

Birmingham Airport Master Plan 2018



Birmingham Airport is already the preferred national and international aviation hub for the Midlands and our ambition is to become one of Europe's leading regional airports. As a key economic accelerator, we will continue to deliver great service to passengers and help showcase the region as Coventry becomes City of Culture in 2021 and during the Birmingham Commonwealth Games in 2022.

Nick Barton
Chief Executive Officer

In this document

Foreword

Page 02

Executive summary

Page 04

Chapter 01

Our ambition

– summarises our plans to grow and support the ambitions of the region

Page 08

Chapter 02

Market context

– provides a backdrop to the Airport's operation regarding the air travel market and airlines

Page 16

Chapter 03

Demand for air travel

– sets out our central forecast for the number of passengers and aircraft which will use the Airport over the next 15 years up to 2033

Page 22

Chapter 04

Birmingham Airport 2033

– explains our development plans for the Airport to meet growing demand and deliver great customer experience

Page 28

Chapter 05

Surface access

– shows the strength of the Airport's location at the heart of the UK's road and rail networks, and explains the need for sufficient investment in the transport infrastructure to meet the growing demands placed on it

Page 36

Chapter 06

Economic impact

– demonstrates the very significant role the Airport plays in the regional economy and its direct and indirect contribution to growth and employment

Page 42

Chapter 07

Environmental impact

– explains the wide range of activities undertaken within our local communities to avoid, reduce or mitigate the Airport's environmental impact

Page 48

Chapter 08

Regional partnerships

– highlights the importance of our partnerships with local and central Government and the vital need for wider investment in the regional transport networks

Page 58

Appendix A:

Birmingham Airport today

– summarises current information about the Airport's ownership and facilities

Page 62

Appendix B:

Plans of proposed developments

– illustrates the proposed changes to the Airport infrastructure

Page 72

Appendix C:

Alternative growth scenarios

– considers the implications if growth were quicker or slower than the base forecast

Page 73

Appendix D:

Glossary of terms

Page 77

Foreword



Nick Barton
Chief Executive Officer

It is 80 years since HRH the Duchess of Kent officially opened Elmdon Airport, with its grass airstrip and Norman and Dawbarn's iconic terminal building that was recently awarded Grade II listed status. Birmingham City Council had recognised the importance of civil aviation to the future of the city and region and this was the culmination of their ambitious plan, in the years between the Great Depression and the Second World War, to construct a municipal airport.

The growth in civil aviation was rapid and by the 1970s it was clear that the Airport's facilities would need to expand to meet this demand. Now owned and operated by the West Midlands County Council, a second ambitious plan was conceived to locate enlarged terminal facilities on the other side of the runway from Elmdon. In 1984 the first phase of today's terminal was opened by Her Majesty The Queen and was integrated into the West Coast Railway Line and the newly constructed National Exhibition Centre.

It was recognised that continued development of the Airport was vital for the region and in 1997 today's company was formed, combining public ownership with private shareholders to access the private sector finance needed to make this happen. Developments have included enlarging the terminal, constructing a new pier and a new air traffic control tower as well as the multi-modal interchange at Birmingham International Station, additional car parks, hangars, hotels and, of course, extending the runway to over 3,000 metres in length to enable aircraft to reach the furthest destinations.

Today we are busier than ever, with 50 airlines flying 13 million passengers a year to more than 150 direct destinations. 6,700 people work at the Airport and it contributes £1.5 billion to the regional economy. We enable businesses to prosper, connect our communities to their cultural hubs, provide easy access to outbound holiday destinations and serve as a gateway for inbound tourism and overseas students studying at our universities.

Our last Master Plan was published in 2007, when the Government's 2003 White Paper "The Future of Air Transport" recognised the strategic advantages of Birmingham Airport at the heart of the motorway and the rail networks. It concluded that the Airport should continue to be developed as the Midlands' principal international gateway, including extending the current runway and, in the longer term, constructing a second runway. The 2003 White Paper has now been withdrawn and the Government's current policy is set out in the Aviation Policy Framework of March 2013. Here, the Government places a renewed emphasis on making best use of existing runways and airport capacity more generally, and this policy has been reaffirmed as recently as June 2018. The Government is likely to publish a new national Aviation Strategy in 2019 which is expected to maintain the policy of making best use of existing runways.

Government policy in relation to hub airport capacity in the south-east of the UK has also been subject to review through the Airports Commission. As a result, the construction of a third runway at Heathrow is being progressed.

This Master Plan seeks to work within the policy of making the best use of our existing full-length runway, which has considerable potential to accept additional growth. Over the next few years we plan to invest at an unprecedented rate to expand the terminal building and raise the level of service for our passengers. More aircraft parking stands will be built, and a wide range of other ancillary facilities extended. As we approach the end of this plan (around 2030) we believe that more land will be needed if we are to continue to make the best use of our single runway. Steps will also have to be taken to resolve airspace constraints in the south-east to allow a free flow of aircraft departing from Birmingham. Further Government investment in the region's road and rail infrastructure will also be necessary and so long as these steps are taken, we do not envisage a need for another runway in the foreseeable future.

Birmingham Airport is already the preferred national and international aviation hub for the Midlands and our ambition is to build on this to become one of Europe's leading regional airports, acting as a key economic accelerator, delivering great service to passengers, and helping to showcase the region at the upcoming Coventry City of Culture in 2021 and Birmingham Commonwealth Games in 2022.

We understand that the significant social and economic benefits created by the Airport must be balanced with a sustainable operation. We take very seriously our responsibility to manage our impact on the environment and involve our local communities in the development of our significant projects through the Airport Consultative Committee, which includes resident associations and parish councils.

Our rapid growth in recent years has put strain on the capacity of our facilities and has led to customer service levels at times falling below the standards we expect. We are already investing to put this right, with improvements delivered to check-in, security search, lounges and immigration and we were pleased to be ranked second behind only Heathrow Terminal 5 in the Which? report on large UK airports published in August 2018.

This Master Plan sets out our plan for £500 million of new investment to continue this improvement, to modernise and extend our facilities so they are fit for the future and to interconnect with HS2. To achieve our ambition, we will also need the continued enthusiasm of our staff and the support of our community, our airlines, our business partners, our regulators and our other stakeholders. There is much more to do to consistently deliver great customer service and the Board and Management are very confident we can achieve it.

Nick Barton
Chief Executive Officer



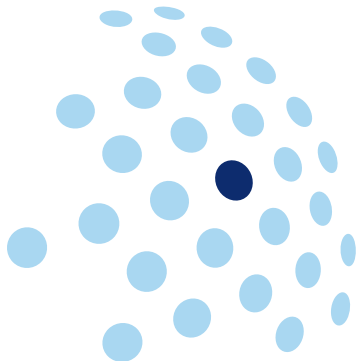
Birmingham Airport
The preferred national and international aviation hub for the Midlands

World class tourist appeal
A gateway to Shakespeare's England

Executive summary

The key proposals in our Master Plan

This Master Plan explains the strategic direction of the Airport. It sets out our forecast for traffic growth and how this is expected to impact the Airport site, its surrounding infrastructure and communities, and the wider Midlands region.



The Master Plan is not a statutory document but is prepared according to Department for Transport guidelines and is intended to inform the statutory planning processes of local and regional government, contribute to national government's Aviation Policy, and engage with local communities and all our stakeholders to seek their views on our future plans.

The Airport has grown by about 40% since 2013 to around 13 million passengers per year. This growth has strained the capacity of our facilities and led to inconsistent levels of customer service. The main focus of the Master Plan is on the 15 years to 2033 when we expect to be handling around 18 million passengers, a further 40% increase on current volumes. We are also considering a 24 million passenger scenario, to understand the implications of an even higher level of growth, should that be the case within the timeframe of this plan.

To meet this rising demand, we plan to invest around £500 million to expand and improve the Airport, to transform the experience for our passengers and to improve the efficiency for our airlines and partners. We are already the preferred national and international aviation hub for the Midlands and our ambition is to become one of Europe's leading regional airports. We are working tirelessly to increase the frequency of our existing services and widen the range of European destinations we offer. We also have a particular focus on long-haul routes to high growth economies such as India and China, and North Atlantic routes, particularly with the emergence of low-cost long-haul airlines. We will invest directly to incentivise this growth and promote new services across the Midlands.

This is an ambitious, deliverable and financeable strategy for the Airport and is, in turn, a cornerstone of the region's growth strategy in which we share.

The Airport is a key economic accelerator for the region, providing the air connectivity vital for the expansion of international trade, investment and employment, the growth of inbound tourism, and access to outbound leisure destinations.

Our current net economic impact is £1.5 billion GVA (Gross Value Added) and 30,900 jobs, which is projected to rise to £2.1 billion GVA and 34,400 jobs in 2033. If links to the manufacturing sector are taken into account the number of jobs created in 2033 could rise to 38,600

However, there are also a range of environmental impacts from the Airport's operation and we take our responsibilities for all these very seriously. One prominent impact is noise; our analysis shows there could be some increase in the number of people affected, despite the significant reductions in the engine noise footprint for the latest aircraft. We have presented what we think are worst case projections and pledge to work through our established relationships with our local community to assess how this can be avoided, minimised or mitigated.

Our investment plan over the next 15 years sets out key development projects that are vital to deliver our growth strategy. We will expand and modernise our departure lounge, enlarge our passenger security search area and equip it with the latest x-ray equipment, introduce further self-service bag-drop technology at check-in, increase capacity in our baggage make-up hall (where departing hold baggage is prepared for transfer to aircraft) and install additional arrivals baggage carousels.

The projected demand can be delivered off our single runway in line with the recently re-stated Government policy of making best use of existing runways. In fact, the full potential capacity of the single runway is far higher, at least 25 to 30 million passengers per year.

There are three main limiting factors on the Airport's growth, and therefore on the potential growth in additional economic benefit to the region:

The first factor is the land available within the current Airport operational boundary to construct additional aircraft stands and provide space for ancillary services such as aircraft catering, cleaning, maintenance and freight. Our analysis shows that just

beyond the 15-year timeframe of this Master Plan, the Airport will need to bring into use additional aircraft parking stands that will necessitate the acquisition of neighbouring land currently owned by Birmingham City Council and used by both the Airport and NEC for car parking. We will also need more land for ancillary Airport facilities which could either be located near to the Elmdon side of the Airport and the Jaguar Land Rover Factory or in some other nearby location that facilitates the efficient operation of the Airport. It is likely that the planning and even the start of construction on this land would need to take place within the next 15 years.

The second factor is the surface access to the Airport. We are at the heart of the UK road and rail networks, but congestion frequently impacts passengers' journeys to and from the Airport. It is essential that major improvements are made to public transport and road connectivity to secure the future economic prosperity of the region. In particular HS2 (including a replacement people mover from the HS2 interchange station with sufficient capacity and frequency); new capacity on the West Coast Main Line released by HS2 for more regional train services to Birmingham International Station; the completion of new Metro and Sprint services from Birmingham city centre; and a new junction on the M42 to relieve the chronic congestion on the motorway network (along with a further review of additional capacity on the M42 itself). All these proposed developments are strongly supported by partners across the region, particularly Midlands Connect and Transport for West Midlands.

The third factor is the modernisation of UK airspace. National Air Traffic Services (NATS) currently restrict the Airport's runway capacity using Minimum Departures Intervals (MDIs) during the early morning departures peak throughout the summer because there is insufficient airspace capacity in the south. The Civil Aviation Authority, as the national supervisory authority for the planning and regulation of national airspace, has a responsibility to ensure that UK airspace is developed to meet demand in line with the Government's over-arching policy of making best use of existing runways.

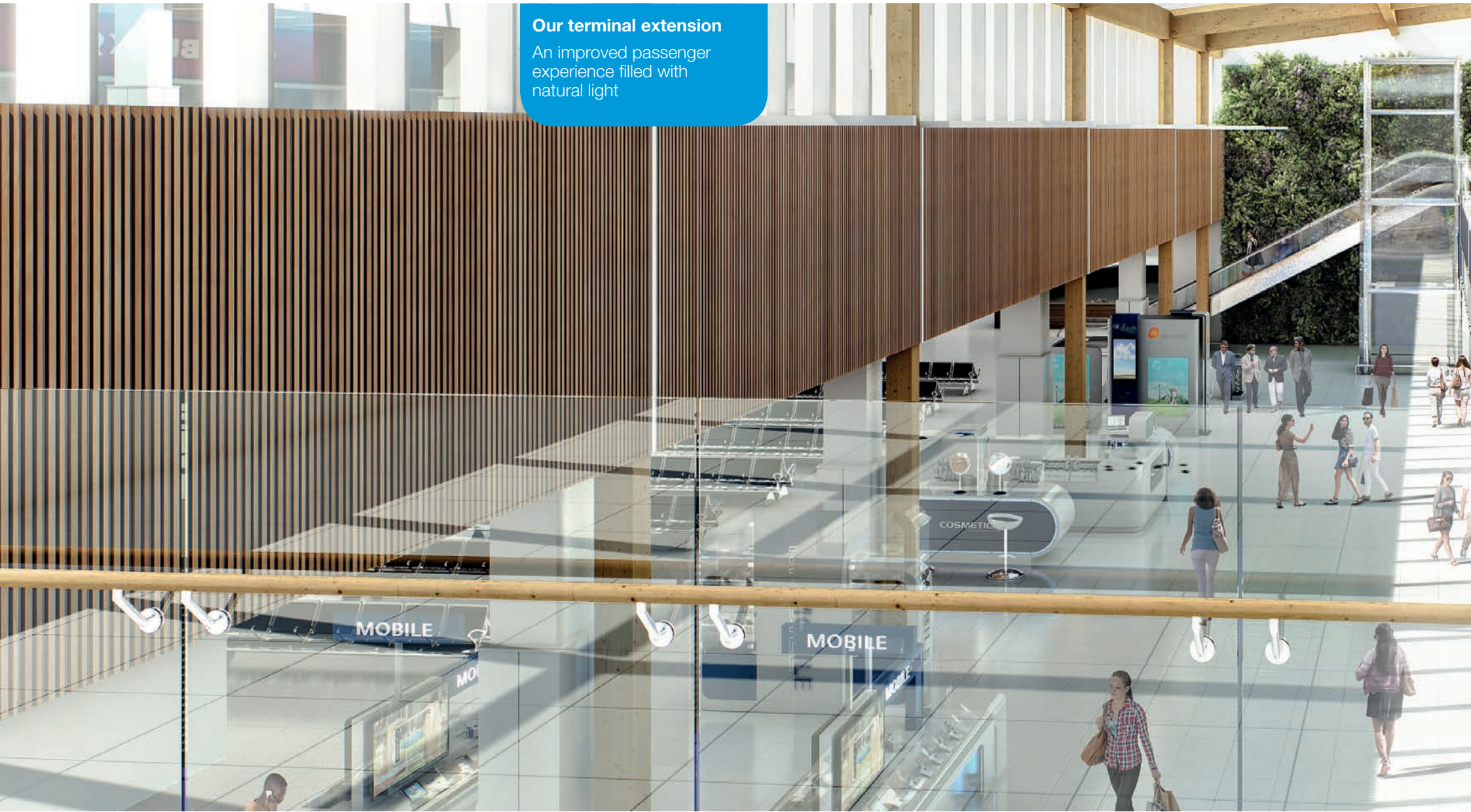
Birmingham Airport Passenger Terminal

A gateway for the region
to the world



Our terminal extension

An improved passenger experience filled with natural light





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The West Midlands is growing faster than anywhere outside London and our region continues to secure important wins from Government, showing their growing confidence in us to deliver. I'm delighted to see bold plans to expand and improve Birmingham Airport, the gateway to a region growing in success from every angle.

Andy Street
Mayor of the West Midlands

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Our ambition

Birmingham Airport is already the preferred national and international aviation hub for the Midlands and our ambition is to build on this, by providing the destinations and services our passengers require, to become one of Europe's leading regional airports. We will act as a key economic accelerator for the region and provide the air connectivity vital for the expansion of international trade, investment and employment, the growth of inbound tourism, and access to outbound leisure destinations.

To achieve our ambition, we will:

- Increase the range of destinations and frequency of flights.
- Invest in expanded and enhanced facilities to provide the customer experience to underpin our growth.
- Meet or exceed regulatory requirements to ensure safety and security.
- Play an active and responsible role in the community by avoiding, reducing and mitigating the adverse environmental impacts of the Airport where possible.
- Work closely with our partners in local and national government to ensure the Airport can best serve the region and is not constrained by insufficient land, surface transport or airspace capacity.

Economic accelerator

Outside of London and the south-east, the West Midlands boasts the fastest growing economy in the UK¹, and has the highest rate of exports². Our region's economic activity has a value of £92 billion GVA³. It is home to the largest concentration of businesses outside of London and is attracting record levels of foreign direct investment³.

2017/18 was the busiest year in our history, with 13 million passengers flying, increasing from less than 9 million only 5 years earlier. By 2033, we forecast passenger demand to rise by a further 40% to 18 million per year. In this period, we will deliver:

- Investments totalling £500 million to extend our terminal and apron capacity, expand and upgrade our facilities and, by doing so, improve the overall customer experience.
- A 42% increase in our net regional economic contribution – from £1.5 billion to £2.1 billion.
- An 11% increase in net regional employment – from 30,900 to 34,400 jobs.

Working in partnership with local businesses and stakeholders we are a key facilitator of international trade for Midlands businesses. The Airport's impact as a transport hub attracts high value-added investment and jobs in the internationally traded sectors making it a major accelerator of the region's economy.

As a public/private partnership we can self-finance our expansion, securing wider public benefits of connectivity and employment growth, and underpinning the region's current resurgent economic performance.

Our ambition matches the region's dynamism, which is attracting employers, such as Jaguar Land Rover, from high growth sectors including advanced manufacturing and engineering, life sciences and renewable energy. Our communities are seeing the benefit with average earnings increasing and unemployment falling.

The establishment of the West Midlands Combined Authority, the arrival of HS2 on the horizon, and international events such as the Commonwealth Games and Coventry City of Culture promise to further boost the awareness and appeal of the region.



A dynamic region

Home to leading car manufacturers

Emirates A380 service

Connects us with the hub in Dubai

¹ Regional & Local Economic Growth Statistics, ONS, 5 September 2018

² HMRC UK Regional Trade Statistics, 6 September 2018

³ West Midlands economic figures taken from the West Midlands Growth Company Quarterly Economic Digest, May 2018



Flights to over 150 direct destinations

Air connectivity

We currently offer flights to over 150 direct destinations and a further 340 one-stop global connections through the world's major hubs including Paris, Madrid, Brussels, Amsterdam, Zurich, Frankfurt, Munich, Istanbul, Dubai, Doha and Copenhagen. This gives our passengers a wide-ranging option of travel. In addition to our business travel routes, we reflect our regional diversity, connecting our communities to global cultural hubs with frequent flights to Delhi, Amritsar, Islamabad and Ashgabat. We provide access to a wide variety of outbound holiday destinations and are an important gateway for both inbound tourism and the rising numbers of overseas students at our region's universities.

We work closely with the business community across the region, including major corporates, the Chambers of Commerce and travel management companies, to understand their plans and make sure we are meeting their demand for additional destinations and frequency of service. We carry out extensive analysis of the destinations flown to by passengers based in the Midlands but departing from other UK airports, and use this to inform our future aviation strategy.

We have strong relationships with a wide range of airlines from each of the three leading airline alliances (Star Alliance, Oneworld & SkyTeam) serving domestic, short-haul and long-haul markets. We provide a diverse and balanced choice of scheduled, low cost and charter flights. Our aviation development team are ambassadors for the region, constantly engaged with existing airline partners and with potential new carriers to Birmingham, raising their awareness of the Midlands and focussing their attention on the opportunities to fulfil route demand from our region.

Looking ahead, we will continually develop our aviation strategy to take account of; developments in the regional and wider UK economy; which countries grow as key trading partners; and trends in the popularity of leisure destinations. This will reflect a proactive and expansionary strategy to build a bigger route network to serve our region. Our key priorities for future routes are focussed on:

- Direct long-haul services, particularly to the growth markets of the Indian sub-continent and China.
- North Atlantic routes, particularly with the emergence of low-cost long-haul airlines.
- More choice, connectivity and greater frequency of flights to European cities and the Middle East.
- Increasing the frequency of established routes to offer more passenger choice.

We will increase both the density and the frequency of our route network to provide more choice for passengers in our core catchment area, ensuring that we are their first choice for air travel. We will capitalise on our strong position in the centre of the UK, together with the rich demographic diversity of our catchment area and our broad range of airline partners.

Enhanced facilities to serve our passengers

Our £500 million development plan is aimed at expanding the Airport's facilities to meet forecasted demand, improve passengers' experience and improve efficiency for our airlines, handling agents and business partners. Over the period of this Master Plan, and particularly in the next five to ten years, the developments that will be most visible to our passengers will be:

- Extending the Departure Lounge to improve passenger circulation, increase seating capacity and toilet facilities, and enhance our retail offering, all aimed at meeting passenger needs and improving the overall customer experience.
- Extending the Security Area to increase screening capacity, improve operational efficiency and accommodate legislative changes whilst at the same time enhancing passengers' experience of the necessary security processes.
- Expanding and upgrading Check-in Bag-Drop and Departures Baggage Handling to improve speed and efficiency, reducing waiting times whilst also meeting more stringent security requirements.
- Increasing the number of aircraft stands from 58 to 69 to make better use of the recently extended runway capacity.

This ambitious and achievable investment programme will enable the Airport to meet and stimulate demand within our core catchment area and beyond. The successful execution of our Master Plan will enhance the current facilities providing a more efficient, comfortable and modern experience for all our passengers whether they are flying for business or leisure.

Customer experience

We know that a great customer experience is not only about our facilities but also how our staff operate every day to consistently deliver a great service.

During 2018, we carried out a number of customer focussed upgrades to the terminal facilities and increased staffing levels and training, all with the aim of delivering the service our passengers expect. A primary focus has been on reduced queuing times: increased numbers of self-service check-in facilities have been installed; new departure boarding card gates have been added; parallel tray loading processes have been introduced to accelerate security processing alongside employing significantly more security staff; and in arrivals, new E-gates have been added to speed up passport processing.

As a result, during the Summer of 2018 we saw very positive passenger feedback and, building on this investment, we will continue to improve our infrastructure with an extensive programme of works planned even before our main terminal expansion project is realised.

We participate in an international Airport Service Quality (ASQ) survey, a benchmarking programme measuring passenger satisfaction across a wide range of airport processes at over 450 airports in 44 European countries.

Our Airport benchmarks well against our competitors, particularly for the helpfulness of our staff and those of our Airport partners. There are always opportunities to improve, and we are currently focussed on the areas in the table below to more consistently deliver a great passenger experience.

Customer experience focus

ASQ Measure	Action
Passport/ID inspection	<ul style="list-style-type: none"> • Five additional e-gates to accelerate clearance of EU passport holders • Border Force working group established
Waiting time in check-in queue	<ul style="list-style-type: none"> • Additional self-service check-in facilities • Measurement of performance and continuous improvement
Courtesy and helpfulness of security staff	<ul style="list-style-type: none"> • Customer service training programme and increased number of staff in front of house positions
Availability and cleanliness of washrooms/toilets	<ul style="list-style-type: none"> • Toilet refurbishment programme • Using real-time passenger feedback to attend to issues and optimise the cleaning regime • Improved signposting of alternative toilets
Waiting time at security inspection	<ul style="list-style-type: none"> • Parallel tray loading to accelerate processing and reduce queuing • New security preparation area for liquid disposal etc. • Additional automatic boarding card gates
Comfort of waiting/gate areas	<ul style="list-style-type: none"> • Additional lounge seating



Sky Zone

Our interactive play areas for young passengers



We are committed to the highest standards of safety and security

We also specifically consider the Airport experience for people with reduced mobility or those travelling with children. Our new special assistance area was created to improve the processing and waiting environment for customers requiring assistance and we have also implemented best in class processes to help passengers with hidden disabilities. Our very popular family entertainment area 'Sky Zone' has also received a major upgrade and is equipped with the latest fun, interactive and educational equipment.

Safety & security

Airport safety and security requirements are subject to a range of statutory regulations, for example covering access controls, passenger and baggage search, safety on the airfield and in the area surrounding the Airport.

We are committed to the highest standards in safety and security to meet or exceed regulatory requirements and to provide a safe and secure environment for passengers, partners and employees across our site. As the Airport develops we will enhance safety and security through the design and operation of new facilities and infrastructure.

Airfield safety

UK airports operate in accordance with internationally agreed criteria and compliance is monitored by the CAA. We operate in accordance with the terms of a licence issued by the CAA and must satisfy the CAA's safety standards. The standards affecting the design and operation of airports are detailed in CAA publications including CAP168, CAP738 and CAP791.

Aerodrome safeguarding

Local planning authorities consult us on any planning applications that may have an impact on the safety of the Airport operation. This process is known as aerodrome safeguarding and is intended to:

- Ensure that the Airport's operations remain safe from proposed developments (for example tall buildings) which might infringe the Airport's protected airspace.
- Ensure that pilots on approach to the Airport can see the runway lighting.
- Protect the accuracy of radar and other electronic aids to air navigation.
- Reduce the hazard from bird strikes to aircraft engines by reducing the likelihood of bird activity, for example near water or refuse sites.

Public Safety Zones

The risk of air accidents occurring as aircraft arrive at or depart from the Airport, while extremely low, is such that the use of land at the ends of the runway is restricted. These designated areas are known as Public Safety Zones (PSZs). The Government aims to ensure, through planning policy, that there is no increase in the number of people living, working or congregating in PSZs and that, over time, the number should be reduced as circumstances allow.

Community responsibility

We take our community responsibilities seriously and work closely with local residents (including those living in rural communities) and the Airport Consultative Committee on a wide range of other projects and initiatives.

Inclusive growth

We currently provide, directly or indirectly, 6,700 jobs on the Airport site, but in addition we believe the economic benefits the Airport brings to the wider region should reach our whole community, particularly those living in some of the most deprived areas in parts of East Birmingham and North Solihull. We invest proportionately more of our resources in these communities, for example with 24% of our Community Trust Fund being deployed in East Birmingham and 23% in North Solihull.

We also work with Solihull Council on the Youth Promise Plus Programme (YPP), a flagship project funded by Birmingham City Council, Solihull Council, The European Social Fund and Youth Employment Initiative. This supports Birmingham and Solihull young people, aged 15-29 and who are 'Not in Employment, Education or Training' (NEET), towards sustainable employment or training. During 2017/18, more than 60 YPP participants have received support in applying for a range of positions at the Airport, in security, customer service, retail, catering and ground handling. We also fund The Prince's Trust 'Get Into Airports' programme, a pre-employment course supporting unemployed young people. The 2017/18 programme saw 53 young people engaged, 51 completing their programmes and 39 young people offered positions at the Airport.

The National Planning Policy Framework identifies three objectives to achieve sustainable development, economic, social and environmental, which need to be pursued in mutually supportive ways so that net gains can be secured across the different objectives. Our economic contribution has been covered in the 'Economic Accelerator' section. Our approach to

the social and environmental objectives is to develop specific areas of focus that demonstrate our commitment to minimising the negative aspects of our operations and maximising our economic and social value.

Social

We strive to make a practical contribution to the wellbeing of the communities we serve, and to promote mutual trust and understanding with our key local stakeholders.

Our Community Trust Fund makes awards to small, community-led organisations in affected areas. An index-linked annual contribution (currently standing at £84,000) is topped up by fines paid by airlines who are in violation of our night noise limit. The annual contribution is then distributed by a board of nine independent trustees. Since the Fund's inception, a total of £1.54 million has been awarded to over 700 local projects. The April 2018 grants typify the range of projects supported and included contributions towards the refurbishment of the church hall kitchen at St Cuthbert's in Castle Vale, tents and cookers to support the Duke of Edinburgh Award Scheme at Lyndon School in Solihull and the planting of shrubs and bulbs at Hill Hook Local Nature Reserve in Sutton Coldfield.

Our education programme seeks to raise aspirations and levels of achievement by focussing on work-related learning and employability skills. The Learning Hub – the dedicated education facility we operate in partnership with The Schools of King Edward VI in Birmingham in the terminal building – offers a unique environment in which these activities can take place. In 2017/18 we welcomed more than 80 groups and over 2,100 young people.

We support graduates, interns and apprentices in gaining valuable experience of the aviation industry. Our programmes give young people the chance to get hands-on experience. We are committed to an inclusive employment policy and, working with local authorities, on-site partners and organisations such as The Prince's Trust, we support projects to connect disadvantaged young people to job opportunities at the Airport.

Environment

Managing noise is our top priority and we have implemented a comprehensive Noise Action Plan to address issues of noise and track-keeping, noise monitoring and community complaints about aircraft noise. We have also embedded the practice of continuous descent approaches which is an aircraft operating technique designed to reduce fuel, air emissions and noise.

The noise footprint is forecast to impact around 6% more people in 2033 than today. This is significantly lower than the previous Master Plan due to a combination of lower than forecasted passenger volumes, airlines using fewer, larger aircraft, and significant advances in aircraft engine technology.

Our Sound Insulation Scheme makes up to £3,000 per household available for insulation against aircraft noise. More than 7,600 residential properties has been insulated under the scheme. That boundary is defined by the 63dB(A) Leq Summer Noise Contour, which in recent years has shrunk as new technology has introduced quieter aircraft. Despite this, we insulate properties that lie within the contour as it stood in 2002.

We have listened to our neighbours to understand attitudes to aircraft noise and, in partnership with community representatives, have developed a new night flying policy which is among the most stringent in the UK. This approach has enabled us to balance commercial pressures with the needs of the community, who benefit from some significant new and targeted restrictions on night time operations.

We take our environmental responsibilities very seriously across all other areas such as carbon reduction, water and waste. We are striving to become much more carbon efficient and despite the growth in passenger numbers, since the last Master Plan we have seen the amount of CO₂ generated per passenger falling by almost 43% and overall carbon emissions down by over 21%.

We understand our role in the wider community and alongside our growth we will continue to avoid, reduce or mitigate where possible the environmental impact of our operations. This will include continuing to reduce our carbon footprint as well as providing noise insulation for local homes.

Making best use of our existing runway

This strategy is consistent with the Department for Transport's policy of making best use of existing runways⁴. The only new runway that commands Government policy support is the third runway at Heathrow. The proposed major increase in our investment plans reflects a focus on ensuring that Birmingham's facilities and aviation strategy maximise the potential of the existing site and runway – these are amongst the most valuable assets of our region.

The runway has the physical capacity to handle at least 25 to 30 million passengers per annum, compared with the 13 million passengers a year that use it today and the 18 million passengers we are forecasting for 2033.

Our strategy relies upon three conditions being met. Firstly, as we approach the end of this Master Plan period (around 2030), we believe that more land will be needed if we are to continue to make the best use of our single runway. Secondly, steps must be taken to resolve airspace constraints in the south east that currently limit the number of aircraft departing from Birmingham bound for key European destinations. Thirdly, further Government investment in the region's road and rail infrastructure will also be necessary. Provided these steps are taken, we do not foresee a need for another runway for some considerable time to come.

The Airport's need for additional land relates to an anticipated shortage of aircraft parking stands along with other ancillary facilities. The process of acquiring the land, obtaining planning consent and commencing construction arises within the 15-year period of this Plan, albeit towards the end of our planning horizon. Moreover, if demand for air travel grows more quickly (perhaps in line with our high case forecast set out in Appendix C), then the need for these facilities will come forward in time. We currently estimate that around 20-40 hectares (up to 11% of the current site) is required. The preferred location for 8 hectares is the current NEC West Car Park adjoining the Airport site (some of which is already used for Airport parking). The remaining 12-32 hectares is most likely to be required on land south of the A45 between the Elmdon side of the Airport and the Jaguar Land Rover factory or some similar nearby location. The Airport may need to invoke its compulsory purchase powers to acquire suitable land which is not already in its ownership.

An active player in the Midlands transport strategy, we collaborate with regional government and other organisations to ensure current surface transport infrastructure continues to develop to meet the growth expected in the region and

to promote the greater use of public transport. For example, we work closely with Midlands Connect to help them deliver their 2017 Strategy which sets long-term transport investment priorities for the Government to unlock growth and jobs across the region through improved, regional and global connectivity.


We aim to maximise the benefits of our proximity to the key national rail and road networks, including HS2, and enhanced public transport links in the Midlands.

If the Airport is to reach its potential and serve the growing air travel demand in the region it is essential for key improvements to be made to public transport and road connectivity to the Airport. Specifically, this will require:

- An effective replacement people mover from the HS2 interchange station.
- The release of capacity on the West Coast Mainline, arising from HS2, for more regional train services to the adjacent Birmingham International Station and more early morning services.
- The completion of new Metro and Sprint services from Birmingham city centre.
- A new junction on the M42, to relieve the chronic congestion on the motorway network, and a further study to determine the need for additional capacity on the M42 itself to support regional growth.

Current work by the Department for Transport, the Civil Aviation Authority and National Air Traffic Services (NATS) is underway to modernise UK airspace and alleviate the lack of capacity over the south-east which is currently restricting the number of departures from Birmingham. This is essential if the Department for Transport's stated policy of maximising use of existing runways is to be a reality.

⁴HM Government: Beyond the horizon, The future of UK aviation – Making best use of existing runways, June 2018



**Proposed HS2
Interchange Station**

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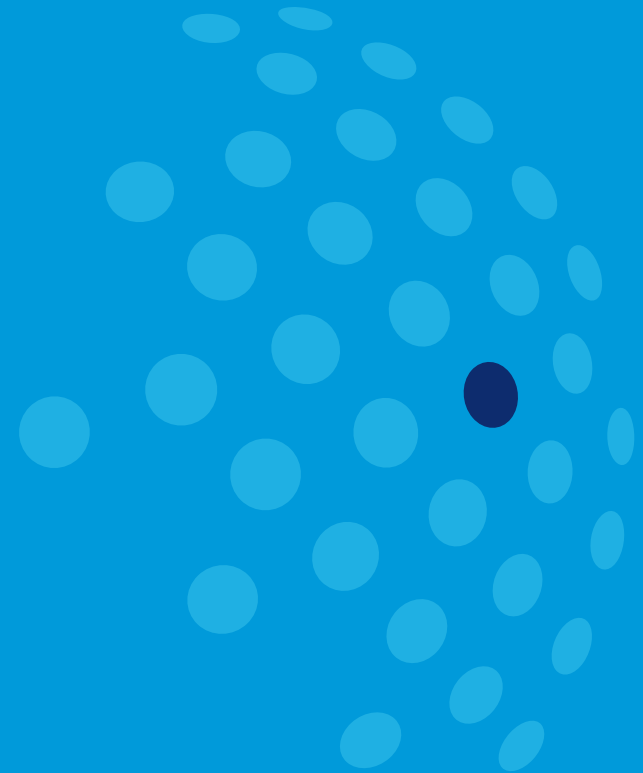
Birmingham Airport's Master Plan is a crucial part of the region's integrated growth and investment strategy for improved transport links and infrastructure. The partnership between HS2 and the Airport will deliver increased connectivity that will in turn drive economic growth for the region and beyond.

Mike Lyons
Programme Director HS2 Ltd

Credit: HS2 and Arup

Market context

This chapter looks at aviation growth in the context of market conditions, airline operations, the demand for travel in different destinations and the travel needs of the Airport's catchment area.



Passenger and aircraft volumes

Passenger numbers grew strongly from 9.1 million to 13 million in the five years to the end of 2017 – a 43% increase. Over the same period air transport movements (ATMs) grew from under 88,000 to nearly 119,000 – a 35% increase.

Growth in the number of passengers per aircraft

The higher growth rate for passengers than ATMs is because aircraft are carrying more passengers. In 2007, there were on average 87 passengers per aircraft compared to an average of 113 passengers in 2016. Using proportionately fewer aircraft means that we have been able to make more efficient use of the Airport's runway and stands.

Airline market developments

Aviation continues to grow globally. The Asia-Pacific market is the strongest growth market, driven particularly by increased domestic traffic in China and India. This strength is offset by rising costs in fuel and infrastructure and industrial relations issues with pilots and crew which continue to put pressure on airline profitability.

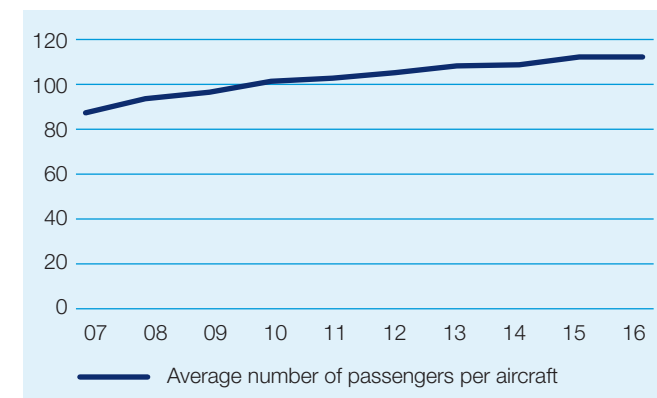
Growth within the mature European market has been more modest. However, looking ahead, the fleet order books of European airlines indicate consistent and significant growth

over the next 15-20 years, particularly in the narrow-bodied aircraft market. The low-cost sector has dominated growth in the last 20 years and this trend looks set to continue, with Ryanair and EasyJet setting out ambitious growth plans in the next 2-3 years. Scheduled carriers, such as Lufthansa (Eurowings), Air France (Joon) and Iberia (Iberia Express), are also introducing their own low-cost services to meet this demand.

Disruption is also creating new options in the traditional long-haul market, with the Airbus A320 NEO and other new generation aircraft opening up viable point to point long-haul routes which would previously have been served by wide-bodied aircraft through hub airports. At the same time, the latest generation of wide-bodied aircraft, such as the Boeing 787 Dreamliner and Airbus A350 are replacing the Boeing 777 and 747 and making more point to point long-haul routes economic.

With the market evolving to create even more choice of routes for passengers and stimulating ever increasing demand for air travel, Birmingham Airport will continue to expand our wide range of scheduled and charter services to long-haul, short-haul and domestic destinations, with quality full-service and low-cost airlines. This will include a greater proportion of low-cost services and the introduction of low-cost long-haul routes.

Average number of passengers per aircraft



Passenger and aircraft volumes

Calendar year	Passengers (million)	Air Transport Movements
2013	9.1	87,674
2014	9.7	95,667
2015	10.2	97,037
2016	11.6	110,693
2017	13.0	118,500



Air India
Links Birmingham with Delhi and Amritsar

Airline	Passenger (millions)	% of Passengers
Ryanair	2.15	17.5%
FlyBe	2.10	17.1%
Tui Airways	1.40	11.4%
Jet2	1.34	10.9%
Thomas Cook Airlines	0.78	6.3%
Emirates	0.71	5.8%
Lufthansa	0.52	4.3%
KLM	0.42	3.4%
EasyJet	0.35	2.9%
Aer Lingus	0.27	2.2%

Our top 10 airlines

The Airport has a diverse portfolio of around 50 airlines with no one sector being dominant. Our airline customer base allows flexibility for growth in our network. Long-haul makes up 10%, Charter 15%, Domestic/Regional 20%, Full-service Scheduled 20% and Low-Cost 35%.

We have global connections via the three leading airline alliances, Star, Oneworld and SkyTeam, as well as with Emirates and Qatar.

Our top 10 airlines by passenger volume in the calendar year to September 2018 are listed in the table on the left.

Meeting the travel needs of the passenger

Our catchment area has a unique set of requirements which we strive to meet. Nearly a third of residents in the West Midlands Combined Authority are of minority ethnic origin, bringing a rich cultural mix to the region⁵. This unique diversity is reflected in demand for air travel with 82% of passengers travelling for leisure purposes to popular holiday destinations or visiting friends & relatives (VFR), with a particularly strong connection to the Indian subcontinent. As part of our strategy to continually improve our offer for our local catchment area, in February 2018 we launched the UK's first direct route to Amritsar in the North of the Punjab region of India.

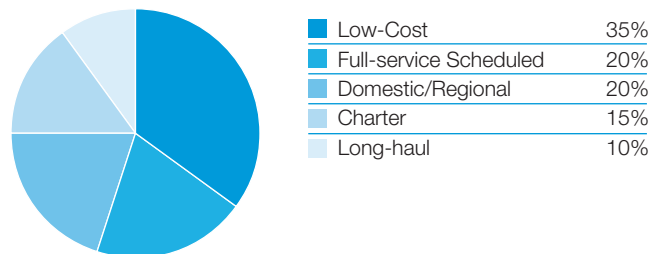
The Airport also has the highest proportion of business demand of any UK airport other than Heathrow and London City, with 18% of our passengers travelling for work. This is a hugely important market for us and is served by our frequent scheduled flights between Birmingham and the key European business centres.

Looking over the next 15 years, the rapidly growing professional sector in Birmingham is predicted to lead to an increased demand for business travel and with the youngest average population age of any core city in the UK⁶, Birmingham's demand for low cost city breaks and leisure destinations continues to grow. The Airport also aims to support inbound tourism, highlighting the attractions of the region including Stratford upon Avon, Warwick and Coventry City of Culture 2021.

Scheduled and long-haul carriers make up 30% of our business and are key to providing global connectivity for our region. Birmingham currently serves over 490 destinations either direct or on a one-stop basis through hubs in Europe and the Middle East. The increase in hub traffic to India, China and South East Asia over the last three years underpins our aspiration to develop new connections to cities such as Mumbai and Hong Kong. Connectivity to North America is also important, through hubs such as Dublin, Madrid, Amsterdam and Paris, or potentially direct from Birmingham with an existing scheduled carrier or one of the emerging low-cost long-haul operators.

Over the next 15 years, we will continue to broaden our route network with unserved hub markets in Europe, such as Riga, Helsinki and Lisbon. The transatlantic market, so long considered to be mature, is now evolving with new low-cost long-haul carriers. Birmingham Airport's strategy clearly prioritises the development of such services to meet demand from across our region, offering new affordable and convenient routes to passengers who currently are forced to travel longer distances to fly from other airports.

Breakdown of services

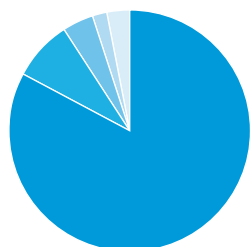


⁵ Office for National Statistics report published in March 2017

⁶ 2016 Mid-year population estimates, Birmingham City Council

Destination	Business	Leisure	Total
Europe	19%	81%	83%
Asia	6%	94%	8%
Middle East	20%	80%	2%
North America	18%	82%	3%
Rest of the World	6%	94%	4%

Breakdown of destinations



Europe	83%
Asia	8%
Rest of the World	4%
Middle East	2%
North America	3%

Connectivity

Birmingham Airport offers direct connectivity across Europe, to two points in the Middle East and to India, Pakistan and Turkmenistan. Currently, Europe makes up 83% of the traffic, 8% is to Asia, 2% to the Middle East, 3% to North America and 4% to the Rest of the World. The key markets are Dubai, India, Spain, Ireland, Germany, France as well as destinations within the UK. The table on the left sets out the destinations of both business and leisure travellers broken down into regions of the world.

We track which routes are most commonly flown by Midlands residents from other UK airports either because they are not served from Birmingham, or not with enough frequency. These form a significant part of the Airport's aviation strategy in the short to medium-term as we work with airlines to increase our route portfolio.

Our traffic base is well diversified in terms of both market segments and airlines, including the capacity to serve aircraft of sizes up to the A380. This provides an attractive and wide range of long-term growth opportunities and supports a resilient traffic performance through the economic cycle. Our operational efficiency and capability is reflected in being named the 'World's Most Punctual Airport' in 2016.



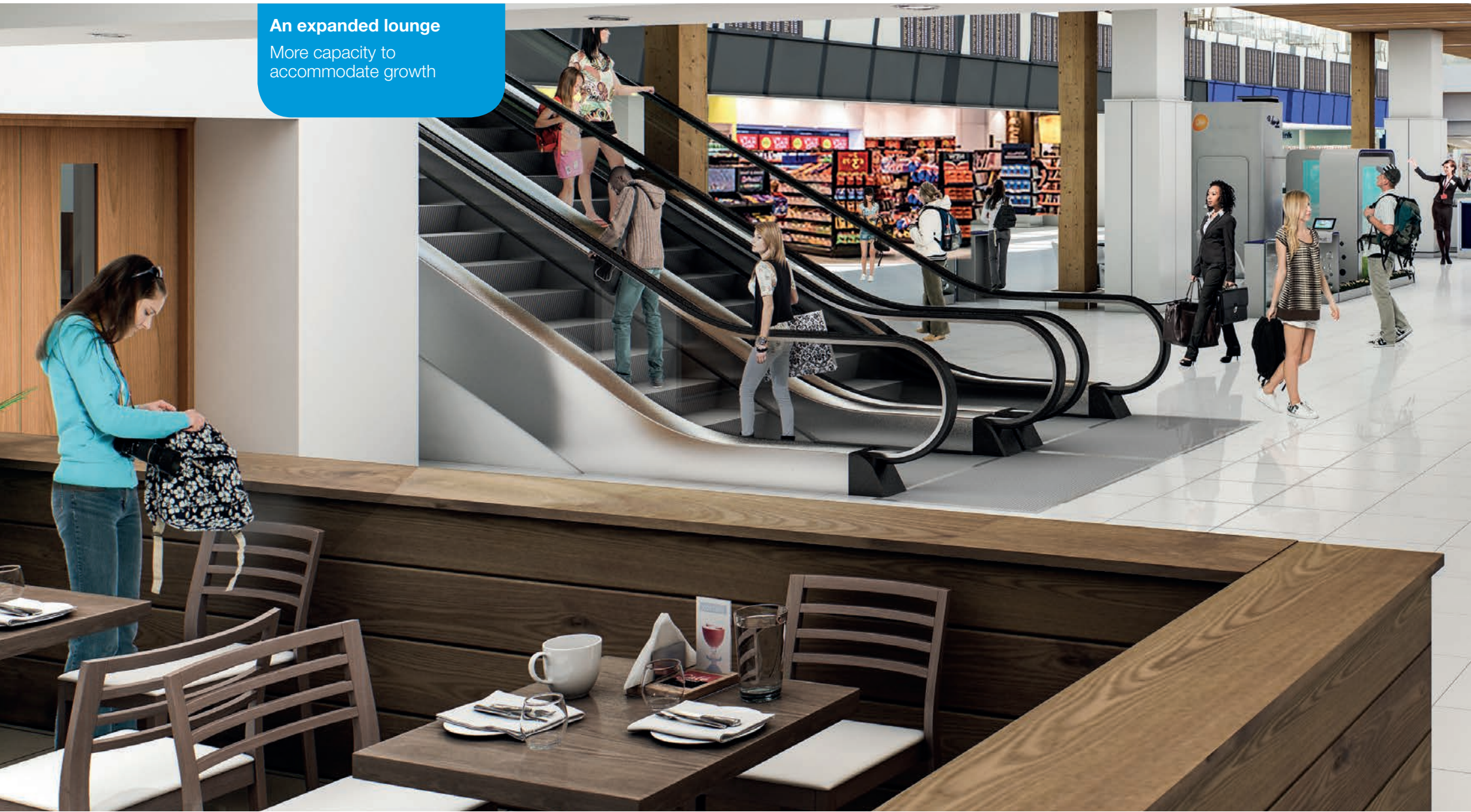
Cultural diversity

This region has a proud and richly diverse cultural identity

Qatar Airways

Provides connectivity to the Middle East hub in Doha

An expanded lounge
More capacity to accommodate growth





“

In the years ahead, we will be working with Birmingham Airport to develop trade links with Commonwealth countries as we look to expand prosperity for the city and the region.

Paul Faulkner
CEO, Greater Birmingham Chambers
of Commerce

03

Demand for air travel

We have conducted detailed modelling of passenger forecasts for the next 15 years. This takes account of macro-economic trends and developments in the aviation industry, ensuring we are prepared to respond to changes in market demand.

Developments since our last Master Plan

The most significant development in aviation policy since our last Master Plan has been the decision to proceed with a third runway at Heathrow, and our modelling is based on the expectation that this will come into operation in 2030. In addition, following the UK's vote to leave the European Union we have made neutral assumptions (neither positive or negative effects) with regard to how this might affect demand for air travel.

High Speed 2 has received Royal Assent and is planned to be in operation by 2026, giving Birmingham Airport the unique distinction of being the only airport linked directly to the high-speed rail network. This will provide a direct connection to the centre of London allowing passengers to travel by rail from London Euston to the Interchange Station in 38 minutes. Most importantly, HS2 will also release capacity on the West Coast Main Line for more train connections between the Airport and the region and beyond.

In addition to new infrastructure in the region, there is a renewed emphasis on devolved Government with the election of the first West Midlands Mayor, Andy Street, the establishment of the West Midlands Combined Authority and the creation of the Midlands Engine under the leadership of Sir John Peace. These are significant steps forward for the Midlands economy and the role that the Airport can play in promoting growth for the region.

The forecasts

Air travel demand has a close and well understood relationship to GDP (Gross Domestic Product). The detailed modelling that we have undertaken assesses two scenarios – a base case and a high case. While our development programme largely remains the same under both scenarios, the pace of development is adjusted depending on the rate of growth.

This Master Plan uses 2016 data as the base year and forecasts passenger growth and demand from 2017 onwards. Where data has since become available for 2017, we have validated that any new information available does not change the proposals contained within the Master Plan.

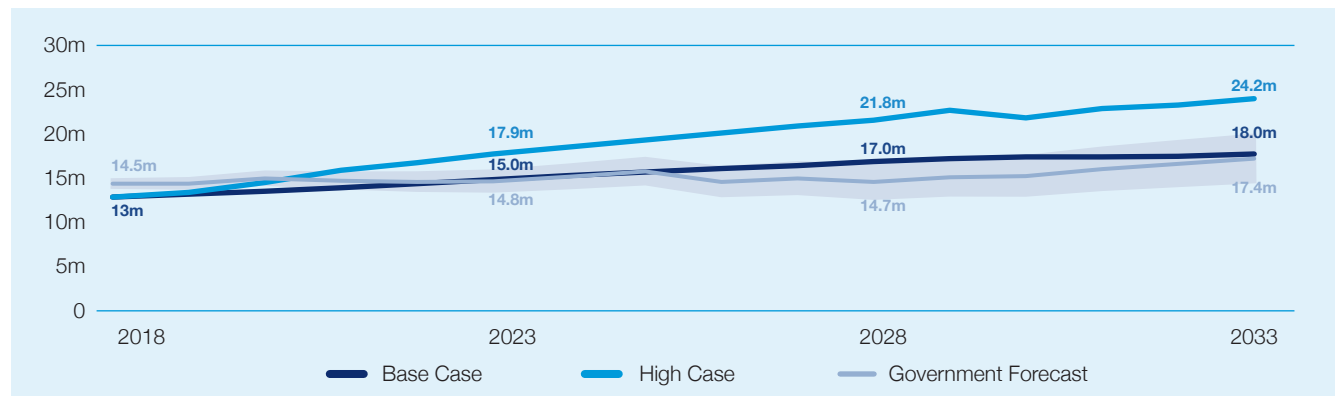
Passenger demand

The graph below provides a summary of the passenger volume forecast from 2018. Under our base case, passenger demand rises by almost 40% to 18mppa in 2033. Our forecasts predict significant growth in the early stages of this period with the pace of growth slowing as Heathrow Runway 3 comes into operation from 2030. The vast majority of the expected growth relates to increasing underlying market demand although some gain in market share from other airports is also envisaged. We have also considered a 24mppa scenario to understand the implications of higher levels of growth than we currently expect. This will enable us to be prepared to make the decisions necessary to meet that demand within the timeframe of this plan.

The graph below also shows the forecast that was published by the Government in 2017 which assumes that the third runway is built at Heathrow. The Government forecast is similar to our base case forecast with a central estimate of 17.4 million passengers in 2033.

Passenger Volume Forecast

Base Case, High Case & Government



Source: ACL, Management Data, Altitude Analysis, DfT



Global reach

Currently 50 airlines operate to 150 direct destinations

Arriving and departing aircraft (Air Transport Movements or ATMs)

Due to an anticipated increase in the average number of passengers per aircraft, ATMs are not predicted to rise at the same rate as passenger volume. This is due to three factors:

- Growth in long-haul traffic using larger aircraft.
- Airlines replacing their fleets with larger aircraft versions (e.g. the Boeing 737-400 series has 159 seats whereas the Boeing 737-800 series has 189 seats).
- Airlines actively promoting and marketing to fill their aircraft more effectively for each flight.

ATMs are forecast to rise from around 113k annually in 2018 to 137k in 2033. In parallel, the average number of passengers on each aircraft rises from around 116 in 2018 to 131 in 2033. This will allow more efficient use of the runway in terms of the number of passengers it can serve.

Assessing capacity and estimating future stand and terminal building requirements

Demand for aircraft stands is assessed based on the pattern of traffic across the day and night at the busiest times of the year (typically August). For future years, a schedule of aircraft movements is prepared across a typical busy operating day while making an allowance for 'constrained' stands occupied by aircraft that are off-schedule, parked aircraft that have developed a technical fault or stands that are closed for maintenance.

Currently, the combined number of departing and arriving aircraft produces a scheduled peak of 34 per hour. By 2033 this is forecast to rise to around 40, which can be accommodated using the current runway and taxiway infrastructure. For comparison, Gatwick currently schedules up to 55 arrivals and departures in the peak hours and Stansted up to 50 off their single runways. In the longer term, our runway has the potential to grow to around 50 movements per hour, with some reconfiguration of entry and exit taxiways to reduce the time aircraft occupy the runway, but we do not foresee this happening within the period of this Master Plan.

Aircraft parking stands

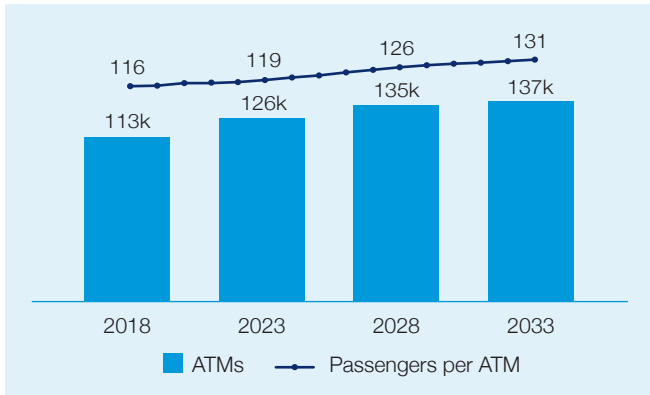
Demand for aircraft parking peaks overnight due to returning based aircraft. Combined with the trend towards larger aircraft, this has increased demand for parking stands needed to support future growth and also the mix of aircraft stand sizes. Based on our base case forecast, peak stand demand will rise from around 58 stands today to 69 by 2033. The majority of these are code C stands for a single narrow-bodied aircraft (sometimes described as one narrow-bodied equivalent (NBE) stand). The remainder are larger code D, E or F stands for either a single wide-bodied aircraft or two narrow-bodied aircraft (each stand being two NBE stands). Total NBE stands increase from 58 today to 69 by 2033.

Passenger numbers at the busiest periods

We have adopted the forecast demand in the 30th busiest hour of the year as the basis for determining when additional capacity is required.

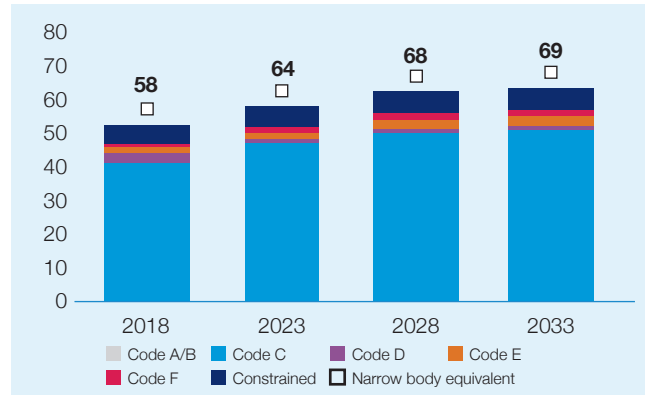
Departing passengers are forecast to rise from 3,143 passengers per hour in 2018 to 3,908 passengers per hour by 2033. Domestic and international arriving passengers are also expected to grow significantly during this period. These busy hour forecasts do not grow in line with annual passenger volumes because, in growing airports, an increasing proportion of demand occurs away from the busy hour during the shoulder and off-peak periods.

Air transport movements (ATMs) & passengers/ATM forecast base case



Source: Altitude Analysis

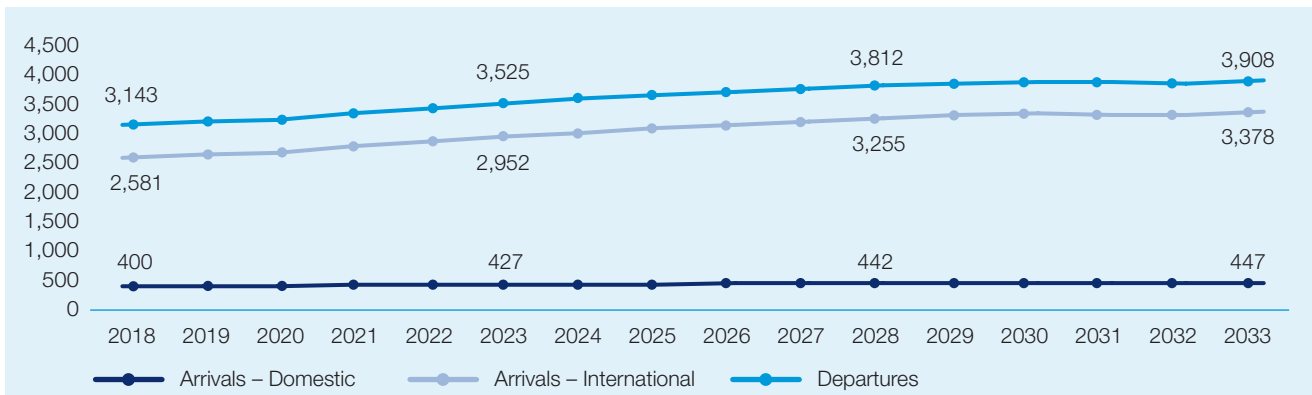
Peak stand demand forecast base case



Source: Altitude Analysis

Currently, the combined number of departing and arriving aircraft produces a scheduled peak of 34 per hour. By 2033 this is forecast to rise to around 40, which can be accommodated using the current runway and taxiway infrastructure.

Busy hour passenger forecast Base case scenario





Investment in check-in technology

Growing passenger demand will require the latest generation passenger facilities



“

The majority of our customers are based in the West Midlands and it's great to have Birmingham Airport on our doorstep, which is matching our ambition, by diversifying into new markets.

Hamza Waris
Commercial Director, Pak Travels

Birmingham Airport 2033

Over the next 15 years, we will expand and improve the Airport to maximise our potential as a single runway airport by investing £500 million in new development. Our plans take account of our forecasted growth and will increase operational efficiency for our airlines and partners and improve the experience for our passengers.

Existing facilities

Our Airport today has a single runway and a terminal building with 26 contact or walk-out aircraft stands and 43 bussted stands (both figures are narrow body equivalent). Some stands are now too small for the new generation of larger aircraft and others are reserved for aircraft servicing and maintenance, therefore up to 58 stands can be typically used for flight operations.

The terminal building is the original 1984 terminal and the 1991 'Eurohub' terminal linked by a concourse built in 2000 and with an extended pier added in 2009 (see Appendix A for further details about the Airport in 2018).

The runway is capable of handling around 40 movements (arrivals and departures) per hour. However, its capacity is currently restricted by Minimum Departure Intervals (MDIs) that are imposed by NATS, the UK's national en-route provider of air traffic services, during the early morning departures peak because there is insufficient airspace in the south-east for the number of aircraft that need to fly through this area. These MDIs increase the separation between successive departures routing southbound from Birmingham from seven nautical miles to fifteen nautical miles.

The Civil Aviation Authority, as the national supervisory authority for the planning and regulation of national airspace, must resolve this issue by prioritising airspace modernisation that impacts regional airports. It has a responsibility to ensure that UK air space is developed to meet demand in line with the Government's overarching policy of making best use of existing runways.

Our Master Plan sets out the key projects that will be implemented to accommodate our forecasted growth, improve operational efficiency for our airlines and partners and improve the experience for our passengers over the next 15 years.

Investment plan

Our investment plan is in five year phases and takes account of our forecasted growth balanced against our continued commitments on sustainability. We are predicting passenger growth to:

- 15 million passengers per annum by 2023 (5 years).
- 17 million passengers per annum by 2028 (10 years).
- 18 million passengers per annum by 2033 (15 years).

Our £500 million investment will result in a significant extension to the terminal providing improved operational facilities and an enhanced customer experience, and a major reconfiguration of our stands to provide the additional capacity needed to meet the forecasted increase in Air Transport Movements. All our development will take into account sustainable methods of construction and the use of renewable energy where possible.

Terminal extension

The most visible development to passengers over the next five years will be a significant extension to the terminal. Departure peaks of 3,200 passengers per hour are experienced in the busy summer period and there is a clear and understood need to improve customer experience.

We will expand our current departure lounge in the North terminal, by almost 40%. This will create space, maximise natural light and transform it into a bright, modern and relaxing place for passengers. Essential facilities such as seating, toilets and circulation space will be significantly increased. In addition, there will be a range of expanded retail facilities and a glazed mezzanine floor where passengers can enjoy an improved range of bars and restaurants.

The most important change operationally will be the reconfiguration of existing aircraft stands and the construction of additional stands to increase our capacity for the modern larger aircraft from the 58 operational stands today to 69 stands by 2033.



Warwick Castle and Chatsworth House
Birmingham Airport serves the Midlands region's key tourist destinations

The following tables summarise the significant developments over the 15-year period of the Master Plan, split into three five-year phases:

→ **Developments 2018-2023**

→ **Summary of developments 2024-2028**

→ **Summary of developments 2029-2033**

Developments 2018-2023

Location	Proposed development	Rationale
Terminal	Terminal extension	<p>A three-storey extension with the ground floor providing space for the enlarged outbound baggage make-up facility (see separate project).</p> <p>The first and second floors will provide increased floor space to improve passenger circulation, increased seating, more toilet facilities and additional retail facilities.</p> <p>The project also includes bussing lounge extensions, revised goods access and the relocation of various operational storage areas.</p>
Terminal	Airside security extension	<p>A 12 million extension to the rear of the existing screening area will increase capacity, improve operational efficiency, accommodate legislative changes and improve the customer experience.</p> <p>This will provide increased screening capacity and longer security lanes, which will reduce queuing and improve circulation.</p> <p>This will enable us to meet the legal requirement to process passengers through body scanners, which is expected to increase from 25% to 100% within the next 5 years.</p>
Terminal	Expansion and upgrading of check-in Bag-Drop	<p>Check-in facilities will be expanded in the North terminal with the area being reconfigured to create more space and to significantly improve passenger flows and remove pressure around the current escalators.</p> <p>This project will include significant expansion of the two-stage self-service bag drop process as part of our drive to modernise check-in and improve capacity. It is anticipated that 80% of passengers could use self-service check-in by 2023 and some traditional desks will be retained for those passengers that need them.</p>

Developments 2018-2023 continued

Location	Proposed development	Rationale
Terminal	New bussing lounge	<p>There are currently two bussing lounges in the North terminal with a total of 12 gates and two individual bussing gates in the South terminal.</p> <p>As part of the check-in reconfiguration in the North and South terminals, space will be freed up in the south pier to develop a new bussing lounge facility to serve the re-configured stands.</p>
Landside	Car Hire Village relocation and upgraded facilities	<p>Our Car Hire Village is currently located on the site designated for a construction compound by HS2 to deliver the People Mover between the HS2 Interchange station and our Airport terminal.</p> <p>Alternative locations are under review to facilitate the creation of a new Car Hire Village and to deliver more capacity for rental vehicles as passenger numbers grow.</p>
Apron	Stand reconfiguration	<p>With peak stand demand predicted to reach 69 by 2033, stand reconfiguration is required to optimise the existing pavement layout over the next 5 years and beyond.</p> <p>This project will simplify our infrastructure to accommodate an increased number of aircraft, without extending the existing apron and accommodating the predicted growth in air travel over the next 5 years.</p>
Terminal	Enlarged arrivals area	<p>The existing arrivals area gets congested at peak times and we therefore propose to improve the customer experience in this area.</p> <p>The South terminal will also be re-configured and a new, enlarged arrivals area will be created to improve the customer experience for arriving passengers and provide an improved retail and food offer.</p>

With peak stand demand predicted to reach 69 by 2033, stand reconfiguration is required to optimise the existing pavement layout over the next 5 years and beyond.

The Elmdon building will be refurbished, to provide accommodation for airport operations on the Elmdon side of the airfield. This could include business aviation, staff training and office support for cargo operations.

Developments 2018-2023 continued

Location	Proposed development	Rationale
Terminal	Baggage lines and make-up improvements	<p>Our baggage system will be upgraded to enable us to process 4,000 bags per hour, an increase from 2,000 in 2017.</p> <p>The project will also deliver an early bag storage facility, increasing flexibility of when passengers can check-in and improving baggage handling efficiencies.</p>
Elmdon Site	New airside security gate in Hangar Road area	<p>Hangar Road Access Control Point processes all in-flight supplies, catering, cargo, fuel and other airside deliveries. However, as the Airport has grown, traffic has increased through Hangar Road which results in it exceeding capacity at peak times of the day.</p> <p>The security area in the Hangar Road area will be reconfigured to accommodate 4 security lanes, reducing queuing and improving the operational effectiveness of security.</p>
Elmdon Site	Refurbishment of Elmdon building	<p>This iconic building, recently Grade II listed, was significantly damaged by flooding in the severe weather conditions in early 2018.</p> <p>The Elmdon building will be refurbished, to provide accommodation for airport operations on the Elmdon side of the airfield. This could include business aviation, staff training and office support for cargo operations.</p>

Summary of developments 2024-2028

Location	Proposed development	Rationale
Terminal	Additional 30 metre long reclaim belt	There are currently 10 baggage reclaim belts with belt 5 being extended and replaced in 2018 by a longer belt to accommodate larger flights. An additional reclaim belt and extension of the reclaim hall will also be required by 2028.
Apron	Further stand reconfiguration	Following stand reconfiguration in the first 5-year period, this project will add further capacity to accommodate an increased number of aircraft, continuing to use the existing apron as efficiently as possible.
Terminal	International arrivals corridor	A new corridor will be developed linking south terminal stands to the North terminal UK Border Force. This will increase operational flexibility and provide the opportunity to consolidate immigration operations in the North terminal in the future.
Terminal	Reconfigured domestic arrivals	The reclaim belt will be rotated to allow international corridors from the South terminal to connect to the North immigration hall. This will provide a dedicated access for domestic passengers only to avoid routing errors.
Elmdon Site	Additional 2,000 car parking spaces	An additional 2,000 car parking spaces will be provided to accommodate the increased passenger numbers. This requirement is based upon current growth forecasts. However, the total number of spaces required may reduce due to potential increased use of public transport and the new technologies such as autonomous vehicles.
Terminal	HS2 terminal connection	As HS2 construct the Automated People Mover from the HS2 Interchange Station via Birmingham International Station to the Airport we will provide a covered route linking to the North terminal.

As HS2 construct the Automated People Mover from the HS2 Interchange Station via Birmingham International Station to the Airport we will work with HS2 to ensure it fully integrates with the terminal.

Summary of developments 2029-2033

Location	Proposed development	Rationale
Apron	New stands	It is likely that further stand reconfiguration or development will be required to provide additional capacity. This could include further reconfiguration of the existing stands, the provision of new stands adjacent to Taxiway Tango or a combination of the two.
Runway	New parallel taxiway	There may be a requirement to complete the Airport's parallel taxiway to accommodate the increase in flights and stand capacity at the Airport.
Elmdon Site	Support facilities	As passenger numbers and aircraft movements grow, the Elmdon Site, which houses a variety of essential support activities such as freight, catering, aircraft engineering and cleaning will require expansion.



More space and improved facilities

An enhanced passenger experience



“Connectivity is critical for business growth, and an increasing number of international businesses are choosing this region as their home. With Birmingham already at the heart of the UK travel network, this is strengthened by the airport providing inbound and outbound global links to Europe, the Emirates and beyond. Continued investment in connectivity and infrastructure will play a key role as an enabler to sustained growth for the region.”

Matthew Hammond

PwC Midlands region chair and chair of West Midlands Growth Company

Surface access

The Airport sits at the heart of the UK's road and rail networks, less than two miles from M42 Junction 6 and two minutes on the Air-Rail link from Birmingham International Station on the West Coast Mainline railway line. This gives passengers potentially excellent access to and from the Airport by train, bus, coach and car.

Surface access

The Airport's peak vehicle traffic movements do not coincide with busy commuter traffic peaks and so while the Airport contributes to traffic generation on the local and strategic road network it is by no means the major contributor. Future growth in demand on the network is expected to come principally from regional housing and employment growth. Whilst vehicle access flows smoothly in optimum conditions there is little resilience as the road network is operating close to capacity during the peak periods. When disruption occurs access roads are becoming gridlocked with increasing frequency and this can mean vehicles are unable to reach the Airport and passengers often walk down the roads carrying their luggage to avoid missing flights.

Train services are more reliable but limited to core working hours so many shift workers at the Airport are unable to use them to travel to and from work and passengers are unable to use the train to catch early flights. There are 6700 staff working on the site who travel to the Airport (in shift patterns) 24 hours a day, 365 days a year. Improving connectivity for our staff and encouraging them to use sustainable modes of transport is a key objective. This will be achieved by ensuring rail franchise and bus operators introduce timetables that deliver a broader range of early morning transport options. We set out more details on how we believe this can be achieved in our Surface Access Strategy.

To ensure the Airport is not constrained by the capacity and resilience of its highways and public transport infrastructure it is vital that:

- Public transport connectivity is enhanced to increase the use of sustainable transport and reduce pressure on the surrounding road network and;
- The efficiency and capacity of the road network is improved to address current and future traffic demand.

Our existing transport modal share

The existing modal split of passengers travelling to the Airport is shown in the table on the right.

These figures demonstrate that the predominant method of travel to the Airport is by private car, with drop off / pick up and on / off-site parking accounting for some 44.3% of journeys. A further 21.5% of journeys were undertaken in taxis / minicabs, with some 6.2% in rental cars.

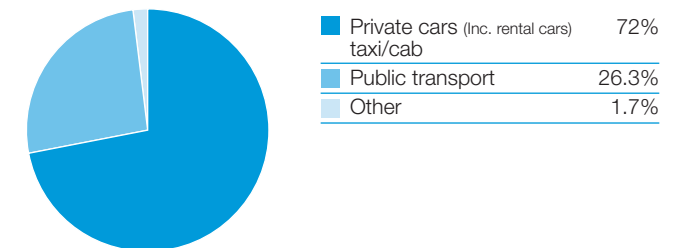
Public transport modal share accounted for just over 26% of journeys, with this being split between rail at 23.1% and buses at 3.2%.

Existing Passenger Modal Share

Mode of travel to Airport (expressed as percentages)	2016 11.6mppa
Bus/coach	3.2%
Rail	23.1%
Taxi/minicab	21.5%
Walk/cycle	0.6%
Private car (drop off/pick up)	28.8%
Private car (on site car park)	7.7%
Private car (off site car park)	7.8%
Rental car	6.2%
Other	1.1%
Total:	100.0%

¹Million passengers per annum

Existing Passenger Modal Share 2016





HS2

We will be the only high-speed rail connected airport when HS2 opens

Royal Pump Rooms, Leamington Spa

We are a gateway to the region's rich tourism offer

Public transport connectivity

During the next 15 years, we will continue to work closely with the region to improve public transport access to the Airport to reduce reliance on the private car. In particular we will work with the relevant bodies to help them deliver the following rail, bus and metro enhancements:

Rail

HS2 is scheduled for completion by 2026 and will serve the Airport via a 2.4km Automated People Mover (APM) from the 'Interchange' station via Birmingham International Station to the Airport terminal. We are committed to working closely with HS2 to achieve their stated objective for the Interchange Station to be "the best-connected place in the UK by rail, road and air".

HS2 is expected to provide a valuable addition to the Airport's Surface Access Strategy. It is also expected to free-up capacity on the existing West Coast Main Line which can be re-deployed for an increased range and frequency of local train services. Both factors are anticipated to have a beneficial effect on public transport modal share for the Airport.

However, the specification of the APM's capacity and frequency must consider the demand that is generated by the Airport and other surrounding uses such as the NEC and Birmingham International Station, particularly at peak periods. It has been assumed that the opening of the APM will mean that the Airport's existing Air-Rail link will close to avoid confusion for passengers accessing the Airport from Birmingham International Station and both systems being under-utilised.

Changes are also proposed to the design and layout of Birmingham International Station, where a draft master plan layout has recently been produced by the Solihull Urban Growth Company (UGC) to develop an integrated transport hub. An improved Birmingham International Station with increased circulation space for passengers should have a positive impact on public transport modal share for the Airport.

We support the delivery of the Birmingham International Station Integrated Transport Hub project to ensure that the station can cope with increased rail passenger volumes expected from HS2.

Alongside seeking earlier train services, we will press for track doubling between Leamington and Coventry to provide new local and long-distance services to the Airport (via Birmingham International).

Finally, we will also support Midland Connect and their 'Midlands Rail Hub' project which aims to provide a rail network that has the capacity to accommodate the volume of passengers and freight required to support the region's growing economy. Without this capacity, rail connectivity across the region and with the Airport will be restricted. This will inevitably result in more people travelling by car which will exacerbate existing problems on the road network.

Bus

The provision of a Sprint rapid bus transit system is planned for 2022, in time for the opening of the Commonwealth Games. This will provide longer buses on dedicated bus lanes that will provide a faster service between the Airport, residential areas of East Birmingham and Birmingham city centre. This will provide an important additional means of fast public transport for both staff and passengers. The Airport is working closely with Transport for West Midlands to ensure that the longer Sprint buses can be accommodated on the Airport site.

Currently, the Airport provides a free bus service for staff and passengers travelling between the terminal and the car parks and vice-versa. This service will remain.

We will also support the provision of 24-hour buses serving the Airport to ensure that our staff and passengers do not have to rely on less sustainable modes of transport to access the Airport during the night.

Midlands Metro

A Midlands Metro extension from Birmingham city centre to Birmingham International Station and/or the HS2 Interchange Station will provide connectivity with the Airport by 2026. The proposed route through East Birmingham and North Solihull will also provide a convenient public transport route to the Airport from one of the region's most deprived areas, this will offer the opportunity of access to employment opportunities on and around the Airport site.

Road access

In addition to improving public transport access to the Airport, we must acknowledge that many passengers will continue to travel by car.

For the 2033 base case scenario, the highway modelling undertaken for the Airport shows improvements proposed to the strategic road network will largely cater for the increased traffic demand associated with the Airport. This is in part because the Airport's peak traffic movements do not coincide with demand generated in the morning and evening commuter peaks. However, the scale of development at close proximity to the Airport means there will be increasing pressure on the road network.

Highways England's proposal to provide a new junction on the M42 to the south of the Airport is welcomed as it will significantly improve accessibility to the Airport and is vital for the delivery of growth within the area. However, this should not result in the removal of any existing slip road access. It is proposed, as part of this scheme, to close the northbound free flow slip road from Junction 6 to the Airport which was part-funded by the Airport and which is key in delivering access to the Airport. All road infrastructure that delivers additional resilience to the network, such as this, should be maintained. Providing resilience, wherever possible, should be a priority.

Whilst work has been undertaken to assess the impact of traffic associated with developments such as HS2 and UK Central, there is also development that has not yet received planning permission that should be considered when designing and constructing new highway schemes. It is of concern that such schemes, that are part of the ambitious growth plans put forward by Solihull Council and the Urban Growth Company, have not been included in capacity modelling simply because they do not yet have planning approval. We ask that additional work is undertaken to assess all future scenarios not currently included in the modelling. If this is not taken into account it is highly likely that the road network will not be able to cope with the resultant increase in vehicular movements in the future.

Today, Airport related demand, while clearly contributing to traffic levels in the critical AM peak period, accounts for a comparatively small proportion of total demand, and even this demand dissipates relatively quickly with distance from the Airport. No significant highway improvements will be required solely as a direct result of the growth in demand for air travel through the Airport over the next 15 years.

Instead, non-Airport related demand associated with housing and employment growth will be the key driver for investment in the road network during this period. The impact of local commuter traffic on access to the Airport will depend on improvements to local infrastructure. The upgrading of the Damson Parkway/A45 junction and the Coleshill Heath roundabout is critical to managing growth in local traffic and provide the necessary resilience.

In summary, the regional road network is heavily congested, particularly during peak times, which has a significant impact on the contribution that the Airport and other businesses can make to the Midlands economy. This issue is recognised by Midlands Connect, who state in their Midlands Connect Strategy (2017) that;

“The strategic road network is not performing at the level we need to support our economy. Road connectivity is ‘critical’ or ‘very important’ to 80% of logistics firms, 60% of manufacturing firms and 45% of professional services firms in the Midlands. Some 60% of these businesses report that conditions on the major road network causes them problems...”

...Our own business research confirms that an effective, reliable and resilient road network is vital to our existing and future economy....”

Birmingham Airport shares this view. The regional road network must be improved in terms of capacity, resilience and journey times if the region's growth and the Airport's contribution to the regional economy is to be maximised. We will therefore work closely with Midlands Connect and other stakeholders such as Transport for West Midlands to ensure this is achieved.



Transport investment spearheaded by HS2 offers endless possibilities for our region and very soon more people will view Birmingham as their preferred airport.

Hamza Waris

Commercial Director, Pak Travels

Maximising HS2

The only airport linked directly to the high speed rail network

“

Rolls-Royce has a long history in the Midlands and is a major investor and employer in the region. As a leading industrial technology company, connecting with our customers and supply chain regionally and globally is critical to our success. We therefore welcome increased transport infrastructure investment in the Midlands that enables increased capacity, faster connections and improved journey reliability. Plans for expansion at the regions airports, investment in HS2 and improved road connectivity as recommended by Midlands Connect are all necessary to release the growth potential of the region. In addition, new forms of electric, hybrid and autonomous technologies in aviation in which Rolls-Royce is investing can also improve regional connectivity and growth further into the future.

Paul Harris

Rolls-Royce Director of Economic Development



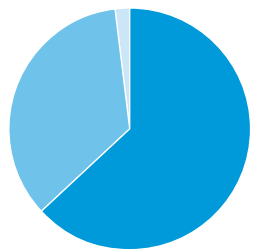
Our modal split in 2033

As can be seen, there are a number of proposed improvements to surface access together with numerous regional strategies that support enhanced connectivity with the Airport. We are therefore confident that our public transport modal split will increase over the next 15 years as more passengers and staff use the train, bus and metro to access the Airport. The table below sets out our targets compared to our current modal split:

Mode of travel to Airport (expressed as percentages)	2016 11.6 mppa	2033 18 mppa
Bus/coach	3.2%	4.2%
Rail	23.1%	30.8%
Taxi/minicab	21.5%	18.9%
Walk/cycle	0.6%	0.6%
Private car (drop off/pick up)	28.8%	25.3%
Private car (on site car park)	7.7%	6.8%
Private car (off site car park)	7.8%	6.8%
Rental car	6.2%	5.5%
Other	1.1%	1.1%
Total:	100.0%	100.0%

Million passengers per annum

Passenger modal share 2033



Private cars (inc. rental cars) taxi/cab	63.3%
Public transport	35%
Walk/cycle/other	1.7%

To achieve these ambitious targets, we will continue to work with our partners and transport providers to deliver the surface access improvements that are needed not only to increase the use of sustainable transport to the Airport, but also to help drive the Midlands economy.

One surface access improvement that we require to help achieve our modal share targets is the provision of improved night and early morning train and bus services.

Birmingham Airport is a 24/7 operation with many early morning flights where passengers need to arrive at least two hours in advance to check-in. Indeed, our busiest period for departing flights is in the early morning between 0600 and 0800. Many stores within the Airport also open at 0330 to coincide with early check-ins and staff working within these areas will be rostered to work early shifts accordingly. Likewise, catering, cleaning and security staff also work an established shift pattern which will include early starts.

However, the last train arrives at Birmingham International Station from Birmingham New Street just past 0000 and the first train in the morning arrives at about 0530. In the opposite direction, the last train arrives at Birmingham International Station from Coventry at about 0130 and the first train in the morning arrives just after 0600. This means many passengers and staff cannot use the train to travel to the Airport to catch their flights or work their shifts.

Improved public transport connectivity during the night and early morning is therefore vital if we are to increase our public transport modal share and encourage people to use more sustainable modes of transport.

Airport Surface Access Strategy

More detailed information on our objectives for surface access and how we intend to deliver them can be found in our Surface Access Strategy (SAS).

Developed in partnership with our key stakeholders, the Surface Access Strategy provides a high-level framework to

inform the enhancement of surface access to the Airport over the next five years and supports the transport improvements that the region is proposing to deliver. To achieve this, it will complement and support longer-term regional spatial and transport strategies including the following:

- The West Midlands Combined Authority's 'Strategic Economic Plan' (2016) which sets out its vision for the West Midlands by 2030. This includes improving connectivity and enhancing the environment;
- The West Midlands Mayor's 'Renewal Plan for the West Midlands' (2017) which seeks to encourage people to use public transport and active modes of travel, and ensure the Airport is properly connected to HS2;
- The West Midlands Strategic Transport Plan 'Movement for Growth' and corresponding 'Delivery Plan for Transport' (2017) which sets out the approach to transport improvements over the next 20 years. In line with this plan, the Surface Access Strategy seeks to provide efficient access to the Airport at a local, metropolitan and regional/national level;
- The Urban Growth Company's (UGC) Hub Growth and Infrastructure Plan (2017) which sets out the growth ambitions and infrastructure requirements for the Hub and the Airport to 2032 and beyond;
- The Midlands Connect Strategy 'Powering the Midlands Engine' (2017) which sets out a framework for strategic transport investment in key growth areas across the Midlands, including the Airport and surrounding area.
- Existing and future rail franchises including West Midlands, East Midlands, InterCity West Coast, West Coast Partnership, Cross Country, Chiltern and Wales and Borders.
- Network Rail's 'West Midlands and Chilterns Route Study' (2017) which identifies options to meet forecast rail demand up to 2043.
- West Midlands Rail Investment Strategy, which sets out the West Midlands Rail Executive's ambitious short, medium and long term plans to provide improved rail services and stations across the region over the next 30 years.

Economic impact

The Airport generates substantial employment and economic activity in its own right, through its supply chain and via the connectivity it provides, bringing economic benefits across the Midlands and beyond. To understand the scale of these benefits, we commissioned a study into the economic impact of the Airport. The study quantified the economic footprint of the Airport, assessed the net economic benefit and projected this forward based on the Airport's base case growth forecast.

Economic footprint

The economic footprint measures the scale of economic activity supported by the Airport by considering employment and Gross Value Added (GVA). GVA is the total value of output from a service less the value of any intermediate inputs (i.e. those outputs of other sectors used as inputs from the supply chain). It is a standard measure of economic activity used by the Office for National Statistics to measure contribution to the economy's total output.

While the Airport has an economic footprint that extends to the whole of the UK, we have focussed our analysis on giving a richer picture of the Airport's contribution to the regional economy.

The footprint consists of three main components:

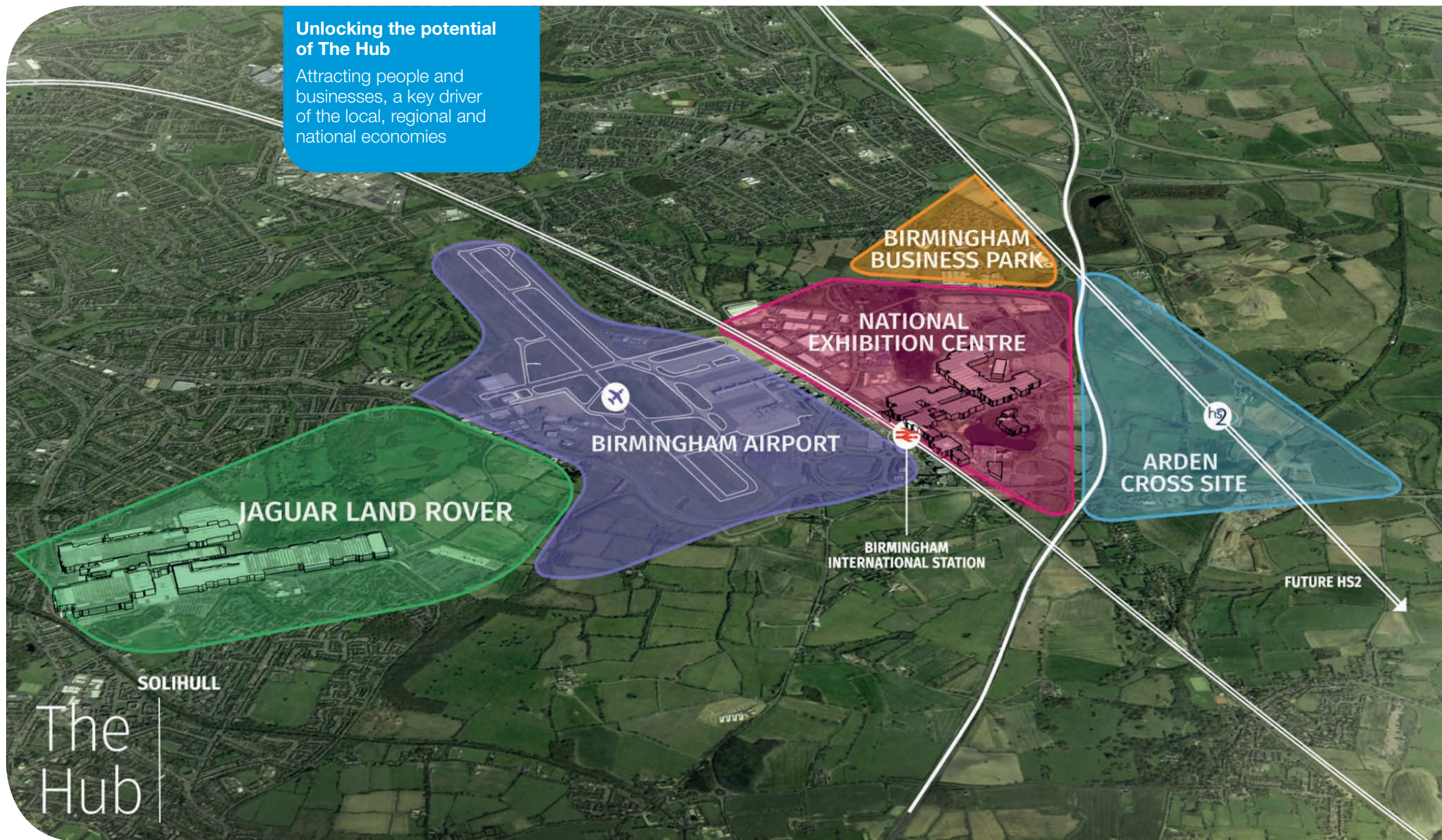
1. the **direct footprint**, which is the employment and GVA directly associated with the Airport. It includes both the footprint of Birmingham Airport Limited (BAL) and that of other firms that operate on the Airport site;
2. the **indirect footprint**, which is the additional employment and GVA supported throughout the UK via the supply chains of the firms located at the Airport;
3. the **catalytic footprint**, which is the additional employment or GVA supported by firms choosing to locate or expand in the West Midlands because of the connectivity that the Airport offers.

Our assessment of the **catalytic footprint** is likely to understate the true economic value of the Airport to the region in terms of jobs and GVA. This is because we only report the additional employment and GVA supported by firms in the service sector of the economy (including inbound tourism), who choose to locate or expand in the West Midlands because of the connectivity that Birmingham Airport offers. These estimates, however, do not take account of the contribution that increased air connectivity would make to the manufacturing sector of the economy. Given the scale of high-value engineering in the region relating, for example, to aircraft engine and car manufacturing, we have shown in the table on page 46 the extent to which the Airport's catalytic footprint is greater still if account is taken of the Airport's impact on the manufacturing sector of the economy as well as the service sector.



Prince Albert's Statue
Wolverhampton

Dudley Zoological Gardens, Dudley
Home to hundreds of exotic and endangered animals





The West Midlands has firmly established itself as the UK's driver of growth, fostering centres of excellence in business and leading the country's traditional sectors – such as manufacturing and engineering. The region lies on the cusp of a period of great economic growth, supported by major infrastructure projects such as HS2, that will help attract more people and investment than ever before. To realise this potential, we are committed to working with our partners at Birmingham Airport to showcase the region to the world.

Neil Rami

Chief Executive, West Midlands Growth Company



The New Art Gallery Walsall, Photo: George Benson

Walsall Art Gallery, Walsall

Presenting, collecting and interpreting historic, modern and contemporary art.

In 2018, the Greater Birmingham Chambers of Commerce distributed a survey to over 3,000 local businesses in the region and 92% recognised the vital role that Birmingham Airport plays in supporting the economic prosperity of the region and 87% agreed that Birmingham Airport should maximise the use of its existing runway to support regional economic growth.



Net economic benefit

The net economic benefit of the Airport to the region is defined as what would happen to the economy in the absence of the Airport, rather than the gross amount of resources it uses for its operations in its economic footprint. This approach to assessing economic impact is consistent with the approach mandated by HM Treasury's Green Book and the Department for Transport's transport appraisal guidance (WebTAG).

The logic of this is that if the resources used by the Airport and its supply chain were not employed in providing the services of an Airport, they would be doing something else. The economic impact of the Airport is therefore the difference between what those resources produce as they are employed and what they would produce if they were not involved in producing goods and services at/for the Airport.

On this basis, our current net economic impact is £1,509 billion GVA and a total of 30,900 jobs, which is projected to rise to £2,139 billion GVA and 34,400 jobs by 2033 (see economic impact table below).

If account is taken of the Airport's contribution to the manufacturing sector of the economy then the Airport's contribution to the West Midlands economy rises as shown in the second table below. The estimates of the effect of the Airport on the manufacturing sector are less certain than those for the service sector of the economy alone but they provide a good indication of the importance of the Airport to the region as a whole.

Economic impact

Area	2016/2017		2033	
	GVA (£m)	Employment	GVA (£m)	Employment
Greater Birmingham and Solihull	792	16,000	1,140	18,100
Coventry and Warwickshire	296	6,200	408	6,600
Black Country	421	8,800	591	9,700
West Midlands (Total)	1,509	30,900	2,139	34,400

Note that some of these figures may not sum due to rounding

Estimated economic impact

Area	2016/2017		2033	
	GVA (£m)	Employment	GVA (£m)	Employment
West Midlands Service Sector	1,509	30,900	2,139	34,400
West Midlands Service & Man.	1,754	36,100	2,387	38,600

The Airport is a key economic accelerator for the Midlands region, providing the connectivity that our thriving businesses need to trade, export and secure investment. Furthermore, the contribution we make towards the regional economy will significantly increase as we grow over the next 15 years.

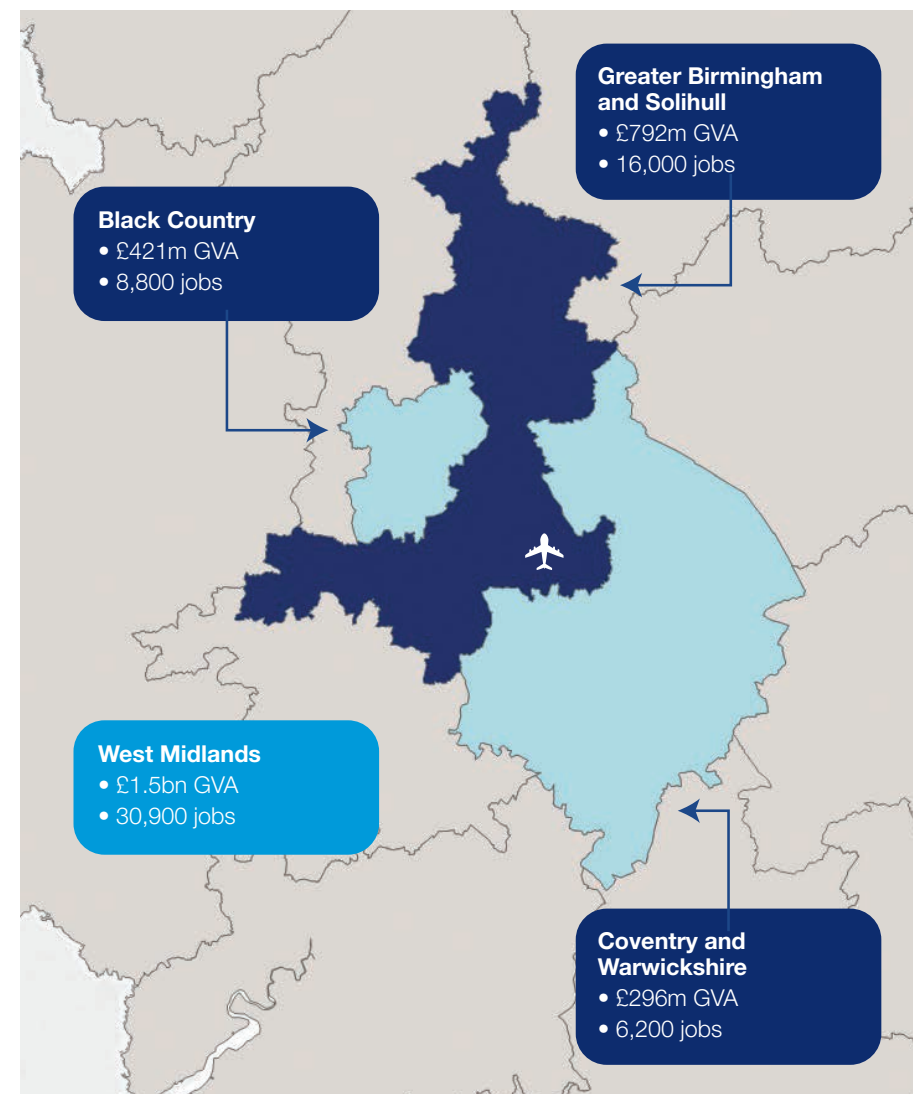
The Airport already stimulates 1.6% of the total West Midlands GVA of £92 billion and 1.9% of the jobs⁷. However, we think there is an opportunity to do even more to help the region grow. We will work with the business community through the Chambers of Commerce, Local Economic Partnerships and other relevant bodies to explore the most effective ways of doing this.

For example, we will:

- Continue to develop our route network to support the growth of businesses in our region.
- Use our procurement strategy to create opportunities for local businesses to supply goods and services to the Airport.
- Promote employment opportunities with other employers on the Airport site, with specific focus on offering employment opportunities to people from deprived areas.
- Offer training and educational opportunities to upskill existing and future Airport employees.
- Work with our regional universities to provide the best possible connectivity for foreign students.
- Support inward investment and inbound tourism to the region by facilitating air access.
- Support the region's growth sectors by targeting air connectivity to help develop trade opportunities.

⁷West Midlands Growth Company Quarterly Economic Digest, May 2018

Net economic impacts



Environmental impact

The Airport takes its environmental responsibilities very seriously, and as part of developing our Master Plan, high level environmental assessments were commissioned to identify environmental impacts and opportunities to avoid, minimise or mitigate them.

This chapter provides an overview of the impacts associated with the growth and development of the Airport set out earlier in this Master Plan. In this chapter we examine all the relevant environmental topics as follows:

- Noise (airborne noise and ground noise as well as noise during the day and at night)
- Air quality
- Carbon
- The land-based environment (ecology, heritage, landscape and visual, land use and recreation, hydrology, hydrogeology)
- Water
- Waste
- Health
- Community

For each topic we set out (where appropriate) the extensive set of controls that are already in place to limit or mitigate the environmental effects of the Airport today, before explaining what we expect to be the implications of growth and how these effects can be controlled and mitigated.

We take our impact on the environment very seriously and a number of strategies have been published that address environmental issues in more detail. These include the following; Carbon Management Plan (2016), Noise Action Plan (2019) and Surface Access Strategy (2019).

We are actively working on the development of a comprehensive sustainability strategy to further reduce the impact the Airport has on the environment and our communities. This includes a full review of our Carbon Management Plan with robust and measurable targets to reduce our carbon footprint. The Airport company and its shareholders are committed to a long term process that will deliver specific improvements and build on current

environmental initiatives. One such workstream, the management of waste, already ensures we send zero waste generated by the terminal to landfill and looks to achieve, as a minimum, a 65% recycling rate by the end of 2020. We commit to setting out clear targets, within the strategy, that demonstrate how we will operate our Airport in a sustainable way with ongoing investment to ensure continual improvement.

Noise

Noise is a concern for some residents living close to the Airport and the flightpaths, therefore managing the impact of noise is given high priority. Aircraft noise (both airborne and ground-borne), has long been recognised by the Airport as a sensitive issue for the local community and, as such, we have operated a comprehensive noise management programme for many years. In 2009, this programme was formalised into a legal document with Solihull Metropolitan Borough Council (SMBC) through a Section 106 Agreement, as part of the planning approval for the extension of the main runway and associated facilities. More recently a Noise Action Plan has been developed, which is reviewed every five years. Our objective for managing aircraft noise is:

“To work with our stakeholders, including the local community and industry partners to adopt the best practicable means to assess, manage and minimise the impact of aircraft noise, both now and in the future.”

Existing mitigation

The impact of noise on local communities is an important issue and we have, in consultation with local residents, implemented a number of mitigation measures to reduce the impact through our Noise Action Plan, Night Flying Policy and Section 106 agreement attached to the planning permission for the runway extension. These include the following:

- Noise and track-keeping monitoring – implements an extensive programme of monitoring. This includes the use of Noise and Track Keeping System, which combines radar data with noise data from our community noise monitors and can track aircraft and their noise levels.

- Operation Pathfinder – a forum in which the Airport works with air traffic control and airlines on a number of environmental initiatives.
- Sound insulation scheme – over £12 million has been invested to provide sound insulation for 7,000 properties within the 63dB(A) contour insulated with acoustic glazing as calculated in 2002, even though the introduction of quieter aircraft means our noise footprint has shrunk in the intervening period.
- Stringent Night Flying Policy – restricts the number of flights and types of aircraft and if a departing aircraft exceeds 83dB(A) at our centreline noise monitors the airline is surcharged a full runway charge which is placed in the Community Trust Fund.
- Daytime noise limit – if a departing aircraft exceeds 90dB(A) at our centreline noise monitors, the airline is surcharged £500 plus a further £150 for every full decibel recorded over the limit. All funds generated from this policy are placed into the Community Trust Fund.
- Continuous descent approaches (CDAs) – require significantly less engine thrust, which leads to reduced emissions and noise. Our current target is 90% CDA compliance and we consistently achieve above 92%.
- Restrictions on aircraft using reverse thrust from their engines to aid braking between 2300-0600 hours.

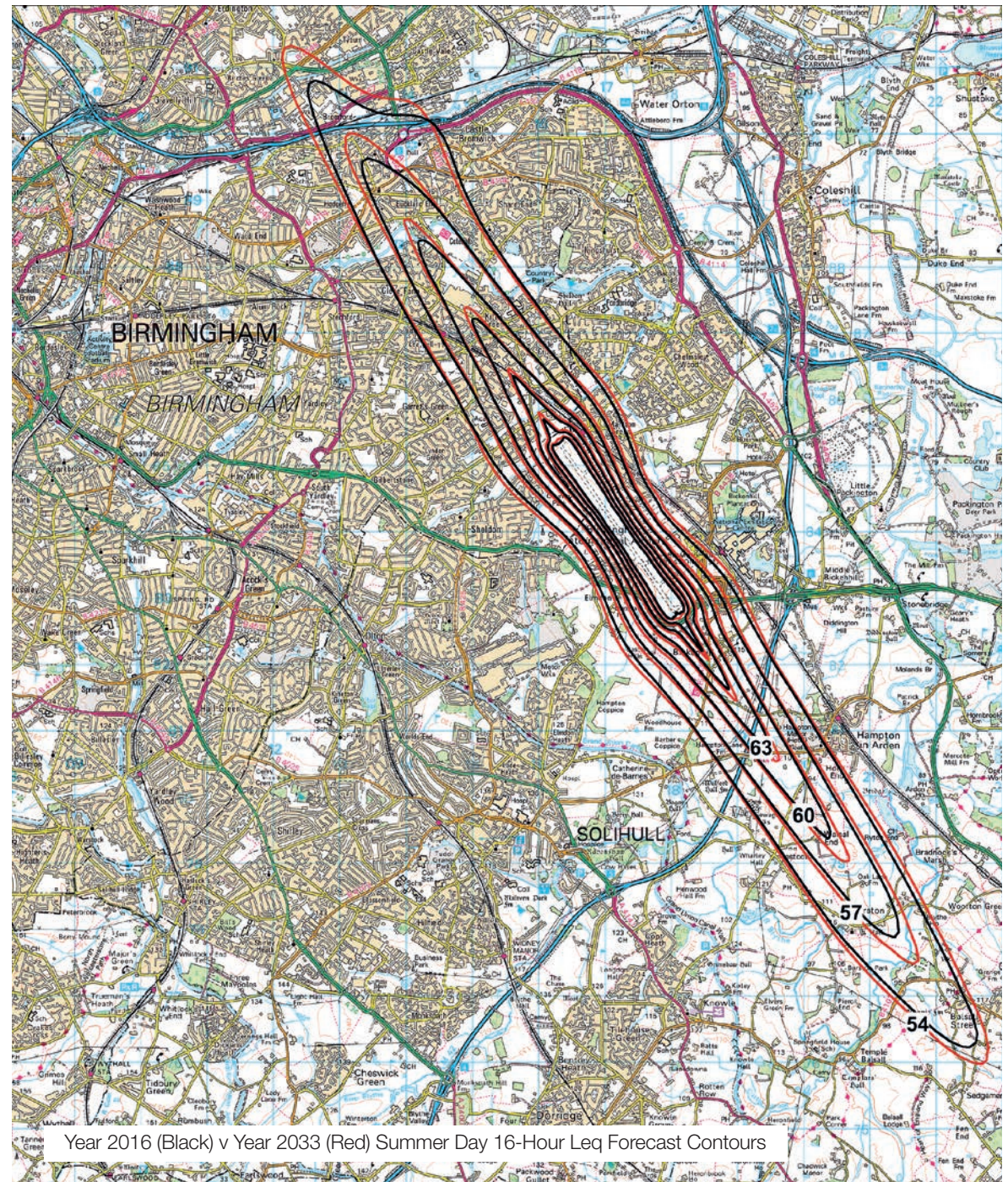
Impact of future growth on noise

The Civil Aviation Authority's Environmental Research and Consultancy Department (ERCD) were commissioned to produce Leq noise contours to assess the impact of the forecast growth in passenger numbers over the next 15 years. Leq noise contours use the noise levels produced by aircraft, combined with the number of flights on a peak summer 16-hour daytime period, to calculate an average noise level. This assessment uses the current runway 15 flight paths to the south and the proposed runway 33 flight paths consulted on in 2017 and approved by the CAA in February 2019.

It also assumes that airlines continue to replace their fleet with the latest generation of aircraft with resulting significant reductions in fuel consumption and noise footprint. Discussion with airlines and analysis of their order books has led to an assumption that 50% of medium range, single isle aircraft will be replaced by modern quieter types such as the Airbus 320 NEO by 2033. These aircraft are already in service today but there is uncertainty over the rate at which specific airlines replace or grow their fleet of aircraft and the timescales for new airlines commencing services from Birmingham. Consequently, we have taken a more conservative approach than some other airports regarding the rate at which the air transport industry will acquire these new aircraft types.

Estimated areas, populations and households included within the noise contours were calculated for 2016 and 2033 to understand the change in noise impact anticipated over the next 15 years. A summary, indicating summer day noise contours for 2016 and 2033, is set out in the table and map on this page.

Contour level dB(A)	2016 population summer day 16hr Leq	2033 population summer day 16hr Leq
>54	43,900	46,400
>57	21,600	24,900
>60	8,000	8,900
>63	2,000	2,500
>66	100	200
>69	0	0
>72	0	0



The results of the noise assessment show that the impact will increase over time as a result of passenger growth and an increase in ATMs at the Airport. However, our assumptions on the rate at which airlines will acquire the latest quieter aircraft are conservative and noise could be further reduced if airlines adopt quieter aircraft earlier. Government guidance for noise is under review and we expect that the future indicator for marking the approximate onset of significant community annoyance will change from 57dB(A) to 54dB(A). As can be seen, there is a small increase in the size of the contour in a densely populated area to the north of the Airport, so the number of people that fall within the 54dB(A) contour increases. However, this does not mean that all people within this contour will experience significant adverse effects from aircraft noise, nor does it mean people outside of this contour will not consider themselves annoyed by aircraft noise.

In 2033, the forecasts show no properties fall within the highest noise categories, where households exposed to levels of noise of 69dB(A) or more are expected to be offered assistance with the costs of moving. However, there is an increase in the area and number of properties experiencing 66dB(A) and 63dB(A) and at this level Government recommends sound insulation is provided. We commit to expanding our current scheme, which replaces windows with sound-proof glazing, to ensure any newly affected properties are insulated.

Importantly, the noise footprint is forecast to affect 6% more people by 2033. This is significantly less than the 150% increase by 2030 predicted in the assessment carried out for the previous Master Plan and the planning application for the runway extension. This is partly due to lower passenger volumes than previously forecast. In addition, the latest aircraft and engines are considerably quieter and more fuel efficient than their predecessors with the introduction of new generation aircraft including the Airbus A320 NEO with a noise footprint that is typically 50% smaller on departure and 30% on arrival than the aircraft they are replacing.

Together, these factors mean that although the number of local residents disturbed by noise is forecast to increase, it is doing so at a much lower rate than previously anticipated.

Despite aircraft continuing to become quieter, we acknowledge that noise disturbance remains a concern for many local residents. We have explained in our mitigation section how we commit to continue working collaboratively to reduce the impact of noise on our communities.

Night noise

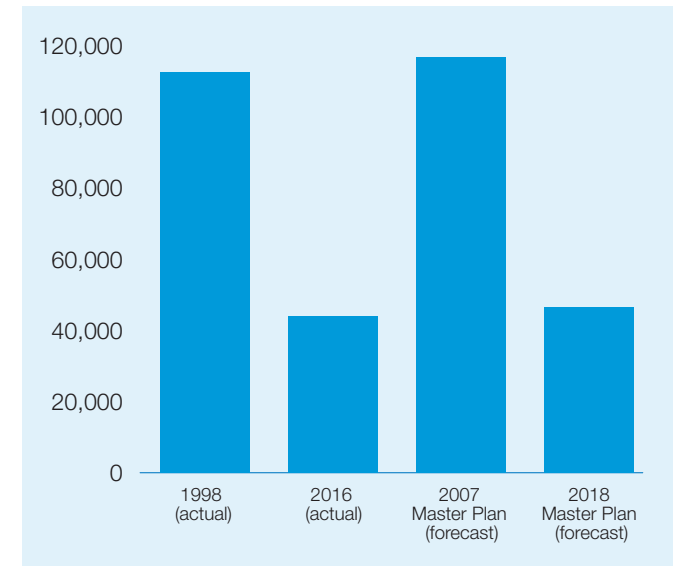
We recognise that night noise is a very sensitive issue, which is why we operate one of the most stringent Night Flying Policies of any UK airport. The Night Flying Policy is based on the Section 106 Agreement with Solihull Metropolitan Borough Council for the extension of the runway and includes a number of measures to mitigate the impact of aircraft noise at night. We set a maximum noise level of 83dB(A), which aircraft must not exceed during the Night Period (23:30 to 06:00). Any aircraft exceeding this noise level will be surcharged a full runway charge, with all the revenues raised from the surcharges added to the Community Trust Fund. We also restrict the number and type of aircraft operating during the Night Period through a Night Movement Limit for Air Transport Movements and an Annual Noise Quota Limit.



The Trent 1000 TEN will power all variants of the Boeing 787 and contributes to the 787 Dreamliner having half the noise footprint of previous generation aircraft.

Rolls Royce

Number of people within the 54dB(A) noise contour



The modelling for the night contours takes into account the new night restrictions contained within the Night Flying Policy, which was reviewed in 2018 in partnership with a sub-group of the Airport Consultative Committee.

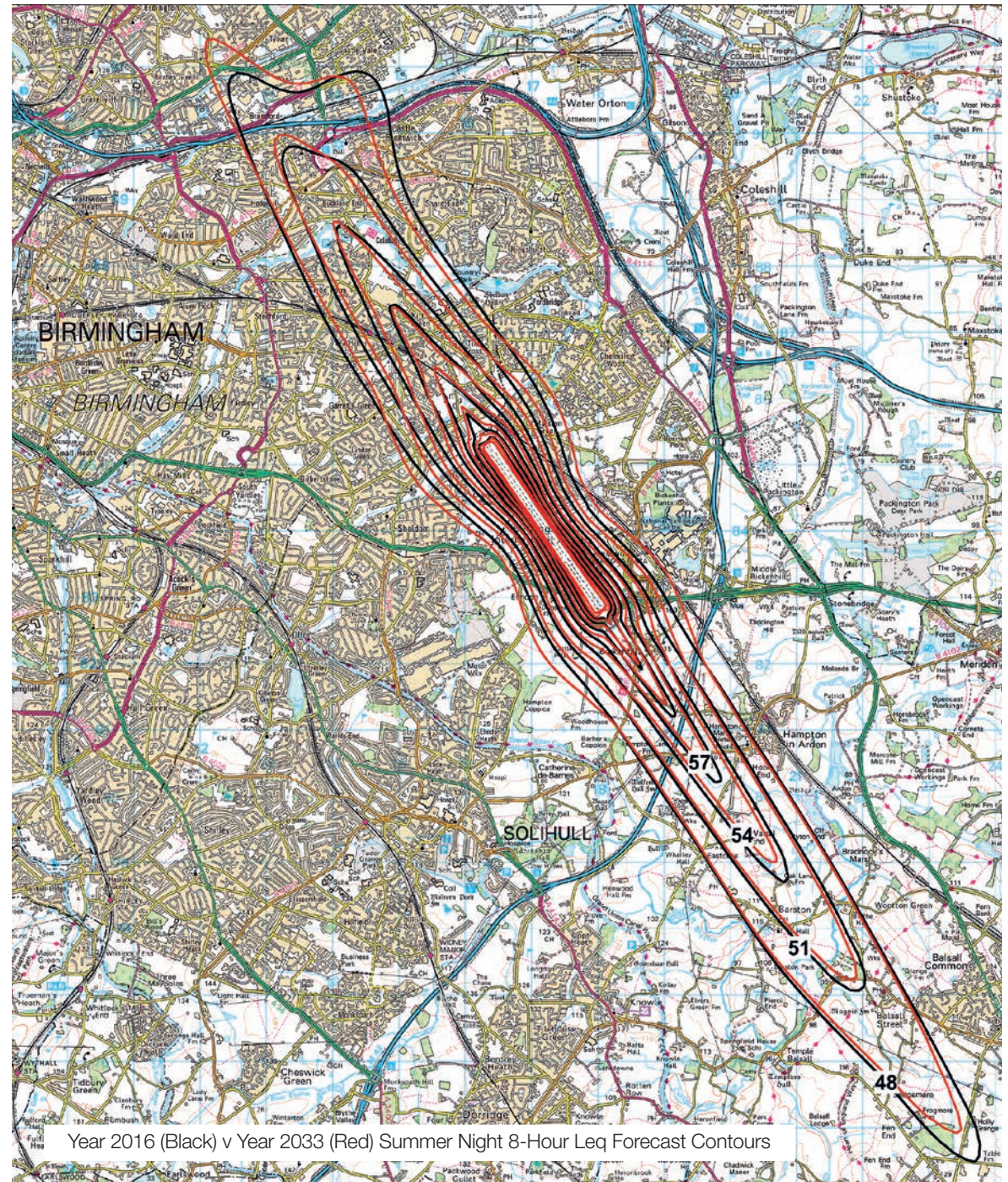
Estimated areas, populations and households included within the noise contours were calculated for 2016 and 2033 in order to understand the change in noise impact anticipated over the next 15 years. A summary, indicating summer night time contours for 2016 and 2033, is set out in the table and map on this page.

Contour level (dB(A))	2016 population summer night 8hr Leq	2033 population summer night 8hr Leq
>48	54,400	54,300
>51	28,100	28,700
>54	11,200	10,800
>57	3,000	3,500
>60	200	300
>63	0	0
>66	0	0



New generation aircraft now entering into service in the fleets of major airlines such as British Airways and easyJet are up to 50% quieter on departure and 30% quieter on arrival than the aircraft they are replacing, and new aircraft designs must now comply with more stringent international noise standards.

UK Government



The number of people within the 48dB(A) contour, which is commonly used to show the impact of night noise disturbance, has marginally reduced. This is despite a predicted increase in the number of night air transport movements and is largely due to the improvements in aircraft technology. However, we do acknowledge there is a small increase in the number of people within the higher noise bands.

In common with the daytime forecast, the forecast night noise footprint has reduced significantly since the production of the previous Airport Master Plan and the planning application for the runway extension. Compared to the 2007 Master Plan proposals, 43,350 fewer people will fall within the 48dB(A) noise contour. This equates to a 44% reduction in the number of people affected.

We recognise the importance of the Night Flying Policy as a key element in the overall programme for noise management and mitigation. The Policy was revised following consultation in early 2018 and we therefore propose that it should continue on the existing terms and be kept under regular review to ensure that it continues to effectively mitigate the impact of noise on our local community.

In summary, the Policy includes:

- An annual cap of 5% on historic annual aircraft movements in the 2330 to 0600 night period.
- An annual quota limit of 4,000 for all night period flights (with each flight assigned a quota between zero and 16 according to the noise certification of the aircraft).
- Aircraft with a quota greater than one must not be scheduled to operate in the night period.
- Restrictions on the use of the taxiways closest to housing between 2300 and 0600.
- An annual cap on aircraft departures between 2330 and 0500.
- A surcharge on any aircraft departing in the Night Period with noise exceeding 83dB(A).

Additional noise mitigation

Notwithstanding the stringent mitigation measures already in place, we recognise that there is likely to be some increase in the number of households affected by noise over the next 15 years as passenger numbers grow. We therefore further commit to continuing to investigate new methods of reducing and mitigating noise in consultation with the community through our Noise Action Plan programme. This will include the following:

- Collaborating with industry to develop new measures to reduce aircraft noise, both now and in the future and continuing to assess the benefits of future technology, such as Performance Based Navigation and new Noise Abatement techniques.
- Reviewing our Noise Action Plan and where possible, introduce new measures to limit or reduce the number of people affected by aircraft noise. For example, we expect the CDA target to increase to around 96%.
- Reviewing the Sound Insulation Scheme to ensure that any new residential properties are insulated with high specification double glazing, in line with Government policy.
- The Night Flying Policy will continue to be reviewed every three years.

Ground noise

Airport ground noise is defined as noise generated by aircraft taxiing, aircraft auxiliary power units (APUs) and the ground running of aircraft engines. It excludes air noise, which is generated by aircraft in flight, taking off or landing (including aircraft on the ground at the start of take-off or end of landing phases).

We have developed and implemented measures to ensure that ground operations are carried out as quietly as practicable to minimise impact. This includes the construction of earth bunds to screen nearby properties, such as those in Elmdon Lane, Digby Drive and The Fordrift from activity on the ground, and restrictions on the use of auxiliary power units and taxiways.

As the Airport's traffic using the existing runway grows, these bunds will continue to provide important mitigation against ground noise.

We are aware that noise from ground operations is a particularly sensitive issue for residents and we are therefore committed to carrying out ground noise assessments for any significant airfield development proposal. This includes the development of stands in noise sensitive areas and a commitment to providing additional mitigation where appropriate. This may include providing Fixed Electrical Ground Power to any new stands.

We also know that engine ground running is of particular concern to local residents. The following stringent controls currently exist to ensure the impact is minimised:

- Engine ground running is undertaken 'open air' in a range of specified locations so that the noise is distributed around the airfield.
- Two primary locations, Taxiway Juliet and Taxiway Echo are used when operationally practicable as they have the least noise impact on the community. (See Appendix B for location of Taxiway Juliet and Echo).
- Controls are in place on the use of the most sensitive location (Taxiway Tango) and this can only be used between 0700 and 2000.
- Full power engine ground runs are only undertaken when necessary for technical or safety reasons and are prohibited during the Night Period.

We have undertaken studies into the provision of a dedicated engine ground running facility and these have determined that the existing arrangements are suitable for today's level of activity. As the Airport develops, we will continue to review whether it is more appropriate to provide a single location for engine ground running, with a dedicated facility providing additional noise mitigation.

Air quality

A number of elements of airport operation cause air pollutant emissions, principally: aircraft engines during the landing and take-off cycle, taxiing and engine testing; aircraft auxiliary power units; airside ground traffic; and passenger surface access traffic. We have a strong programme of mitigation in place and levels of pollutants at the Airport are consistently below the National Standards.

Management of air quality in the wider Birmingham area is the responsibility of the local authorities, and the city and its outskirts are affected by a wide range of sources, among which road traffic pollution is significant. Contributions to ambient air pollution from the Airport are greatest within its immediate vicinity, and the Airport and its stakeholders have a role to play in minimising local air pollution.

At the Airport we do this by measuring, monitoring and reporting on ambient air quality levels. We have a dedicated air quality monitoring station on the airfield, which monitors key pollutants 24 hours a day, including carbon monoxide (CO), sulphur dioxide (SO₂), ozone (O₃), particulate matter (PM10) and various oxides of nitrogen (NO_x). The pollutant levels are independently verified and consistently below the limits in the national air quality objectives and EU Air Quality Directive. We make this data publicly available, data can be accessed via https://www.airqualityengland.co.uk/local-authority/?la_id=407

Existing mitigation

Birmingham Airport currently does the following to help minimise air pollution:

- Works with airlines and air traffic control on green airfield initiatives, such as reduced engine taxiing and limiting the holding of aircraft where possible. We were the first UK Airport to request airlines reduce the number of engines during taxi.
- Where practical reduces the use of Auxiliary Power Units and Ground Power Units by aircraft, by providing Fixed Electrical Ground Power on aircraft stands.

- Encourages the use of Continuous Descent Approaches, which reduces emissions from aircraft during landing
- Provides electric vehicle charging points for our passengers
- The Airport causes only part of the impact on local air quality, with the majority coming from road transport. We have challenging targets in place to increase public transport access to the Airport and to reduce the impacts of vehicular emissions.

The impact of future growth on air quality

Air quality modelling has been carried out using the 2016 actual data (the most recent available when the study was undertaken) as the baseline, and the 2033 base case forecast as the future scenario, under which the Airport grows to 18 million annual passengers. The assessment was carried out using the ADMS-Airport dispersion modelling software and focuses on concentrations of nitrogen dioxide (NO₂) and particulate matter (PM10), which are compared against air quality standards in the EU Air Quality Directive.

Changes in road traffic emissions and aircraft activity are considered in the assessment. The changes in aircraft engine emissions performance over the 15-year period of this Master Plan have not been taken into account, so the projected 2033 base case airport emissions are considered conservative, as emissions are likely to be lower than forecast. For the 2033 base case scenario, modelled concentrations meet the 40µg/m³ air quality standards for NO₂ and PM10 across the assessment area at locations relevant for public exposure, i.e. off airport in adjacent areas and close to the local and strategic highway network.

On average, modelled concentrations for the 2033 base case scenario remain the same as 2016 for PM10 and reduce for NO₂ across the whole assessment area except for some airside locations. The lower concentrations for 2033 compared to the current baseline are due to the expected reduction in road transport emissions due to the replacement of older vehicles with newer, lower emission technologies.

Comparison of modelled 2016 and 2033 NO₂ and PM10 concentrations (µg/m³)

Monitor location	Annual average NO ₂		Annual average PM10	
	2016	2033	2016	2033
Birmingham Airport	24.2	23.9	16.0	16.0

Future mitigation

To mitigate the impact of our future growth, we will:

- Collaborate with industry to develop new operational procedures, and technological advancements to reduce air emissions.
- Continue to work with airlines and Air Traffic Control on green airfield initiatives, such as reduced engine taxiing and limiting the holding of aircraft where possible. Including a new target of 96% of aircraft landings using a CDA approach.
- Consider providing Fixed Electrical Ground Power on any new stand developments.
- Encourage the use of sustainable modes of transport to access the Airport. See page 41 for our commitments and targets.
- Increase the use of Electric Vehicles on the Airport site.
- We are also currently exploring the feasibility of producing emissions targets and developing an air quality action plan as part of the development of a new Sustainability Strategy, which will be published this year.

Carbon footprint

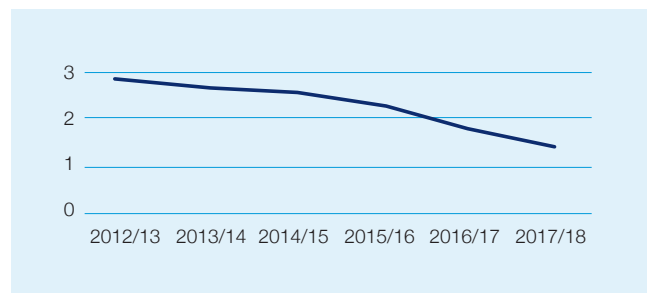
The Climate Change Act (2008) set legally binding targets to reduce greenhouse gas emissions by 80% by 2050 (against a 1990 baseline). Despite international aviation contributing only less than 2% to total global emissions, air travel is growing, and this growth is predicted to continue. A specific target was introduced for aviation emissions in 2009, which requires aviation emissions to be no more than 2005 levels by 2050. We acknowledge that since the production of this Master Plan the Committee on Climate Change has published its report 'Net Zero – The UK's contribution to stopping global warming' and we are committed to reviewing this latest report as we develop a robust Carbon Management Plan, which will set out a series of firm commitments to reducing our impact.

The vast majority of emissions associated with aviation come from the aircraft in flight, and the industry is taking steps to minimise its CO₂ emissions and its impact on the global environment. Efforts to reduce emissions require a collaborative approach between stakeholders, especially airlines, airports and the Government.

The Government has set out how it proposes to meet its international obligations in its Aviation Strategy. Within the UK industry, work is being led by Sustainable Aviation, a coalition of airlines, airports, aerospace manufacturers and air navigation service providers. Sustainable Aviation has a long-term strategy which sets out the collective approach of UK aviation to tackle the environmental challenges facing the industry whilst ensuring sustainable growth. The CO₂ roadmap to 2050 seeks to reduce carbon output to the level of 2005. Birmingham Airport is a member of Sustainable Aviation and plays an active role in working to improve the sustainability of the industry.

At a local level, we are more able to directly influence emissions from the operation of the Airport and we achieve this through our Carbon Management Plan. We have a strong track record since first developing our Carbon Management Plan in 2012 and have reduced CO₂ per passenger from 2.81kg to 1.51kg.

Kg CO₂ per passenger



Existing mitigation

Through our Carbon Management Plan, we have already acted through the following initiatives:

- Investing in smart meter technology to monitor energy consumption in detail across the Airport site and identifying opportunities to make reductions.
- Implementing new technologies such as LED lighting and electric vehicles to reduce energy consumption and carbon.
- Operation Pathfinder, a forum in which the Airport Sustainability Team works with Air Traffic Control and airlines to cover a number of environmental initiatives including facilitating CO₂ savings through better use of local airspace management and proactively supporting airlines in reducing CO₂ through fuel burn reduction.
- Incentivising the use of Fixed Electrical Ground Power (FEGP) rather than aircraft running an engine to produce power when on stand.
- Single Engine Taxiing to reduce fuel consumption and CO₂ emissions by using a single engine to taxi where possible
- Invested in renewable energy, including solar panels



Committed to increasing the use of electric vehicles

We have six Volvo 7900e new electric buses launching in November 2019, the ultra-low emission buses will operate as the free passenger transport service via all airport car park routes.

Renewable energy will form part of our future Carbon Management Plan

We have saved over 140 tonnes of CO₂ by installing solar panels and are committed to exploring the opportunities for further investment in green technology.

Future mitigation

Birmingham Airport's existing Carbon Management plan contains 31 actions based around the following themes.

- **Measuring** – we will continue to monitor our activities using best practicable methods. Our commitment starts with investment in systems and equipment to enable us to understand our impact and identify opportunities to reduce our environmental impact.
- **Mitigating** – we will continue to operate a comprehensive programme of carbon management schemes, monitored by the Airport's Environment Team, including the appraisal of energy efficiency and climate change impact for all major capital developments and implementing renewable and low emission technologies into Airport operations.
- **Engaging** – we will meet with our neighbours and partners to involve, engage and inform people through open dialogue. We will continue to operate a transparent stakeholder engagement programme, to aid mutual understanding of relevant issues and inform our stakeholders of any changes to Airport activities which may have an impact.

The existing Carbon Management Plan expires at the end of 2019, however in advance of this we are exploring opportunities to further reduce our carbon footprint. The new plan will set out ambitious targets for further reduction of carbon emissions. We are aiming to publish the new Carbon Management Plan in 2019, alongside the new Sustainability Strategy.

Land-based topics

This section addresses a wide range of environmental topics including: ecology, heritage, landscape and visual, land use and recreation, hydrology and hydrogeology. The development of facilities for the Master Plan as described in Chapter 4 takes place within the existing operational boundary of the Airport. Consequently, the direct effects of Airport growth in relation to the land that is outside the Airport boundary can be said to be slight.

Existing mitigation

The Airport already has in place an Historic Environment, Ecology and Landscape Management Plan (HEELMP). This was developed as part of our obligations set out within the Section 106 Agreement for the runway extension (see map to the right). The most biodiverse section of the land owned by the Airport is located to the south-west of the A45, in an area allocated for nature conservation. This area consists predominately of semi-improved neutral grassland with some woodland and hedgerow planting. It is managed in accordance with the measures set out in the HEELMP.

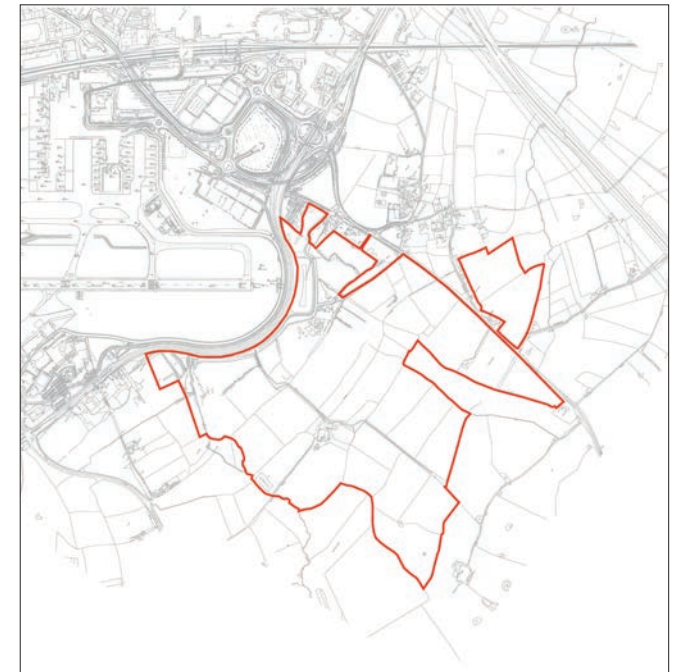
A number of indirect effects associated with delivering the Master Plan have been identified as follows:

- The visual amenity of residents and users of the Hatchford Brook Golf Course and the Solihull Way long distance walking route during the construction and operation of significant developments.
- There is potential to impact the setting of the Elmdon terminal building (now a grade II listed building) as a result of the need to expand nearby ancillary facilities such as freight, aircraft maintenance and car parking.

Future mitigation

As part of any development proposals we will continue to monitor, manage and consult on all of the potential land-based impacts, in order to ensure that our environment is safeguarded, and we will continue to work closely with Solihull Metropolitan Borough Council to ensure that the HEELMP is monitored and managed. Furthermore, we will also ensure that we engage with our communities and listen to their comments and concerns in respect of any of the above.

Illustrative map of HEELMP area



Water

There are three watercourses at Birmingham Airport: Low Brook, Hatchford Brook and Westley Brook. We are responsible for the protection of these watercourses from the point of site entry to exit.

As such, Birmingham Airport has a comprehensive Flood and Pollution Control System (FPCS) in place to regulate, store and discharge water run-off from the airfield pavement, which can contain oil and de-icing chemicals. This ensures that any water is discharged appropriately to either the watercourse or the foul sewer, dependent on the levels of pollution present in the run-off. The diversion of the flow occurs at seven different Flow Diversion Chambers (FDCs) located across the airfield. The decision on how the water is diverted (i.e. whether it is considered clean and can be sent to a brook or is considered to be outside the parameters of the Airport's discharge consents and therefore must be sent to foul) is carried out by monitors located within the FDCs. These pollution control monitors also check for oil on water.

All of the valves, monitors, pumps and chambers that make up our Flood and Pollution Control System are managed and controlled by a comprehensive computer-based system which logs and records all associated data. We are committed to constantly evolving and improving our systems and a review has recently been undertaken to identify areas for development. We will continue to monitor water quality to ensure that we protect our watercourses. This includes carrying out a significant upgrade to many of the existing water quality monitors as well as installing new monitors at locations where monitoring currently does not take place.

As we expand the apron and taxiways we will need to ensure that the design incorporates the need to maintain an excellent Flood and Pollution Control System in accordance with relevant legislation and planning policy.

Waste

The creation of waste at the Airport is inevitable, with typical waste streams including both passenger waste (newspapers, cans, food waste, plastic/glass bottles) and business waste (cardboard, wooden pallets, metals, IT equipment, office paper, batteries). We have a programme of work to reduce the levels of waste we produce to minimise the impact of airport operations on the environment.

In order to manage the waste streams that we do generate, active steps are taken to recycle wherever possible. Recycling facilities are provided through our on-site Integrated Waste Management Centre for glass, plastic bottles, food waste, cardboard, paper, cans, scrap metal, waste cooking oil, waste wood, batteries and electrical waste. Segregated recycling bins are also provided throughout the terminal and office buildings, enabling both passengers and staff to recycle easily. As part of our Environment Strategy we have set a target to improve our recycling rate to a minimum of 65% by 2020, with an ambition to exceed this where possible. This represents an improvement of approximately 20% when compared to our current recycling rate.

Other in-house initiatives we have in place to manage waste responsibly include: encouraging our on-site partner organisations to actively participate in recycling schemes, minimising the use of hazardous or toxic materials and where possible, replacing them with less damaging alternatives. We also work to ensure that any hazardous materials are stored and disposed of in accordance with the relevant legislation. We are also currently developing a zero single-use plastics strategy which aims to remove, where practicable all, single-use plastics within the Airport. This includes areas such as our offices, the security search area and retail outlets.

We will continue to work to improve levels of recycling at the Airport as we grow, and we will continue to divert 100% of our waste from landfill.

Health

In 2016 Birmingham Airport, in partnership with Solihull Metropolitan Borough Council and Birmingham City Council Public Health and Environmental Health teams, and the Airport Consultative Committee developed a Health Action Plan following the establishment of a Health Forum (known as the Airport Health Group) to bring together health professionals to discuss specific health issues and opportunities arising from the Airport and its use.

The primary objective of the Airport Health Group is to further imbed the consideration of community health issues and opportunities into the operation and further development of Birmingham Airport, and to monitor the effectiveness of mitigation and community support initiatives in partnership with the Solihull Metropolitan Borough Council and Birmingham City Council Public Health Teams. We will continue to review the impact that Airport operations have on health, positive and negative, and align our environmental mitigation and corporate responsibility strategy in line with local needs as established by the Local Authorities' Public Health teams.

Community

Recognising the environmental and social impacts of our operations, we have an active programme of community investment and engagement. We will continue to understand the expectations of our local community and review our activities in these areas to ensure that we are making the best possible contribution. The Airport will also work with the Airport Consultative Committee to agree new and innovative ways of reaching people.

Regional partnerships

The Airport does not operate in isolation, it is an integral part of the region's infrastructure and the Midlands Engine. To deliver benefits for the entire region, we recognise the need to engage and work with our community and local, regional and national stakeholders. By doing so, we will transform the experience of our passengers and help meet the ambitions of the Midlands.

Our investment will generate significant benefits to the region including the following.

Increased regional connectivity

One of the key aims of the Mayor of the West Midlands is to help the region become a world-leading centre for advanced manufacturing, technology, creative industries, life sciences, professional services, low carbon technology and construction. West Midlands businesses will also be helped to market themselves and gain investment from around the world to close the productivity gap and foster innovation.

Sitting alongside this, one of the Midlands Engine's priority areas of focus is to ensure the Midlands drives the UK economy by growing international trade and investment in existing and new markets.

The growth of Birmingham Airport as set out in this Master Plan will enable us to be a key facilitator of the international trade that is needed to deliver these key objectives of the West Midlands Combined Authority and Midlands Engine by providing connectivity for regional businesses to global markets and thereby facilitating international trade and investment in the region. Furthermore, we will grow the density and the frequency of our route network to provide more choice.

We will also continue to partner closely with the region including the West Midlands business community, local authorities and Local Enterprise Partnerships in the quest for further growth and the development of our routes to serve our region's businesses.

This increased connectivity will also strengthen the choice and frequency of our most popular holiday destinations for the people of the West Midlands. Routes to destinations such as Dublin, Barcelona, Dubai, Amsterdam and Palma, which consistently feature in the top 10 holiday destinations for West Midlands holidaymakers, all fly direct from the Airport and we will aim to serve even more holiday destinations.

Delivering the Master Plan

To deliver the Master Plan we recognise we will continue to engage with the region to ensure that our plans align and share similar strategic aspirations for the benefit of the Midlands.

Our community

We are committed to working with the local community and will continue to listen and respond to residents and community representatives through the Airport Consultative Committee, which plays a key role in helping the Airport to reach out to members of the community on issues such as our night flying policy and flight path changes.



Birmingham Airport has contributed to making our work in the community a success. Over the years they have helped us to fund youth work, improve our premises and paid for essential equipment. This has helped us to provide services and facilities in a deprived community.

Reverend Susan Larkin

St Thomas' Church and Community Project
– Garretts Green



Life sciences

A regional growth sector

Arena Birmingham

Birmingham's National Indoor Arena

“

The West Midlands is an excellent choice for high-calibre domestic and international students. Recognised worldwide for its academic excellence, the region is home to leading teaching and research institutions, excellent job prospects, and a rich and vibrant cultural scene. The secret to our global reputation is our connectivity. Our location at the centre of the UK's rail and road network, as well as a busy international airport, means we will continue to attract the best and brightest to the region and offer them the finest opportunities here in the West Midlands.

Professor Alec Cameron

Vice Chancellor & Chief Executive,
Aston University

A transport hub

The HS2 Interchange station will transfer passengers directly to the Airport



Local planning authorities

Birmingham Airport falls within the boundary of Solihull Metropolitan Borough Council, who are the planning authority for any significant developments that we propose. To ensure we maximise the value of the existing Airport site and single runway, we will continue to work closely with Solihull Metropolitan Borough Council and participate in their local planning and development processes together with those of our neighbours including Birmingham City Council and North Warwickshire Borough Council.

Regional stakeholders

It is vital that we work with key regional bodies, such as the Mayor of the West Midlands, Transport for West Midlands, Midlands Connect, Birmingham City Council and the Solihull Urban Growth Company, to share knowledge and influence key growth strategies and plans. We will also work together to ensure the region is properly supported by central Government for investment in road, rail and light rail infrastructure, which will enhance surface access to the Airport and maximise the economic benefits of being one of the most accessible airports in the UK. We will also partner with the Local Enterprise Partnerships and Chambers of Commerce to deliver our vision and capture the needs of regional business sectors.



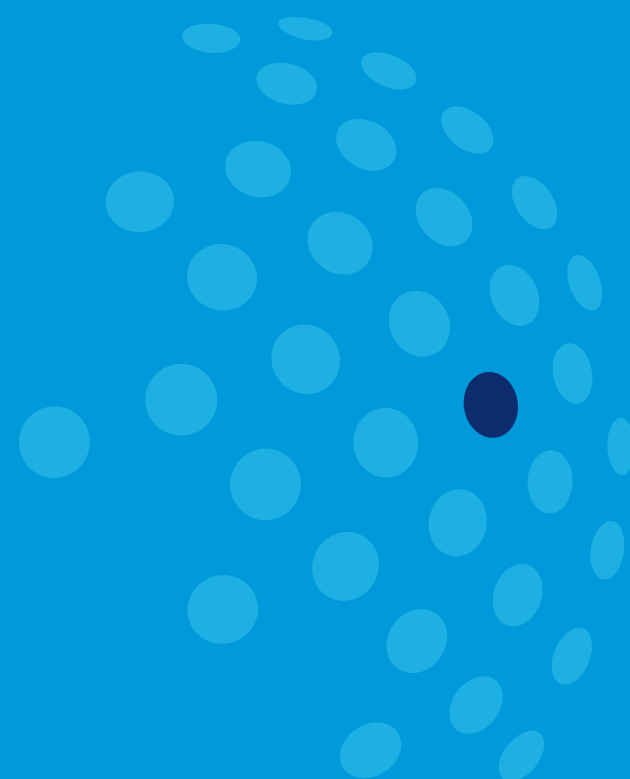
Solihull Town Centre, Solihull
Historic Tudor architecture

National stakeholders

The Airport will continue to work closely with the Department for Transport as they develop the emerging Aviation Strategy. In doing so, we will help to deliver the Strategy and will emphasise the following points:

1. Our sustainable location is ideal for promoting increased leisure and business travel to and from the Midlands and beyond.
2. We are a key asset for global trade for Midlands businesses.
3. Our position as the most accessible airport in the UK strengthens our global economic impact and development potential.
4. Our economic impact, through creating more jobs, skills and opportunities should not be ignored
5. We are a responsible Airport and will continue to limit our environmental impact, put safety first and enhance the passenger experience.
6. We will continue to maintain strong relationships with the local community.

Appendix



Appendix A

– Birmingham Airport 2018

Located 10 miles from the city centre, Birmingham Airport is one of the UK's premier airports and the third largest airport outside of London. Birmingham is the UK's second largest city and the West Midlands Combined Authority Area has a population of 2.8 million, with the Airport's core catchment area of the wider Midlands region representing a major economic hub.

The Airport is one of the UK's most accessible. It is central to the national motorway system, with the M42 and M6 on our doorstep, providing excellent connectivity for car and coach travel. However, the location can also be a challenge, with the volume of local road traffic, combined with national road traffic passing through the Midlands, frequently exceeding the capacity of the current road network and causing gridlock, particularly if there is any sort of incident or major event.

For rail transport, we are the only UK airport directly connected to the national rail network. This is via a two-minute free 'Air-Rail' link to Birmingham International Station which directly serves more than 100 further destinations. These include seven services an hour for the 10-minute journey to and from Birmingham New Street Station which provides an onwards connection with the rest of the country, and up to six services an hour to central London in as little as 70 minutes.

Being situated at the heart of the country's road and rail networks means around 10 million people live within 60 minutes travel of the Airport and some 35 million people live within two hours travel.

Ownership

The Airport is a regional asset, meeting the needs of the Midlands. We are 49% owned by the seven West Midlands Metropolitan District Councils. 48.25% is owned by private investors, led by Ontario Teachers' Pension Plan, with the remaining 2.75% owned by our employees.

Investment

We have been an international gateway to the Midlands for almost 80 years and continue to grow and invest. In the last 10 years we have invested £300 million to expand and improve our infrastructure and services for passengers, including a runway extension, a new air traffic control tower, expansion of the security search area, the introduction of self-service check-in and the re-creation of a free drop-off car park.

Employment

Contributing to the region's economic success and productivity is vital to the strategy of our Airport and the communities we operate within:

- Today, 6,700 people are directly employed by companies located within the Airport boundary and a further 9,900 people are employed indirectly to supply goods and services to the Airport.
- The Airport also gives rise to a further 29,100 catalytic jobs associated with firms that choose to locate or expand in the area, with good accessibility to the Airport as a result of the air connectivity that the Airport offers. This equates to a total of 45,700 jobs gross.
- We invest significantly in training and skills development for our workforce, to boost productivity and sustain growth.
- Working with our partners, we aim to provide a safe, supportive and progressive employment environment with a culture of continuous development that maximises employees' potential and their contribution to our Airport's success.

Location map





Library of Birmingham

The city's library has become a tourist destination

Black Country Museum, Dudley

Award winning museum detailing the world's first industrial landscape

Airlines

We have a full range of carriers serving a short-haul, long-haul and domestic network:

- We are served by a balanced portfolio of airlines covering all main sectors.
- Our airline customer base allows flexibility for growth in the network.
- We have global connections via the three leading airline alliances (e.g. Star Alliance, Oneworld and SkyTeam) as well as with Emirates and Qatar.

The full economic potential of the region is being harnessed through the devolution of power and funding, the creation of the West Midlands Combined Authority, the election of the region's first Mayor, major developments such as HS2 and the regeneration of Birmingham city centre.

The Airport seeks to capitalise on its strengths through the development of its route network and services, delivered by a diversified group of airlines across the scheduled, long haul, low cost and charter sectors. In addition, the Airport is in a strong position to gain market share from passengers currently using airports outside the region, such as the capacity-constrained London airports.

Our infrastructure today

The Airport is located on a 361 hectare site, which includes the single runway, aircraft stands and taxiways, the terminal building, transport access and car parking. There are a range of ancillary operational facilities to provide air traffic control, aircraft maintenance, cleaning, catering and cargo mainly located around the original Elmdon terminal building. General aviation services such as private aircraft charter also operate from this location. A plan of the Airport site can be found in Appendix B.

Our airspace

The UK's airspace is the network of airways and navigation aids that handle over two million flights every year. It has remained relatively unchanged in 50 years and this essential part of our national transport infrastructure is in urgent need of modernisation, to increase capacity and move from ground based radio beacons to modern satellite navigation. We are working with NATS to modernise and change our flight paths.

We have completed two separate and extensive consultation processes on departure routes to the south and north of the airfield. The new runway 15 flight paths to the south and north were approved by the CAA in April 2016 and February 2019 respectively. We also reached a final recommendation for the flight paths for departures from runway 33 to the north that we believe best serve the Airport and its communities today. The CAA made a decision to approve this proposal in February 2019. This includes the introduction of a new 24-hour departure routing known as MOSUN. The MOSUN flight path will have a positive impact, as aircraft heading in the direction of the Iberian Peninsula and Southern Ireland can use this routing. By using this routing these aircraft will depart west and reduce demand on easterly departures. To achieve this we need to undertake further work with National Air Traffic Services (NATS).

Existing and proposed flight paths

The image on the right shows all new and recommended flight paths, which are fully aligned with the latest technology that is critical to the national airspace modernisation programme. The blue lines represent the flight paths that are proposed to replace the existing northern departure routes whilst the black lines represent the existing flight paths to the south of the Airport.

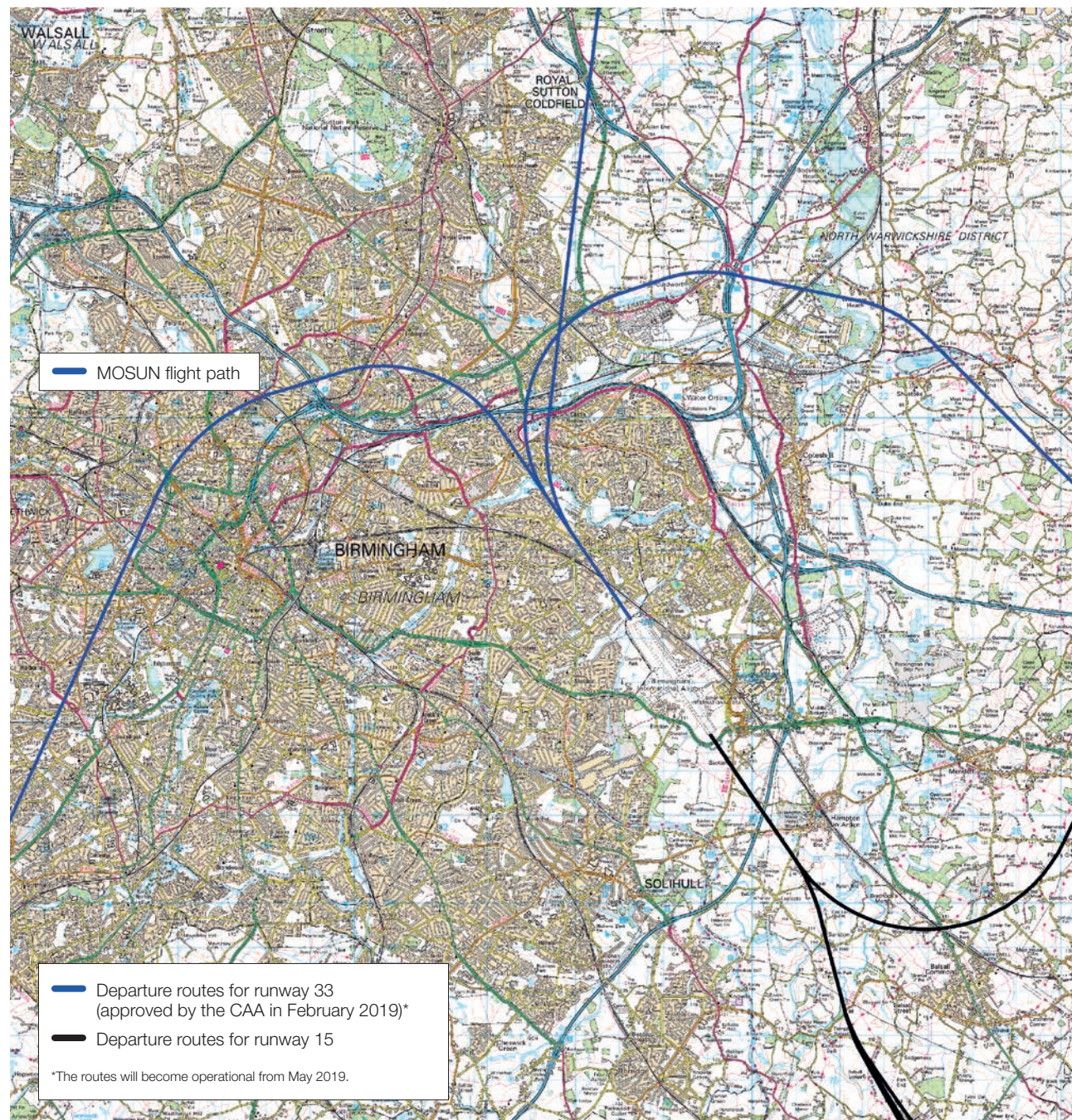
As we have described, Birmingham Airport is progressing changes to the airspace within its geographical remit to deliver the national airspace modernisation project. Once complete, we will have made valuable progress in providing the infrastructure that the UK's aviation industry needs.

The airspace in other parts of the country has ongoing and serious capacity constraints in terms of congested airspace. It is vitally important that modernisation to the south-east is urgently prioritised. Constraints in these areas have a direct impact today on our runway operations by restricting the number of aircraft we can release into the UK system. This runway constraint, known as Minimum Departure Intervals (MDIs), is explained more fully in the following section and is critically important if we are to make best use of existing runway capacity at Birmingham.

Airfield capacity

Runway infrastructure

There is one operational runway, which is 3,052 metres in length and 46 metres wide, with a single parallel taxiway and intermediate access points. The runway can support International Civil Aviation Organisation (ICAO) Code F designated aircraft such as the Airbus A380. However, the majority of aircraft movements are performed by Code C i.e. 737-800 or equivalent aircraft. The runway has six entry/exit points for traffic using the passenger terminals. There are planning conditions that control the use of certain taxiways in order to minimise the noise impact on surrounding communities.





Stratford upon Avon
Home of Shakespeare



As the home of Shakespeare and the upcoming 2022 Commonwealth Games, it's fantastic to see that the West Midlands welcomed a record number of overseas visitors in 2017. It's also incredibly helpful to have the UK's most family friendly airport here in Birmingham, serving people from all over the world.

Helen Peters
Chief Executive, Shakespeare's England

In 2016, the mode of operation for the main runway, in terms of Air Transport Movements, was:

- Runway 33 North West (Out Over Birmingham) Departures: 29%.
- Runway 33 South East (In Over Solihull) Arrivals: 28.7%.
- Runway 15 North West (In Over Birmingham) Arrivals: 21.3%.
- Runway 15 South East (Out Over Solihull) Departures: 21%.

The runway is fully compliant with international design and safety standards set by ICAO. The Airport is equipped with a Cat III Instrument Landing System allowing for pilots to land in restricted visibility situations without acquiring a visual reference.

The runway is capable of handling 40 movements per hour. However, its capacity is currently restricted by MDIs that are imposed by NATS, the UK's national en-route provider of air traffic services, during the early morning departures peak because there is insufficient airspace in the south-east for the number of aircraft that need to fly through this area from Birmingham and other airports. These MDIs increase the separation between successive departures routing southbound from Birmingham from seven nautical miles to fifteen nautical miles.

The Civil Aviation Authority, as the national supervisory authority for the planning and regulation of national airspace, has a responsibility to ensure that UK expansion is developed to meet demand and avoid the need for NATS to impose regular restrictions due to insufficient capacity. Changes are vital and must be introduced if Birmingham and other airports are to be able to make best use of existing runways in accordance with Government policy.

Aircraft stands

The Airport has 36 single stands and 11 Multiple Apron Ramp System (MARS) stands which can park either two narrow body or one wide body aircraft. This means that in the maximum narrow body MARS configuration there are 69 stands available and in the maximum wide body configuration there are 58 available. Of the 36 single stands, 12 are contact stands (from which passengers can walk to and from the aircraft) and 24 are remote stands. Of the 11 MARS stands seven are contact stands and four are remote.

As airlines are using larger aircraft and as the aircraft themselves have become wider with the addition of fuel-efficient 'winglets', eight of the stands are no longer wide enough for all aircraft. Reconfiguration is planned although it is not straightforward to widen a stand when it has other stands to either side. It is also necessary to reserve some stands, for example a specific wash bay with appropriate drainage or for any aircraft that have technical issues.

In practice therefore, the maximum number of narrow body stands available for flight operations is 58.

Type	Stands	Of which contact stands
Single	36	12
MARS	11	7
Maximum (narrow body configuration)	69	26
Maximum (wide body configuration)	58	19

Fuel farm and refuelling

The main fuel tank farm is located between the runway and the aircraft parking stands on the south side of the site and is supplied by tankers. There are three fuel tanks with an aggregate capacity of three million litres of Jet A-1 aviation fuel. Refuelling is provided by Shell and World Fuel Services under a long-term contract.

Terminal infrastructure

Our terminal

The Airport terminal can broadly be described as two distinct areas connected by a link building. Each of these areas has grown and developed over time and both contain many of the same attributes such as a check in hall, passenger lounges, baggage facilities and arrival and immigration halls. These two buildings are served by a centralised passenger security area housed in the link building connecting the two facilities. There are advantages to this arrangement including allowing airlines to have their own distinct spaces and identity as well as providing operational flexibility and resilience. However, the two buildings do add operational complexity and inefficiency, for example resourcing for multiple immigration halls.

Since 2007, we have invested £300 million in the Airport, of which a significant proportion has been spent in the terminal building to increase capacity and enhance the customer experience. This investment has sought to create efficiencies within the operation, maximise the use of space and invest in technology where possible. The link with the national rail network is a key asset to the Airport and we have sought to maximise this using our direct Air-Rail link connection.

A new departure lounge was opened in 2007, the year the previous Master Plan was published. This created additional space and comfort for passengers waiting for flights. The second major milestone was achieved shortly after in 2009 when the International Pier was opened, improving facilities for both passengers and aircraft handling. The next major change to the infrastructure was the creation of the centralised security area for passenger screening in 2011. This reduced wait times and removed the requirement to manage two separate facilities. After the opening of the centralised security facilities, the Airport continued its investment programme with the delivery of the runway extension and a new Control Tower. This project provided the infrastructure that now enables aircraft to fly further and carry a heavier payload, vital for the long-term development of the long-haul market that is so important to the Midlands economy.

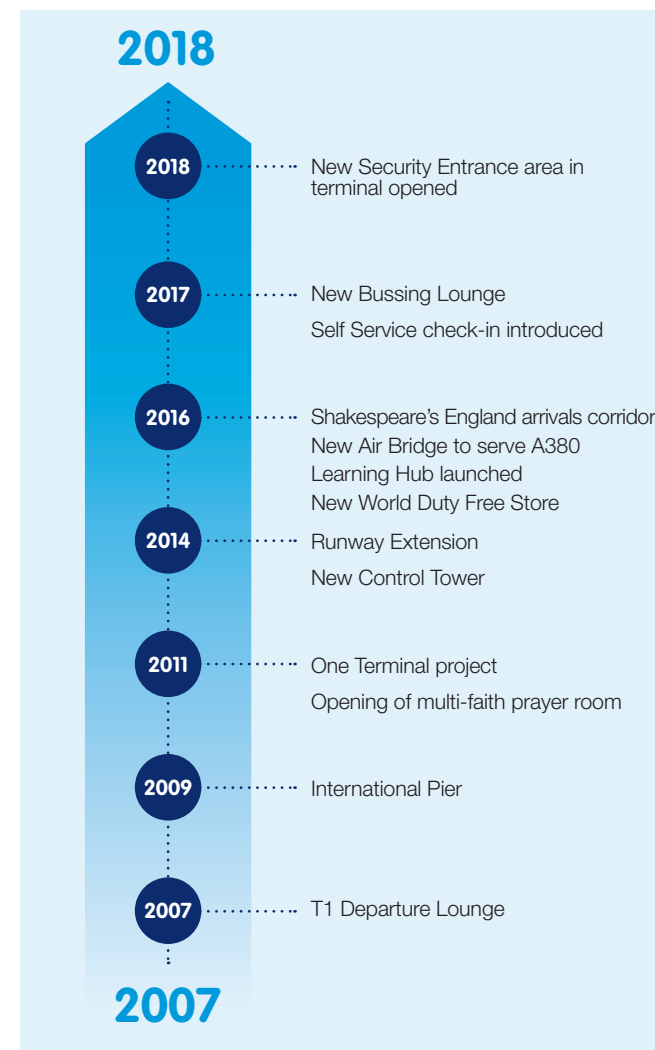
Since 2014, developments have included the opening of a new bussing lounge to serve aircraft parked remotely, a new World Duty Free store, and the introduction of the Shakespeare's England arrivals corridor, which reinforces our strong links to one of the world's most recognisable names. It also provides an learning hub/educational facility for local school use in partnership with the Schools of King Edward VI of Birmingham.

More recently we have introduced self-service check-in to improve efficiency and reduce waiting times for passengers as well as a new entrance to the security area to help passengers prepare for the security process.

We have worked hard to ensure that the needs of a diverse community are met, with the development of facilities such as multi-faith washing facilities, prayer rooms and facilities for less able travellers such as "Changing Places" areas.

Our departure lounges today have a floor area of 15,500m², including 8,500m² of retail space, accommodating 3,200 passengers per hour in peak periods.

Development timeline 2007-2018



Overview of the current Airport facilities		
Departures	Check in	115 (including 5 self-service bag drop) 29 self-service kiosks
	Baggage system	6 hold baggage screening lines
	Security	14 lanes (including 2 express lanes)
	Gates	27 total gates, 9 bussing gates, 11 gate lounges Remaining gates are open seating
Arrivals North Terminal	Immigration	14 desks 15 eGates
	Baggage reclaim	5 belts (International) 1 out-of-gauge belt
Arrivals South Terminal	Immigration	5 desks (no eGates)
	Baggage reclaim	2 belts (International) 1 belt (domestic) 1 out-of-gauge belt

Source: Birmingham Airport

The centralised security area currently comprises 14 screening lanes and utilises the latest technology to minimise queue times whilst meeting increasingly stringent security requirements.

Elmdon facilities

On the western side of the runway is the Elmdon Area where the passenger terminal was located until 1984. It still retains the Elmdon Terminal Building, its apron and taxiways to the runway. This area is now used primarily for general and corporate aviation and many of the support services required by the Airport.

Operations include:

- In-flight Catering: Alpha LSG, Eurest, Plane Catering and DHL hold concessions at the Airport to provide catering services to airlines.
- Cargo: Swissport Cargo, FedEx, BDA Logistics and Worldwide Flight Services each have cargo facilities at the Airport. The main cargo operators are supported by local ground transport companies, some of which are also located on the Airport site.
- Fixed Based Operations (“FBO”): Signature Flight Support, and XLR Executive Jet Centres offer FBO.

Other services located at Elmdon include aircraft fuelling, hangarage, cleaning and maintenance, including Monarch Aircraft Engineering’s 10,000 square metre, state of the art maintenance hangar which accommodates two wide-body aircraft such as a Boeing 777 concurrently.



Security area entrance

Other facilities

The Airport comprises a number of other facilities:

- **Air-Rail Link:** we operate an 'Air-Rail Link' system which connects the Airport to the adjacent Birmingham International Station. The Air-Rail Link takes two minutes to get to the station and operates between 03:30 and 00:30 hours daily. Birmingham International Station directly connects over 100 towns and cities including London in 70 minutes, to both the Airport and to the National Exhibition Centre.
- **Car Rental Services:** Currently provided by five major car hire companies. Car hire facilities include service desks in the arrivals hall and car collection points a five minute walk from the terminal.
- **Fire Station:** Located on the north-east side of the runway and accommodates the crew and equipment of the Airport Fire & Rescue service. The requirements for the provision of these services are laid down by the European Aviation Safety Agency (EASA) and monitored by the CAA. The level of protection provided is based on the size of aircraft operating at the Airport; our Fire & Rescue service is licensed to Category 10, providing protection on operations by aircraft up to A380.
- **Snow Base and De-icing facilities:** To support winter-based operations.
- **Ground Handling:** Three third party handlers work at the Airport for commercial airlines: Jet2, Swissport and Premiere Handling.
- **Air Traffic Control Tower:** Opened in 2013, this 33m high building is equipped with state of the art radar and navigation equipment.

Hotels

There are three on-site hotels adjacent to the terminal: Novotel, Ibis (operating as both Ibis and Etap) and the newly constructed Hilton Garden Inn, which between them cater to a broad range of the overnight guest market.

Our surface access

Whilst we are at the centre of the UK road and rail network, which provides us with potentially excellent access, the area surrounding the Airport often experiences road congestion that can significantly slow down the journey of passengers travelling by car, bus or coach to the Airport.

It is therefore vital that we continue to seek improvements to our surface access both through enhanced public transport links such as the proposed Metro extension, and through increased capacity in the local road network, in particular the interchanges with the M42.

Enhanced rail links, particularly to the East Midlands and to Leamington Spa and Warwickshire, would help alleviate road congestion by providing a rail alternative. In the longer-term HS2 will free-up capacity on the West Coast Main Line to enable greater frequency of services.

The need to seek improvements to our surface access is also recognised by Midlands Connect in their 2017 Strategy, which identifies airport connectivity as one of the early priorities for development and delivery. We welcome this and will work closely with Midlands Connect to help them deliver their strategy.



Investment in safety
Through state of the art technology

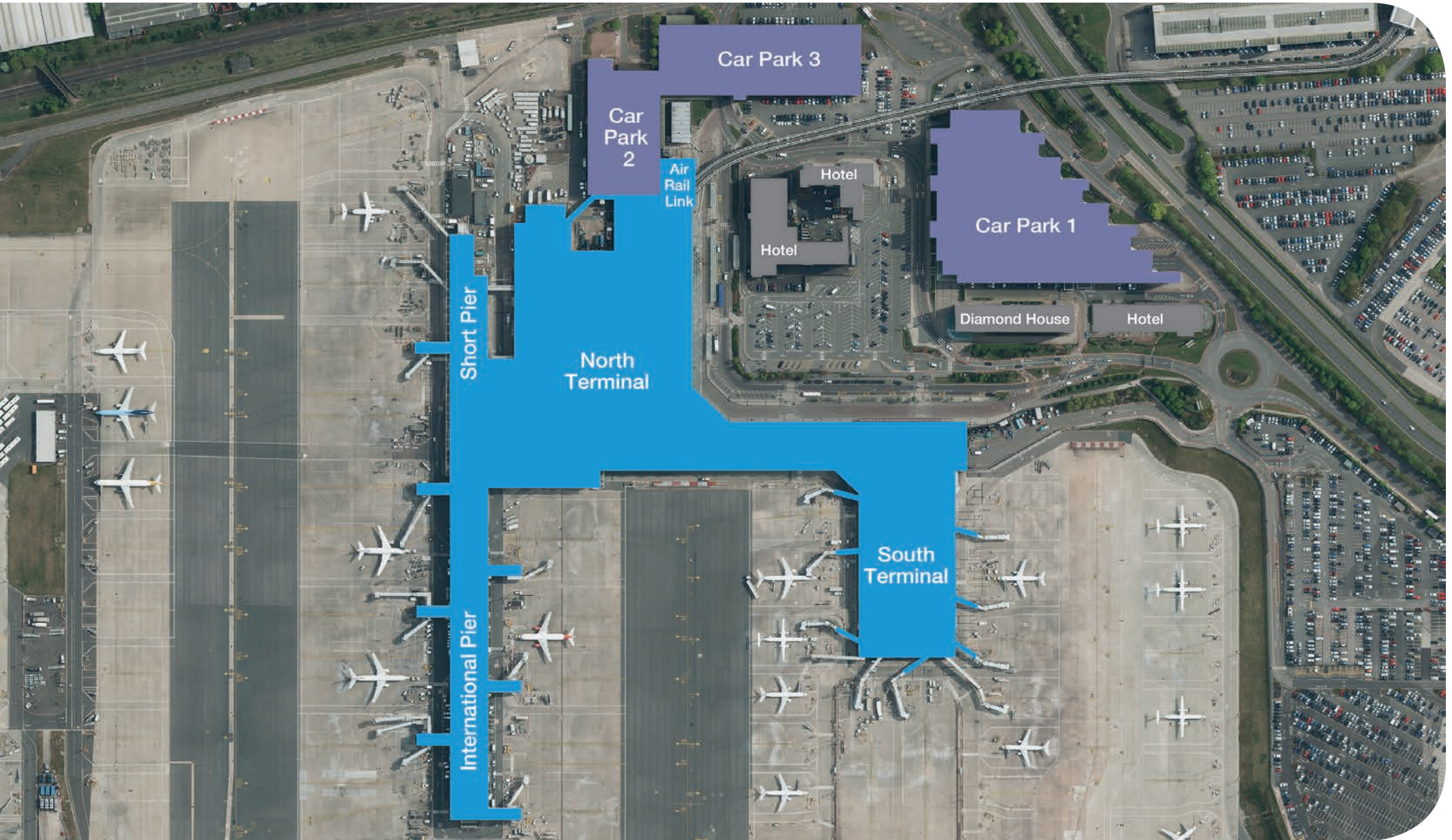
Our current surface access enables passengers and staff direct access to the Airport via, bus, coach, rail, cycle, foot, taxi and car. Key features are:

- 10 bus stands located along a dedicated lane on the passenger terminal frontage. Our bus services provide frequent links to destinations such as Solihull, Birmingham and Coventry, together with longer distance countrywide coach services such as those run by National Express.
- A bus only route runs alongside the A45, linking the Elmdon site with the main passenger terminal. This route is served by local buses in addition to dedicated car park transfer shuttle buses and is not open to general traffic. Bus only lanes are also provided along both sides of Bickenhill Lane, north of the Airport.
- Taxis are accommodated in a holding area adjacent to Car Park 5, with a short length of kerbside waiting provided adjacent to the terminal for pick up activity.
- Footways are provided along both sides of Airport Way, which directly link the Airport with the main roads of Bickenhill Lane and the A45. Both of these routes feature wide footways and signed cycle routes, enabling ongoing linkages to residential areas in the vicinity of the Airport.
- We have 14,000 car parking spaces.

We have improved the passenger experience of those travelling to the Airport by car by enhancing the on-site drop-off facilities, long stay car parks and pedestrian routes between the terminal and car park areas. As part of this, a Premium Set Down facility (adjacent to the Airport terminal) and a free 30 minute drop off car park have recently been introduced.

Furthermore, a covered walkway has have been developed between the terminal and car park areas and car hire facility to improve the pedestrian experience of those parking at the Airport.

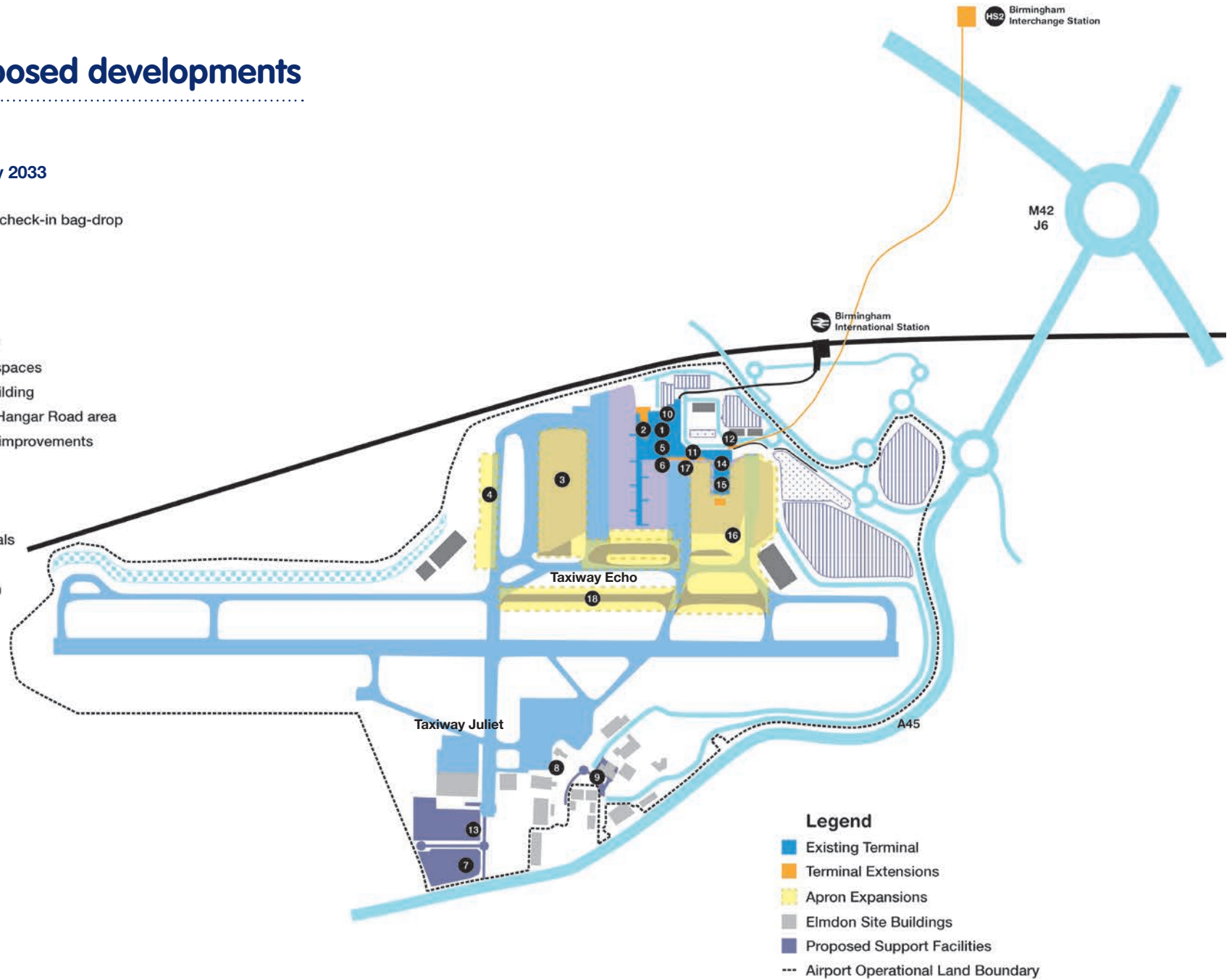
We also introduced a Car Park Levy in July 2014, which has helped to fund the implementation of sustainable travel including initiatives such as the provision of improved cycle facilities, the monitoring and implementation of our staff Travel Plan (which is updated on an annual basis) and a joint lift-share venture with the NEC, Resorts World and Birmingham Business Park.



Appendix B – Plans of proposed developments

Proposed developments by 2033

- 1 Expansion and upgrading of check-in bag-drop
- 2 Terminal extension
- 3 Stand reconfiguration
- 4 New stands
- 5 Additional 30m reclaim belt
- 6 International arrivals corridor
- 7 Additional 2000 car parking spaces
- 8 Refurbishment of Elmdon building
- 9 New airside security gate in Hangar Road area
- 10 Baggage lines and make-up improvements
- 11 Enlarged arrivals area
- 12 HS2 terminal connection
- 13 Car hire village relocation
- 14 Reconfigured domestic arrivals
- 15 New bussing lounge
- 16 Further stand reconfiguration
- 17 Airside security extension
- 18 New parallel taxiway



Legend

- Existing Terminal
- Terminal Extensions
- Apron Expansions
- Elmdon Site Buildings
- Proposed Support Facilities
- Airport Operational Land Boundary

Appendix C

– Alternative growth scenarios

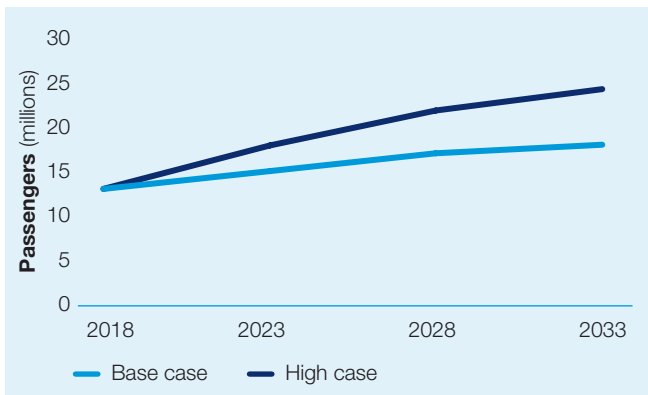
High growth scenario

This Master Plan and the requirements for the next 15 years are based on a base case passenger forecast that estimates we will be serving nearly 18mppa by 2033. Whilst this is the most likely scenario, we have also produced a forecast which assumes there is higher growth over the next 15 years of approximately 4.2% per year. This results in there being 24mppa being served by the Airport in 2033 as opposed to almost 18mppa under the base case scenario (see chart below).

Whilst it is less likely that these higher demand forecasts will arise, they nevertheless represent a plausible scenario and one that could give rise to a need for the Airport to move more quickly to implement its considerable capital investment programme. It is important, therefore, that we give due consideration to the implications of this scenario should it arise. The implications of this scenario are discussed below. The three main areas that will require significant development to facilitate this higher growth scenario are stands, terminal expansion and car parking.

Birmingham passengers forecast

Based and high case



Stands

Our forecast is that 94 narrow body equivalent stands will be required for 24 million passengers per year in the high case, which is 25 more than under the base case scenario at a similar annual utilisation of 260,000 passengers per stand. We have given careful consideration to how the apron might be expanded to accommodate this growth. The conclusion we have reached is that extending the apron southwards into the area of the car hire village, car park 4 and car park 5 represents the only practicable option if very significant disadvantages are to be avoided. The principal reasons for this are:

- That it maintains a single terminal and apron operation which is operationally efficient for airlines and keeps the Airport competitive relative to other airports.
- It results in the least environmental impact.
- It maintains the easiest and most convenient means of access between Birmingham International (and HS2) on the one hand and the terminal/aircraft on the other hand for those passengers that use public transport to get to and from the Airport – this equates to around one third of all passengers using the Airport in 2033.

From our initial studies, however, it appears that expanding the apron in this way would necessitate a significant re-design of the road access system between the Clock roundabout and the terminal forecourt. It would also require the development of land in the area known as NEC Car Park West (see plan on the next page) to be developed principally for airport-related car parking and the relocation of the main access road to the Airport. This land is almost entirely owned by Birmingham City Council. Part of the land is currently leased by the Airport for staff car parking, with the whole area being used for parking by the NEC for major events. The site is classified in the Solihull Local Plan as protected for its important transport interchange purposes.


We understand that this land could be developed for other purposes. However, we consider that the benefits to the region would be considerably greater if it could be used to support further Airport growth. If this land cannot be developed for airport purposes it appears inevitable that the Airport's contribution to regional growth may become capped.

Terminal

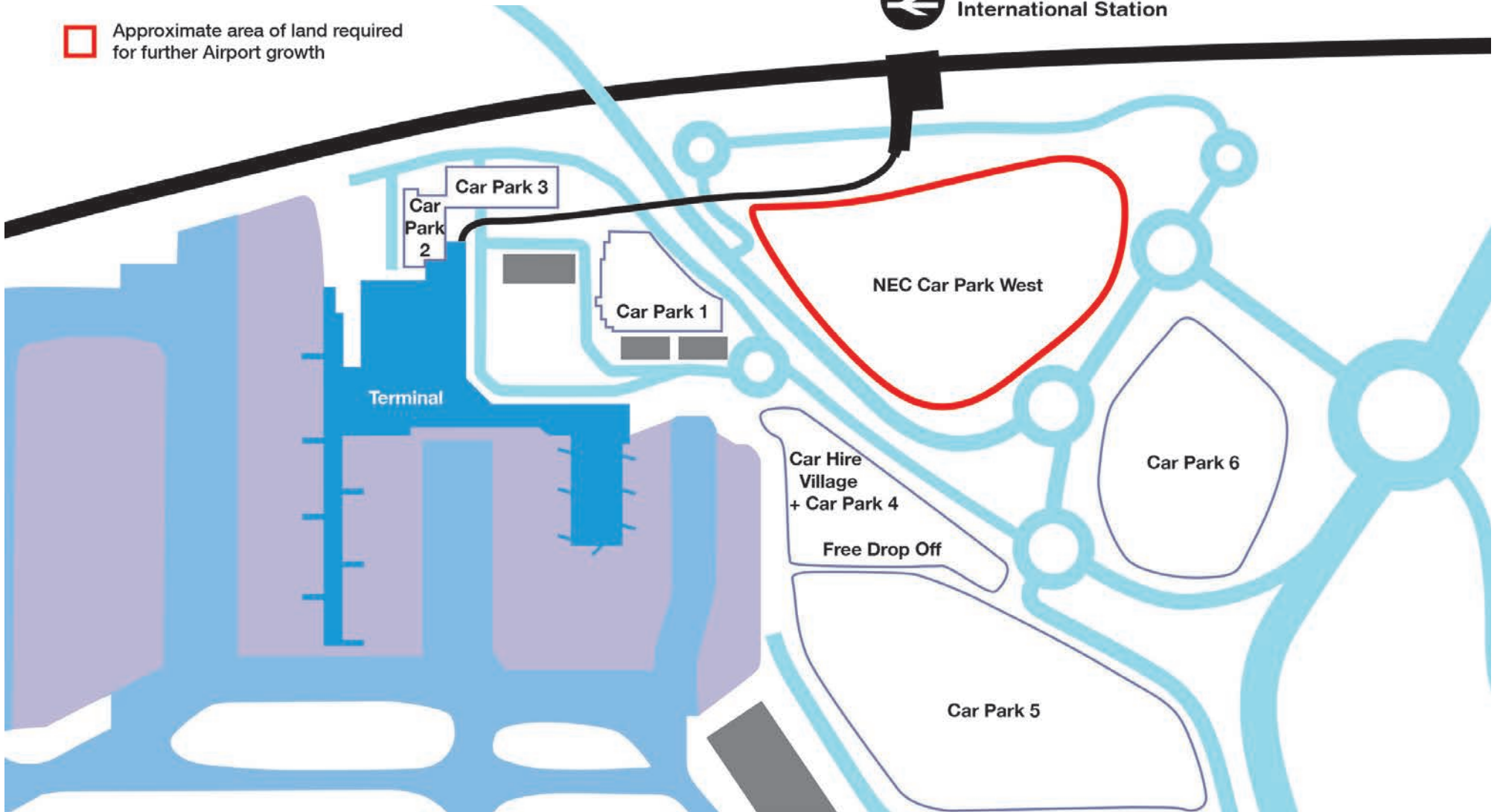
Terminal facilities such as check-in, security, departure lounge and bussing gates will all need to be increased in size to cater for the increased demand. A significant extension to the North terminal would therefore be required. It is currently proposed that it would be a three-storey extension and provide the following facilities:

- Increased check-in hall
- Increased baggage handling area
- Increased departure lounge
- Additional space for security screening
- Increased airline lounges
- Additional gates space
- Accommodation for ancillary plant

Location of land required for further Airport growth beyond the current site

 Approximate area of land required for further Airport growth

 Birmingham International Station



Appendix C

– Alternative growth scenarios

Car parking

We currently provide in the region of 1,000 parking spaces per million passengers and would need to provide a similar proportion of parking spaces to cater for the increase to 24mppa. Furthermore, as a result of extending the site to provide more stands, existing parking is lost. For this reason, such a significant requirement for parking will not be able to be met on the site, therefore the Airport is investigating the most sustainable way of providing this parking off-site should high growth be experienced over the coming years.

The need for additional land

If faster growth is experienced, further aircraft parking stands will be needed sooner than under the base case. This will result in the displacement of existing airport facilities and additional land will be required for the further development of the Airport even sooner than required in the base case.

Two areas of land have been identified as being required for Airport use beyond the 15-year horizon. The first is the current NEC West Car Park, as already described in relation to stand requirements. The second is land to the south of the A45, either the land already owned by the Airport or part of the area between the Elmdon site and the Jaguar Land Rover factory around Damson Parkway, which is currently classified as green belt but identified in the 2016 draft Solihull Local Plan as a proposed employment site (see plan on page 76). The Airport may need to invoke its compulsory purchase powers to acquire suitable land which is not already in its ownership.

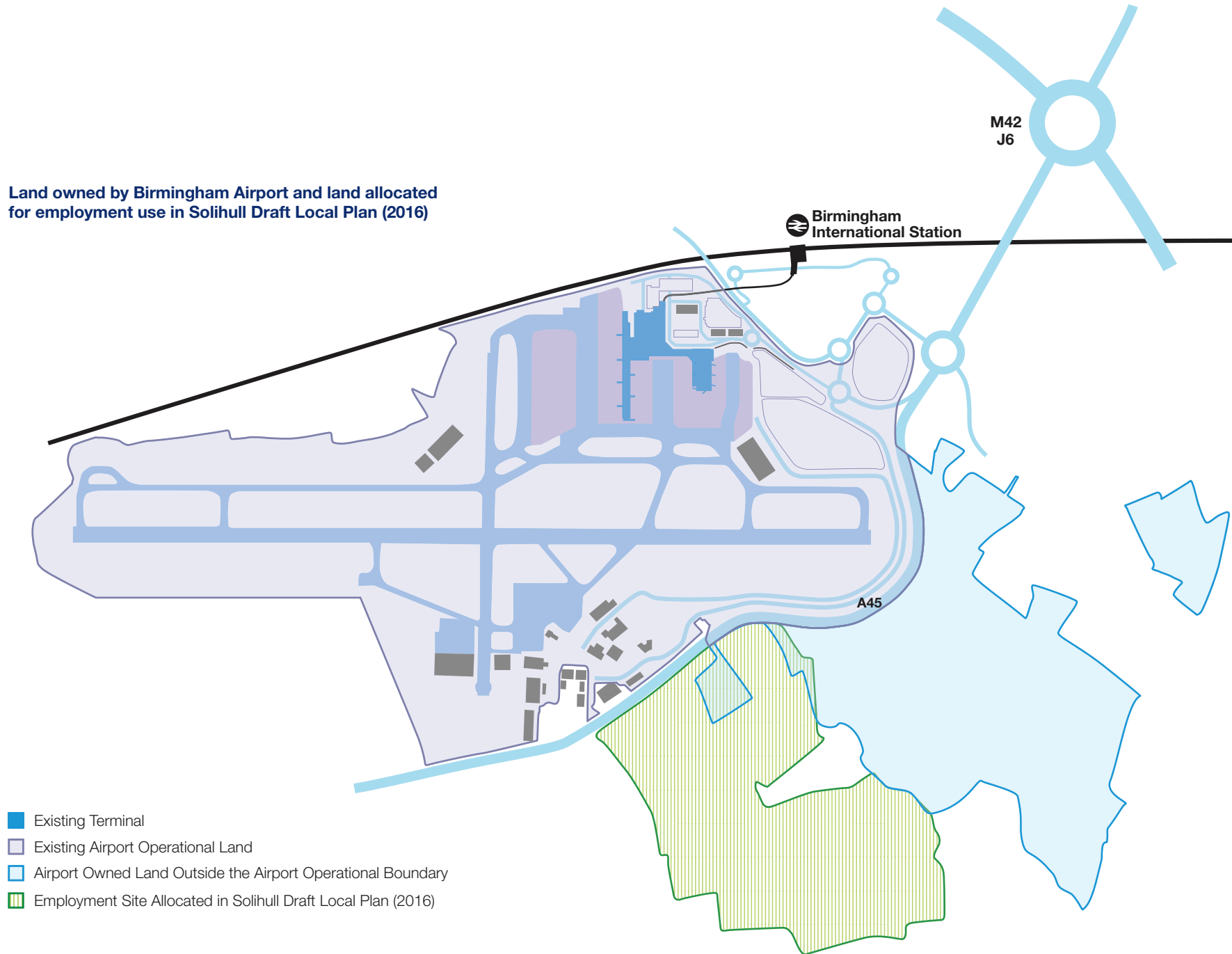
Although we have discussed in this Appendix the implications of stronger growth within the time horizon of this Master Plan, the same issue of the need for additional land arises immediately beyond our 15-year plan period under our base case scenario. Given the lead-time involved in delivering the next phase of Airport expansion beyond 2033, work may need to commence before the period of this plan expires. Land represents the most limiting factor to the long-term growth of the Airport and it will require more land if we are to make the most effective use of our single runway (in accordance with national and local policy) and if we are to maximise the Airport's contribution to regional economic growth and prosperity.

Low growth scenario

Just as it is possible that there may be higher growth than in the base case forecast, there may be lower growth than forecast. The demand for air travel has historically shown a strong correlation with the performance of the UK economy, so an economic downturn at any point over the 15-year forecast period would be expected to lead to lower passenger volume growth or even passenger volume decline.

If growth is lower than forecast, the Airport will defer its capital investment plans accordingly, with capacity expansion only brought into operation when it is needed to service the passenger volumes.

Land owned by Birmingham Airport and land allocated for employment use in Solihull Draft Local Plan (2016)



- Existing Terminal
- Existing Airport Operational Land
- Airport Owned Land Outside the Airport Operational Boundary
- Employment Site Allocated in Solihull Draft Local Plan (2016)

Appendix D

– Glossary of terms

Aircraft Auxiliary Power Unit: A device on an aircraft that provides power for functions other than flight.

Aircraft Stand: A position on the apron at which an aircraft can be located or parked and where all normal servicing activities are carried out, including embarking and disembarking passengers. Stands may be remote from, or adjacent to, the terminal buildings.

Airport Consultative Committee: The Committee to provide a facility, for the purposes of Section 35 of the Civil Aviation Act 1982, for consultation between the Airport Company and users of the Airport, the local authority and neighbouring local authorities and local communities with respect to matters concerning the management and administration of the Airport which affect their interests.

Air-Rail Link: The dedicated fixed people-mover system (replacing the former MAGLEV system) linking Birmingham International Airport with Birmingham International Interchange/Railway Station and the National Exhibition Centre.

Airside: The restricted area of an airport to which the public do not have general access.

Air Transport Movements: All scheduled movements (whether loaded or empty) and loaded charter movements. Empty positioning flights by scheduled aircraft and empty charter movements are excluded.

Ancillary Airport Facilities: Those uses that support the main functions of the airport terminal, apron and runway. At Birmingham Airport this includes facilities such as air traffic control, fuel storage, car parking, offices, aircraft catering, freight and aircraft maintenance.

Approach Surface: An inclined plane or combination of planes preceding the threshold (the beginning of that portion of the runway used for landing).

Apron: A defined area of land on an aerodrome for the stationing of aircraft, the embarkation and disembarkation of passengers, the loading and unloading of cargo, and for parking.

Baggage Handling System (BHS): A conveyor system installed in airports that transports passengers' luggage from check-in desks to the baggage make-up hall from where luggage is transported to aircraft.

Busy Hour Rate: The 30th busiest hour of the year, which is used as the basis for determining the maximum operating capacity of a process.

Bussing Lounge: Area where passengers being transported by bus from the terminal to their aircraft are picked up.

CAA: Civil Aviation Authority.

Carbon Management Plan: Identifies initiatives to manage and reduce the carbon dioxide emissions from the Airport's activities.

Charter Services: Includes all Air Transport Movements other than scheduled services.

Code A-F aircraft: Aircraft are given a code depending upon their size with code A being the smallest and F the largest. Examples include Boeing 737 (Code C) and A380.

Continuous Descent Approach (CDA): Is an aircraft descent technique that reduces noise, fuel burn and emissions.

dB: Unit of relative sound level or changes in sound level.

dBA: Unit of sound pressure level measured on the weighted scale that applies a weighting to simulate the way a typical human ear responds to a range of acoustic frequencies.

Domestic Services: Services flown entirely within the United Kingdom, Isle of Man and Channel Islands.

Engine Ground Running: Aircraft engines are tested on the ground at high power to ensure they are safe to fly or to diagnose technical issues.

Fixed Base Operations: Support services such as aircraft fuelling, parking, rental and maintenance.

Fixed Electrical Ground Power: The provision of electrical power to aircraft using fixed equipment on an aircraft stand.

General Aviation: All non-commercial movements, including private aircraft operations and aeroclub instructional flights, and Business Aviation which is made up of air taxi and corporate aircraft operations.

GVA (Gross Value Added): Is defined as the total value of output from a service less the value of any intermediate inputs i.e. those outputs of other sectors used as inputs from the supply chain. GVA is a standard measure of economic activity that statistical agencies (such as the Office for National Statistics and Eurostat) routinely use to ascertain an industry's contribution to an economy's total output.

Ground Handling: The servicing of an aircraft whilst it is on the ground. This includes the transfer of baggage between the terminal and the aircraft.

Hub Airport: An airport where passengers can change aircraft to travel on to any one of a number of destinations served at the hub.

Inclusive Growth: Economic growth that is distributed fairly across society and creates opportunities for all.

Landside: That area of an airport to which the public have general access without a boarding card and without passing through security screening.

Leq: A measure of long term average noise exposure. For aircraft it is the level of a steady sound which, if heard continuously over the same period of time, would contain the same total sound energy as all the aircraft noise events.

Long-Haul Flight: A flight longer than 4,000km.

Midlands Connect: A partnership between the Government, Local Authorities and Local Enterprise Partnerships that has developed a transport strategy that identifies the major infrastructure projects needed to improve the connectivity of the Midlands's key locations to help drive economic growth and power the Midlands Engine.

Midlands Engine: A coalition of Councils, Combined Authorities, Local Enterprise Partnerships (LEP), Universities and businesses across the region, actively working with Government to build a collective identity, to present the Midlands as a competitive and compelling offer that is attractive at home and overseas.

Narrow Body Aircraft: Aircraft with a single passenger aisle, generally with a capacity of around 295 seats (eg. Airbus A320 or Boeing 737).

Night Flying Policy: The policy regulating the use of the Airport by aircraft during the Night Period.

Night Period: The period from 2330 to 0600.

Noise Action Plan: A noise management programme published by Birmingham Airport that minimises disturbance to our local community by identifying mitigation measures implemented by the Airport.

Performance Based Navigation: The use of satellite-based navigation rather than ground-based navigation aids to enable aircraft to more accurately along a given route.

Public Transport Modal Share: The share of surface transport traffic gaining access to the Airport by all means of public transport (excluding taxis).

Quota Count: Also referred to as the noise quota for an aircraft. The weighting attributed to the departure or arrival of a specified aircraft type by reference to its certificated noise performance. This ranges from zero (quietest) to sixteen (the noisiest).

Scheduled Services: Flights performed according to a published timetable, available for use by members of the public.

Short Haul flight: A flight shorter than 2000 miles.

Surface Access Strategy: sets out at a strategic level how the Airport will improve and encourage all the different modes of transport that passengers, staff and goods use to get to and from the Airport with a particular emphasis on sustainable modes of transport.

Taxiway: A defined route for the taxiing of aircraft to and from the runway and between stands.

Wide Body Aircraft: A larger aircraft that is wide enough to accommodate two passenger aisles. Examples include the Airbus A380 and the Boeing 747.



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