Policy Programmes Team

Operating resilience of the UK's aviation infrastructure: A request for information

CAP 1420

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Contents

Chapter 1

Foreword

1.1 The UK already has some of the busiest and most productive airports in the world, facing challenges for maintaining day to day operating resilience (in this context, by resilience we mean the ability to anticipate, withstand and recover quickly from difficult day to day conditions[1]).

1.2 The Airports Commission delivered its final report and recommendations on the location of new UK runway capacity to the Government in July 2015. The Government has announced that it will make its decision on these recommendations in summer 2016.

1.3 The CAA has been clear in its advice to policy-makers in our responses to the Airports Commission[2]: consumers (passengers and cargo shippers) are already suffering from shortage of airport capacity in the South East of England - fewer routes and flights than there is demand for, more delay, higher prices and more fragile operations.

1.4 However, it will be at least 2025 before any new runway capacity in the South East of England will be opened, so whatever decisions are made by Government, the aviation industry must continue to work towards making existing infrastructure more resilient.

1.5 Aviation also relies on the limited resource that is airspace to ensure that passengers, businesses, the military and leisure flyers enjoy the many benefits aviation brings. The basic structure of the UK's airspace was developed over forty years ago. Since then there have been huge changes, including a hundred-fold increase in demand for aviation.

1 Resilience is sometimes taken to mean the ability to recover efficiently from a significant disruptive incident, such as a runway closure. However, this topic has been considered elsewhere and is not the subject of this request for information.

2 http://www.caa.co.uk/Consumers/Guide-to-aviation/Demand-for-additional-runway-capacity/

1.6 Throughout Europe there is a move to simplify and harmonise the way airspace and air traffic control is used through the Single European Sky project. In the UK and Ireland we're meeting those and other issues through the Future Airspace Strategy (FAS) which sets out a plan to modernise airspace. FAS is a collaborative initiative between a range of stakeholders which sets the direction for modernisation, but does not include details or recommendations about specific structures or flightpaths. For more information see www.caa.co.uk/fas.

1.7 In the CAA's Strategic Plan for 2016-2021, we committed to thinking creatively about how existing capacity can be planned and operated to meet stakeholders' expectations, and what the CAA can do to ensure this issue is addressed.

1.8 We wish to explore two key areas from a UK perspective, recognising that the issues are likely to be more severe in the South East of England.

- How can the performance of the aviation network be improved or optimised?
- How effective is the current regime, and how are consumer interests represented?

1.9 For each of these areas, we will engage with relevant government departments, and organisations, including airports, airlines, ACL[3] and air traffic control (ATC) providers as we develop our recommendations. We are also keen to gather evidence and suggestions from passenger groups and other industries to support and shape this work.

1.10 Hence this request for information, which sets out the key questions for each of the two areas above. You may wish to answer all or just some of the questions relevant to you. We would strongly encourage those making submissions to provide details of the evidence and data which support their arguments, to enable the CAA to understand more fully the basis on which conclusions have been reached.

[3] Airport Coordination Limited, the independent UK airport slot coordinator.

1.11 Questions 1-4 (Chapter 3) are aimed at industry parties who plan how to use the UK's aviation infrastructure and in particular how they understand and balance aviation capacity and resilience trade-offs on behalf of passengers. Questions 5-13 (Chapter 3) deal with the aviation industry decision making processes and assumptions that lead to the capacity available and the resulting airline schedules. Questions 14-18 (Chapter 4) cover the day to day operational challenges facing the aviation industry in the future, and what can be done to improve operational resilience. And finally, Questions 19-23 (Chapter 4) are concerned with sharing information, either between different industry parties, which could help to improve planning and performance, or that may be important for individual passengers when booking or during their journey.

1.12 We look forward to receiving submissions, and thank you in advance for your engagement.

Responses to this document

1.13 We are inviting responses to this document by 16 September 2016 and you can send us your comments online. This will enable us to analyse responses effectively, and improve how we communicate our recommendations based on the responses we receive.

1.14 We are willing to meet with any stakeholder organisations to discuss these issues further, and where possible we will seek to incorporate this as part of existing meetings. For further information please email policyprogrammesteam@caa.co.uk or telephone Jonathan Sharratt on 0207 453 6278.

1.15 Further details on responding to this document can be found in Chapter 5 including how we will handle any confidential information we might receive.

Chapter 2

Introduction and background

2.1 The Airports Commission forecasts that, absent any runway expansion, both Heathrow and Gatwick will be operating at their maximum capacity by 2020, with all airports in the London area reaching their maximum runway throughput by 2040[4]. Heathrow already operates close to it's 480,000 annual air transport movement (ATM) cap[5] and Gatwick is the world's busiest single runway airport.

2.2 Airport and airspace capacity constraints in London and the South-East are already beginning to affect consumers by: restricting competition, restricting route choice, adversely affecting value through higher fares, and adversely affecting service quality as a result of decreased resilience. These impacts are expected to become more pronounced in the future as demand for aviation services increases, before any new runway capacity is opened beyond 2025.

2.3 Capacity constraints will increasingly shape network configuration by reinforcing the trend towards focusing on the most profitable, high-yield routes. At Heathrow this is already leading to further specialisation on long-haul routes, in particular those routes for which geography or economic, cultural and historical links give London an advantage. This trend is likely to intensify as London's other airports become more congested.

2.4 Gatwick has increased its annual passenger numbers by approximately 6.5 million since 2012, with European traffic a significant driver. For the summer 2016 season, Gatwick has announced a sizeable increase of 20 long haul routes from 30 to 50. This includes a range of destinations across Canada and the USA, and also Hong Kong, Peru, Cuba and Costa Rica.

4 Airports Commission – Interim Report, December 2013; Final Report, July 2015

5 A planning condition associated with the approval of Terminal 5.

2.5 There are clear implications for the passenger experience from these increases in traffic. Analysis carried out for the CAA in 2008[6], and updated in 2011 for the South-East Airports Taskforce, illustrated the trade-off between throughput and delay as airport utilisation approaches capacity. This relationship becomes increasingly severe as congestion grows. The analysis suggested that the optimal level of capacity utilisation, beyond which the congestion cost of adding additional services outweighs the consumer benefits of the additional flights, is likely to be significantly less than an airport's technical capacity.

2.6 The Airports Commission[7] cited analysis which indicated that fares at constrained airports in the UK could be approximately 10% higher than at airports without such pressures on capacity. Subsequent work by the Commission has suggested that, without new capacity, the costs of air travel would be forecast to rise on average by about £7-9 per passenger in the UK and by about £14-19 in London by 2050 (in 2014 prices), compounded by the cost to many passengers of having to travel through a less convenient airport or via a longer indirect route. These additional costs would add up to as much as £3-4 billion by 2050.

2.7 The value of additional flights to passengers will vary over time and between routes, and may also depend on whether it is an additional marginal flight or a new scheduled flight. There have been attempts by a number of groups to quantify the value in various studies.

2.8 For example, Eurocontrol publish[8] standard inputs for cost benefit analyses suggesting an 'average' international passenger flight in the EU is 'worth' an additional 25,307 Euros (approximately £19,700) to the consumers on board. This is based on an economic 'consumer surplus' model and is the difference between the consumer's willingness to pay (sometimes referred to as the gross consumer benefit) and the price paid, giving the net consumer benefit.

6 UK CAA Runway Resilience Report December 2008 – Prepared by Helios, XPX Consulting and SH&E Ltd.

7 Airports Commission – Interim Report, December 2013; Final Report, July 2015.

8 Standard Inputs for EUROCONTROL Cost-Benefit Analyses, Edition 7.0, November 2015.

2.9 There is a balance to be struck for passengers, in particular the value that is placed on capacity (flights, routes, frequency and lower fares) versus the costs of delay, cancellations and uncertainty that would result from existing infrastructure being more intensively used.

Chapter 3

Airport capacity and the consumer interest

Consumer interest

3.1 Consumers expect that they can access a choice of good-value services and receive fair treatment. The Government and the CAA generally try to ensure that market forces provide consumers with the range of services they require at a reasonable cost. However, the structure of the market, for example, may mean that competition is not sufficient to deliver those services and information may not be delivered by the market in a way which allows consumers to make good choices.

3.2 Consumers may value different attributes depending on factors including their trip purpose (e.g. business, leisure or visiting friends and relatives), their expectations, previous experience, or the information they have access to.

3.3 For example business passengers may value high frequency routes and flexibility, whereas leisure passengers may value lower cost or a wide range of destination choice. Some consumers may value being on time more than others, such as those that have an onward connecting flight. Some consumers may build delay into their journey and some may be frustrated at feeling delayed by queuing or waiting even if they are technically 'on-time'[9].

3.4 The CAA would like to understand how consumers view the trade-offs between capacity, cost and service levels, and is organising some specific research to understand these drivers in more detail. The CAA would appreciate evidence that may be able to supplement this research.

[9] i.e. the flight departs and/or arrives close to the time indicated on the passenger's ticket.

1) **Do those that plan the use of aviation infrastructure (Airports, Airlines, Air Traffic Control, and ACL) understand consumer interests when balancing capacity and resilience decisions?**
2) **How well do these parties understand consumer interests?**
3) **What evidence do these parties have and what does this evidence indicate?**
4) **How is this evidence or understanding taken into account in the planning and decision making process in order to ensure an optimum balance is achieved?**

3.5 In answering these questions, please clarify the specific consumer groups or types the evidence relates to. It would also be beneficial for respondents to highlight gaps in the evidence base.

Airport capacity declaration and scheduling

3.6 The system for allocating time slots at airports, based on pre-existing IATA guidelines, is set out in European Regulation 95/93/EEC ('the EU Slot Allocation Regulation'), as amended by Regulation 894/2002/EC and 793/2004/EC. These were implemented in the UK by the Airport Slot Allocation Regulations 1993 (SI 1993/1067) and came into effect in May 1993.

3.7 These rules apply to all airports that have been designated as 'co-ordinated', i.e. those airports where there is insufficient capacity to meet demand. In the UK, Heathrow, Gatwick, Stansted, Luton, London City and Manchester are fully co-ordinated.

3.8 At an airport where slot allocation takes place, the competent authorities are responsible for determining the capacity available for slot allocation twice yearly in cooperation with representatives of air traffic control, customs and immigration authorities and air carriers using the airport and/or their representative organisations and an independent airport coordinator, according to commonly recognised methods. In the UK the

competent authority has been delegated to airport authorities (see Airport Slot Allocation Regulations 1993 (SI 1993/1067)).

3.9 The EU Slot Allocation Regulations require the formation of a co-ordination committee at co-ordinated airports. Membership of the committee is open at least to the air carriers using the airport in question regularly, the managing body of the airport concerned, the relevant air traffic control authorities and the representatives of general aviation using the airport regularly.

3.10 The role of the co-ordination committee is, inter alia, to advise the co-ordinator on matters such as increasing airport capacity, methods for monitoring the use of allocated slots, local guidelines, constraints and rules etc. The co-ordination committee can also deal with any complaints on the allocation of slots.

3.11 The EU Slot Allocation Regulations require that the co-ordinator in charge of sharing out the slots is independent of government, airlines and airport management. Airport Co-ordination Limited (ACL) is the airport co-ordinator at the UK's major airports; ACL was set up to be an independent, not for profit company with a governance structure made up of the UK´s leading airlines. Current Members are British Airways, Virgin Atlantic Airways, Monarch Airlines, Thomson Airways, Thomas Cook Airlines, Jet 2, Flybe and EasyJet[10]. The CAA and Department for Transport have no direct involvement in the slot allocation process at co-ordinated airports.

3.12 Airports also have scheduling committees in order to formulate scheduling policies and guidelines, representing the views of airline operators on scheduling matters, and to promote policies and procedures that balance scheduling flexibility, capacity maximisation and efficient utilisation of facilities with acceptable performance and service quality levels.

3.13 The current process therefore means that the airport and airline users should maximise the use of the airport (which both are incentivised to do)

[10] Other airlines can apply to become members of the governance body also.

whilst also deciding on levels of punctuality performance that are acceptable, unless there are existing constraints, such as a planning condition.

3.14 Once a slot has been allocated to an airline, the EU Slot Allocation Regulations confer 'grandfather rights' on it. This means that, provided the slot is used on at least 80% of the days when it was intended, then the airline is entitled to retain it for the following year.[11]

3.15 Often airlines making commercial decisions about capacity need to liaise further with their operational departments and decide to proceed with the slots allocated or return them to the slot pool. If handed back early enough they can be allocated to another airline.

3.16 The CAA is seeking to establish the extent of existing evidence regarding how decisions are made, what behaviours are apparent and what safeguards are in place to ensure that consumer interests are taken into account in the capacity declaration and allocation process.

3.17 The questions on which the CAA are particularly keen to obtain views in this area are:

5) **Who is responsible for making airport capacity declaration and scheduling decisions and how are different interests balanced?**
6) **Do the mechanics of decision making work well?**
7) **How could the consumer voice be strengthened and embedded in the governance process?**
8) **At an individual airport level, how are consumer benefits and disbenefits weighed against each other? For example, additional slots balanced against the potential disbenefits of these slots (e.g. from increased delay) to existing airlines and their passengers?**
9) **What key parameters are used and assumptions made, and how are these decided, agreed or checked?**

[11] However, the EU Slot Allocation Regulations make no mention of how to manage a decrease in capacity declaration at a co-ordinated airport, and if slots should then be removed from airlines that have used them.

10) **To what extent should the underlying rationale for these decisions be made public?**
11) **Are wider impacts considered e.g. the impact of one airport's decisions and interactions with others in the system?**
12) **What relevant lessons have you learnt or best practice have you developed in the capacity declaration and scheduling process?**
13) **What potential changes to the process may be justified?**

3.18 In answering these questions it may be particularly helpful to include specific examples where possible. It would also be beneficial for respondents to indicate the available evidence to support the points made, and also to highlight gaps in the evidence base.

Chapter 4

Optimising performance

Recent trends

4.1 Once decisions have been made on the level of capacity at an airport and airline schedules are confirmed, the industry's focus changes to the operational performance of the upcoming season.

4.2 Airports and airlines know that consumers value 'good' performance, and where there is competition, frequent flyers may choose to fly with an alternative airline or airport if performance is below their expectations.

4.3 Recent research conducted by the CAA[12] has revealed that an airline's punctuality reputation is an important (but not the highest) factor for passengers in the booking process.

4.4 The research suggests that approximately 45% of passengers believe that the aviation industry is more reliable and better value for money than rail, but compared to other sectors, such as energy and banking, the comparison is much closer.

4.5 14% of passengers experienced travel disruption[13] on their most recent flight, which can have knock on impacts on connecting travel arrangements and plans. Satisfaction with the handling of the problem appears to be quite low, particularly with the redress offered as a result of the particular issue.

4.6 The aviation industry is continually investing in improving performance including introducing new technology such as Airport Collaborative Decision Making (A-CDM), Cross Border Arrivals Management (XMAN),

12 CAA Consumer Tracker for the Aviation Sector – March 2016: Prepared by Ipsos Mori

13 This includes delays over 2 hours, cancellations, diversions, denied boarding and 'other problems'.

Time Based Separation and Enhanced Instrument Landing Systems, to name a few recent examples.

4.7 However, according to Eurocontrol, Gatwick, Luton and Manchester were in the 'top 10' heaviest European arrival and departure delayed airports in summer 2015. Heathrow was in 13th position for arrivals and 11th for departures.

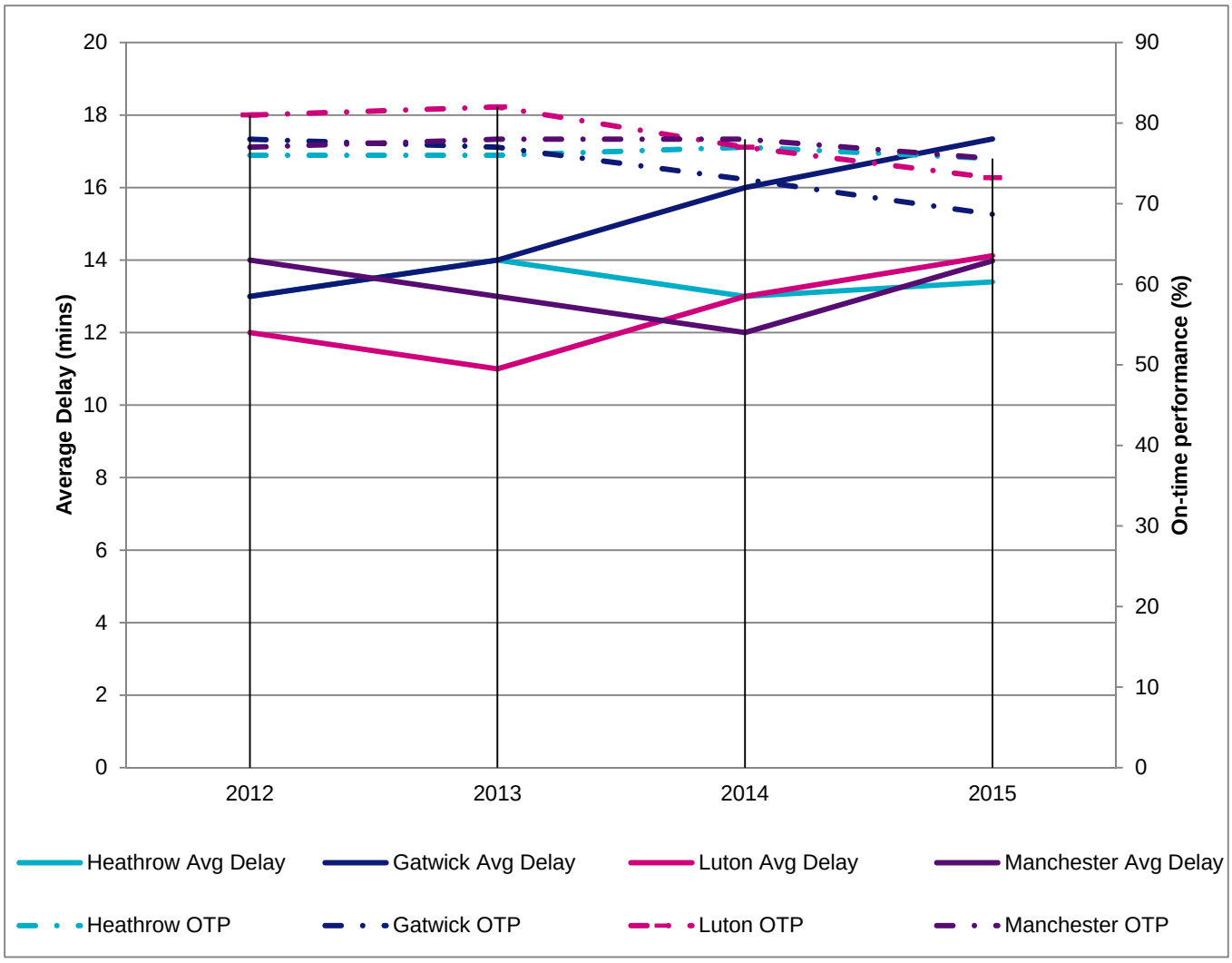
4.8 CAA punctuality data (Figure 4.1) shows that Heathrow delay and on-time performance (departure and arrival combined) has been relatively static over the last 4 years. Average delay at Gatwick has increased from 13 to 17 minutes and on-time performance has reduced from 78% to 69%.

4.9 However, comparisons of punctuality data between airports do not take into account different airline business models or commercial pressures. For example, airline schedules at Heathrow may contain more planned margins to ensure that flight connections are met, whereas point to point operators at Gatwick are more likely to focus on aircraft utilisation in order to keep costs and fares down. Performance is therefore likely to be more sensitive to congestion or events at airports with predominantly point to point carriers.

4.10 On the other hand valuable slots during peak periods are hard to obtain and some airlines may be tempted to abuse their allocated slot times or make unrealistic schedule or resourcing assumptions in order to retain them. ACL have the ability under the EU Slot Allocation Regulations to fine carriers for this type of behaviour if it can be proven to be deliberate and repeated[14].

[14] In 2014/2015 (2014 summer/winter seasons), the total amount levied by ACL in fines was £71,000.

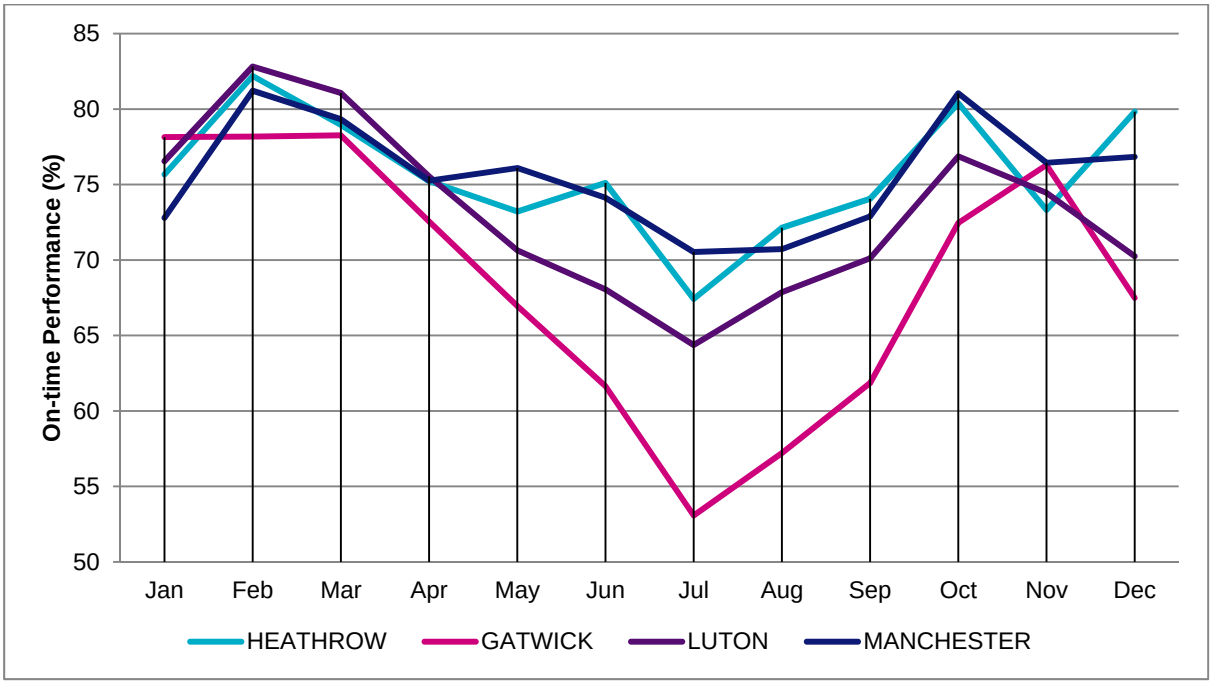
Figure 4.1: On-time Performance Summary 2012 to 2015



Source: CAA Punctuality Statistics

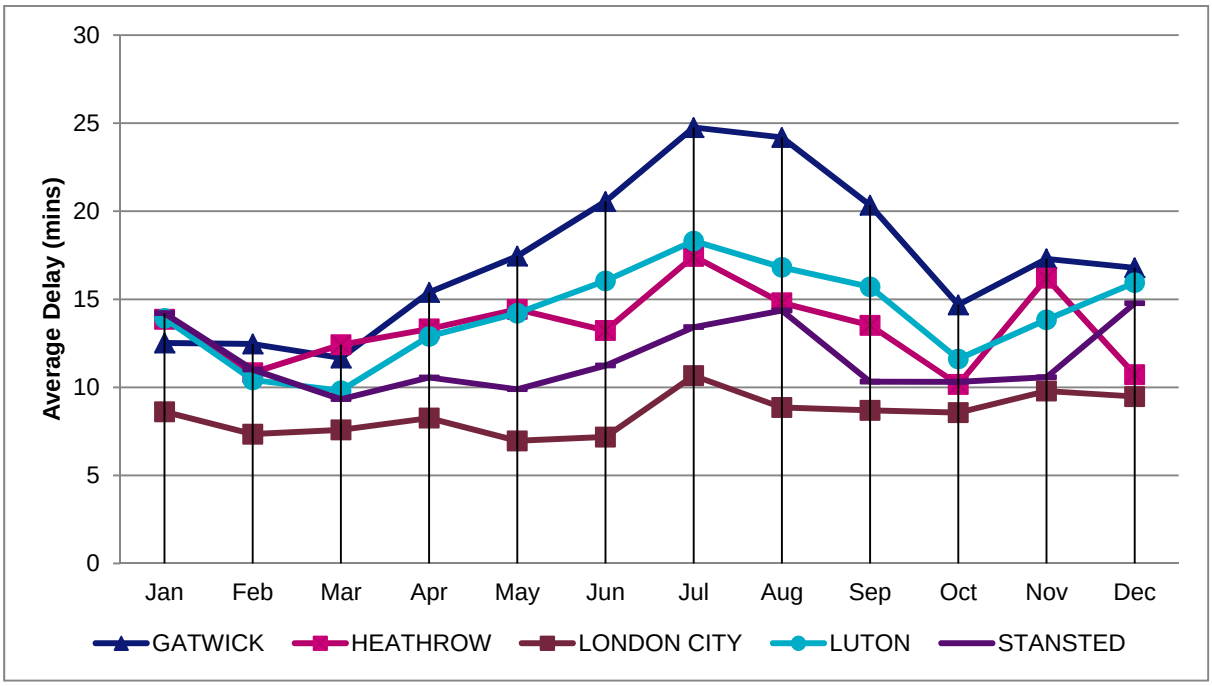
4.11 Performance across 2015 by month (Figure 4.2), shows Gatwick and Luton suffered the most variability in on-time and average delay performance across the year. This is likely to be down to intensive utilisation of aircraft (less recovery built in on the ground), the business model for summer charter flights (less opportunity to cancel flights to recover) and most traffic destined for Europe (which can be affected by European ATC capacity, and increasingly an issue).

Figure 4.2: On-time Performance Summary, 2015



Source: CAA Punctuality Statistics

Figure 4.3: Average Delay Summary, 2015



Source: CAA Punctuality Statistics

4.12 The CAA would welcome views and evidence on the following:

14) What aspects of the current regime (e.g. law, regulation, operational, commercial, other) may lead to sub-optimal decisions being made?

15) What are the major challenges facing operational performance now and over the next 10 years? How could these be best tackled?

16) What performance indicators do different parties (consumers, airlines, airports, ATC) value and why? What can be done to increase their visibility?

17) What further opportunities are there to increase the benefits of capacity and/or reduce the costs of delay to passengers?

18) Are there any lessons to be learned elsewhere that could be applied in the UK?

4.13 In answering these questions it may be particularly helpful to consider behaviours as well as technical issues. It would also be beneficial for respondents to indicate the available evidence to support the points made, and also to highlight gaps in the evidence base.

4.14 We will also take into account any relevant submissions made to the CAA's consultation on the UK's groundhandling market[15].

[15] Access to the ground handling market at UK airports: A review of the CAA's approach – June 2016.

Information provision

4.15 Most passengers can choose from multiple airports and a range of services, and airlines compete on price and service. Everyone benefits from engaged and informed consumers being at the heart of the competitive process.

4.16 Not all passengers want simply the cheapest flight; other factors such as timing, reliability and services play a part. It is hard for passengers to know which is, say, the most punctual or reliable service on a route. Publishing information to help passengers choose will remain a priority for the CAA, as well as promoting effective competition.

4.17 There are several sources of data available at the moment covering punctuality and reliability, for example:

- CAA reports on time performance and average delay.
- Eurocontrol reports on time performance and average delay as well as a number of metrics such as ground and air holding.
- Websites such as www.Flightstats.com or www.Flightontime.info compile delay information which can be searched for by route or airline. These websites use data from CAA and ACL.

4.18 As we have described, not all on-time performance information can be compared, and historic results are, anyway, no guarantee of future performance. Current information may not always be apparent or user friendly, and may not be offered at the appropriate steps in the booking process and journey.

4.19 Passengers appreciate timely information and it is often fundamental to their sense of being well treated, as well as helping them to plan and cope. For example, passengers are less likely to be stressed if they are informed of the reasons for a delay and if the time can be made up en-route.

4.20 Delays can also be created by not passing on information in a timely manner. For example, a passenger with reduced mobility may be required

to wait at a gate because an airline has not informed the airport in time that they need assistance. This can also cause knock on delays to others.

4.21 The CAA would welcome views on the following:

19) **How well do parties share relevant operational information at present? What improvements are needed?**
20) **Is all the information relevant to improve network performance (not just at individual airport level) shared effectively?**
21) **What information could be published to encourage performance improvements? Who is best placed to publish or provide this information?**
22) **What are the most important information gaps that may currently exist for consumers?**
23) **Why is it important and how can it be remedied?**

4.22 It would be beneficial for respondents to consider before and during journeys, indicating the available evidence to support the points made.

Chapter 5

How to respond and next steps

5.1 We are particularly keen to receive views and evidence from interested parties on the issues and questions raised in this document.

5.2 This request for information will close on 16th September 2016. Please answer the questions online.

5.3 We understand that some stakeholders may prefer not to be constrained by the questions alone and will want to send a self-contained response. While we will accept these submissions, we will not be able to analyse them in the same way that we analyse the online responses. Our preference is therefore that you complete the online questionnaire.

5.4 We will assume that all responses can be published on our website. When you complete the online questions there will be an option for you to hide your personal details or refuse publication. In the interests of transparency, we hope people will not refuse publication. If you do send us a separate submission and it includes any material that you do not want us to publish, please also send us a redacted version that we can publish. You should be aware that information sent to and therefore held by the CAA is subject to legislation that may require us to disclose it, even if you have asked us not to (such as the Freedom of Information Act and Environmental Information Regulations). Therefore, if you do decide to send information to the CAA but ask that this be withheld from publication via redacted material, please explain why, as this will help us to consider our obligations to disclose or withhold this information should the need arise.

5.5 Before we publish responses we may moderate them to remove unacceptable material such as defamatory or offensive remarks. We have based our moderation policy on Government guidelines, for example https://gds.blog.gov.uk/terms/ and https://www.gov.uk/government/publications/web-chat-moderation-policy.

5.6 We are willing to meet with any stakeholder organisations to discuss further, subject to the necessary staff being available. Because of limited resources, where possible we will seek to incorporate these as part of existing meetings. For further information please email policyprogrammesteam@caa.co.uk or telephone Jonathan Sharratt on 0207 453 6278.

5.7 Once we have considered the responses we will publish a summary of them and the CAA's recommendations for the areas where we are seeking views. The CAA will then ecourage the implementation of these recommendations, which may involve influencing others, facilitation or publishing information aimed at improving decision making, optimising performance and ensuring that consumers interests are represented.

Figure 5.1: Timetable for Review

Event	Date
Call for evidence published	June 2016
Call for evidence closes	16 September 2016
Current regime recommendations published	December 2016
Optimising performance recommendations published	April 2017