sincerely

[redacted]

Richard Cann
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Glossary

Term	Description
CAA	Civil Aviation Authority
IATA	International Air Transport Association, industry body representing airlines
DfT	Department for Transport
JZ	Jet Zero (part of DfT) focusing on the future decarbonisation of aviation in UK
ACI	Airports Council International, industry body representing airports
ACL	Airport co-ordination Limited (handles airport slot allocation)
ONS	Office for National Statistics
LHR	Heathrow Airport
LGW	Gatwick Airport
GAL	Gatwick Airport Limited
STN	Stansted Airport
LTN	Luton Airport
LCY	London City Airport
Schedules	Airline schedules published by OAG () and SRS ()
Movements	A landing or departure of an aircraft
ATM	Air transport movement (e.g., landing/take off)
mppa	Million passengers per annum
GFC	Global Financial Crisis
Transfer passenger	A passenger changing planes at an airport
Onboard passengers	Total passengers onboard an aircraft
Local passengers	Passengers that originated at the airplane's departure point (i.e., excludes transfers)
Charter Airline	Leisure focused carrier selling package holidays
Regional Airline	Airline focused on serving shorter haul business-oriented markets with regional jets/turboprop aircraft
FSC	Full service business model (e.g. British Airways)
LCC	Low Cost Carrier business model (e.g. easyJet)
NR/NRP	Gatwick's proposed Northern Runway plan
LHR R3	Heathrow's proposed new runway plan
Luton DCO	Luton proposed expansion program

Slot	Permissions granted by the airport operator for an airline to land or take off at a specific time
FY	Financial Year
Busy day	A day that airports often use to model ‘peak’ levels of activity. E.g., Fridays in August are typically some of Gatwick’s busiest days