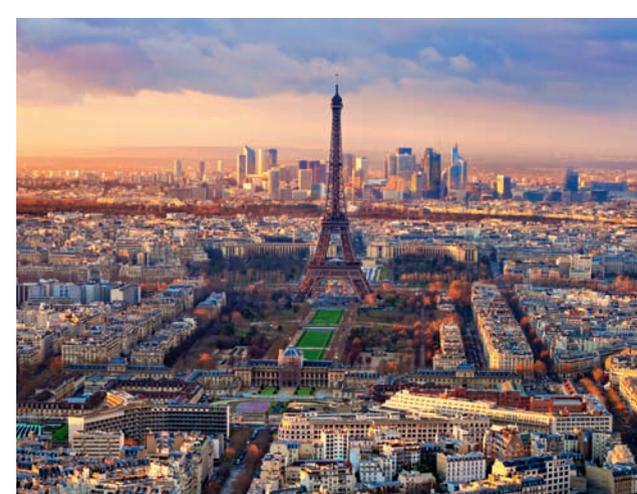


Newcastle International
Your Airport



Newcastle International Airport
Masterplan 2035
Consultation Draft



Connecting the North East to the World.

Foreword

In a smaller and evermore interconnected world, the need and demand for better air links is growing, and has never been more important for trade and quality of life.

The North East's global gateway has been welcoming visitors and connecting our businesses and holidaymakers to the world for over 80 years. We have invested and developed in this time to grow the Airport and drive forward the region's economy, all the while providing memorable journeys for our passengers. This Masterplan is our strategy for future growth to make the Airport better connected, and have an even greater impact on the prosperity of our region.

We will ensure that the Airport remains the number one international gateway choice for people and businesses coming to and travelling from our region. Through a growing route network our aim is that all air travel to and from the region starts and finishes at the Airport, so that passengers don't have to make long surface journeys to airports further afield.

We believe that a growing economy and population, and the attraction of new customers through a wider route network, is likely to see us serving greater passenger numbers to 2035, with growth continuing after this as we continue to invest in the Airport.

It will not just be the people of the North East driving this growth though. Our region is still undiscovered by many, and we want the connections the Airport provides to bring more people from around the world to enjoy the North East.

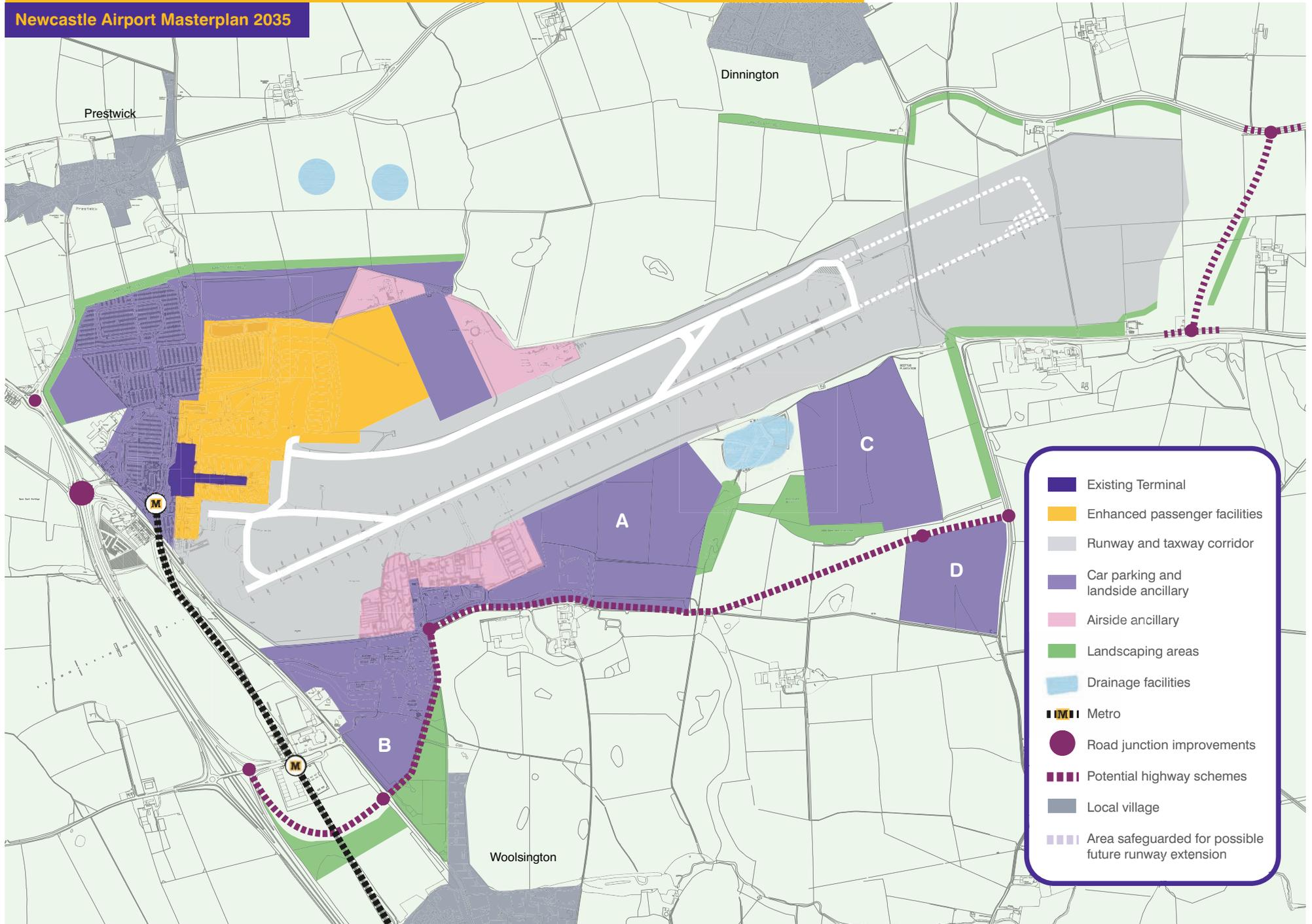
The welcome we give our customers has been recognised consistently by airlines and travellers, but we will not be complacent, and will look to build on what is special about Newcastle Airport. The experience for all our customers will be at the heart of our future expansion, and we will embrace innovative new technology to ensure that a growing Newcastle Airport is more efficient, safe, and enjoyable.

Achieving the Airport's growth potential and realising the benefits this will bring to all, means that investment and development, in both the Airport's facilities and infrastructure, and the transport links serving it, will be needed. Our growth also has to be sustainable, so we are committed to minimising impact on the environment and our neighbours.

This Masterplan is what we think the Airport could be like in 2035, the 100th anniversary of the Airport. However, we want to develop the plan for you and with you, and so we would welcome your views.



Nick Jones, Chief Executive



- Existing Terminal
- Enhanced passenger facilities
- Runway and taxiway corridor
- Car parking and landside ancillary
- Airside ancillary
- Landscaping areas
- Drainage facilities
- Metro
- Road junction improvements
- Potential highway schemes
- Local village
- Area safeguarded for possible future runway extension

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1. Introduction

- 1.1. Newcastle International Airport ('The Airport') is the North East's largest airport and its global gateway, providing the connections our business community needs to make and maintain trade links, and export their goods. Air travel is also a regular mode of choice for people to holiday, visit friends and family, and for inbound tourists visiting the region.
- 1.2. The Airport is a great regional success story, and we want this to continue both as a key transport hub and driver of economic growth. Looking forward, there is much scope for growth in all aviation sectors, and we want to ensure that the Airport has a robust plan in place to develop infrastructure at the right time, and for the right reasons. The Airport has a history of investing to grow, with £250m spent on the Airport in the past 30 years, which has led to the operations we have today.



2. Newcastle Airport History and Current Operations

A History of Investment and Growth

- 2.1** The Airport was founded in the 1920s as Cramlington Aero Club, and moved to its current location in 1935. Commercial services began, but were then interrupted when the site was used by the RAF during the Second World War.
- 2.2** In the 1950s international flights began through Hunting Air Transport to destinations like Belfast and Amsterdam.
- 2.3** The 1960s and 1970s brought the boom in foreign package holidays and rapid growth of the Airport. The need to develop the Airport resulted in the formation of the North East Regional Airports Committee in 1963, which brought together seven local authorities in the North East to act as a platform for growth. Expansion brought a requirement for additional facilities to meet demand, and a new terminal and air traffic control tower were opened in 1967. This building still forms the core of the current terminal, with additions since then largely hiding it from view. The Airport's tarmac runway was also developed in this period.
- 2.4** Further demand for air travel in the 1970s resulted in major investment in the Airport, including an extension to the passenger terminal and improvements to the airfield. This included an extension to the runway to cater for jet aircraft, and the length of the runway has remained unchanged since then.
- 2.5** The 1980s and 1990s brought further growth and investment with a parallel taxiway added to improve the capacity of the

airfield and a further terminal extension. The milestone of 1m passengers was reached in 1980, and this had nearly doubled by the mid-1990s. There were also major improvements in surface access to the airport with the extension of the Tyne and Wear Metro to the Airport in 1991 and the dualling of the A696 road link from the A1.

2.6



The 2000s started with over 3m passengers per year passing through the Airport, and this grew significantly with the arrival of 'low cost' airlines and our first scheduled transcontinental service in 2007 to Dubai. This demanded further investment, with terminal extensions completed in 2000, 2004, and 2012, to ensure that the Airport was meeting the demand for air travel and to improve passenger experience. Operational infrastructure was also developed with the opening of the current air traffic control tower in 2007.



The Airport moved to its current location in 1935



The 1960s and 1970s brought rapid growth to the Airport



Tyne & Wear Metro extended to the Airport in 1991

The Airport Site Today

2.7 The Airport is located about 6 miles north west of Newcastle City Centre, situated between the urban edge of the City and the settlements of Ponteland, Prestwick and Dinnington beyond. The majority of the site is within Newcastle City with the northern extreme, the majority of which is occupied by long term parking, falling within Northumberland. The 374 hectare airport land holding is largely surrounded by agricultural land and woodland.

2.8 The Airport consists of a single tarmac runway orientated north east to south west, with a parallel aircraft taxiway to the north running for most of its length. The single terminal building is located to the north of the runway at the western end, which accommodates passenger and operational facilities such as check-in, security, immigration, baggage handling, and retail and catering outlets. A single pier and the surrounding apron provide the facilities and capacity for the Airport's commercial flights. Two areas of apron to the south of the runway also provide capacity for private, corporate, and cargo flights. The air traffic control tower, aircraft fuel farm, and fire and rescue facilities are all located to the north of the runway, and are remote from the terminal building.

2.9 Around 8,420 car parking spaces are located to the north and north west of the terminal, bounded by tree buffers. The short term park (930 spaces) and the express passenger drop-off are directly to the west of the terminal, with facilities situated alongside the A696, close to the main site, providing additional capacity.

2.10 The Airport is primarily accessed by the A696 which offers dual carriageway transit to the A1 and the wider trunk road network 2.8 miles to the south. A single access roundabout serves the passenger terminal and the majority of car parks. The Tyne and Wear Metro connects the Airport to the rest of the conurbation, as well as regional and national rail networks, primarily via Newcastle Central Station.

Ownership

2.11 The airport company, Newcastle International Airport Limited (NIAL) operates as a public private partnership. 51% is owned by seven local authorities in the North East, the 'LA7'¹. The remaining 49% is owned by AMP Capital; an Australian global investment management company. Multiple companies operate within the terminal and elsewhere on the airport, but all land remains under the long term ownership of NIAL.

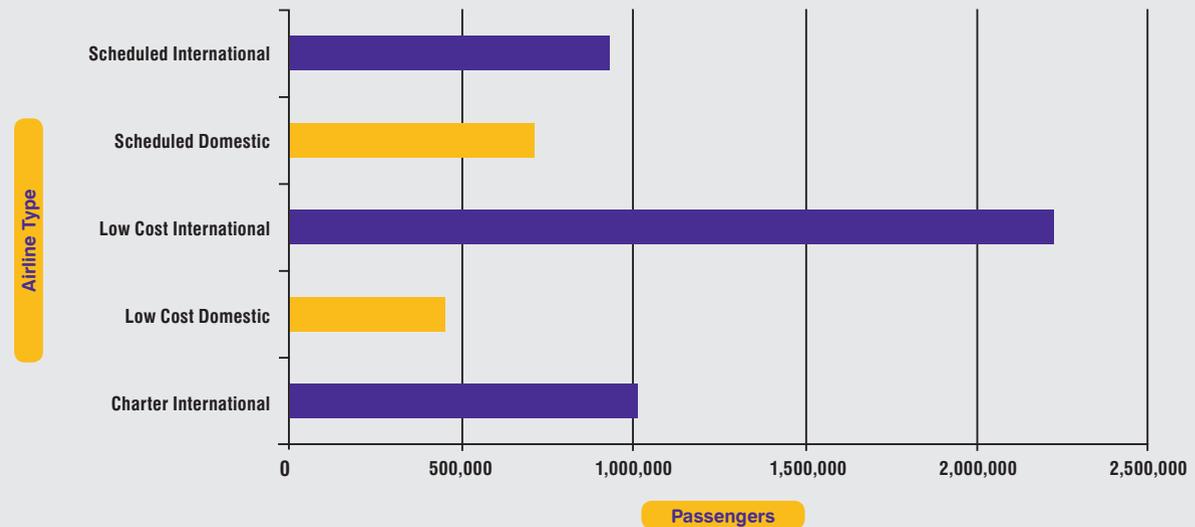
Our Current Aviation Operations

2.12 Newcastle Airport is currently the 11th largest airport in the UK, and the second largest in Northern England, serving 5.4 million passengers in 2017, from over 59,000 aircraft movements.

2.13 Year round, 14 airlines currently operate from the Airport with several more operating summer and winter charter flights. Proportionally our current aeronautical business is 50% low cost carriers, 31% full service scheduled services, and 19% charter services. We are also predominantly an internationally focused airport, with over three quarters of flights being to destinations outside of the UK.

2.14 Over 80 destinations are currently served directly, with regular connections to 6 hub airports² in Europe and the Middle East, and the extensive global route networks they

Figure 1 – Airline Sector Breakdown (2017)



¹ Durham County Council, Gateshead Borough Council, Newcastle City Council, North Tyneside Borough Council, Northumberland County Council, South Tyneside Council, and Sunderland City Council

² Amsterdam, Brussels, Dublin, Dubai, London Heathrow and Paris Charles De Gaulle

Figure 2 – Current Destinations



offer. One scheduled long haul route currently operates from the Airport: a once daily service to Dubai, UAE operated by Emirates using a Boeing 777-300 aircraft.

Our peak season runs broadly from May to September, coinciding with school holidays in England and Scotland. Our scheduled services stay largely constant, with fluctuation in passenger loads rather than major changes to flight schedules resulting in month to month variations.

2.15 The Airport's busiest destinations in 2017 show the importance of hub connections: London Heathrow was the busiest route, whilst other European hubs also performed well. It is also apparent that the key domestic routes to destinations distant from Newcastle perform well, carrying high numbers of passengers to likes of Southampton and Bristol. These scheduled services are complemented by a wide range of leisure destinations.

2.17 The throughput of passengers on a typical daily schedule is also not evenly distributed. We have a peak of departures each morning from broadly 6am to 8am when based aircraft depart, and another busy period in the mid-afternoon. Arrivals do fluctuate, but not to the same extent, with a notable peak period after the morning departure period, and in the summer season, a small batch of arrivals late at night and in the early morning. Our forecasts indicate that additions to the flight schedule will likely be predominantly during the daytime.

2.16 Although we operate flights throughout the year, there are still distinct peaks and troughs, with charter flight passengers in particular decreasing in the winter months.

Airport Catchment

2.18 North East England is the Airport's core catchment, with a population of around 2.4m. Given the distance to other airports, the rurality of large parts of Northern England, and the surface transport links available, our wider catchment extends into the Scottish Borders, Cumbria, and Yorkshire, with passenger patronage pronounced along key transport corridors like the A1 and A69.

2.19 Distance to the Airport is not necessarily the only driver of our catchment. Where good transport links are available and/or there is passenger motivation driven by price and customer choice, passengers may travel to the Airport from much further afield.

Figure 3 – Passengers Carried by Destination (2017)

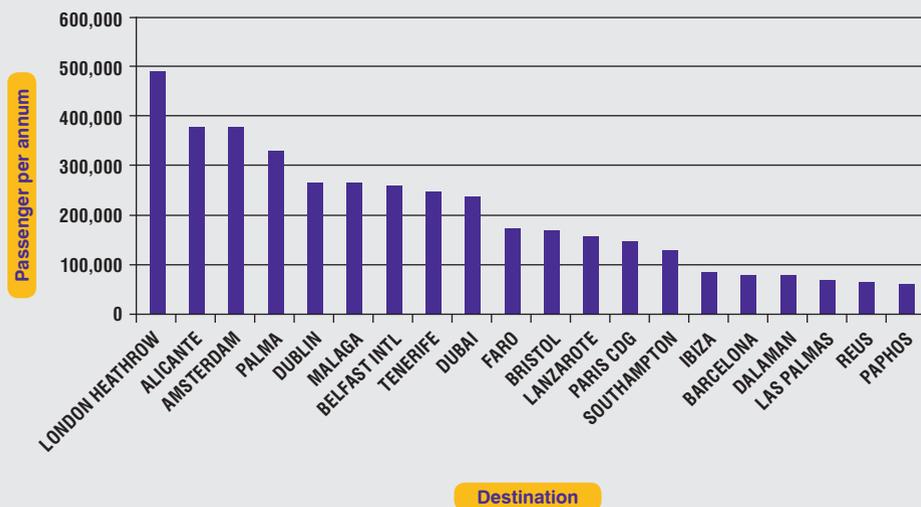
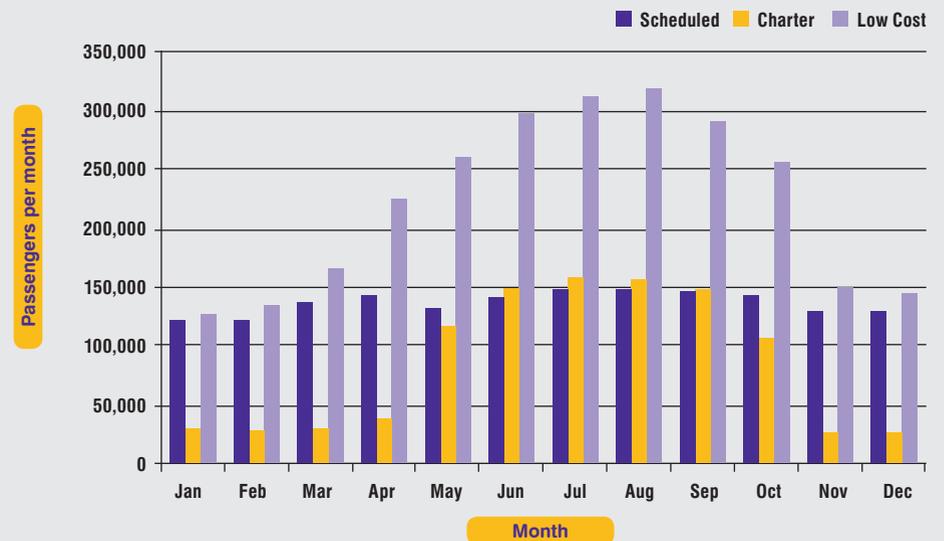


Figure 4 – Monthly Passenger Distribution (2017)





5.4m
passengers
in 2017



11th
busiest airport
in the UK



Nearly
60,000
aircraft movements
in 2017



3. Opportunities for Growth

Purpose of an Airport Masterplan

- 3.1** Airports are required to produce a masterplan by the Aviation Policy Framework (2013) to set out their strategic growth plans. This Masterplan will be used for -
- Guidance for land use and investment priorities for the Airport, as well as assurances to airlines that the Airport will continue to invest in the infrastructure they use.
 - A clear statement of intent for future development needs, to be given due weight in the local planning process.
 - On-site land and airside infrastructure the Airport will likely need to develop to accommodate the type and quantum of growth indicated in our growth forecast.
 - Forecasting the economic and social benefits of this growth, both for the individuals and businesses associated directly with the Airport, and the wider economy.
 - Planning how the transport system serving the Airport can be improved and how travel choices can change to provide for our forecast growth. The Surface Access Strategy seeks to get passengers and staff to the Airport efficiently and sustainably.
 - Informing how growth can be accommodated sustainably and with sensitivity to our community. The plan details how our growth can be sustainable in terms of noise levels, environmental impact, and energy consumption.

Why the Masterplan is Being Revised and Opportunities for Growth

- 3.2** This is the fourth Masterplan to be produced by Newcastle Airport. The last Masterplan was released in 2013. It is recommended in the Aviation Policy Framework (2013) that they should be reviewed every 5 years. In addition, it is likely that the Local Planning Authorities will also be mandated to review their local development plans every five years¹, creating some uncertainty as to what development may come forward in the long term close to the Airport and flight paths. It is important that the future growth and development of the Airport is properly safeguarded, particularly in respect of the increasing number of housing proposals in the local area and their potential impact on existing and future runway operations.
- 3.3** The last Masterplan was informed by growth forecasts based by what airlines, aircraft, and route network it was considered we could develop at that time. Since then our operations have shifted: different airlines are driving growth, offering new route possibilities, and changing aircraft fleets will likely alter the range of destinations, as well as the capacity on existing and new routes. We have therefore updated our long range growth forecasts looking at how our network, passenger numbers and aircraft movements (including aircraft type) could change up to 2035. These are set out in a section 6.

- 3.4** Alongside this, the macro-economic environment has improved significantly. The post-recession growth uncertainty and prolonged lull in consumer spending has gradually subsided, with largely consistent growth in GDP and GVA in the North East since 2012. Consequently the growth rate of the Airport has notably improved.
- 3.5** There are a number of opportunities for the growth of the Airport –
- The Airport's catchment overlaps with that of other airports but also some passengers from within our core catchment travel to other airports for a variety of reasons. There is therefore a great deal of opportunity for clawback of passengers through a broader choice of airlines and destinations.
 - The above can be aided significantly by major investment in the national and regional transport infrastructure. Major schemes are in progress or planned which would augment passenger surface access, and are set out in section 9 of the plan. We will need to work closely with relevant external partners to ensure delivery of such improvements.

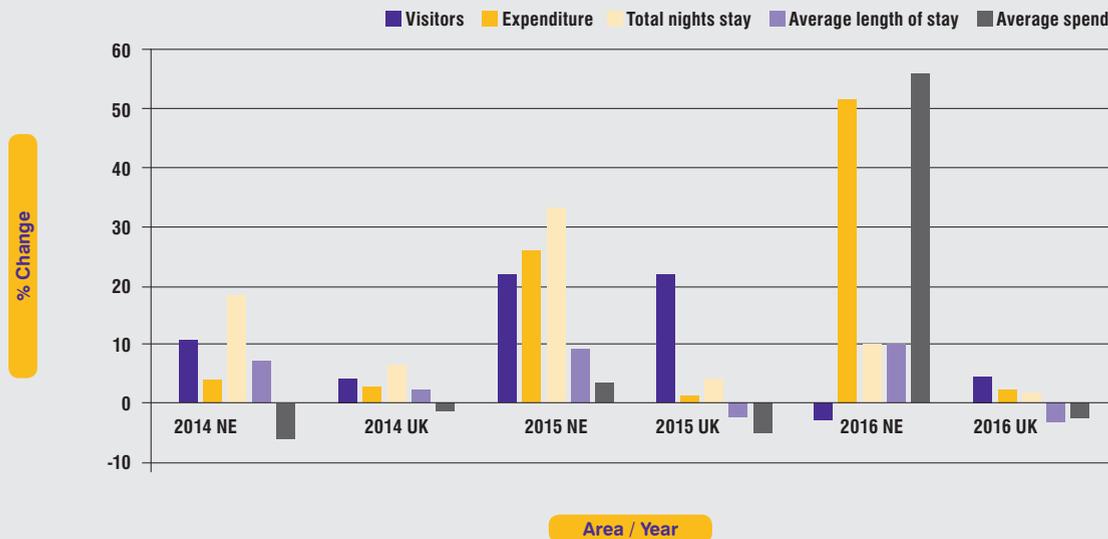
³ National Planning Policy Framework - Consultation proposals (2018)

- Our current operations indicate capacity to grow in terms of both non-peak hours during each day, and extension of our season outside of the summer peak. The popularity of city breaks and other non-sun destinations offers potential for this.
- The Airport is currently well connected to global hubs. However there are notable omissions. New connections would add capacity and choice, whilst current routes have the potential to add additional capacity.
- There is opportunity and drive from the business community and transport plans, notably from Transport for the North⁴, to expand our long haul offer, both for business and leisure routes.
- A trend of low cost long haul carriers has emerged in recent years, which are operating more point to point services from regional airports.

- 3.6 The Airport sees inbound tourism as a particularly important driver of future growth. We are committed to the Airport's role in promoting the region and providing the international links to allow for the region's tourism offer to fulfil its potential.
- 3.7 Over 37m international tourists visited the UK in 2016, which is over 4% growth from the previous year. The North East welcomed 560,000 international visitors in the same year, with a further 288,000 visiting Cumbria. Although this was a slight fall from the previous year, growth in 2015 and 2014 was 22% and 11% respectively, which was higher than any other region. The North East's tourism sector is still comparably underdeveloped, so there is significant potential for growth. This has begun to be realised over the past 3 years, with the region growing faster than the

rest of the UK in nearly every measure of tourism industry performance. It has seen more people visiting, staying longer, and spending more.

Figure 5 - Percentage Year on Year Growth of North East Tourism compared to the Rest of the UK⁵



The North East welcomed

560,000

international visitors in 2016.

With a further

288,000

visiting Cumbria

⁴Independent International Connectivity Commission Report (2017)

⁵Visit Britain - Inbound nation, region & county data - <https://www.visitbritain.org/nation-region-county-data>

⁶WHS – Durham Castle and Cathedral, Hadrians Wall, and the Lake District. National Parks – Lake District, Northumberland, North York Moors, Yorkshire Dales.

- 3.8 The Airport’s catchment area has internationally renowned attractions including 3 World Heritage Sites, 4 National Parks⁶, the richest concentration of castles in the country, and numerous historic towns. Research by Visit Britain indicates that aside from visiting London, historic towns and remote parts of Britain are strong tourist draws. The region’s sporting events and nightlife are also big attractors.
- 3.9 Route development at the Airport has significant potential to further increase visitor numbers from the region’s established international inbound markets, predominantly Europe and North America. However, as indicated by Transport for the North’s International Connectivity Report, to deliver transformational economic growth for the North, new transcontinental direct air links will be needed to key destinations like India and China. Combined with our existing routes, particularly our Dubai connection, there is perhaps even greater potential for a step change in the number of international visitors to the region from emerging and fast growing outbound tourism markets.
- 3.10 Over the Masterplan period we will strive to deliver improved onward ground connections and tourist assistance facilities at the Airport to welcome visitors and ensure their first impression of our region is positive. In addition we will utilise our marketing function and digital communication platforms, and work with our airlines, to promote the region and our connections to our destination markets.

- 3.11 In addition to commercial opportunities for growth, the Airport will also be serving a larger population base. Government projections indicate that the population of the North East could grow by about 5%⁷ from 2017-2035, as result of natural population change and in-migration. However, some local development plans in our catchment are supporting development levels based on projected population growth in excess of this, aimed at increasing projected levels of in-migration. As a result, sizeable housing allocations are planned within the Airport’s core catchment area.
- 3.12 The opportunities for growth highlighted in this section have informed the revision of our growth forecasts. The Masterplan is our strategy to ensure that these and other opportunities are facilitated and provided for, whilst enhancing the high quality customer experience our passengers currently enjoy.



⁷ ONS - Subnational Population Projections for Local Authorities in England (2014) – Table 1 – Combined growth projections for all local authorities in the NELEP and Tees Valley.

3

World Heritage Sites

International Visitor Numbers to the North East up nearly

30%

2014-2016

4

National Parks in our catchment



4. Masterplan Objectives

The following objectives frame the Masterplan and will be pursued to deliver the strategy.

Enable the provision of facilities and infrastructure to –

1. Ensure the demand for air travel and the growth aspirations of the Airport can be met;
2. Be the number one choice for air travel for the region to and from an exceptional range of destinations;
3. Be the most welcoming airport and embrace innovative new technology to deliver a memorable experience to our customers;
4. Become a greater contributor to the regional economy through added jobs, gross value added (GVA), and a facilitator of inbound tourism;

And ensure that: -

5. The Airport can grow sustainably and will appropriately mitigate our impact on the environment and our neighbours;
6. We work closely with partners to deliver improved surface access infrastructure to support growth.





5. Policy, Regulations, and Guidance Review

- 5.1 It is important to understand the legislative framework in which we operate. This section summarises the legislation which guides or controls the development set out in this Masterplan.

Aviation Policy

The Aviation Policy Framework (2013)

- 5.2 This is the Government's overarching policy for the aviation sector. It promotes the need for the sustainable and balanced development of aviation to support wider economic growth. It recognises the need to maintain the UK's hub capability, but also the necessity to make better use of existing runways and the development of more point to point contacts to assure our international connectivity.
- 5.3 The Plan also sets out the requirement for airport masterplans and surface access strategies which are intended to guide future land use, transport and economic planning processes, and support prospective planning applications.

Airport Commission Final Report

- 5.4 Stemming from the Aviation Policy Framework, although not binding policy; it reviews how the UK's global hub capacity should be met. The report recommends that a new runway north west of Heathrow is the best option. It recognises that this will improve regional connectivity to Heathrow, but also that the UK's regional airports play an important role in the country's overall global connectivity.

Revised Airports National Policy Statement (Draft) (2017)

- 5.5 The Government's national infrastructure planning framework is set out in several policy statements, as legislated by part 2 of the 2008 Planning Act. The statement on airport development follows the Airport Commission report. It focuses on the expansion of Heathrow to meet demand in the South East, and is the first stage in moving toward a planning permission. The expansion of Heathrow could augment regional connections in the UK. It is acknowledged that "while expansion will also see some displacement of passengers from regional airports to the London system, overall regional airports are expected to continue displaying strong growth in passenger numbers by 2050".

A New Aviation Strategy for the UK: call for evidence (2017)

- 5.6 The Government has given a clear indication through this call for evidence of the intention to introduce a new long term aviation strategy for the UK. The document indicates that the new strategy will guide policy making up to 2050 to ensure the country develops "a safe, secure and sustainable aviation sector that meets the needs of consumers and of a global, outward-looking Britain".
- 5.7 It recognises that investment in aviation infrastructure and capacity will play a vital role in driving economic growth through the connectivity it provides. In addition to the support for the expansion of Heathrow, the Government recognises that other airports play a vital role in direct

connectivity as well as being focal points for employment development for their region.

In response to consultation comments, the Government published a 'next steps' report in April 2018. It commits to working toward a new Aviation Strategy looking forward to 2050, with demand for air services expected to continue to rise significantly. Detailed proposals will be set out in a Green Paper in Autumn 2018, and the Strategy itself published in early 2019.

DfT circular 1/2003 - Safeguarding aerodromes, technical sites and military explosives storage areas (2002)

- 5.8 This planning legislation addresses the safeguarding of aerodromes from development beyond the airfield which could have a detrimental impact on its safe operation, such as tall structures and bird attracting environments. All airports are required to produce a safeguarding map to outline areas of interest for potentially hazardous development. Importantly section 5.10 of the Aviation Policy Framework dictates that an airport's safeguarding map should also reflect "potential proposals for future development of airports". Therefore we will be required to safeguard any planned development which would change the nature of operations at the Airport, such as for a possible runway extension.

5.9 It is important that all new on-site development complies with safeguarding requirements and that we continue to work closely with local planning authorities to ensure that the safety of our current and future development needs are protected through the development management and development plan processes.

Public Safety Zones

5.10 Public safety zones (PSZ) are areas of land at the end of runways where certain planning restrictions apply, as set out in DfT Circular 01/2010. These aim to control the number of people on the ground at risk in the unlikely event of an aircraft accident on take-off or landing. As with safeguarding, any changes to runway dimensions would result in amends to the Airport's PSZs. We will need to ensure that the restrictions imposed by our PSZs are fully reflected in the local planning process.

Aerodrome Design

5.11 As a certified aerodrome, if we are to develop any new airfield infrastructure set out in the Masterplan, it will have to meet the operational and development standards set out in the 'Aerodrome Standards: Aerodrome Design and Operations', issued by International Civil Aviation Organisation, as well as the European equivalent, the 'Certification Specifications and Guidance Material for Aerodromes' issued by the European Aviation Safety Agency.

National Infrastructure Planning

National Infrastructure Delivery Plan 2016 to 2021

5.12 The plan sets out the Government's high level spending program for infrastructure up to 2021, and is based on the commitment to "deliver better infrastructure in the UK to grow the economy and improve opportunities for people across the country". Specifically concerning airports, the plan commits to developing air links to continue the UK's position as one of the best connected countries, whilst reducing the number of people impacted by aircraft noise and lowering emissions from the aviation sector. Crucially for regional airports the plan recognises that "competition is an effective way to meet the interests of passengers and other users", and so welcomes investment in airport infrastructure and the establishment of new routes.

Transport Investment Strategy (2017)

5.13 Linked to the above, this strategy sets how the Government will invest in transport infrastructure alongside its industrial strategy as the UK leaves the EU. It is recognised that air travel will become increasingly important, as transport has a "key role to play in attracting foreign business to the UK". Although the Government doesn't necessarily directly fund airport improvements, it is stated that they have a responsibility to ensure that airports are connected to existing national road and rail networks and that they are able to handle the traffic the airport generates.

The Northern Powerhouse

5.14 As part of the Government's 'Northern Powerhouse' initiative, Transport for the North (TfN) is the organisation formed to deliver change to the transport system across the North of England, and so provide the infrastructure to drive transformational economic growth. The organisation has recently had confirmation of statutory status to become the transport planning body for the North of England, with mandatory legal powers and duties. A series of reports have been produced which will ultimately inform a strategic transport plan for the north. The Airport has recently been confirmed as a Northern Powerhouse Partner.

Independent International Connectivity Commission Report (2017)

5.15 TfN has looked at how international connectivity would need to develop to deliver transformational economic performance in Northern England (850,000 additional jobs and £97 billion added GVA), identified by the Northern Powerhouse Independent Economic Review (NPIER). It identifies specifically how global connections contribute to economic growth and how certain actions could realise latent capacity to deliver an additional 60m passengers a year through northern airports.

5.16 It identifies that Newcastle International Airport plays a particularly important role in providing international connectivity for businesses, inward investors, and tourists for the North East. The report indicates that Newcastle Airport would need to retain key hub connections but also grow our European and global route network, with key destinations identified as shown on Figure 6. It also identifies the need for improvements to the A696 and its junction with the A1 and improvements to the Metro network and rolling stock.

Figure 6 – Transport for the North’s suggested routes from Newcastle Airport to deliver transformational economic growth for Northern England⁸



Strategic Transport Plan (Draft) (2018)

5.17 The plan sets out the case for strategic transport infrastructure investment across the North of England up to 2050, with the aim of improving pan-regional connectivity and access to key infrastructure like airports, and so deliver transformational economic growth. It is projected that there is the potential for the North to have 75 million air passengers by the end of the plan period and increase air flow cargo produced in the North and flown from the North’s airports from 4% to 100%. This could grow the economic contribution of the North’s airport to £13 billion

per annum from £5.5 billion. To enable this change it identifies the need for major improvements to the north/south and east/west rail and road transport corridors. It is acknowledged that transport to time sensitive locations like airports is vital for enabling inward investment and trade, and that people want faster, frequent, and more reliable connections. Specifically, it acknowledges that improvements to the A1/A696 access to Newcastle Airport is a short term priority for the strategic road network.

Regional Strategy

NELEP Strategic Economic Plan (2017)

5.18 The economic plan for the North East Local Enterprise Partnership (LEP) area⁹ is the joint business and public sector strategy to create an additional 100,000 jobs by 2024, and ensure that 60% are ‘better’ than what the area currently offers. It is stated that high quality transport and connectivity are vital for achieving this objective, and enhanced international connectivity will continue to be a priority for the region. It is also sets out the multiple economic benefits of the Airport and opportunities for growth, and identifies Newcastle International Airport Business Park as a quality location for investment and business clustering, given its Enterprise Zone status.

5.19 Land to the south of the Airport, totalling 41.7ha, was awarded Enterprise Zone status by the Government in 2016, which became active in April 2017. This status offers business rate relief up to £275,000 per annum for on-site occupiers for period of 5 years, provided they are on-site by March 2022. There is also complementary Enterprise Zone funding to provide for the delivery of supporting infrastructure to bring forward new economic development. These incentives make these sites very attractive for businesses, and help make developing the sites more viable.

Tees Valley Economic and Transport Plans (2017)

5.20 The Tees Valley LEP area¹⁰ is an important part of our catchment area. Its economic growth strategy seeks to add 25,000 jobs and £2.8bn in GVA by 2026. Identified requirements for upgrades to transport infrastructure will improve connectivity to surrounding sub-regions, which includes improvements to the A66 corridor to improve journey times to the A1, and the A19 Tees flyover. This improved connectivity illustrates how our growth and that of Teesside could be mutually beneficial.

⁸ This map does not include the Airport’s current routes, such as the Dubai service, and was produced when the Airport had a direct connection to Newark (New York City). It is likely the latter would have been included as a key future route.

⁹ The local authority areas of Northumberland, Newcastle, North Tyneside, Gateshead, South Tyneside, Sunderland, and Durham

¹⁰ The local authority areas of Darlington, Stockton-On-Tees, Hartlepool, Middlesbrough, and Redcar and Cleveland.



Planning Policy

The National Planning Policy Framework ('NPPF') (2012)

- 5.21** The NPPF is the overarching national planning document which sets out high level requirements for local development plans and decision making. It is built on the premise of an 'assumption in favour of sustainable development'; a balance of economic, social, and environmental considerations. However, it is stressed that significant weight should be placed on the need to support economic growth through the planning system. For airports specifically, the NPPF requires that plans take account of their growth and their economic role (para:33), and strategies should be put in place by local authorities to provide viable infrastructure to support the expansion of large scale facilities like airports, and the demand for travel this will bring (para:31). New developments should seek to promote sustainable travel and so reduce the need for improvements to the local transport network.
- 5.22** Sections 10, 11, and 12 set out the requirements of responsible and sustainable development, such as conserving biodiversity, addressing noise pollution, and mitigating and adapting to climate change. It is also of note that section 7 requires that all developments incorporate the principles of high quality design and so should be developed to be "visually attractive as a result of good architecture and appropriate landscaping".

A revised NPPF was published by the Government in March 2018 for consultation.

Newcastle Gateshead Core Strategy (2015)

- 5.23** The majority of the Airport site falls within the area covered by this development plan, which sets out where and how development will happen up to 2030.

- 5.24** Land was originally removed from the Green Belt to support expansion of the Airport in the Newcastle upon Tyne Unitary Development Plan (1999), which also safeguards our public safety zones from development.
- 5.25** The Core Strategy must meet the requirements set out in the NPPF. The plan's vision is for a more prosperous and sustainable city, with one of the objectives being to increase economic performance and resilience. Policy CS5, focused on economic growth priorities, specifically recognises the Airport as a key economic growth driver for a knowledge based economy, as well as the region's global gateway. The importance of a range of international and national connections is recognised and the plan proposes to "support and facilitate expansion" (para 11.29) of the Airport as appropriate, as set out in policy CS13.
- 5.26** In addition to the support for the development of the Airports operation, the plan also supports, through policy KEA1, employment development on land to the south of the Airport site. In combination with the actual airport, the plan identifies this land as a 'key employment area' which is considered to be "major contributor to our economic prosperity".
- 5.27** Policy CS19 set out the approach to the approach to protecting the Tyne and Wear Green Belt. This planning designation seeks to prevent urban sprawl and the merging of settlements. Development of Green Belt land is closely controlled, and so developments around the Airport are restricted. However, the Airport itself and large parcels of undeveloped land are 'inset' within the Green Belt and are largely free from such constraint. The approach set out in this policy will be closely considered for all development.

- 5.28** The plan also contains numerous relevant policies on environmental and public protection. Policy CS14 is particularly significant as it sets out that the health and well-being of residents should be maintained and improved by preventing negative impacts on residential amenity from noise, contamination, and air quality. Policy CS21 also supports developments which incorporate sustainable waste management systems.

North Tyneside Local Plan (2017)

- 5.29** Aircraft fly over North Tyneside when arriving at or departing the Airport to the east. The plan therefore recognises the safeguarding issues this brings but also the potential noise impact of aircraft. Policy DM5.19 requires all development to take account of this, but any changes to our flight path and noise contours brought about by future development set out in this Masterplan will need to be reflected in future planning decisions. The plan also recognises in its key vision, the economic and quality of life benefits the Airport offers.

Northumberland Core Strategy

- 5.30** The northern part of the Airport site, which is largely occupied by car parking, is within Northumberland. Aircraft arriving from or departing to the west also fly over the county. The Northumberland Core Strategy was submitted to Government for examination, but was then subsequently withdrawn following a change of administration, and a new plan will now not be in place until mid-2020. The plan had specified through policy 45 that "the Council will support the sustainable development" of the Airport. We do not anticipate this policy stance changing when the amended plan is submitted to Government.
- 5.31** Until the Core Strategy is adopted the Castle Morpeth District Local Plan (2003) is the relevant local development document. The plan allocates land north of the runway outwith the Green Belt for 'airport related uses'.

¹¹ The Newcastle Gateshead Core Strategy (2005) replaced many of the policies in the Unitary Development Plan (1999), however many policies were 'saved' and continue to be valid.

6. Forecast Airport Growth

6.1 To understand our future development requirements, it needs to be understood how our operations may change and to what extent the Airport is likely to grow up to 2035. Airport development is influenced by three key factors: passenger numbers, aircraft movements, and air cargo.

- Passenger Numbers – the number of passengers passing through an airport each year drives and is dictated by the number of aircraft seats available. However it also has the same relationship with a wide range of other aspects of an airport such as surface access routes, car parking and terminal facilities.
- Aircraft Movements – The frequency and timing of flights, the type of aircraft in use, anticipated destination, and whether an aircraft is based at the Airport, can all be constrained by capacity of airside facilities such as apron space and runway performance and so indicates where investment will be required.
- Air Cargo Tonnage – the demand from the wider economy to move goods by air can drive the need for bespoke facilities, land and air side, to handle cargo, such as warehousing and processing facilities, and dedicated apron.

6.2 It is important to consider the wider projected growth of the air passenger market before setting out specifically how we anticipate the Airport will grow to 2035.

Global Air Passenger Market

- 6.3** The International Air Transport Association (IATA) released projections in 2016¹² for the growth of the global air travel industry. It is projected that annual passenger numbers will nearly double by 2035 from 3.8 billion passengers to 7.2 billion, with Europe expected to have a further 570 million per annum by the end of this period.
- 6.4** For the UK market specifically, IATA's forecasts indicate that over 100 million additional passengers will fly per year by 2035, at which time it will be the 4th largest aviation market in the world at just over 300 million annual passengers. IATA has also reviewed scenarios of the possible impact of the UK leaving the European Union¹³. Even modelling of the most pessimistic scenario still projects that the passenger market will be 45.5% larger by 2035 with an additional 90.7 million passengers travelling per year.



¹² <http://www.iata.org/pressroom/pr/Pages/2016-10-18-02.aspx>

Newcastle Airport - Recent Growth Levels

- 6.5 Over the past 20 years passenger numbers at the Airport have grown significantly, with 102% growth from 2.6m in 1997 to 5.4m in 2017 (passenger figures rounded). However, we, like other regional UK airports, were impacted by the global economic crash, as well as the added financial burden of increased air passenger duty. As a result of these factors, passenger numbers are still to recover to the pre-recession high of 5.65m in 2007.
- 6.6 Post-recession recovery of passenger throughput was initially slow, a pattern seen across the country. However there has been an acceleration of growth in recent years as the wider economy has recovered. Passenger numbers grew 6% in 2016 over the previous year, and 10% in 2017,

the highest rate of annual growth since the late 1990s. This has been primarily driven by the growth of the low cost sector at the Airport offering new destinations and added capacity on long standing leisure routes.

- 6.7 Air traffic movements have fluctuated greatly over the past two decades, peaking at nearly 83,000 in 2000. After the global economic crash of 2007 there was a steady and significant fall, dropping to a low of just under 56,000 in 2015. This was primarily driven by fewer commercial movements but there was also a decline in corporate flights, small aircraft movements, and military operations, as the size of the armed forces reduced.

- 6.8 Growth or decline in aircraft movements does not necessarily coincide with the same trend in passenger numbers. Use of larger aircraft can result in greater passenger carriage with the same number or even less movements. This may have been driving the trend since 2011 of growing passenger numbers from fewer flights. However, movements started to increase again in 2016 as new routes started to operate and there were 59,407 in 2017.

Figure 7 – Total Annual Passengers 1997-2017

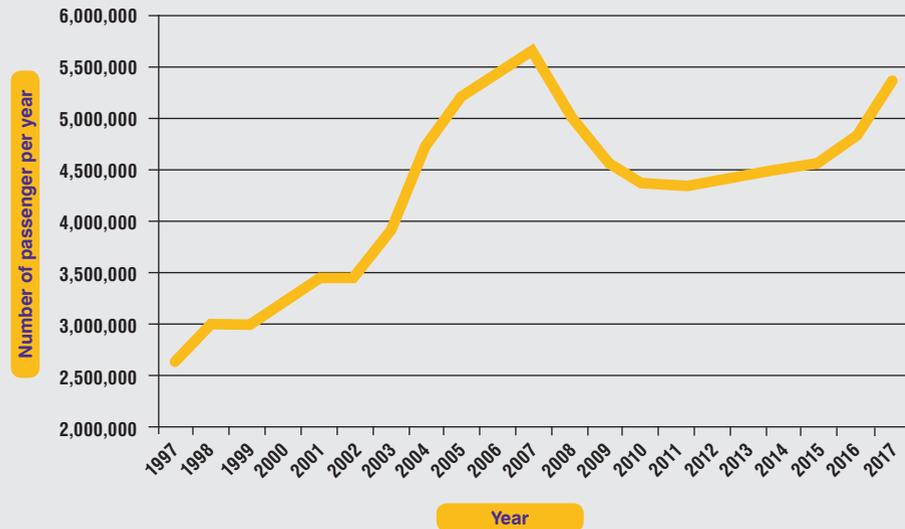


Figure 8 - Total Annual Aircraft Movements 1997-2017



Forecast Growth in Passengers and Aircraft Movements

6.9 As is standard practice for airports, a range of passenger forecasts have been produced. As has been the practice previously for Newcastle Airport, the Masterplan is based upon the higher end of the forecasting range. This provides greater certainty that sufficient land has been safeguarded to provide for the Airport's development needs and is included in the relevant Local Authority Development Plan allocations. It provides members of the public and other stakeholders with an assurance that the maximum potential impact of the Airport's future development has been considered and can be mitigated. It also allows us to make representations to Local Authority Development Plans and on planning applications in the vicinity of the Airport to ensure that developments, such as housing, that could be

an impediment to the future growth of the Airport don't go ahead, or go ahead with appropriate conditions relating to issues such as aircraft noise.

6.10 In drawing up this Masterplan, the higher growth forecast we have used indicates growth in passenger numbers of up to:-

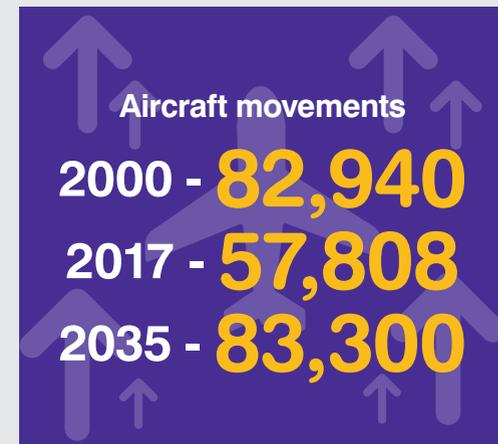
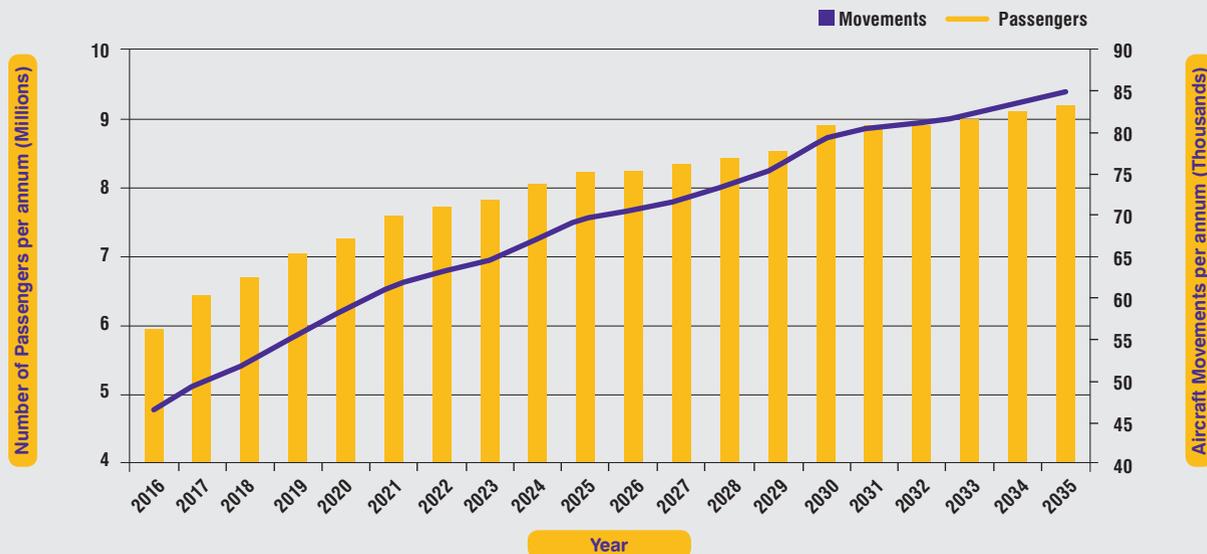
- 7.6m by 2025
- 8.7m by 2030
- 9.4m by 2035

6.11 The forecast assumes growth will be driven by an expansion of our domestic, European, and transcontinental route network, as well as some upsizing of aircraft on existing routes.

6.12 In the higher growth forecast, aircraft movements are expected to continue the trend shown from 2015-2016 with a small but continual increase each year. It is anticipated that by 2025 there will be up to approximately 75,200 movements, up to 80,800 in 2030 and by 2035 up to 83,300. The 2035 total would be an increase of up to 40% over the 59,407 handled in 2017, but would only be slightly greater than the number of movements in the year 2000.

6.13 As our forecasts indicate that new airlines will be serving the Airport and our route network will be expanded, this will result in additional aircraft movements. The projected growth in long haul routes will also result in large growth in passengers through less frequent movements, however, we anticipate that airlines will continue to upsize aircraft on existing routes adding capacity without the need for additional flights.

Figure 9 - Passenger and Aircraft Movements 2016-2035 (Higher Growth Forecast)



Cargo

- 6.14** Although the Airport is currently not a major hub for air flown cargo, our operation is larger than most other UK airports of a similar size in terms of passenger numbers, aside from the major cargo hub at East Midlands Airport. However it is an area of the Airport's operation where we have identified the demand and physical capacity for growth.
- 6.15** The volume of cargo passing through the Airport over recent years has fluctuated with demand and wider economic activity. Over 9,500 tons of cargo was flown in 2016, broadly a 12% increase from the previous year. The value of these exports was over £350m.
- 6.16** The capacity of belly holds on wide body aircraft such as the Emirates Boeing 777, and the market opportunities trans-continental routes open up for exporters, shows the growth in cargo movements which could be brought about by more direct long haul routes. Indeed, this is identified by Transport for the North as the means by which northern airports should grow their cargo services.
- 6.17** The Airport does not have bespoke forecasts for the growth of air cargo to 2035. It is highly dependent on locational decisions made by individual cargo companies and carriers, both at the Airport and in the wider market. However, there are a number of reasons why we expect our cargo operations to expand, both in terms of current and new operators.
- 6.18** Goods shipped by air tend to be high value and/or their delivery is time critical, such as advanced manufactured products, parts in a global just-in-time delivery systems, pharmaceuticals, and fresh produce. The Government's emerging Industrial Strategy, Transport for the North's

Independent Economic Review, and the Strategic Economic Plans for the North East and Tees Valley LEPs all identify the growth potential for these key high value sectors, and strategy interventions to facilitate this. They also identify the need to support an increase in exports. This in turn could lead to a larger market for air flown cargo.

- 6.19** In addition, in a globalised and digitised economy where the demand for the movement of some goods direct to homes now often skips the traditional high street, there is an apparent growing demand for the development of last mile freight facilities, where goods can be transferred between modes. Land south of the runway is able to accommodate such development.

6.20 Globally the market for air cargo is expected to continue to grow over the Masterplan period. Boeing has forecast that world air cargo traffic will grow on average 4.2% per year from 2015-2035, and as such they and other manufacturers have a healthy order backlog for freighter aircraft¹⁴.

- 6.21** In addition to those factors, we anticipate that there will be growth in long haul services utilising wide body aircraft, which will add significant capacity for goods to be carried in their belly holds.



¹⁴ <http://www.boeing.com/resources/boeingdotcom/commercial/about-our-market/cargo-market-detail-wacfl/download-report/assets/pdfs/wacfl.pdf>



7. Economic and Social Benefits of Growth

The Economic Impact of Aviation

7.1 The UK is a global trading nation. In December 2017 alone the value of exported goods and services was nearly £87 billion¹⁵, with imports valued even higher. Being able to get to existing and new markets efficiently is vital for maintaining and establishing trade links. As well as establishment of lasting links between economies, air travel also facilitates the transfer of innovative ideas, technologies and cultures, which can augment the productivity of own economy. However, air travel is equally as important for investment and spending in the UK. The value FDI in the UK in 2014/15 surpassed £1 trillion, creating over 85,000 jobs, and foreign tourist spend in 2015 was over £25 billion¹⁶. In a globalised economy the capacity for air travel needs to meet demand if these economic benefits are to grow.

7.2 In 2011 the UK’s air transport sector had a turnover of about £120 billion and directly contributed over £10 billion to the UK economy¹⁷. It is also a huge source of jobs with 120,000 employed in the sector. The air transport sector is intrinsically linked to the civil aerospace sector, in which the UK is a global leader. Growth in air travel can lead to increased demand for the manufacture and maintenance of civil aircraft. Combined these sectors support over half a million jobs directly or indirectly, so nationally, growing the aviation sector will be hugely beneficial to the wider economy.

The Impact of a Regional Airport

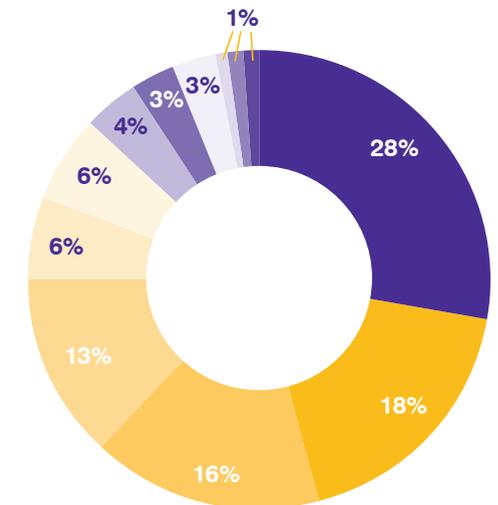
7.3 The economic impact of the Airport on the regional economy through jobs and added GVA can be categorised into a number distinct categories centred on the operational impacts of the Airport itself, and the wider economic impacts of the connections our route network offers -

- **Direct** – The jobs and GVA added by the activity of the Airport itself. Most of these will be on-site with some offsite but directly linked to the Airport’s operation;
- **Indirect** - Spending in the local supply chain from the Airport, which creates further jobs and economic value;
- **Induced** - Salaries from the direct and indirect employment is spent in the regional economy, supporting more businesses and jobs seemingly unconnected to the Airport;
- **Business Travel** – The Airports route network allows for the two way flow of trade, investment, knowledge, and technology. This leads to both added productivity and value to the region;
- **Tourism** – Visitors to the region bring added spending, particularly supporting companies and employment in this sector.

Newcastle Airport and the Regional Economy

7.4 Recent growth in passenger numbers has brought complementary growth in the Airport’s economic impact. There are currently about 3,450 people employed directly on the Airport site, with another 500 off site jobs directly supported. The majority, around 75%, are employed full time. The structure of this employment is dominated by airlines, ground handling, and the Airport itself.

Figure 10 Airport Employment Structure



- Airline
- Ground Handling
- Airport Company
- Concession
- Ground Transport
- Hotel
- Cargo
- Control Agencies
- Airline Services
- Other
- Private Aviation
- Maintenance and Engineering

¹⁵ONS – UK Trade December 2017, ¹⁶ONS - International perspective on UK foreign direct investment (FDI): 2014, ¹⁷Aviation Policy Framework (2013)

Table 1 - Economic Impact of Newcastle Airport - 2017

Economic Impact		
	Jobs	GVA (£m)
Operational - Onsite	3,450	£240m
Operational - Offsite directly linked to the Airport's operation	500	£40m
Operational Indirect and Induced	5,750	£250m
Total Operational Impact	9,700	£530m
Wider Impacts	9,200	£630m
TOTAL	18,900	£1.16 billion



7.5 Directly these jobs contribute around £280m in GVA to the regional economy. When the induced and indirect impacts are factored a further £250m is pumped in the economy each year, supporting an additional 5,750 jobs. However, when its impact on the wider regional economy is considered the value of the Airport's growth is even more pronounced.

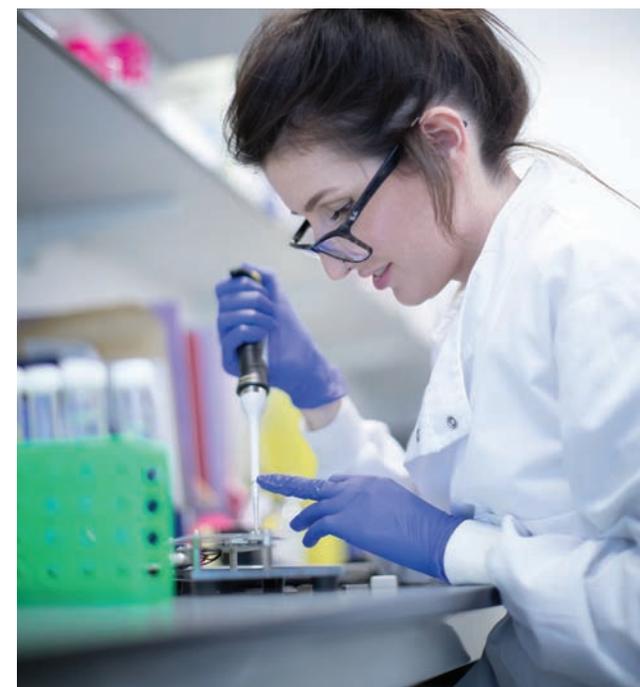
7.6 The North East has an export orientated economy in which recent years has been one of the few UK regions with a positive balance of trade. The vibrant manufacturing sector has key sub-sectors such as automotive, sub-sea and offshore engineering, advanced manufacturing, and pharmaceuticals, which are internationalised and export orientated. The service sector is also globally focused with over 17,000 financial and professional services companies in the NELEP area alone, including the headquarters of large multinationals. The education sector is also important; with 5 universities in the region, the Airport offers the international connections for students and staff alike, supporting global collaboration in research and teaching in key areas such as life sciences.

7.7 Tourism is also a vital part of the North East economy. The international connections the Airport provides is a driver of the number of tourists visiting the region from abroad and elsewhere in the UK, and therefore the number of tourism related businesses and jobs in the region.

7.8 This gives a flavour of the type of sectors and businesses positively impacted by the Airport, and it's where our growth can have a particularly positive impact. It is widely recognised that companies that trade internationally grow and innovate much faster than non-exporters¹⁸.

7.9 The Airport currently supports around 9,200 jobs across the region as a result of the international connections offered at the Airport in terms of linking businesses to markets and bringing in visitors to the region. These wider impacts generate around £630m for the economy per annum. As part of these overall wider impact figures, 5000 jobs and £150m in additional regional GVA can be attributed to the positive impact the Airport has on the tourism sector.

7.10 Combined the value of the wider economic impact of the Airport is in addition to the economic impact of the Airport operation. As the regional GVA for the whole of the North East was £51.5 billion in 2016¹⁹, the Airport's overall impact equates to over 2% of the economic value of the North East. This illustrates how critical the Airport is for economic growth and the importance of an ambitious masterplan for growth, the benefits of which will be region wide.



¹⁸ 'The North East Strategic Economic Plan' (2017)

¹⁹ ONS - Regional gross value added (income approach), UK: 1997 to 2016

Forecast Economic Impact

7.11 Economic impact forecasts for the Airport up to 2035 have been produced by York Aviation, based on the projected growth in passenger numbers and routes. The Airport's growth is expected to have a significant positive impact on jobs and GVA.

7.12 On the Airport site itself, and at businesses directly associated with our operations, it is expected that job numbers will increase from 3,950 in 2017 to 5,475 by 2035, while GVA is expected to grow by 79% from £280m to £500m. The growth in job numbers is tempered slightly by projected increases in productivity, whereby the

economic value of the Airport's operations grows by making better use of existing resources.

7.13 When the indirect and induced impact of our growth to upto 9.4m passengers by 2035 is also considered, the combined impact is projected to grow jobs to 14,175 with a contribution to regional GVA of nearly £1billion per annum.

Figure 11 - GVA and Employment Growth 2017 - 2035 - Direct Airport Impact

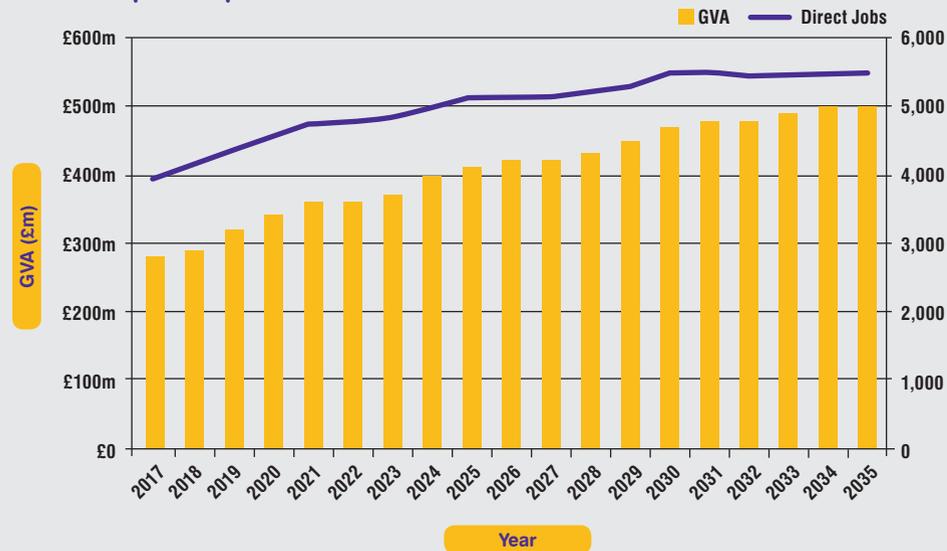


Figure 12 - Forecast GVA Impact from Operational Airport Growth

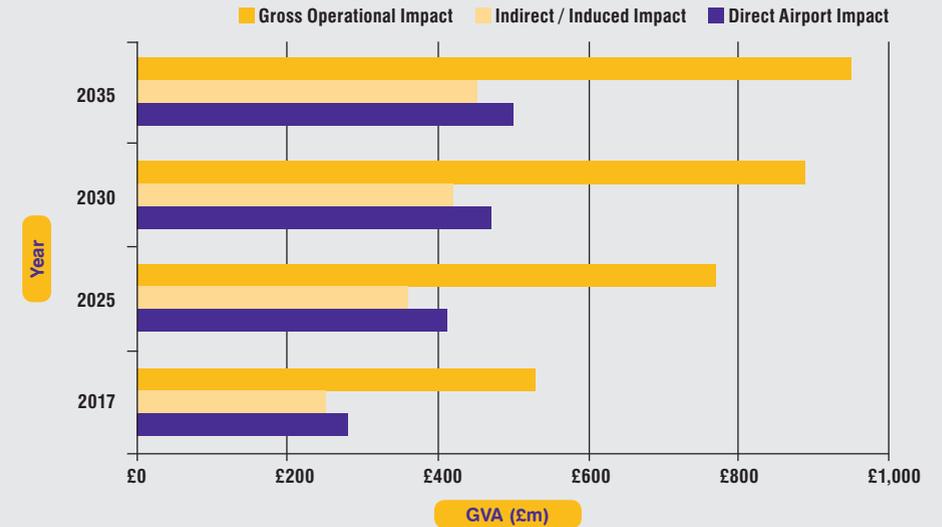
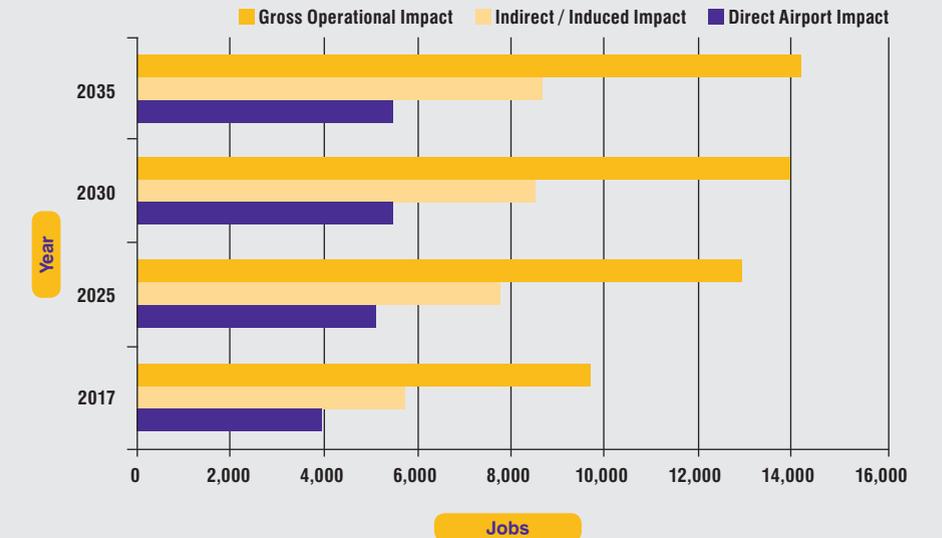


Figure 13 - Forecast Employment from Operational Airport Growth



7.14 As indicated, the wider economic impact of the Airport in the North East goes well beyond the impact of our operations and the spending power of our employees. The wider impacts of Airport growth will result in around 4,425 additional jobs and £410m added GVA to the region's economy over the Masterplan period. By 2035 13,625 people could be employed because of the connectivity provided by the Airport, adding over £1billion per year to the value of the economy. Of this total, the number of jobs supported in the tourism sector is forecast to grow by at least 64%, increasing to 7,775, with its value expected to grow by around 87% to £280m by 2035.

7.15 Combined, the direct and wider economic impact of an expanded route network and higher passenger throughput at the Airport in 2035 are forecast to be to be substantial, with potentially nearly 28,000 jobs supported across the region and over £2 billion pumped into the North East economy.

Economic Impact of the Southside Employment Development

7.16 Although the main economic benefits of delivering the Masterplan will be derived from the growth of the Airport and our route network, the continued support for the use of Airport land to the south of the operational area in order to deliver new employment development, also has the potential to deliver substantial job and GVA growth.

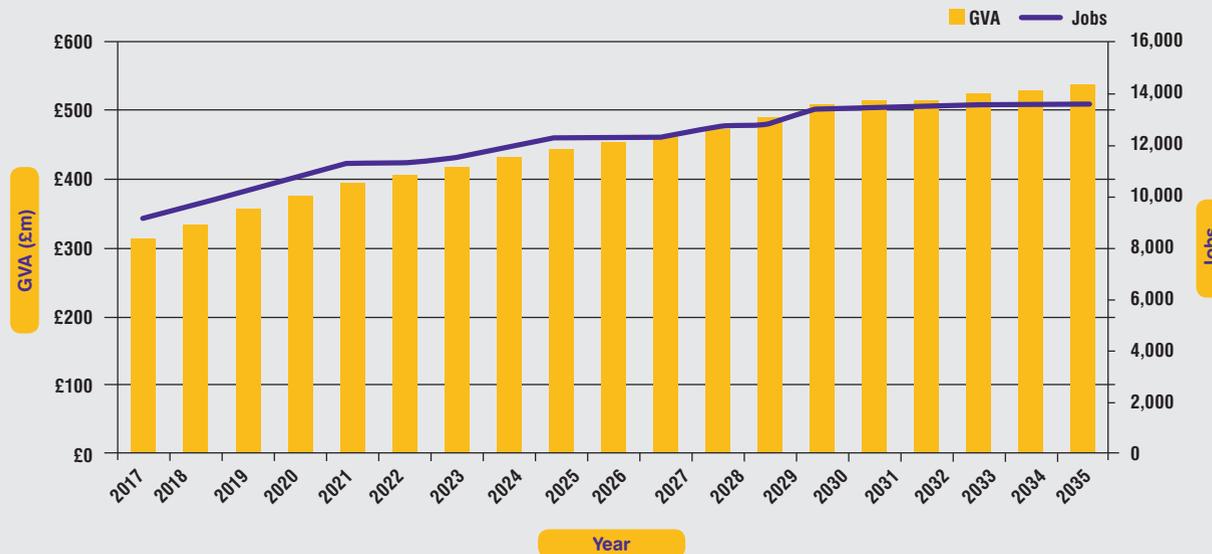
7.17 The take-up of land on employment sites is difficult to forecast. Changes in macro-economic conditions, the supply of alternatives in the local market, and the propensity for bespoke development requirements to emerge unexpectedly, can all result in peaks and troughs in build and occupancy rates. It is not expected that all the sites will be built out in full over the Masterplan period, indeed site C is still within the Greenbelt set in the Newcastle/Gateshead Core Strategy, which runs to 2030. However we believe with

Table 2 - Overall Forecast Impact of Airport Growth 2017 – 2035

2035 27,800		
	On-site	Total region
2017	3,450	18,900
2025	4,475	25,150
2030	4,775	27,375
2035	4,775	27,800

2035 £2.03bn		
	On-site	Total region
2017	£240m	£1.16bn
2025	£350m	£1.66bn
2030	£400m	£1.91bn
2035	£430 million	£2.03 billion

Figure 14 - GVA and Employment Growth 2017 - 2035 - Wider Airport Impact



continued drive from the Airport and development partners, the sites have the potential to deliver significant employment growth.

- 7.18** In total the sites offer 153 acres of gross developable land, with the potential to accommodate over 250,000m² of employment space if fully developed. This could deliver around 5,700 jobs directly and further 3,500 indirectly by 2035, generating a total of around £350m in GVA, with £240m of this coming directly from the operation of businesses on the site. Section 8 provides more detail on how we envisage the sites will be developed.

Contribution to Public Spending

- 7.19** In addition to being a key contributor to economic growth, the Airport also provides significantly to the public purse through various taxation streams including Air Passenger Duty. Therefore, through our growth a greater contribution can be made to protect and grow public sector employment and services. This impact is strengthened by the fact the we are 51% owned by local authorities and so growing revenue for the Airport can directly result in more funding for local authorities in the region.

Social and Cultural impact

- 7.20** The growth of our route network does not only bring economic benefits, but also social and cultural. Having the time and means to travel are widely recognised as an important indicator of quality of life, and a contributor to positive personal development. An expanded route network gives people in our catchment a wider choice of destinations to travel to with ease, where different cultures and ways of life can be experienced first-hand. This offers greater opportunity for exchange of ideas, values, language, and the creation of cross cultural friendships. Similarly growing the number of international visitors allows more people to experience the people and unique culture of Northern England, helping to promote our region to the world.
- 7.21** Our recent growth has also made the region more appealing for international students, boosting income and the global profile of our universities. Those who potentially settle in the region afterwards, as well as other migrant workers, are able to travel home and be visited by friends and family more easily, making the choice of staying in the region more appealing. The retention of skilled graduates is also a significant positive for the regional economy.
- 7.22** The delivery of the Masterplan could therefore contribute to better human and social capital, where our passengers and their network of relationships are positively impacted by having a greater choice of destinations and the ability to travel internationally.





8. Development Plan

8.1 To deliver the forecast growth of the Airport and secure the far reaching economic and social benefits this will offer, there will need to be investment in improvements to our operation. Additional infrastructure will likely be needed airside and landside to both stimulate and meet the needs of future demand.

8.2 As the Masterplan is a long term strategy the specific development needs are reviewed at spaced out intervals, starting from the 2017 base year. Key diagrams in Appendix 1 illustrate what may have been developed by -

- 2025
- 2030
- 2035

The development needs for the following are set out –

- Runway Length
- Runway and Taxiway Capacity
- Terminal and Apron
- Airside Ancillary
- Car Parking
- Landside Ancillary
- Freight and Employment Sites

8.3 Assessment of our future requirements is largely based on a study undertaken by global consultancy Arup, working closely with staff from different specialisms at the Airport.

Runway Length Performance

8.4 The Airport's current single runway is 2,329m (7,641ft) in length and 46m wide. Runway 25²⁰ (takes off towards the West) is used about 70% of the time, owing to the prevailing wind direction from the west, as aircraft need to take off into the wind to achieve greater lift. However, an area of high ground to the west of the Airport, known as Callerton Hill, needs to be cleared on take-off. Runway 25 also has a slight upslope.

8.5 The presence of this high ground means that aircraft generally require more engine power to take-off safely than they ordinarily would on a runway of a similar length under the same atmospheric conditions. This uses more fuel at take-off which means that more has to be carried, adding weight to the aircraft. This issue presents the following challenges to our present and future operation –

- Under some weather conditions and to certain current destinations, narrow body aircraft, because of the weight of the fuel needed and the amount used at take-off, either have to make a technical fuel stop on route, or operate with a reduced passenger load. This can have

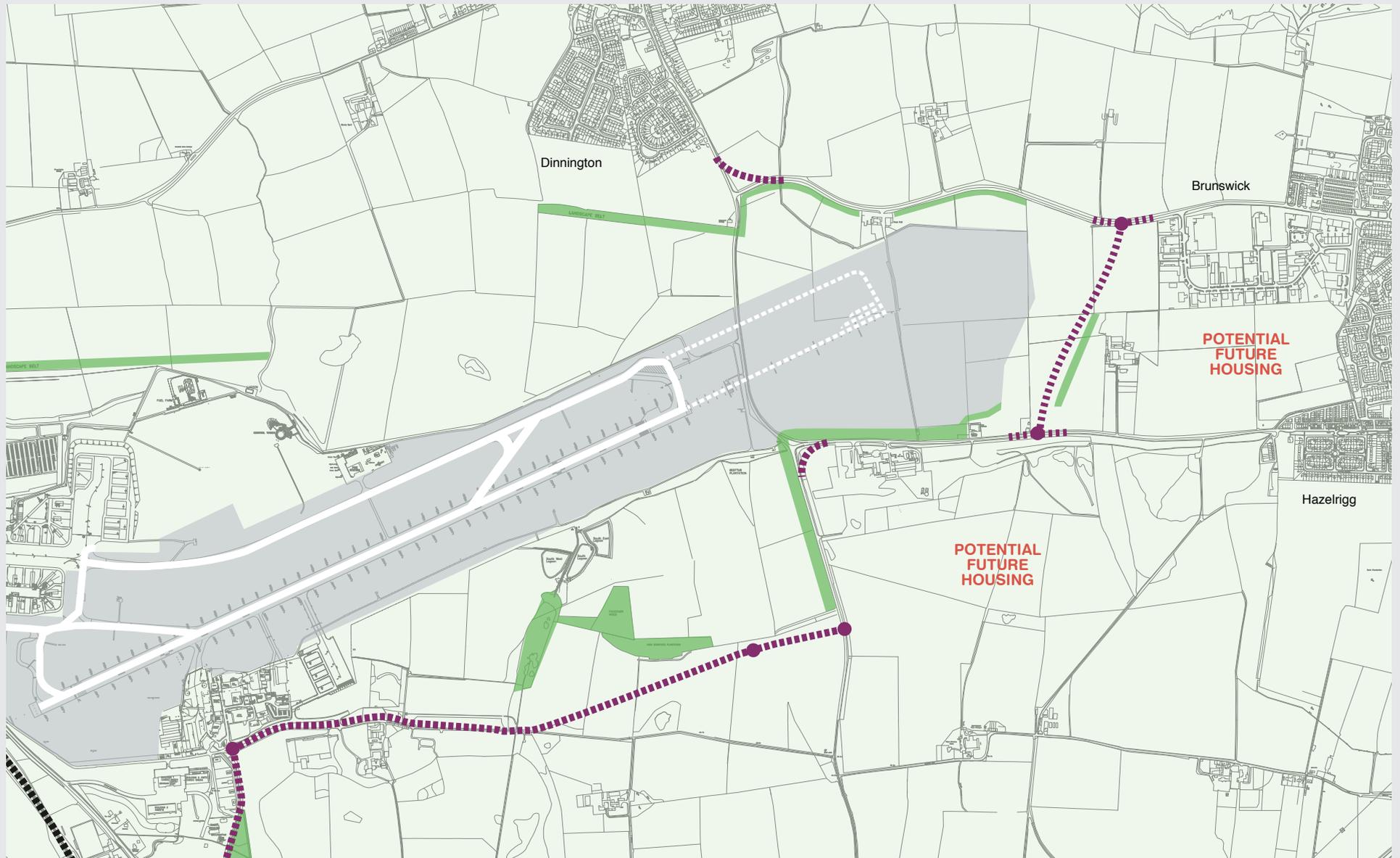
an adverse impact on the financial performance of affected flights.

- Larger wide body aircraft serving long haul destinations can be restricted when using the Airport. Depending on the destination and aircraft type there may need to be a trade-off between the three contributors to aircraft take-off weight: fuel, cargo, and passengers and baggage. The fuel needed to travel to a destination is largely set; therefore passenger numbers and/or cargo load may be reduced which could impact the viability of services to some destinations.
- The need for added engine power to clear Callerton Hill also increases engine wear and the higher fuel burn on take-off adds cost to current and future airline operations.
- The current runway's stopping distance results in greater brake wear, especially for larger aircraft.

8.6 We have already carried out 'soft measures' such as the reduction of vegetation at the western end of the runway to lessen static obstacles. However there is a limit to the impact such measures can have on the performance of aircraft using the runway.

²⁰ Runway 25 is aircraft departing to the west and arriving from the east, with runway 07 being the opposite. The names relate to the degree of orientation.

Figure 15 – Land Safeguarded for Possible 700m Runway Extension at the Eastern End



- 8.7** A runway extension was previously proposed by the Airport in the 2003 Masterplan and then was subsequently removed in the 2013 revision. This was based on the expectation that aircraft technological advances would negate the need for an extension, which we still hope to be the case, and our forecasts indicated that there would be limited growth of long haul services using larger aircraft.
- 8.8** Improving technology is contributing to better performance of aircraft on our runway, and it is hoped that future types and classes of aircraft will boost the range of destinations that can be operated from the runway. Our forecasts indicate that increased leisure and business long haul will be an important growth area, which is reinforced by Transport for the North's identification of key routes we would need to attract to bring about transformational economic growth for Northern England. Based upon existing and known future aircraft performance, a runway extension may be required in order to operate some of these routes. Notwithstanding the possibility of further improvements in aircraft performance, it is appropriate that this Masterplan safeguards for a possible future runway extension to mitigate against any operational constraints to growing the international network for the benefit of the regional economy.
- 8.9** The area safeguarded for a possible extension would need to be to the east, as extending to the west would not address the issues identified, would demand crossing the A696 and the Metro line, and would require substantial land levelling.

- 8.10** To determine what length extension we should safeguard for, analysis was undertaken to review the range capabilities of different aircraft types, under the same typical atmospheric conditions, at differing take-off weights. To achieve a runway length where all existing and known future aircraft types could operate to their maximum capabilities, demands an extension of over 1,400m. We consider that to safeguard for such an extension would be inappropriate as it would be prohibitively expensive and would have too great an impact on nearby communities.
- 8.11** It has been identified that an extension of the current runway by 700m should be safeguarded, to give a total length of 3,029m (9937ft.). This would achieve a good balance of cost, benefit and impact, and would largely eliminate the performance restrictions of the current runway based upon existing and known future aircraft performance. This is illustrated in Figure 15.²¹



²¹ Surface surrounding the runway prepared or suitable for reducing the risk of damage to airplanes in the event of an undershoot, overshoot, or excursion from the runway.

8.12 This Masterplan proposes to safeguard for a possible runway extension should the need arise, but does not necessarily represent an intention to build one. In the event that an extension were to go ahead, the following benefits could result –

- Some existing aircraft types will be able to operate to their maximum capability with others able to carry passenger/cargo loads with only limited restrictions. In the event that hoped for, but as yet unknown, improvements in aircraft performance do not materialise, then this substantial increase in length would allow for all destinations we anticipate we could fly to in the future, without commercially unviable restrictions. The

destinations that could be achieved are shown in Figure 16, although we do not expect there to be demand for all of these to be served.

- The potential for dedicated cargo operations would be improved, with larger aircraft and/or heavier payloads a possibility. This is especially true for one-off shipments by companies meeting the bespoke needs of their customers.
- The efficiency of aircraft on existing routes served from the Airport would likely be improved with a longer take-off run requiring less engine power and so a lower fuel burn. This will improve the economic and environmental performance of flights.

- A reduction in engine power at take-off would likely result in lower noise emittance.

8.13 Figure 17 shows the range which would be achievable on the extended runway for different existing aircraft types operating at around 80% of the maximum take-off weight for each type, accounting that a full fuel load and /or full passenger/cargo may not always be needed.

8.14 The current width of the runway and taxiways would not allow for the operation of the Airbus A380. However, we do not expect to have this aircraft type operating from the Airport within the Masterplan period, with any new long haul routes utilising smaller, twin engine aircraft. As such we consider that this restriction will not hinder our future growth.

8.15 In order to safeguard for the possibility of a runway extension and to ensure that Local Authorities also make provision for it in their development plans and in determining planning applications for housing and other noise sensitive development in the local area, we have made an assumption that it would be implemented by 2035. This is shown on the 2035 key diagram. We have also produced noise contours for 2035 that take account of both the growth of the Airport and a possible runway extension. These contours will assist the Local Authorities in ensuring that no housing and other noise sensitive developments go ahead in locations that might prevent the Airport from growing in the future. Future improvements in aircraft technology might mean that the extension isn't needed until after 2035, if at all, but it is important for both the Airport, and the future connectivity and economic growth of the North East region, that we safeguard for this possibility.

Figure 16 – Aircraft Range Performance on Extended Runway



8.16 There are number of implications which would stem from such a possible extension –

- The runway would extend onto agricultural land which is currently within the Green Belt. However, we believe that the openness of the Green Belt would be preserved as well as the separation of settlements. Combined with the economic benefits the development would bring, we think there is a compelling case for very special circumstances so that the development could be supported, as per paragraphs 79-92 of the NPPF.
- This land is not under the Airport's ownership. Should a runway extension go ahead, the Airport Company will seek the purchase of this land by negotiation, but it does have compulsory purchase powers as a last resort.
- There would be a change to arrivals and departures which would result in aircraft being at different heights than they currently are when flying over certain areas. This will result in a slightly larger population potentially being impacted by aircraft noise. This is addressed in section 10.
- The Public Safety Zone at the eastern end of the runway would move, resulting in land to the North of Brunswick Village being subject to development restrictions.

Runway and Taxiway Capacity

- 8.17** The capacity of the runway dictates how many aircraft can safely operate in a given period. It is measured in movements per hour, and can be influenced by a number of factors such as aircraft type, weather, taxiway provision, air space restrictions, and safety and regulatory requirements.
- 8.18** The Airport currently has two rapid exit taxiways to allow for aircraft to clear the runway as quickly as possible after landing, and a parallel taxiway, which removes the necessity for aircraft to taxi on the runway itself. These features provide quite a high existing capacity for our single runway.

- 8.19** The current runway capacity is 30 aircraft movements an hour in total, with no more than 18 departures and 12 arrivals (or vice versa). Corresponding with the peaks and troughs of terminal passenger throughput, there are times when aircraft movements are concentrated. However, analysis of our forecast peak day schedules indicates that future demand can be comfortably accommodated within the existing runway capacity. It is therefore not considered that there is any need for an additional runway up to 2035. Indeed there are many single runway airports which operate well in excess of our projected future passengers numbers.
- 8.20** Although there is sufficient capacity to provide for growth, we will consider making improvements to make sure use of current infrastructure is as efficient as possible, and so maximise use of the existing airfield.

- 8.21** The location of the terminal at one end of the runway does not make for the most efficient airside operation as taxiways mix with aircraft stands in quite a confined space. This can sometimes delay arriving aircraft getting onto their stand or restrict use of taxiways when departing aircraft are pushing back. Two definite pinch points have been identified.
- 8.22** At present the Airport has a 'holding taxiway' at the western end of the runway for aircraft ready to depart. They will hold on this area until given clearance for take-off by ATC. There is currently only space for 2 narrow body aircraft to wait at any one time, as any more results in access to the stands south of the pier being blocked. This can result in aircraft waiting on stands longer than is necessary. A widening of this taxiway would allow for dual queuing and so improve the efficiency of the airfield, as shown in Figure 17.



8.23 The second pinch point is at the end of the terminal pier, where aircraft pushing back block the taxiway running to the east and access to the south of the pier and runway 07. This issue is magnified when a large aircraft push back from 'stand 30' (as shown on Figure 18), as this also blocks the exit/entrance to the parallel taxiway and access to the south of the pier. A possible solution is the development of a bypass taxiway to the east of the existing one which will allow aircraft to circumvent this pinch point.

8.24 A further issue which was identified in relation to the parallel taxiway was that repairs are made difficult by the daily service to Dubai. Although smaller aircraft can travel up the runway when taking off to the west and turn 360 degrees, there is not physically room for larger aircraft to do so, within regulatory limits. Any repairs have to be done in a restricted timeframe to accommodate the current daily Boeing 777

service. With our forecasts indicating that more wide body aircraft are likely to operate in future years, this development is even more important. It is possible that a turning area could be added to the existing runway for when runway 25 is in use. This is illustrated in Figure 19.

Enhanced Passenger Facilities (Terminal and Apron)

8.25 Providing terminal space for the multitude of functions it accommodates is essential to ensure that future demand can be met, and our passengers continue to experience a high quality environment.

8.26 The Airport's current terminal provides 45,150sqm of floorspace, which has increased since the last Masterplan through the development of an extension to provide additional space for security. A further small extension is currently under development which will provide additional space for the Airport's immigration service, and an extension to the passenger departure lounge above this development now also has planning permission. The terminal's single pier extends eastward, providing additional passenger facilities and access to gates and air bridges to board aircraft.

Figure 17 – Potential Taxiway Widening

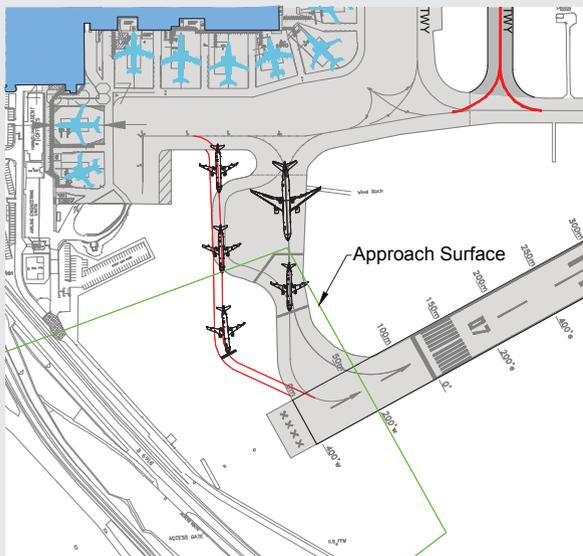


Figure 18 – Potential By-pass Taxiway

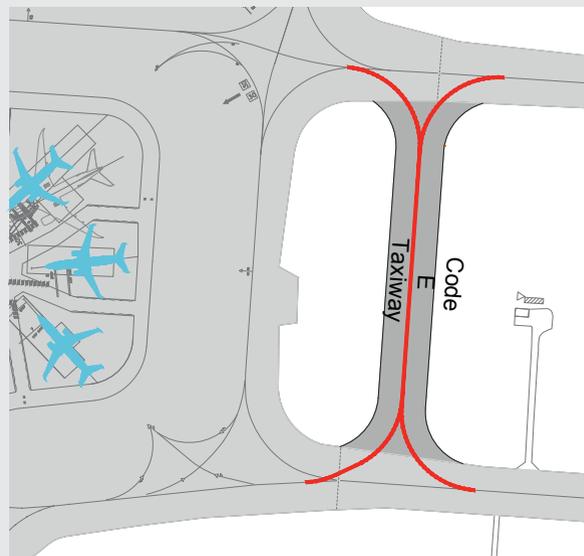


Figure 19 – Potential Runway Turning Area



8.27 The Airport terminal is a complex system of interactive components, these include

- Landside concourse, check-in and ticketing facilities,
- Baggage processing for departures and arrivals,
- Security,
- Passenger departure hall/lounges
- Retail and catering facilities,
- Airline and ground handling agent offices and crew rooms,
- Immigration,
- Departure gates and bus airside transfer waiting areas.

8.28 Different elements interact and are dependent on capacity on the Airport apron and the passenger parking and pick-up and drop-off facilities. Each part needs to be planned individually as well as collectively, so that each element is meeting the demands placed upon it by growth in passenger numbers and aircraft movements, and consequently the system as a whole operates within capacity.

8.29 Passenger throughput in the terminal is not uniform. Peaks in daily movements and the seasonality of flights from the Airport often mean the terminal is operating well below its identified capacity. However, clearly we need to plan for providing close to our expected maximum through flow. The identified opportunities for growth and our future forecast flight schedules indicate that there may be growth where latent capacity exists. More flights at quiet times of the day, and more outside of our current summer peak, will be able to be accommodated within the limits of existing facilities. This intelligent scheduling to improve efficiencies will be

especially pertinent for additional long haul services where large numbers of passengers could be served without placing additional demand on busy periods. However, there will always be focused commercial demand to fly at peak times.

8.30 We know that there is excess capacity in the existing terminal to accommodate peak day forecast passenger growth well into the Masterplan period. However incremental investments and efficiency measures in one element of the terminal can improve the capacity and quality of service elsewhere. This can often be achieved within the existing fabric of the building, or through very modest additions.

8.31 There is also the potential to utilise technology to reduce the need for additional physical terminal space for some elements of the passenger journey process. We have already introduced a number of self-check-in kiosks and boarding pass scanners. The Airport is committed to embracing new technologies to improve the efficiency and quality of the terminal operation. This could include –

- Self-baggage drops allowing for passengers to part with their luggage as soon as they get to the Airport, and when combined with self-check kiosks can reduce space needed for queuing at check-in;
- Remote baggage drops allow for passengers to be free of their checked luggage before they enter the terminal. Drop off points in the car park or potentially even off site;
- Improvements in the security process such as biometric technology may allow for fast verification and possibly eliminate the need to present multiple documents at different stages of passing through the Airport;

- Mobile apps could keep passengers informed of delays to allow them to plan their journeys to the Airport accordingly;
- Remote check in and smart ticketing allows for passengers to undertake parts of the Airport journey before they leave for or on the way to the Airport.

8.32 The Masterplan is not intended to be prescriptive how a major physical expansion of the terminal will be provided if required. There are many site constraints and opportunities which dictate several viable options, such as –

- An extension directly to the north of the existing terminal creating additional space at all levels and both airside and landside;
- A southern extension to the terminal;
- A satellite pier or concourse north and north east of the current terminal physically connected to the existing terminal by a passenger walkway;
- A physically separate satellite pier or concourse serving remote stands, with passengers travelling to it by ground transport;
- A modest extension of the existing pier.

8.33 Any development of additional terminal capacity needs to be closely planned in association with the identified demand for future apron capacity to provide for the forecast increase in aircraft movement, as well as the nature of future peak schedules in terms of aircraft types and flight times.

8.34 The apron is the area of the airfield where aircraft park on stands to load and unload passengers and cargo and get serviced for their next flight, as well as the surrounding hardstanding for Aircraft to 'push back' to then join taxiways. The Airport has both contact stands (those directly adjacent to the terminal and pier) and remote stands which demand that passengers are bused to the aircraft.

8.35 The Airport currently provides 12 'contact' aircraft stands adjacent to the pier and terminal; with a further 16 remote stands. The stands can be configured in various ways to accommodate different aircraft types, so there is a maximum capacity for 36 aircraft at one time, although clearly having a greater number of larger aircraft at the Airport at the same time would reduce this capacity. The current commercial peak is around 21 aircraft, but we know that there are times when additional aircraft are on stand and the apron is operating close to capacity.

8.36 Like the terminal, the apron has peaks and troughs of activity, with the need to accommodate parked aircraft overnight, in a particular busy period. It is essential to plan for the maximum forecast demand, with a buffer to account for non-scheduled demands like private and military aircraft.

8.37 Our forecasts indicate that over the Masterplan period there may be a growth in both the maximum number of aircraft at the Airport at one time as well as potentially more, larger aircraft needing to be accommodated at the same time. This could result in the need for potentially 7 additional aircraft stands for single aisle, short haul aircraft and 4 or 5 for wide body, long haul planes, as well as associated apron, with this demand for additional infrastructure being phased across the Masterplan period.

8.38 Although dependent on how the possible need for new terminal capacity is ultimately met, there are two main options to meet the demand for additional stands and apron –

- Development of additional apron adjacent to the existing remote apron to provide more remote aircraft stands;
- In association with additional concourse/pier development, further provision of apron and contact stands, with a more modest expansion of the existing remote apron.

8.39 Each option would have particular associated costs and impact on existing services. Each would also offer different levels of passenger experience and operational benefits, with provision of contact stands broadly offering the highest level of service but at a greater cost. For example they are able to accommodate air bridges, of which the Airport currently has three. There would also need to be consideration of the relationship with existing taxiways and the provision of new taxiways to deliver an efficient airfield operation.

8.40 The exact location, design, and alignment with other infrastructure of an additional terminal and apron development are not definite. More detailed capacity and design studies will be undertaken during the Masterplan period closer to when additional capacity could be required, to determine a preferred option, and broadly when it will be delivered. The Masterplan therefore safeguards land to the north and north east of the terminal to provide for both the needs of an additional concourse/pier development and expansion of the apron. This may require the redevelopment some existing car park and/or some of the grassed areas of the airfield.

Airside Ancillary

8.41 There are number of other airside developments essential for the safe and efficient operation of the airfield which would also need to meet any additional demand placed on them through growth of the Airport.

Fuel Farm

8.42 The Airport fuel farm is located to the north of the site adjacent to the perimeter road. It was developed in 2005 and consists of a series of above ground holding tanks to supply aircraft refuelling trucks. The facility would need to have enough capacity to meet the demands of a greater number and larger aircraft, as well extra demand from more distant destinations served. Our forecasts indicate that there may need to be additional capacity developed to supply 2-4 tankers a day. An area of land within the confines of the existing fuel farm could provide for this demand, with any further demand able to be accommodated to the south of this without impinging on other development requirements. If the apron/terminal is developed to the north of the terminal and so impacts on the entrance to the northern perimeter road, there may be a need to introduce an alternative, more direct link to the apron for fuel trucks.



Fire Station and Training Academy

8.43 The Fire Station and Training Academy is located to the north of the runway. The capacity of the facility to safely cover expanded future operations is based on aircraft size rather than quantity. It is currently equipped to cover category 9 aircraft (B777, B747 etc), utilising its existing 4 fire engines and other associated vehicles. Over the course of the Masterplan period it is not anticipated that an expansion will be needed, but looking beyond 2035 we believe it is prudent to safeguard land adjacent to this facility.

8.44 The fire training element of the facility provides classroom and simulated practical fire training. After a recent extension to provide additional teaching space it is not expected that any further expansion will be needed. However if market demand were to increase there is land available to the east to allow for further development.

Air Traffic Control Tower and Navigational Aids

8.45 The existing air traffic control tower was constructed in 2007. It utilises state of the art technology and is capable of providing full visual and radar cover across both the airfield and the wider designated airspace out to approximately 42 nautical miles. Within the existing tower there is considered to be sufficient capacity to accommodate any required expansion up to and significantly beyond the 2035 period.

8.46 The Airport has recently installed a new radar system on the terminal roof, which provides improved performance and mitigation against the impact of wind farms. This development has actually freed up additional space on the airfield, where the current radar will be decommissioned. Other essential equipment, such as the instrument landing system, has recently been upgraded to ensure that we are operating with modern technology. As a result of these recent investments we do not anticipate there will be any significant land requirements for navigational infrastructure.

Business and Private Aviation

8.47 The Airport has a number of aviation operations to the southside of the runway including –

- Samson Aviation – business flight operations
- PPT Aviation – private aero club using light aircraft
- Northumbria Police Helicopter Unit – base for police helicopter and crew
- Northumbria Helicopters – training and charter flight centre

8.48 The two helicopter operations are remote from the main apron serving the private and corporate aero functions. Broadly the Airport anticipates and supports the retention of these functions at their current locations.

8.49 Samson has reported constrained operations during busy periods; however for the majority of time there is excess capacity, with apron space to accommodate further growth. We anticipate that the existing apron area will serve the needs of private aviation over the Masterplan period, particularly with overspill space available at the freight apron further east. There is space, without competing demand for the land, for modest additions to the apron and buildings if required.



Aircraft and Vehicle Maintenance

8.50 The existing aircraft maintenance offices are located adjacent to the Airport terminal within the 'old tower' office accommodation. The existing vehicle maintenance facility (garage) is located within the cluster of buildings to the south of the runway. Both engineering functions are housed within old buildings and are currently operating close to capacity. If the number of aircraft movements grows as forecast, we anticipate there will be a need to expand both facilities, as the number of ground vehicles will consequently have to grow.

8.51 The age of existing accommodation and the limited opportunity for the expansion of the current aircraft engineering block means the most viable option may be to relocate some of the functions within the existing cluster of buildings south of the runway in newly constructed facilities. However some of the engineering functions will need to remain close to the aircraft stands for operational effectiveness. This realignment could also allow for the motor transport function to have air and landside access, improving the efficiency of the operation.

Landside Ancillary

8.52 The terminal is the intersection between the landside and air side elements of the Airport's operation. Much of the landside function is associated with surface access to the Airport including car parking and passenger pick-up and drop-off, which is covered in the Surface Access Strategy (section 9). There are however several other operations which are integral to the Airport's future growth which need to be strategically planned.

Hotels and Conference Facilities

- 8.53** The provision of high quality hotel facilities is vital for the functioning of the Airport. As the Airport grows the number of available hotel rooms will need to grow to provide for demand, especially if the forecast expansion in long haul services is realised.
- 8.54** The Airport currently has four on-site / near site hotels –
- DoubleTree by Hilton – 179 rooms
 - Britannia – 99 rooms
 - Premier Inn Airport North – 88 rooms
 - Premier Inn Airport South – 42 rooms
- 8.55** In addition to the above there is a cluster of hotels at the junction of the A696/A1, which although are not entirely focused on airport related customers, do provide for some demand. Collectively there is a current provision of 630 rooms.
- 8.56** Based on an assumed passenger to room availability ratio, if passenger numbers grow as forecast, there will be a need for additional provision at each review years of about –
- 2025 – 950 rooms
 - 2030 – 1080 rooms
 - 2035 – 1200 rooms
- 8.57** To meet this demand, there is physically space for some existing facilities to expand appropriately within the limitations of their site to provide for some demand. There is also an extant planning consent to convert Woolington Hall into a boutique hotel, which may provide 34 additional rooms, although it is recognised that this is not necessarily aimed at Airport users.

- 8.58** There would still be broadly unfulfilled demand for about 250 additional rooms by the end of the Masterplan period. Based on average existing hotel size, this equates to demand for around 1-2 additional hotels. There are a number of development site options around the Airport's land holding, with proximity and ease of access to the terminal being key locational requirements. Therefore we do not anticipate that any additional land would need to be removed from the Greenbelt to meet this need. We will continue to monitor supply and demand as we grow, and seek to engage with operators to identify their preferred location.

Aircraft Viewing Centre

- 8.59** In the recent past the Airport identified an opportunity to develop an aircraft viewing centre, to allow our community to observe and learn about operations at the Airport. Such a development could also provide educational interpretation displays about the history of aviation and the Airport, and so become a valuable community asset. The facility could also utilise new and emerging technology, such as virtual reality, to enhance the visitor experience. The development remains a possibility and we will explore options to help fund its delivery over the Masterplan period.



Car Hire

- 8.60** The Airport's car hire services are split between the customer service desks in the terminal, 'ready return' facilities located within the Airport car parks, and the storage and cleaning function located in a cluster of compounds to the south of the runway and adjacent to the Airport Freight Village.
- 8.61** It is anticipated that growth in demand for the customer interfacing operation will either be accommodated through expansion within the existing car park area, or through the consolidation of terminal and 'ready return' services within improved car parking facilities.
- 8.62** Our forecasts suggest broadly a need for an additional 50 car parking spaces could be needed by 2035 at the storage and maintenance facility adjacent to the Freight Village. It is proposed that the current compounds could be expanded onto adjacent land.
- ## Airline Support Services
- 8.63** There are a number of ancillary aviation services located within the cluster of buildings to the south of the runway, including airline cleaning and catering operations. It is apparent that if the Airport grows as forecast that there will be corresponding growth in demand for these services.
- 8.64** It is anticipated that they will broadly remain in the same area with extension of existing facilities or some realignment of the layout of the area being viable options. We will work closely with the companies to undertake a detailed capacity study in order to identify when and how large an expansion will be required.

Training Facilities

8.65 Newcastle College's £3.3m Aviation Academy is located on the Airport's southside cluster of buildings, and provides hands-on and classroom based training to supply the aviation sector with a broad range of skilled workers, working closely with airlines at the Airport. The current operation is quite physically constrained, and so should future expansion be required modest growth could be accommodated to the north, or through development at a separate location to the south of the runway.

Freight and Bonded Warehousing

8.66 The Airport has an established freight village to the south of the runway. This provides just over 9,000sqm of warehouse and associated office floorspace for freight processing, with healthy occupancy rates. The park has excellent, unconstrained access to the A696 trunk road; however it does not have direct airside/apron access with goods transferred to aircraft by road vehicle.

8.67 There remains expansion land which could be developed adjacent to the existing freight park to provide additional floorspace, which will be safeguarded for this purpose.

8.68 The Airport also has a dedicated freight apron to the south of the runway, from where most dedicated cargo flights are handled. The facility is currently underutilised and there is vacant land adjacent to it which is suitable for development to provide facilities complementary to what is currently provided at the Airport Freight Village.

Employment Sites

8.69 As detailed in section 7, the economic importance of the Airport extends beyond the Airport itself; with the connectivity we provide being a major driver and attractor for business growth and inward investment. The Airport is also well connected to the strategic road network and public transport, and our large land holding means that

we can provide for, and attract employment development, potentially not with a direct association with our operations.

8.70 The Airport has 4 sites, totalling over 152 acres (63 ha), which are well suited to provide for different types of employment development. They have previously been safeguarded by the Airport for such development and this Masterplan will continue this policy.

8.71 Sites A, B, and D are allocated under policy KEA1 of the Newcastle Gateshead Core Strategy (2015) for employment development, and so have strong planning policy support. They also benefit from Enterprise Zone Status; a Government designation which provides tax incentives for businesses located there and funding to help deliver infrastructure which makes the sites more viable for a developer.

8.72 **Site B** is an 11.7 acre (4.8ha) site located to the south of the existing freight park. The site benefits from an extant outline planning permission for the development of 16,250sqm of office space, favourable topography, and excellent access to the Airport and Callerton Metro Station.

8.73 The long term outlook for demand for offices in Newcastle suggests that over 500,000sqm of additional high quality office space will be needed in the City to 2030, and a further 240,000sqm to 2038²². Recent industry reports by the leading property agents indicate that there continues to be a tight supply of out of town centre grade A offices in relation to healthy levels of take-up. As such the Airport will continue to support the development of the site for a high quality office park and complementary services.

8.74 **Site A** is a 57.8 acres (23.2 ha) land parcel immediately to the south of the runway, and adjacent to the existing 'golf' freight apron. The site has good access to the A696 and is isolated from residential areas. It also has the potential to offer direct airside access for freight and distribution

operations. However this unique regional benefit also means that the land may also have value for the Airport's future operation. Therefore we could not support piecemeal development of the site and the Masterplan seeks to protect the land for the development of a large scale, regionally important freight distribution development, or other project of significant scale, which will have considerable positive economic impact on the North East.

8.75 **Site D** is a 30.8 acre (12.5 ha) site located to the south east of the operational airport area. It is closely associated with the Great Park Housing development. The proximity to housing and the large development footprint it provides, means it is well suited for the development of a large single office scheme such as a corporate headquarters or a public-sector facility. The site is allocated in the development plan for this use and the Masterplan supports this. The site may be linked to the wider airport site in the future by the Great Park Link Road (see section 9).

8.76 The Airport will continue to promote the sites for employment development over the Masterplan period, and will work with partners to secure a developer and occupiers for the sites, and so realise their economic potential for the region. If demand for the sites emerges we expect that the sites can begin to deliver some development in the short term and then steadily across the Masterplan period.

8.77 **Site C** is a 52.1 acre (21.1ha) site immediately south of the eastern end of the runway. The land is currently within the Green Belt in the Newcastle Gateshead Core Strategy (2015), which runs to 2030. The Masterplan therefore does not propose to stipulate a preferred development use for the site, but will work with partners with a view to establishing a more favourable planning status after 2030, and accommodating development toward the very end of the Masterplan period and beyond.

²² Newcastle Gateshead Office Needs Assessment (2012) - Storeys Edward Symmons on behalf of Newcastle City Council.

Figure 20 – Employment Development Sites





9. Surface Access Strategy

- 9.1** Newcastle Airport is an essential part of the North East's network of transport infrastructure, offering the national and international connections needed by the region. It is however both a generator of and destination for traffic for a range of transport modes. Every trip to the Airport starts and ends with a surface journey by private or public means, be it a passenger, staff member, supplier or freight shipment, or someone dropping off or picking up someone. These journeys can be very local, from within the region, or long distance from elsewhere in the country. Having reliable, efficient, and safe access to the Airport is critical for the current functioning of the Airport, but also supporting future growth. Without investment in surface transport infrastructure it will make other objectives for the Masterplan difficult to fulfil and potentially the Airport's forecast growth not being achievable.
- 9.2** The Surface Access Strategy looks at the current and future nature of travel to the Airport, opportunities for improvements, and potential constraints to this, both on and near the Airport site, and throughout our catchment. We are also committed to improving the efficiency of travel on existing infrastructure, in particular through embracing of innovative technology to allow for 'smart' travel planning and journeys. The Surface Access Strategy is however deliberately high level in order to frame detailed initiatives at a later date, and so retain the flexibility required to respond to change.

Policy Requirements

- 9.3** The Aviation Development Framework (2013) requires that all airports have a Surface Access Strategy, which is also supported by Transport for the North. The plans are intended to show what development, alongside growth of an airport itself, is needed so that people and goods can continue to get to them easily and reliably. The strategies should -
- Show how the proportion of journeys to and from the Airport by sustainable modes can be achieved and set targets for this change;
 - Demonstrate that the Airport's growth can be achieved without causing undue adverse local impacts and congestion;
 - Set out what investments and actions are needed in the short and long term to achieve the strategy, both from partners and the Airport.
- 9.4** The Strategy also helps to establish a plan for what may be required as and when a planning application is required to accommodate the Airport's growth. Although we may be ultimately responsible for some local infrastructure improvements at that time, where the impact is predominantly from increase in movements associated with the Airport growth, it also establishes where the benefits are likely to be shared and the costs burden shared or met by other means.



9.5 As set out in section 5, the need for a strategy to provide viable infrastructure for the expansion of large scale facilities like airports and promote sustainable transport through the planning system, are cornerstones of national and local policy.

The Need for High Quality Access

9.6 With the demand for air travel increasing and the Airport forecast to grow, it is vital that transport options to travel to the Airport continue to be invested in to ensure excellent connectivity across all modes. Travelling to the Airport is very time sensitive. Passengers and staff need to be sure that their choice of mode and the route is reliable and efficient. There is little slack to accommodate delays or cancellations. Therefore ensuring that the means of travel people choose are robust and meet their expectations is vital for making this part of their journey viable and stress free. Having a choice is also fundamental to ensure that the varying needs of passengers are met and there is an alternative when there are delays associated with a particular route or mode.

9.7 There is an evidenced link between improved journey times to an airport and growth in passenger numbers²³, and the subsequent economic benefits this brings, as identified in section 7. However there are numerous other ways that improvements to surface access can boost the economic impact of the Airport. Reduced costs and time savings can make passengers, businesses, and workers more productive. The expansion and speeding up of the transport network can also make new journeys more viable, broadening the scope of our catchment and therefore the people and businesses which can benefit from the Airport's global connectivity.

9.8 The need for good surface access is also vital for inbound tourists and business travellers. They arrive at the Airport with a need to travel on to the places they are visiting, but may be unfamiliar with the area and the transport network available. Some rent cars but many also use public transport connections, potentially with a switch in mode required to reach their final destination, which may be distant from the Airport. Having high quality connectivity is important for continuing to attract tourists to use us as their gateway to the region, and vital if Newcastle Airport is to be used as an international access point for elsewhere in the UK.

9.9 The demand for travel to and from the Airport can have a negative and positive impact on the transport network which serves it. Additional traffic can add to the load on the local road network which could lead to congestion, but conversely increased patronage on public transport routes can result in improved viability of services. The strategy identifies constraints which may indicate the need for investment and the identification of spare capacity which could accommodate growth. It also allows for consideration of the impacts of other development around the Airport, as they can also place significant burden on transport infrastructure as well as the potential for proportionate investment.

9.10 It needs to be considered that the Airport can generally only directly influence required investment and enhancements on the Airport site itself. The greatest improvements to access will be driven forward and delivered by external organisations. We will therefore work closely with our key business partners, transport bodies, and the Government to support the delivery of plans and investment projects which will ultimately bring positive change to our accessibility.

The Need for Sustainable Access

9.11 Although there is undoubtedly a need to continue to invest in a new and improved transport network, the resources to fund the delivery of improvements and the environmental capacity to accommodate private vehicle growth in particular, are finite. The Airport has a densely populated core catchment centred on the conurbations of the North East, with Tyne and Wear being particularly well connected, indicating much potential for increasing the use of public transport.

9.12 We are committed to trying to make travel to the Airport as sustainable as possible through increased public transport patronage, and the strategy sets demanding targets for this at each review year. This will potentially remove cars from the road network, lower the energy usage and carbon output from surface access to the Airport, as well as improve air quality. The impact of the Strategy could therefore have much broader positive impacts on society.

9.13 A significant part of the Airport's large catchment area is rural and sparsely populated, making travel by public transport more challenging. This factor, the shift patterns of many staff, and the value placed on convenience and time efficiency by passengers, especially when travelling with luggage; mean that travelling to the Airport by private car will always be a significant choice. We therefore must also suitably provide for car based travel, but plan for how it can be made more efficient and sustainable.

²³ Connecting the UK's Economy: How Better Access to Airport's can Boost Growth (AOA, 2016)

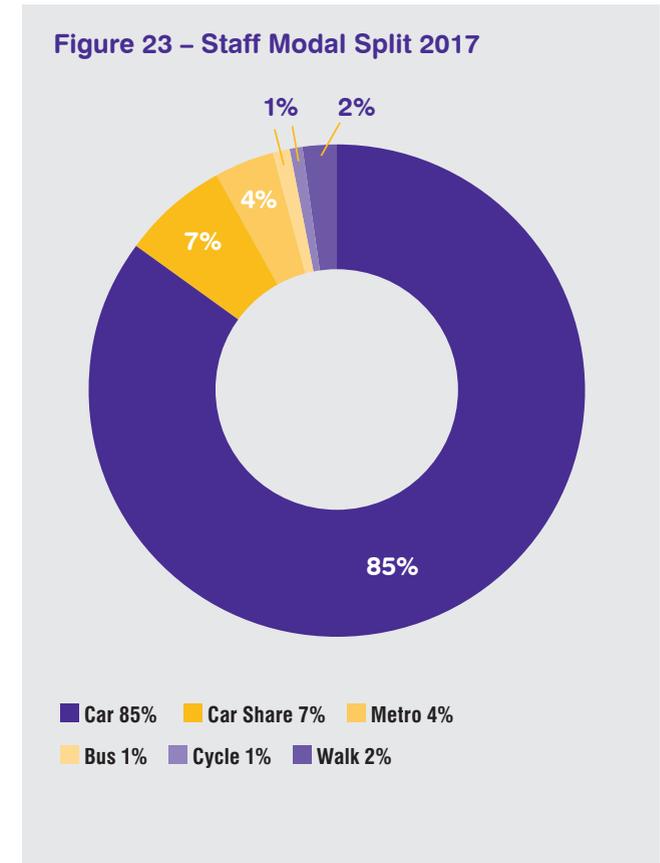
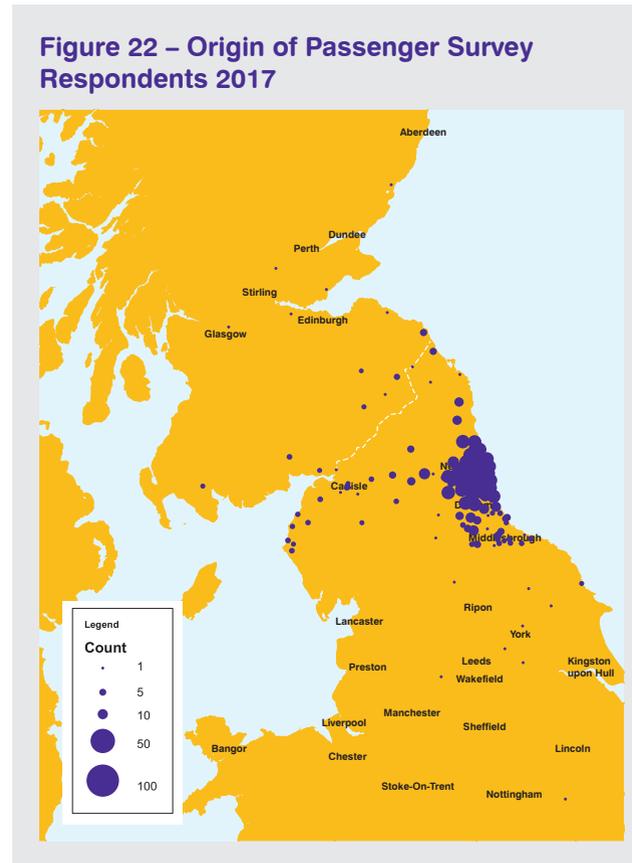
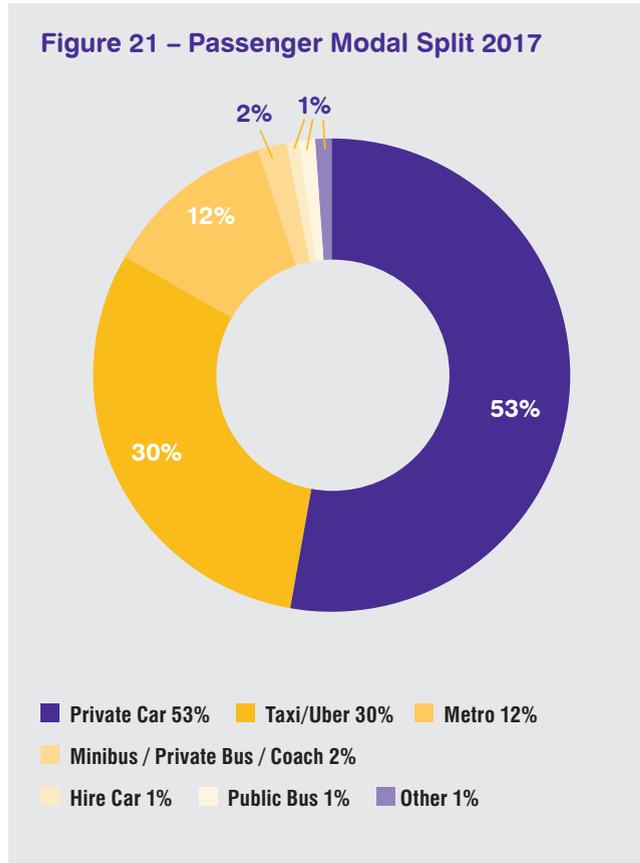
Current Passenger and Staff Modal Split

9.14 An online survey of passengers was undertaken in early 2017, covering a broad demographic and place of origin, and showed the passenger modal split shown in Figure 21. This shows that the majority of passengers (53%) travel to the Airport by private car, with a further 30% using taxis, and 1% travelling by hire car. Collectively this means that 86% of passengers arrived or departed the Airport by car. Around 14% utilised public transport, with the Metro being by far the most popular mode.

9.15 Numerous reasons were given as to why sustainable modes weren't considered for the journey, which included the convenience of private transport and the lack of options and time demand for public transport for longer trips. This in part can be explained by the Airport's dispersed regional catchment, with the use private car much greater for passengers travelling from outside Tyne and Wear. Figure 22 shows the distribution of passenger home addressees who responded to the survey.

9.16 Although it shows the wide dispersion of the Airport's passenger base, it also indicates that the greatest concentration is in Tyne and Wear (69% of respondents were from NE postcodes) and so there is much potential for localised initiatives to increase use of sustainable transport to be effective.

9.17 A survey of staff working on the Airport site was also undertaken in early 2017 and indicated the following modal split for commuting.



9.18 The survey indicated the tendency to travel by private car is more pronounced, with 85% travelling to the site daily this way. Around 7% regularly car share, indicating the effectiveness of such interventions. Only 8% regularly used public transport, walked, or cycled. The high proportion of private car use can in part be explained by the working hours of some staff, which means that other modes may not be available, and like passengers the dispersed origins of staff journeys potentially make public transport difficult to use. However, a significant proportion (66%) indicated that various suggested interventions could encourage use of more sustainable modes.

9.19 Staff at the Airport live throughout the region, but like passengers there is a distinct concentration in Tyne and Wear, indicating that new interventions to increase public transport patronage by staff and building on current initiatives could be effective.

Tyne and Wear Metro

9.20 The Tyne and Wear Metro has been the principal public transport connection for the Airport since the link to the site was established in 1991. The Airport has two stations; one serving the terminal and a second one at Callerton Parkway serving the functions to the south of the Airport site. We work closely and regularly with Nexus, the network's operator, to improve the service for those travelling to and from the Airport.

9.21 The Green Line connects to the Airport and runs to South Hylton in Sunderland. Along its route it passes through Newcastle and Sunderland City Centres, with journey times of around 25mins and 55mins respectively. The yellow line largely serves North and South Tyneside with numerous interchange stations to connect to the Green Line.

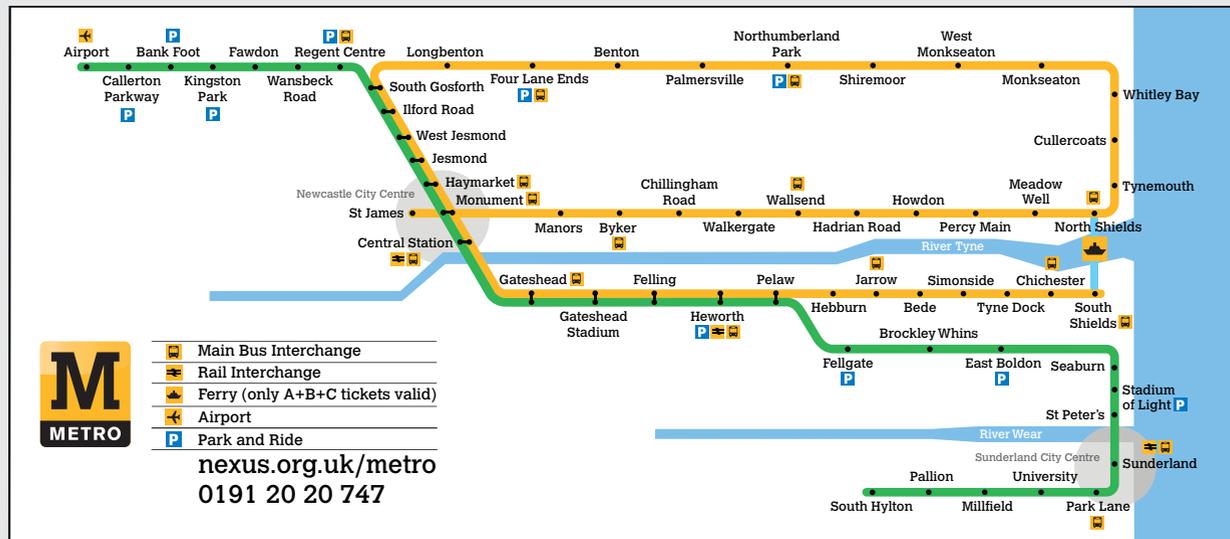
9.22 The service is conveniently accessible to the majority of Tyne and Wear, with bus and rail interchanges extending the local reach of the system. The National Rail interchanges at Newcastle Central Station, Sunderland and Heworth mean that journeys from throughout the Country can complete the final leg of their journey to the Airport by rail.

9.23 Services on the Green Line run about every 12 minutes at peak times and 4 an hour at other times. Services start at 5.37 and end between 22.54 and 23.30.

9.24 The proposed opening of a new Metro depot at South Shields could allow for early morning and late night services to run to the Airport. However, the start times for the Metro are currently too late for passengers travelling to the Airport for the early morning peak of departures from 6am, which removes the travel option for a significant proportion of passengers. Over a third of passengers who responded to our survey indicated they would use a service before 5.30am. We will continue to work with Nexus and our passengers to establish a business case to deliver this service improvement.

9.25 Nexus indicate that there were about 517,000 journeys made to the Airport in 2016/17, which is broadly in line with the patronage of total passengers indicated by our survey, at about 12%. They have identified that there is plenty of spare capacity in the current system to accommodate passenger growth at the Airport and deliver our key aim of increasing the proportion of our passengers travelling to the Airport by sustainable modes. The strategy for the Metro therefore is not necessarily focused on increasing capacity, but rather actions to make its use more reliable, convenient, and increasing its reach.

Figure 24 - Current Tyne and Wear Metro Network





Fleet Renewal

9.26 The ageing current Metro fleet has become increasingly unreliable in recent years. It was therefore a significant boost to the Airport's future surface access that the Government announced in the November 2017 Budget a commitment to provide £337m in funding for the Tyne and Wear Metro to replace the entire rolling stock, upgrade infrastructure, and to provide a new storage and maintenance depot at South Gosforth. The fleet renewal will provide a modern and dependable link to the Airport to facilitate increased sustainable transport patronage by passengers.

9.27 In connection with the fleet renewal four further points are important for delivering greater Airport passenger patronage –

- The indicated timeframe for the all new carriages to be operational is by the early 2020s. To ensure that an improved Metro service will be used more frequently as airport passenger numbers grow, it is vital that delivery is not unduly delayed;
- New carriages will undoubtedly deliver improved comfort for passengers, but it is also crucial that the design provides enough and secure storage areas for luggage;
- The carriages need to have fast and reliable broadband to enable delivery of greater use of remote check-in and allow for efficient journey planning;
- The upgrading of the electric rating of the Metro system infrastructure to the national rail standard will provide opportunity for heavy rail access to the Airport and for Metro trains to travel on National Rail infrastructure.

Network Expansion

9.28 Renewal of the Metro fleet will also bring with it the opportunity to expand the future network. The Metro Futures Plan²⁴ proposes a twin strategy of capacity creating on the existing network and use of disused railway corridors to create new routes to create a single Metro and local rail network. The proposed program of expansion would open up the likes of Washington, and Team Valley to the Metro network.

9.29 The proposed plans would significantly grow the catchment area for passengers to directly travel to the Airport by Metro. We will continue to work closely with stakeholders to promote these investments and support any future funding bids.

Figure 25 – Potential Expansion of the Metro Network



²⁴ Nexus - <https://www.nexus.org.uk/sites/default/files/Metro%20Futures%20brochure.pdf>

Ticketing and Technology

- 9.30** The recent introduction of new ticket machines on the network to take multiple payment methods, and the introduction of the Pop Card top up payment card have improved the convenience of the Metro to passengers. We will work with Nexus to promote the use of smart ticketing and will seek to deliver sales points for Pop Cards at the Airport Metro Station, and provide signage to raise awareness of this and give better direction for passengers. We will also seek to implement training so that terminal staff are aware of the benefits, use, and costs of the scheme.
- 9.31** The emergence of mobile travel planning presents an opportunity for staff and passengers to better plan their journeys and coordinate them with other modes. The Nexus website currently allows for route planning. The development of an App, promoted through our website, could make this service more accessible to incoming passengers, with language options to suit their needs. Linking the plan to GPS maps would be especially useful to enable passengers to walk the final leg of their trip. Alongside this there is the potential to link a planned passenger journey to other modes automatically. For example, a passenger could automatically book an Uber to pick them up at a particular station based on the time arrival stated in the Metro route plan.

Terminal and Station Improvements

- 9.32** The Metro Station is currently well signposted in the terminal, but would benefit from electronic display boards to present live information on Metro departures to ensure that people do not have to wait outside on the platform for longer than is necessary.

- 9.33** Although the Airport station has undergone incremental investment to improve it, we believe that a full refurbishment of the station is needed to improve comfort and the perception of the service to incoming passengers, which could encourage greater patronage.

Staff Travel

- 9.34** The Airport already utilises Metro business passes to enable green travel to appointments throughout Tyne and Wear. We are also currently part of the Corporate Metro Saver scheme for staff. This allows employees to purchase season passes at a discounted rate. We will undertake a promotion program of the scheme to all staff and businesses on the Airport site to raise awareness of its benefits. We will also work with Nexus to explore the costs and practicalities of equivalent discounts being extended to weekly or monthly tickets, to make it accessible to seasonal staff and to account for people who use multiple modes. We will also seek to offer further staff incentives for commuting by public transport, and will introduce free or discounted taster tickets for new staff.

Key Actions and Investments – Metro Travel

By 2025

- Support Nexus in the timely roll out of a new, high quality, fleet of trains which meet the needs of airport users;
- Place Pop Card sales points at the Metro Station and promote their benefit and use;
- Development and promotion of apps aimed specifically at passengers to plan and coordinate their journey to and from the Airport;
- Better signage in the terminal to make clear the Metro's link to National Rail.
- Terminal staff training on the Metro and the Pop Card system;

- Promote the Corporate Metro Saver scheme to all staff and businesses, and seek discounts on weekly and monthly tickets for seasonal staff;
- Develop staff incentives such as product discount or prize draws for those using sustainable transport;
- Introduce staff starter packs with free taster tickets such as preloaded Pop Card to help establish sustainable commuting.

Beyond 2025

- Revamp of the Airport Metro Station and upgrades necessary to accommodate heavy rail;
- Work with transport bodies and the Government to promote the benefits of expansion of the Metro network, support future funding bids, and realise the benefits of the expansion of the Metro Network;

Rail

- 9.35** The Airport does not currently have direct access by heavy rail. The Metro is the Airport's primary rail connection, but Newcastle Central Station offers an extensive network of onward services within the region and nationally, predominately via the East Coast Main Line, but also the Tyne Valley and Durham Coast lines. All passengers need to change mode to connect with the Airport, with the majority utilising the Metro but taxi is also a popular choice.
- 9.36** As the Airport does not have a direct rail link, the main opportunity to increase the proportion of passengers travelling to the Airport by rail are by improving the journey times, comfort, cost, and reliability of services to our connector stations, as well improving the marketing of and convenience of booking by rail. However, confirmation of funding to upgrade the Metro system's infrastructure so that it is compatible with the national rail network also opens up the possibility of a direct heavy rail link to the Airport.



Strategic Rail Development

9.37 The Airport works closely with key partners such as Nexus and train operators to ensure that improvements to the rail network consider connections to the Airport. Transport for the North has identified a series of rail investment priorities for the North of England²⁵. Two would particularly improve rail connectivity for the Airport:

- The Airport's catchment area extends into Cumbria with the Tyne Valley Line providing services from Carlisle to the Airport via Newcastle Central Station. The service is currently limited by the frequency and speed of the rolling stock, and the limits of the non-electrified track. Northern Rail, which currently operates the route, plans to replace outdated 'Pacer' trains by 2019. This will vastly improve passenger comfort and the speed of the service, as well as introducing free Wi-Fi and improved luggage storage on board, both of which are vital for airline passenger patronage. There are also plans to increase the frequency of services from Carlisle. Longer term the electrification of the line would provide faster and greener services, and the Airport would fully support this investment.
- The East Coast is identified as a key route for future demand and growth. The route offers good connections to Yorkshire and Southern Scotland and so any improvements to the route and its services would improve and potentially expand the Airport's long distance catchment for public transport. The East Coast mainline suffers from constrained capacity and reliability. Network Rail is investing in infrastructure to improve the reliability of the route and allow for future services. This includes the future running of HS2 trains to Newcastle on

non-high speed track, which will improve journey times and add capacity. However, issues remain, particularly north of Northallerton, where only twin tracks are in place. The route will, however, benefit from the running of newer trains such as the Hitachi 'Azuma', which will add capacity, improve journey times, and provide greater comfort for passengers travelling to the Airport.

9.38 Linked to the above, there will be a need for further improvements to Newcastle Central Station such as platform extensions, to add capacity and to accommodate future rail services. This may bring the need for an underground pedestrian tunnel system, linking platforms as well as adjoining business districts. To provide a true integrated transport system it is vital that such a system also provides a direct link to Central Station Metro Station. We also consider that improved way finding at Central Station with clear signage that the Metro provides an Airport link would improve the passenger journey from rail to air.

Local Rail Development

9.39 Two long term opportunities are identified in the draft Metro and Light Rail Strategy (2016) produced jointly by Nexus and the North East Combined Authority, to improve rail services to the Airport.

- The Airport owns a parcel of land at Benton, North Tyneside, containing a former track bed with rail infrastructure removed. A long term opportunity is to reinstate this rail link via the 'Benton Curve' between the north bound East Coast Main Line and the west facing Metro line, which could allow heavy rail services to travel directly to the Airport, alongside other improvements to the system's infrastructure. This could significantly improve passenger convenience and journey times, and

open the Airport up to a larger catchment for rail travel. This land has been safeguarded in the North Tyneside Local Plan (2017) for this purpose and we retain the long term strategic ambition to develop this link.

- Expansion of the 'depot avoiding line', which removes the need for exchange at South Gosforth Metro Station. This could allow for direct, faster services to the Airport from North Tyneside and the Coast, direct heavy rail links, and potentially service from expanded local rail routes such as the Ashington, Blyth, and Tyne Line.

9.40 The real opportunity for the improvement of local rail links is the linking of planned investment in local rail services to the existing Metro system at interchanges, in addition to the extension of the network. The potential reintroduction of passenger services on the Leamside Line and the Ashington, Blyth and Tyne Line would open-up a rail catchment area in County Durham and South East Northumberland respectively, providing the opportunity for increased rail/Metro passenger patronage to travel to the Airport.

9.41 In addition to the planned replacement of rolling stock for the Northern Rail service on the Tyne Valley Line, new trains will also soon operate on the Durham Coast Line, resulting in faster journey times and improved passenger experience. The frequency of services are also planned to be improved. In particular this could improve rail linkages with Teesside; an area not served by the East Coast Main Line and so has low rail patronage to travel to the Airport. These improvements largely still rely on the Metro and therefore integrated ticketing and improved promotion are key.

²⁵ Initial Integrated Rail Report (2017) and Draft Strategic Transport Plan (2018)

Smart Ticketing and Booking

9.42 Transport for the North is developing an integrated ticket program with operators for use across the North, with an aim of being operational within the next 4 years. It is intended that the scheme will provide clear route options, simple pricing to ensure that the lowest price is paid, and easier ways to pay. It is intended that this 'smart travel' will increase efficiencies, improve the passenger experience, and provide a familiar system across Northern England. We consider this to be a good opportunity to improve rail usage to travel to the Airport throughout our catchment.

9.43 Alongside this, there is an opportunity to increase both rail and Metro use with improved facilities to buy integrated tickets. Having a ticket machine at the Airport Station would allow for arriving passengers to purchase tickets for their onward journey on national rail and include their transit on the Metro as part of the single ticket purchase. It would provide improved convenience, time savings, and in relation to visitors to the area could make it easier to negotiate an unfamiliar public transport system.

9.44 Rail travel perhaps gives us the best opportunity to use our website to promote it and other forms of sustainable transport for passengers to travel to the Airport. We will seek to implement the following to achieve this –

- Improve the information content on our website for public transport and make it as visible as possible;
- The introduction of a booking widget rather than a web link, to allow passengers to do everything they need to on the Airport's website to plan and book public transport to the Airport.

9.45 In addition we could work with airlines partners to similarly promote sustainable transport options when passengers are booking directly through their websites, and rail operators to promote improved routes/fleets as an Airport connection.

Key Actions and Investments – Rail Travel

By 2025

- Support transport planning bodies to gain policy priority and funding for improvements to the East Coast Mainline and Tyne Valley Line;
- Work with operators to ensure that fleet renewal programmes and timetable improvements enhance connections to the Airport and it is advertised as such;
- Support Transport for the North in the development and delivery of a smart ticketing system throughout the North;
- Ensure all rail operators offer integrated ticketing with the Metro and explore the possibility of ticket machines being located at the Airport Metro Station;
- Deliver improvements to our website to promote rail travel and offer an integrated booking platform

Beyond 2025

- Reintroduction of passenger services to the Leamside and Newcastle and Northumberland Lines with good interchanges to the Metro System;
- Support Nexus in utilising national rail infrastructure and interchanges to expand the local reach of the Metro System;
- Improvements to Central Station to provide better interchange to the Metro system;
- Reinstatement of infrastructure on the 'Benton Curve' to allow for direct heavy rail services to the Airport.

Bus and Coaches

9.46 The Airport currently has a single bus stop immediately outside of the terminal building. Two additional stops are located next to the DoubleTree by Hilton Hotel, on the B6918 about 400m from the Terminal, and linked by a footpath. There are currently 6 bus routes regularly serving the Airport.

Improved and New Services

9.47 The use of buses to travel to the Airport for both passengers and staff is relatively low at only 1% of those surveyed. However, buses form an important element of a sustainable transport offer, and we will seek to increase the number, frequency, and geographic scope of bus services serving the Airport. There is particular opportunity to introduce better services to distant areas of the region, especially where rail travel is not available or necessarily the quickest mode of public transport. Dedicated express services from Teesside or Carlisle, for example, could be viable options if services are coordinated with peak times at the Airport, and are promoted through our website and booking partners. The Airport could also become a stop on long distance routes, for example for routes to Scotland after leaving Newcastle City Centre. We will build closer working relationships with operators to identify opportunities and interventions from them and the Airport to deliver new viable services.



9.48 A significant amount of housing may be developed to the north of the Airport, which as a result may increase the population to support improvements to local bus services. There may also be developer subsidy for new services as part of their green travel plans. It is likely that such services will travel to Tyne and Wear via the A696. We will work closely with any developers and the local planning authority to ensure that new services incorporate stopping at the Airport.

Improved Airport Bus Facilities

9.49 Presently there is somewhat limited information for bus services in the terminal. An electronic display board within the building to give route information and departure times could be added, which would be especially useful for passengers if there is an increased number of services. This could be coordinated with improved in-terminal information about the Metro to create a passenger information hub. As with the Metro, improved staff training would also allow for passengers to receive sound advice about how to travel on from the Airport by bus.

9.50 In the long term we will consider how bus services might be better physically integrated with the terminal and Metro station.

Ticketing and Technology

9.51 As stated in relation to Metro travel, the widening of the Pop Card payment system across the whole bus network and making online top-ups easier for airline passengers would help to make bus travel a more convenient travel option, especially for regular airport users. Improved Wi-Fi on buses will be essential to support online passenger check-in and journey planning.

Staff Travel

9.52 We currently allow for the cost of annual bus travel tickets to be paid for through spread staff salary deductions; however there is no discount to incentivise this. There are various tickets types available depending geography and the number of operators required. The widening of the Pop Card system to all operators could result in a single prepayment system. One possibility could be a staff incentive for annual bus travel, and include free or discounted taster tickets for new staff such as a preloaded Pop Card, to establish sustainable modes as a viable option at an early stage of planning a new commute.

Key Actions and Investments – Bus Travel

By 2025

- Work with operators and transport bodies to encourage new routes for local, regional, and long distance bus services with focus on places of origin where bus travel may be the quickest public transport option;
- Explore options for improved bus connectivity from other new developments and an increased local population around the Airport;
- Encourage the widening of the Pop Card system to all bus services and improved options online and in the terminal for top-up payments;
- Explore options to provide better incentives / discount for staff to commute by bus;
- Consider staff starter packs with free of taster tickets such as Pop Card to help establish sustainable commuting.

Beyond 2025

- Improve on-site or near site bus facilities at the Airport, and improve integration with the Metro.

Cycling and Walking

9.53 Given the need to normally travel to the Airport with luggage and the distance of the Airport from settlements, these modes form a small proportion of passenger journeys; under 1% based on our passenger survey. Staff who are able to use cycling and walking are more likely to, with 1% commuting by cycle and 2% walking.

9.54 The Airport is connected to Tyne and Wear by footpath, via Woosington to the south, and Ponteland to the North. Both routes can be used for cycling, although there are no dedicated cycle lanes directly connected to the Airport. There are currently cycle racks for passengers in front of the terminal and within the short stay car park. Racks for staff are located throughout the Airport site and there are dedicated cycle lockers within the staff car park south of the terminal and at the Freight Village. Changing and shower facilities are also available for staff.

9.55 The concentration of staff in Tyne and Wear means that cycling and walking is a viable option for many. The Airport currently runs the 'cycle to work' scheme to offer discounts on equipment. We will continue to promote and improve this program and encourage other businesses on the Airport site to adopt it. We will also run one off events such as 'cycle to work days' to promote the benefits and convenience of cycle commuting. As demand grows the current changing and shower facilities may become crowded, and therefore we will look to expand them in line with demand.

9.56 Given the practicalities of travelling to the Airport on foot or cycle, we believe there is only limited scope for growing the proportion of passengers utilising this mode. However we will look to audit existing infrastructure in order to identify the potential for improved cycle lanes serving the Airport and surrounding communities, and any pinch points where the routes could be made more appealing and safer. We will also look to produce cycle route maps to connect to local communities and make these available on our website.

9.57 To promote regular cycle patronage for passengers, it is apparent that changing and showering facilities would be needed if demand was high enough. We will therefore explore the possibility of a passenger cycle hub, which could be combined with secure storage facilities and basic maintenance equipment.

Key Actions and Investments – Cycling and Walking

By 2025

- Review current cycle and walking links serving the Airport, and with partners identify reasonable improvements;
- Continue to promote the ‘cycle to work’ scheme and one off events to encourage cycle commuting.

Beyond 2025

- Review the potential for passenger cycle hub offering changing, shower, and storage facilities in one hub facility;
- Expand staff shower and changing facilities in line with demand.

Private Car and other Road Transport

9.58 The Airport is primarily accessed from the A696, a dual carriageway which connects to the A1 trunk road about 2.8 miles to the south and runs northward to connect to the A68 in Northumberland.

9.59 Strategically the A1 is the primary artery to connect to the Airport, providing a direct link from centres of population to the north and south of the region. The ‘Western Bypass’ section of the A1 particularly suffers from peak time congestion. Scotland is also connected by the A1, but the A68 and the A696 also provide good A-road access. The A69 is an important east/west link to our passengers in Cumbria and along the Tyne Valley, whilst the A19 and A167 are the primary routes linking the wider Tyneside conurbation with the Airport.

9.60 Our surveys indicate that accessing the Airport by private car is the most popular mode of travel for passengers

and staff. Although we are committed to driving forward increased use of sustainable transport over the Masterplan period, the forecast growth of the Airport will result in some growth in vehicle movements. Owing to the nature of the Airport’s large catchment area, the time of day of some flights, and the convenience and reliability of travelling to the Airport by car, it will always be a popular. It is prudent that we plan for the infrastructure to enable this to continue. It is recognised however that the nature of road travel could change significantly over the Masterplan period, with the increased use of electric and driverless vehicles.

Figure 26 – Key Airport Highways Connections



Traffic Growth Forecasts

9.61 Forecasts for the growth of all forms of road transport associated with the projected increase in air passengers were undertaken based on the modal split indicated by our surveys. This showed the following expected Peak daily vehicle movements associated with the Airport – See figure 27.

9.62 Although the forecast increase is significant several key points need to be considered –

- The forecasts are based upon, high passenger growth scenario;
- The vehicle movement forecasts relate to a peak day within the busy summer period, so traffic flows will not be at this level throughout the year;

- As we must plan for ‘worse case’ the forecasts do not factor in passengers and staff switching to more sustainable modes, which will consequently remove some demand for private vehicle trips;
- About 4% of traffic will likely not use the main Airport Access Roundabout on the A696, notably staff entering the Airport site via Callerton;
- Movements are predominantly associated with flight times, so are spread throughout the day.
- The forecasts do not account for the potential impact of driverless vehicles owing to the uncertainty as to when their use will become widespread and the impact they will have on traffic generation and infrastructure capacity.

9.63 The time of day of forecast vehicle movements is important to consider in relation to the peak²⁶ flows of other traffic using the roads and junctions around the Airport. Movements associated with staff are in distinct peaks, but with most outside of key commuting hours. Passenger vehicle trips are more evenly spread, as shown by figure 28, but it is apparent from forecast future flight schedules, there will be additional vehicle movements at both the AM and PM peaks.

²⁶ AM peak is 8.00am to 9.00am and PM peak 17.00 to 18.00

Figure 27 – Forecast Peak Daily Vehicle Movements To and From the Airport

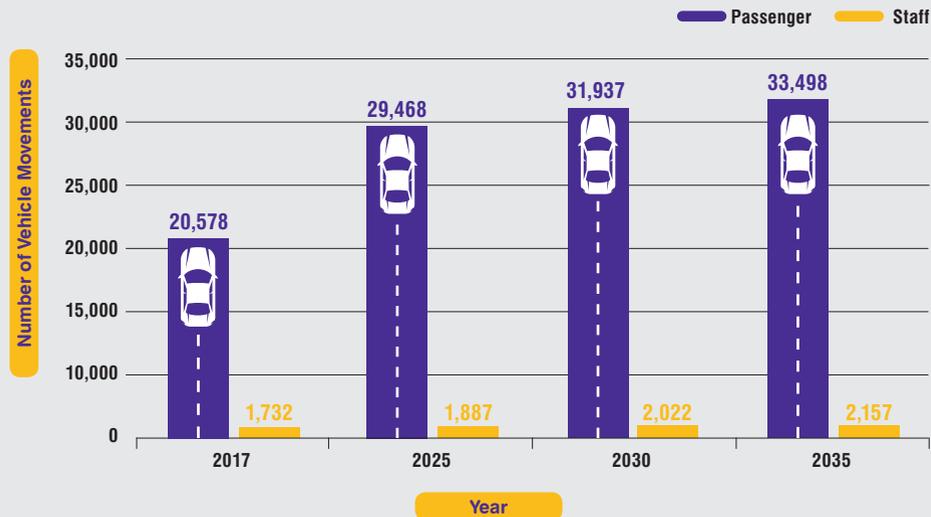
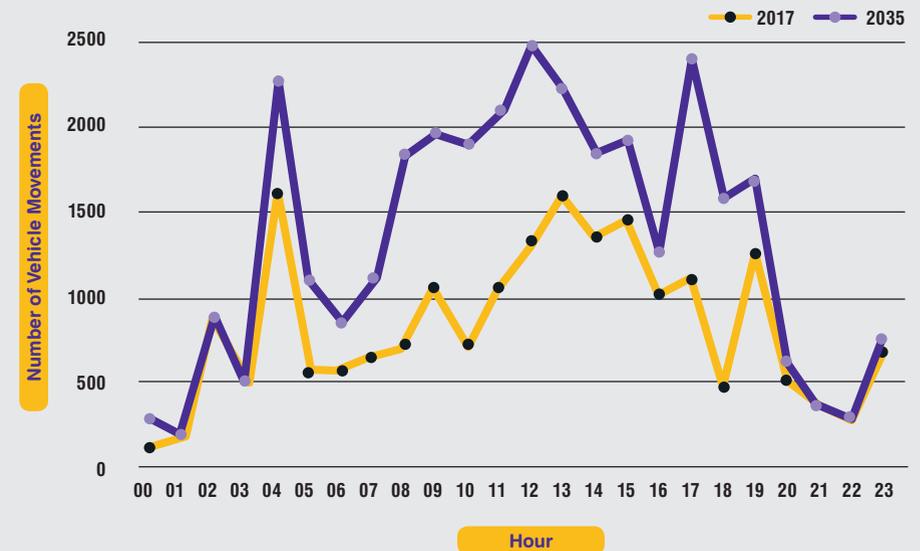


Figure 28 – Forecast Hourly Peak Day Traffic Movements



9.64 In addition to airport traffic, there may also be up to 5,000 additional average daily vehicle movements stemming from the development of employment sites south of the runway by the end of the Masterplan period. Although this is significant it is also indicative as it will ultimately depend on the bespoke nature of what is developed on the sites, and the timing of this, which is largely market led. These vehicle movements could be concentrated around peak times, rather than spread like Airport traffic, but we anticipate that the vast majority of vehicles will use the Callerton Parkway junction on the A696 rather than the main Airport Access Roundabout. The development of the Great Park Link Road could also help to distribute some traffic away from the A1/A696.

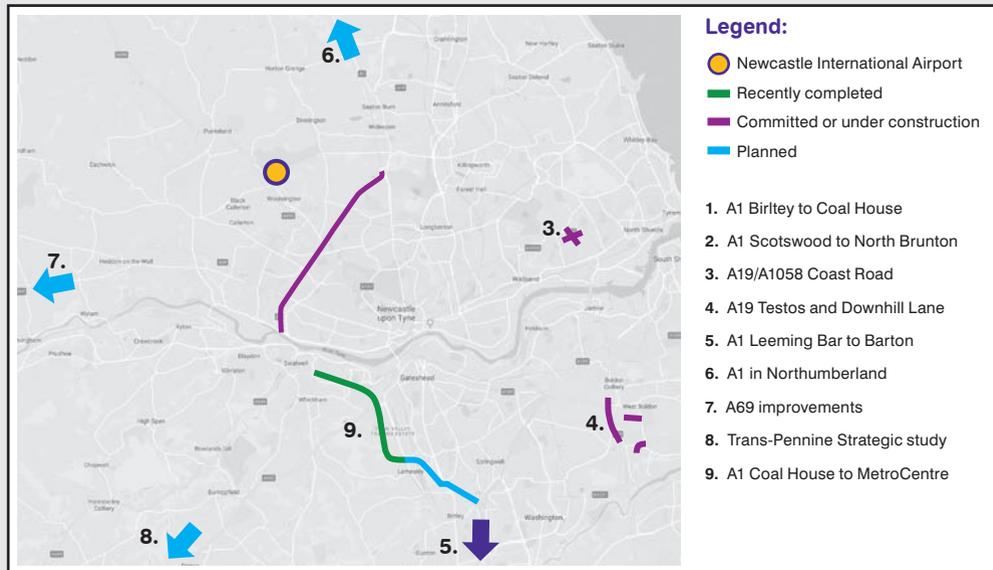
9.65 These traffic growth forecasts will allow Planning Authorities and infrastructure providers to as accurately as possible plan for potential growth of the Airport in conjunction with the impact of other development on the highway network. This evidence will also support future funding bids in terms of the economic benefit of required interventions. The Airport will fully assess the impact of traffic generation as part of major planning applications and seek to mitigate this where an adverse impact is demonstrated.

Strategic Road Improvements

9.66 It is important that the highways infrastructure serving the Airport provides reliable and time efficient access to the Airport and strategic investments continue to be made to enable this. There are several planned road investment schemes –

1. **A1 Birtley to Coal House:** - Creation of 3 lanes in both directions, building on the recently completed investment from Coal House to the Metro Centre, this will improve journey times from the south;
2. **A1 Scotswood to North Brunton:** - Linked to the above scheme, the provision of 3 lanes in both directions will improve access from the north and south of the A696 as well as linkage with the A19;
3. **A19/A1058 Coast Road:** - Major junction improvement scheme, although distant from the Airport will improve the reliability of journeys from North and South Tyneside;
4. **A19 Testos and Downhill Lane:** - Junction improvement work will provide more a more efficient connection for passengers travelling from Sunderland and Teesside;
5. **A1 Leeming Bar to Barton:** - Widening of the motorway to provide 3 lanes will improve journey times for passengers on the periphery of our catchment;
6. **A1 dualling in Northumberland:** - The additional lane to Ellingham in either direction and junction and overtaking improvements to the North of this. This will improve the speed and safety of passenger trips from Northumberland and Scotland;
7. **A69 improvements:** - Improvements to provide a grade separated junction between the A68 and A69, which would improve access from the West and Scotland.
8. **Trans-Pennine Strategic Study:** Government commitment to examine the case for full dualling of the A69.

Figure 29 – Planned Strategic Highways Improvement Schemes



9.67 These schemes will add some strategic capacity and contribute to enabling and mitigating future development, including the Airport's. We consider that two of these schemes in particular should be expanded upon to improve strategic access to the Airport –

- The A69 is a nationally important east/west link, and provides a vital link to the Airport from Cumbria and passengers along the M6 corridor. The single carriageway means the route suffers from excessive and unreliable journey times. We believe that the full dualling of the A69 would deliver cost and journey time savings for the wider North East economy and would significantly improve passenger access to the Airport.
- The proposed upgrading of the A1 around the western edge of Tyneside will help alleviate congestion and improve journey times. The schemes however do not propose to provide 3 lanes at the pinch points of Allerdene Bridge over the East Coast Railway Line and the A1 crossing over the River Tyne. We believe that these constraints need to be addressed for the schemes to best provide for future Airport access.

9.68 Along the route of the A1 improvement scheme there is not necessarily complementary investment in the upgrading of junctions, with the potential that the tailbacks could impact on the carriageway itself. The Kenton Bar junction, where the A1 meets the A167 and A696, is critical for the accessing the Airport and so future improvements, the need for which is recognised by Transport for the North²⁷, is vital. We have previously invested in upgrades to the junction when the Airport has expanded.

9.69 The junction is forecast to serve much of the residential development planned in Newcastle and parts of Northumberland. Modelling work indicates that the junction could potentially be operating well above capacity even with mitigation work within the highways boundary. Northumberland and Newcastle City Councils, in conjunction with the Airport and Highways England, are to undertake a road corridor study. It will identify how the route from the Airport to the Kenton Bar Junction and then on to Newcastle City via the A167, can be upgraded to accommodate forecast traffic growth, including that associated with the Airport. We consider a strategic upgrade to the junction will be needed in the Masterplan period to ensure that access to the Airport isn't unduly constrained.

9.70 We will work closely with transport planning bodies and the Government to ensure that the above schemes are prioritised in policy and will support bids to funding programs like the Pinch Points Fund, Local Growth Fund, Housing infrastructure Fund, and the National Productivity Investment Fund.



Local Road Improvements

9.71 To support the growth of the Airport there may need to be a number of investments to improve local road access. The need for these improvements is not necessarily solely to support the Airport's growth, but also the wider development of the City, particularly residential schemes.

Great Park and Callerton Link Road

9.72 Great Park, located to the east of the Airport, has a large amount of housing with planning permission which is still to be built. To provide better east/west connectivity and to help remove local trips from the A1 the Newcastle Gateshead Core Strategy (2015) sets out a requirement for a new link road between the A696 and Brunton Lane. This will run along the south of the Airport site and so as a by-product of its delivery would provide better access to land allocated for employment development at the Airport. We consider that the Great Park Link Road will support the delivery of the Core Strategy, and help alleviate traffic congestion elsewhere. We will continue to support the City Council to deliver the scheme.

9.73 As part of the planned route of the Great Park Link Road there may be a need for the road to bypass the level crossing at Callerton Park, which could be unsuitable to accommodate increased traffic flows, to reach the A696. The road would need to cross land not owned by the Airport. An alignment running south of Callerton Metro Station is shown on the Masterplan key diagram, but we will work with Newcastle City Council to review this and consider the merits of alternative options.

²⁷ International Connectivity Report (2017) – p26

Runway Road Diversion

9.74 The potential runway extension would unavoidably require the rerouting of Dinnington Road. The two options to do this are a tunnel under the runway, or a road diversion. Tunnelling under the runway was rejected as the cost would make the runway development unviable. It is considered that a diversion along Sandy Lane to the north and Coach Lane to the south, linked by a new section of highway, would result in only slightly longer vehicle journey times, and offers the best balance of cost and benefit.

9.75 The detailed design of this road would be carried out by Newcastle City Council. This will take into account the layout of the runway and runway lights, together with noise, environmental and visual impact, as well as the effect on journey times.

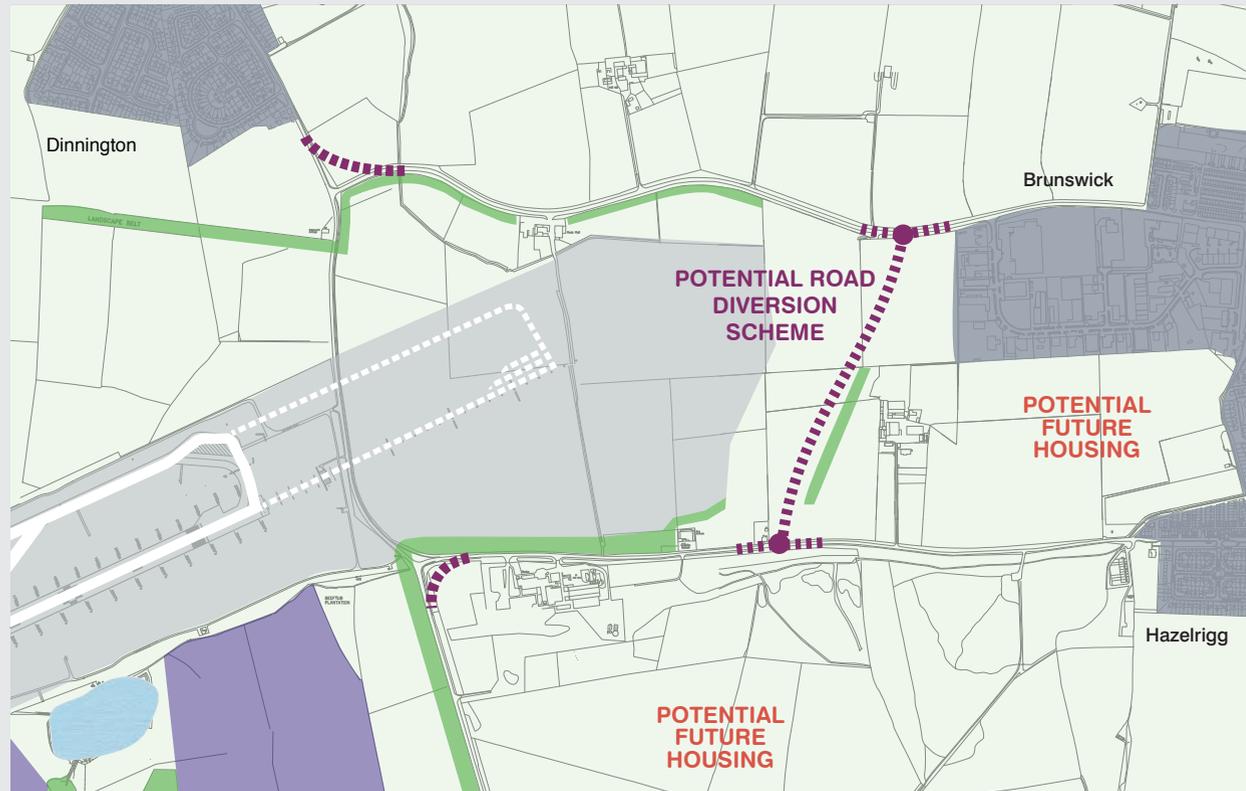
Airport Access Roundabout

9.76 A key issue for the Airport is that there is presently a single point of entry and exit for passengers to access the terminal by road. This junction on the A696 also handles a significant amount of background traffic (54% of total movements over the roundabout in 2017), and consented and planned housing developments close to the Airport would result in this increasing over the Masterplan period.

9.77 Analysis shows that without investment the roundabout would be operating beyond capacity, with resulting queue time and length potentially adversely impacting the operation of the Airport and the public highway.

9.78 If only airport traffic alone was factored the roundabout wouldn't need to be upgraded until towards the end of the Masterplan period. With planned housing developments likely to increase traffic flow over the roundabout by about 23% by 2025, there will be a need for other developers to improve the junction before 2025, which has been agreed with them in principle. If these developments do not deliver new housing as planned, the junction upgrades may not be required until toward the end of the plan period, but the potential design solutions will still be valid. The following are indicative interventions, not definite final designs, to deliver better capacity and traffic flow at the main Airport Access Roundabout.

Figure 30 – Indicative Runway Road Diversion



- **2025** –The north and south lanes of the A696 could be realigned to slow traffic, making the junction safer and more effective. A traffic light could be added to the southbound A696 to stop any undue queuing back into the Airport site. A queue sensor would further improve the effectiveness of this. There is also potential for traffic lights on the B6918 to address long queue times, with timed lighting to ensure good traffic flow to and from the Airport.
- **2035** – A left turning lane could be added to the A696 southbound with a dedicated approach road to bypass the traffic lights and roundabout. Further capacity to help flows north over the roundabout from the A696 could be added through an extension of the left hand lane of the roundabout. A splay and feeder lane could improve turns from the B6918 to the A696 southbound.

9.79 The proposal in existing and emerging development plans to construct a bypass road for Ponteland is a good opportunity to improve access to the Airport site through the provision of a second entrance at Prestwick Roundabout. This could alleviate some of the forecast traffic load on the main roundabout, allow for alternative flows of traffic within the Airport site, and provide contingency if the main access is under repair.

9.80 The forecast increase in traffic flows on the highway network is closely associated with the traffic flow within the Airport site itself, and providing appropriate level of parking.

Car Parking

9.81 The Airport's modal split and the forecast increase in passenger numbers and subsequently car movements, indicates broadly that there will be an increased demand for vehicle infrastructure within the Airport site.

9.82 The Airport currently has approximately 10,750 permanent car parking spaces split between the types shown in Table 3.

Figure 31 – Indicative Roundabout Upgrade 2025

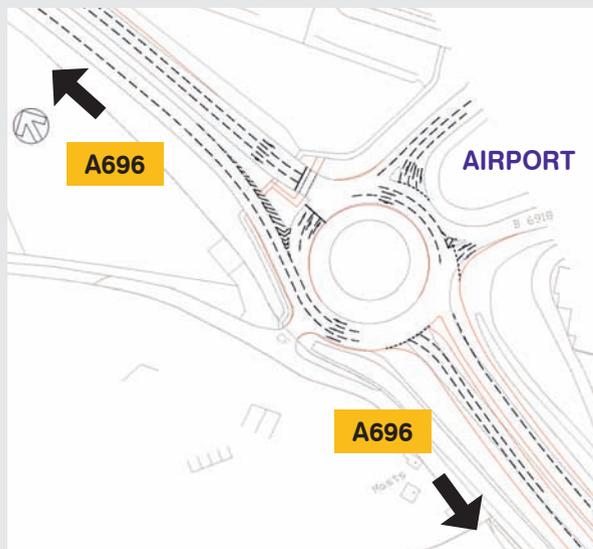


Figure 32 – Indicative Roundabout Upgrade 2035

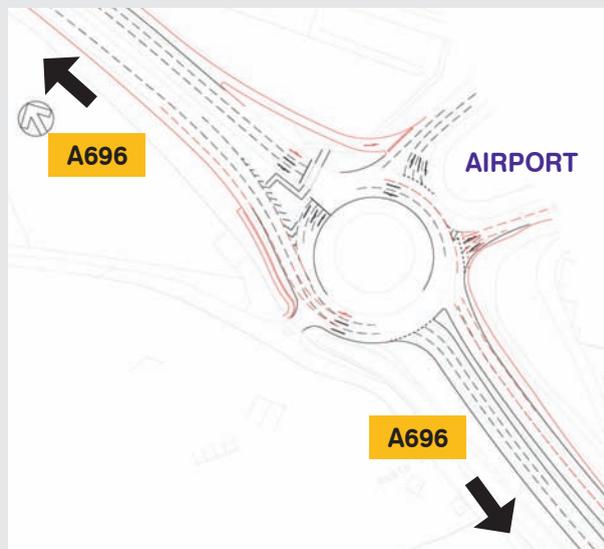


Table 3 – Car Parking Provision 2016

	Long Stay	6700
	Medium Stay	420
	Short Stay	930
	On-site Meet and Greet	1200
	Off-site parking	1,400
	Total	10,750

9.83 Demand for car parking varies significantly over the year, but at the summer peak the Airport is already operating close to capacity. If passenger numbers grow as forecast there will be demand for around an additional 7,450 spaces across all types. However there are a number of factors to consider in relation to this - .

- This figure is dependent on how the Airport's apron and terminal capacity is delivered in future years, as discussed in section 8. An expansion northward would mean that about 1,100 standard car parking spaces would be displaced. This area is currently used for 'block parking'²⁸ so in reality the impact in terms of capacity would be greater, and this and future demand for block parking would need to be met in any subsequent parking developments. Conversely, if the apron is extended to the east this existing parking capacity would remain.
- There is projected to be a need for up to a further 140 additional car parking spaces for staff by 2035, with around half of these needed before 2025.
- The projected future need for parking does not factor successful increase in the modal share of public transport. Therefore the Airport commits to reviewing the passenger modal split regularly to ensure that the planned parking provision is in line with need.

9.84 The provision of car parking has to meet expected demand from the forecast growth in passengers to ensure this element of the Airport is operating efficiently. The Airport is committed to only providing car parking in line with demand and when capacity is close to being exceeded at peak times.

9.85 Although we are committed to increase patronage of sustainable transport modes, the continued provision of long term parking also has the potential to reduce the demand for car travel. If more passengers were to park at the Airport site it limits their journey to two trips, whereas passenger drop-offs require double the amount. The Airport will also continue to review how existing car parks can be more efficiently used through amended patterns of circulation and intensified use of existing hardstanding.

9.86 It is proposed that the current long term parking area could be extended along the northern perimeter of the Airport site. The first phase will likely be needed before 2025, with potentially additional drainage infrastructure required alongside this. By 2035 a further development may be needed to the south east of the fuel farm. Land will be safeguarded to ensure these requirements could be met. The expanded car parking area could potentially be utilised for 'block parking', which would increase capacity. However the land indicated is sufficient for forecast need to be met through standard car parking spaces.

9.87 The extended area is capable of accommodating a range of parking types to meet demands. An important consideration is that the proposed car park development areas offer short transfer trips to the terminal. This is preferable for passengers but is also more sustainable in terms of fuel use and carbon output. Expected increased demand for car parking may bring with it pressure to use land on the likes of industrial estates for remote car parking. The Airport considers this to be a less sustainable operation than on-site provision can and should be the priority to meet demand.

9.88 The provision of a multi storey car park over a portion of the existing short stay car park has the potential to provide for all the identified need for additional short term parking, which may be staggered over the Masterplan period. This meets the requirement to be close to the Airport, and the customer experience could be enhanced by providing a covered link to the terminal. We will also consider whether car hire, self-service check-in and other customer facilities can be accommodated within this area.

Express Passenger Pick-up and Drop-off

9.89 The Airport currently has an express passenger pick-up and drop-off facility, which is accessed by traffic entering the Airport from the main access roundabout, travelling straight on and entering a one way system. All other car parks are accessed and exited to the north of the access roundabout.

9.90 The passenger pick-up and drop-off area is the most frequently used facility for vehicles at the Airport, accounting for about 75% of car movements. The current facility will need to be expanded in order to meet forecast demand and consideration will be given as to how the area will be accessed efficiently, taking account of future access and egress arrangements for the Airport.

²⁸ Cars are parked in 'block's in order of collection allowing for vehicles to be parked closer together and therefore increasing the capacity of an area.

Automated and Electric Vehicles

9.91 Automated vehicle technology is a rapidly advancing concept and one which could profoundly alter how people and goods travel on roads. They have the potential to increase the capacity of the existing network, improve safety, and reduce environmental impact. The Government has already set out its support for driverless vehicles²⁹, and has suggested that they could be available for wide scale purchase from the mid-2020s onwards. The Airport is committed to embracing this new technology and providing the on-site infrastructure needed to ensure compatibility with the wider road network. We will also review this technology as it develops to explore how it could be incorporated into the Airport's own vehicle fleet to improve efficiency and safety.

9.92 The Government has also committed to banning new sales of petrol and diesel cars by 2040 with the aim of tackling air quality and promoting the development of and use of electric vehicles. The Airport currently provides electric vehicle charge points for staff and passengers. We will seek to expand provision if user numbers indicate that current facilities are not providing for demand, and explore options for on-site generation of electricity to provide for increased demand.

Staff Green Travel

9.93 We consider that the most significant contribution to reducing the need to travel by car is a shift in mode to a more sustainable option. However there are number of key interventions we could implement to reduce the need for car journeys and/or make them greener.

9.94 We currently have a staff car sharing club with dedicated parking spaces close to the terminal. The program has been successful to date but we will continue to improve the scheme to increase its use. This could include –

- Further provision of car sharing spaces with priority terminal access;
- Awareness raising of the programme with existing staff across the Airport site and inclusion of information about it in new staff 'starter packs' alongside details of public transport staff incentives;
- Other staff incentives to use the scheme like periodic prize draws;
- A car share club forum on the staff intranet page.

9.95 We will monitor staff vehicle occupancy levels and patronage of the car sharing scheme alongside mode share analysis to determine its success. We will also continue staff policies to encourage car-pooling to appointments and the use of tele and video conferencing. There may also be an opportunity to establish a similar car sharing scheme for passengers to enable car or taxi sharing to and from the Airport. This could potentially be coordinated through our website or social media channels.

Key Actions and Investments – Road Infrastructure and Private Vehicle

By 2025

- Work with regional partners and the Government to ensure that strategic road investments are prioritised and bids for project funding are supported;
- Delivery of the Great Park Link Road to improve employment site access;
- Upgrades to the main airport access roundabout to handle additional background traffic;
- Delivery of secondary Airport access as part of the Ponteland Bypass development;
- Provision of additional car parking in line with demand including a multi storey car park;
- Deliver initiatives for passengers and staff to reduce the need to travel and enable vehicle sharing;
- Provision of further facilities for electric vehicle charging in line with demand.

Beyond 2025

- Expansion of the express passenger pick-up and drop-off facility with the possible modification to access and circulation;
- Deliver additional car parking in line with demand;
- Further upgrades to the main airport access roundabout;
- Development of a road diversion associated with the extension of the runway;
- Provide on-site infrastructure to allow for driverless vehicles in line with the advancement of this new technology;
- Provision of further facilities for electric vehicle charging in line with demand.

²⁹ Pathway to Driverless Cars: Proposals to support advanced driver assistance systems and automated vehicle technologies – Department for Transport (2016); and Vehicle Technology and Aviation Bill (2017)

Taxis

9.96 The Airport provides on-site taxis via an association, which allows for terminal front pick-ups. Pre-booked taxis can pick-up and drop off passengers in the Airport’s car parks. Taxis are a very popular choice for passengers travelling to the Airport because to the convenience, especially when travelling with luggage, and 24 hour availability. Our survey showed that approximately 31% of passengers used this mode.

9.97 We anticipate that the demand could grow if passenger numbers increase. The identified requirement for a larger and more efficient passenger drop-off and pick-up area will also provide for taxi operators. We are however committed to try and make this element of our surface access more sustainable. We already provide free electric charge points in the short stay car park, and will look to extend this to provide a dedicated rapid charge point for taxis to encourage the use of electric vehicles.

9.98 Uber is a growing format of taxi use. We will continue to accommodate Uber vehicles and other off-site taxi operators in our Express car park.

Key Actions and Investments – Taxis

By 2025

- Delivery of a dedicated electric vehicle charge point for taxis;

Beyond 2025

- Continue to invest in pick-up and drop-off facilities to provide for taxis, in line with passenger growth;

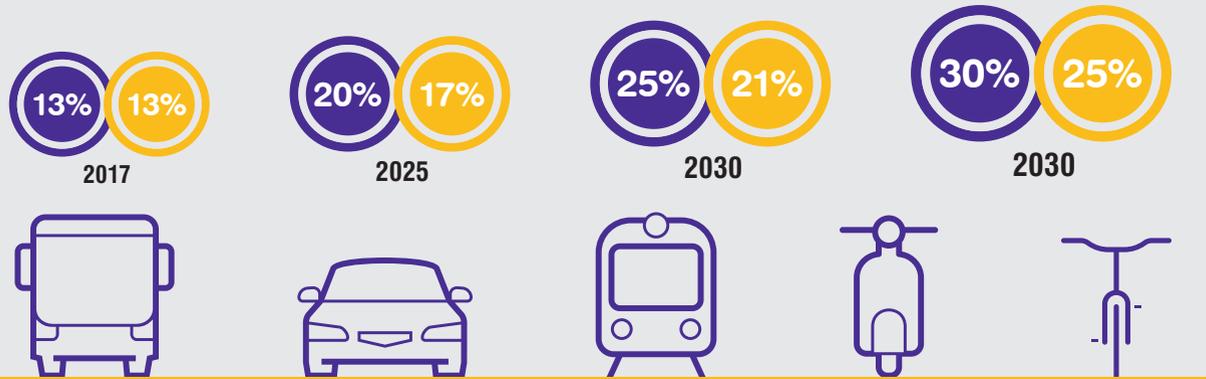
Future Modal Share

9.99 Our Surface Access Strategy sets out how we expect the demand for ground transport to grow over the Masterplan period, and the initiatives and investment we anticipate the Airport, regional partners and the Government could deliver to provide for the future demand for travel for all modes. Our strategy, for passengers and staff, is to reduce the demand to travel by private car and facilitate a shift to more sustainable transport modes. This has the potential to reduce road traffic generation associated with our growth and also lower fuel use and carbon output to help mitigate the impact of our growth. Based on the current patterns of transport use and the potential interventions identified, we believe the following modal shift targets could be achieved.



Table 4 – Targets for Increased Sustainable Transport Usage for 2035

● Passengers ● Staff





10. Sustainable Airport Growth

10.1 The environmental impacts of the Airport's existing operations are already actively mitigated. As the Airport grows there is the potential that the environment and local communities may be impacted by new development, additional flights, and increased ground transport. We are committed to growing the Airport sustainably and responsibility to deliver the Masterplan, by ensuring that any additional adverse impacts are appropriately mitigated, and that there is a program of continuous enhancements to our existing operations to improve our environmental performance.

10.2 Our commitment to sustainable management is evidenced by participation in the Global Real Estate Sustainability Benchmark (GRESB), which is an environmental, social and governance assessment of the Airport's sustainability, allowing for benchmarking against other airports and infrastructure assets.

10.3 The Airport's commitment to environmentally and socially responsible growth is shaped by regulatory legislation, national planning policy, and local development plans, which provide a wide range of policy and guidance to ensure that any new development has to be delivered and operated sustainably. Any large planning application will also be accompanied by an Environmental Impact Assessment, which will provide a robust review of the potential consequences of the proposed development.

10.4 This chapter details the potential impacts of the Masterplan and possible mitigation measures which we could be employed to ensure our growth is sustainable. The issues covered are –

- Noise Impact
- Air Quality
- Waste Management
- Drainage and Water Quality
- Biodiversity
- Historic Environment
- Landscape Impact
- Agriculture
- Energy Use and Carbon Output

Noise

10.5 Noise can be a concern for communities living close to the Airport and its flightpaths. It is recognised that it can impact on people's health and quality of life, but also that the sensitivity to noise is not uniform. Some noise from the operation of the Airport is unavoidable. However, we are committed to the management and mitigation of noise as the Airport grows to minimise the impact on our neighbours.



Policy and Guidance

10.6 There is a range of legislation and guidance applicable to the control noise and its impact, some of which is widely applicable, and some of which is specific to aviation.

10.7 The Noise Policy Statement for England is the Government's noise strategy aimed at avoiding and mitigating the impact of noise on health and quality of life. It uses the World Health Organisation definition of impact, which are transferable to aviation noise policy and the thresholds which are set –

- NOEL – no observed effect.
- LOAEL – lowest observed adverse effect level, which is when impact on health and quality of life can be observed.
- SOAEL – significant observed adverse effect level.

10.8 The mitigation and control of aircraft noise is dictated by a range of legislation set out by the International Civil Aviation Organisation (ICAO), the European Union, and the UK government. ICAO and the UK Government through the Aviation Policy Framework support a balanced approach to noise management by –

- Reducing noise at the source.
- Land use planning and management.
- Noise abatement from operational procedures and timetabling.

10.9 The Sustainable Aviation Road Map for Noise (2013) sets out the UK aviation industry's blueprint for managing noise from aviation sources to 2050, based on the ICAO balanced approach.

10.10 The Aviation Policy Framework broadly seeks to limit and where possible reduce the number of people significantly impacted by noise. It also sets out compensatory requirements –

- Assistance in the cost of moving for households exposed to noise levels of 69 dBL_{Aeq, 16h}³⁰ or more.
- Insulation or alternative measures for noise sensitive buildings like schools and hospitals exposed to 69 dBL_{Aeq, 16h} or more.
- Financial assistance toward noise insulation for residential properties which experience a 3db increase as a result of development leading to a level of 63 dBL_{Aeq, 16h} or more.

10.11 In determining noise levels where there is an adverse impact on the local community we presently use levels set in the Aircraft Noise Index Study (ANIS). It reported that 57dB L_{Aeq, 16h} is the daytime threshold for the onset of community annoyance. The equivalent figure for night time is 48 dBL_{Aeq, 8h}. However, it should be noted that individual noise events, as well as average levels, are important considerations for the night-time period.

10.12 Legislation regarding aircraft noise is currently in transition. The Government consulted on the Airspace Policy Framework in 2017³¹ which indicated that the thresholds for noise impact from aviation will likely change. The Survey of Noise Attitudes Study (SoNA) indicates that the sensitivity to aircraft noise is increasing, and that the same percentage of people were highly annoyed at 54dB L_{Aeq, 16hr} as there were at 57dB L_{Aeq, 16hr} in a past study. This suggests that the identified onset of community annoyance could

also be reduced in future government policy. The Airspace Policy Framework also proposes changes to the current compensatory requirements set out in the Aviation Policy Framework.

10.13 Local Planning Authorities also play a role through local development plan policy and potentially controls set through planning conditions and agreements. The NPPF dictates that planning policy should avoid noise giving rise to adverse impacts on health and quality of life as a result of new development, and seek to minimise and reduce the impact to a minimum. It recognises however that “development will often create some noise and existing businesses wanting to develop in continuance of their business should not have unreasonable restrictions put on them because of changes in nearby land uses since they were established”.

10.14 An increase in the number of air traffic movements, change in the make-up of these movements in terms of aircraft type and destination, and increased vehicle movements on the ground could impact on local noise levels.

³⁰ dB Laeq - method to describe sound levels that vary over time, resulting in a single decibel value which takes into account the total sound energy over a given period.

This gives a representative continuous level. For daytime this is the 16 hour period from 7.00-23.00 and for night time the 8 hour period from 23.00-7.00.

³¹ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/588186/uk-airspace-policy-a-framework-for-balanced-decisions-on-the-design-and-use-of-airspace-web-version.pdf

Aircraft ‘Air’ Noise

10.15 Aircraft noise describes the noise produced by an aircraft during flight, preparing for departure and decelerating following landing.

10.16 In order to assess the current and future noise impacts, a noise contour modelling exercise was undertaken by the Environmental Research and Consultancy Department (ERCD) of the Civil Aviation Authority (CAA), using the internationally recognised ANCON-II noise model. The modelling is based on forecast future flight schedules and so takes account of the forecast number and types of aircraft, destinations, and flight paths based on our noise and monitoring tracking system. Noise contour maps were produced for each review year of the Masterplan, as shown in Appendix 2.

10.17 Noise contours provide an indication of the average noise exposure within a particular area around the Airport. Levels for the day-time contours start at 54 dB $L_{Aeq, 16h}$ and the night-time contours at 48 dB $L_{Aeq, 8h}$ increasing in 3dB steps to 72dB $L_{Aeq, 16h}$ and 66 dB $L_{Aeq, 8h}$ respectively.

10.18 If changes to Government policy in relation to the onset of community annoyance from aviation noise are adopted, we will review the impact of current and potential future operations. Whilst contours and indicator noise thresholds provide valuable and robust information, we appreciate that noise is subjective and populations not contained within the identified metrics might hear the Airport’s operations. We will continue to work cooperatively with communities, the local planning authority, and developers close to the contours to understand noise exposure levels and respond to all complaints.

10.19 The contour footprints have been assessed against households and population contained within each contour. They indicate that the potential increase in airport operations could result in a larger population being exposed to aircraft noise in terms of the 54 dB $L_{Aeq, 16h}$ and 63 dB $L_{Aeq, 16h}$ contours during the day and the 48 dB $L_{Aeq, 8h}$ and 54 dB $L_{Aeq, 8h}$ at night,. This is shown in Table 5.

The potential extension of the runway would result in a different pattern of exposure owing to the changing nature of aircraft operations, which we have modelled from 2030-2035.

Table 5 – Estimated Increase in Population Exposed to Noise Over the Masterplan Period With and Without a Runway Extension for Potential Future Peak Day Operations

Period	Noise Level	2016 population baseline	Without extended runway (2035)		With extended runway (2035)	
			Estimated population within noise contour	Increase over 2016 baseline	Estimated population within noise contour	Increase over 2016 baseline
Day	Population within 54 dB $L_{Aeq, 16h}$ contour	3,650	8,050	4,400	8,950	5,300
	Population within 63 dB $L_{Aeq, 16h}$ contour	0	<50	<50	<50	<50
Night	Population within 48 dB $L_{Aeq, 8h}$ contour	6,450	10,150	3,700	9,900	3,450
	Population within 54 dB $L_{Aeq, 8h}$ contour	400	1,050	650	1,200	800

10.20 The potential extension of the runway would result in a marginally greater number of people being exposed to noise, owing to increased daytime operations. However it would actually result in a lower population being exposed to noise during the night, as aircraft taking off to the west would get airborne sooner and so would be higher over the Tyne Valley.

10.21 In terms of new areas which could be exposed to noise from potential future operations on an extended runway, Figure 33 shows additional areas, in comparison to 2016, where noise levels of 54dB $L_{Aeq\ 16h}$ (blue) and that 63dB $L_{Aeq\ 16h}$ (pink) during the day would be as result of the forecast growth of the Airport. Figure 34 shows the of 48dB $L_{Aeq\ 16h}$ (blue) and that 54dB $L_{Aeq\ 16h}$ (pink) for potential night time levels.

10.22 The 54 dB $L_{Aeq\ 16h}$ contour in 2035 extends to cover larger populations in the surrounding villages of Wideopen, Hazlerigg, Dudley, and parts of Cramlington. In 2035 properties are also present in the 63 dB $L_{Aeq\ 16h}$ contour in Brunswick village.

10.23 The main consideration for the night time contours is the 48 dB $L_{Aeq\ 8h}$ footprint, which extends in a south westerly direction toward the edge of Throckley and Heddon on the Wall, however as stated, the impact is lessened by an extended runway.

Aircraft 'Ground' Noise

10.24 Whilst the aircraft are on the ground, there are a number of activities which can lead to 'ground noise'. These include aircraft travelling (taxiing) between the runway and stands, aircraft on standard charging with auxiliary power units (APU) and engine testing.

10.25 The noise impact generated from ground activities tends to be limited to those areas closest to the airfield, including Prestwick, Dinnington and Woosington. Towards the end of the Masterplan period, should a runway extension be implemented, ground noise might impact on villages to the east, such as Brunswick and Hazlerigg, including new housing developments in Hazlerigg and Great Park

10.26 There are a number of measures detailed in paragraph 10.32, which can effectively mitigate against any potential ground noise impacts.

Figure 33 – New areas exposed to daytime noise with a runway extension, 2035



Figure 34 – New areas exposed to night time noise with a runway extension, 2035



Surface Access

10.27 As the development plan is implemented there may be an increase in traffic to the Airport and subsequent associated noise generation. Based on anticipated vehicle movements it would lead to an approximate increase in noise levels of 2.6 dB(A) and would be described as 'negligible' by the Design Manual for Roads and Bridges (DMRB HD213/11, Highways Agency et al, 2011).

10.28 At such time that alterations are made to the road network, full consideration will be given to noise impacts and the implementation of mitigation in the form of low road surfaces or noise barriers.

Mitigation Measures

10.29 The Airport will continue to support 'Sustainable Aviation' and the principle of the Noise Road Map will be followed, which seeks to limit, and where possible reduce, the number of people exposed to aircraft noise. The Noise Road Map is not intended as a stop an airport expanding but is rather a challenge to "ensure that future growth can be delivered whilst still providing an acceptable level of 'pay back' to local communities for noise disturbance"³², specifically for those who are "significantly affected". The Masterplan aims to deliver sustainable growth alongside measures to minimise and mitigate noise impacts.

10.30 It is clear that noise levels per aircraft movement at Newcastle Airport have improved significantly over the steady growth period since the 1990s as airlines now operate much quieter aircraft models, and we continue to encourage airlines to operate the newest, quietest aircraft types. The Masterplan forecasts a greater number of movements over current operations which do result in the growth of our noise contours. However, this impact would

have been much greater without the modernisation of aircraft types.

10.31 The Airport has a Noise Action Plan (as required under the Environmental Noise Directive 2002/49/EC) which was adopted in 2013 and outlines a 5-year management plan for noise management. The Action Plan will be revised in 2018 and will build upon the current mitigation actions in relation to the Masterplan.

10.32 Mitigation measures for the Masterplan, many of which are already in use, could be -

Aircraft 'Air' Noise

- Continued and improved use of operational procedures including Performance Based Navigation (PBN), Continuous Descent Approaches (CDA) and published noise preferential departure/arrival routes.
- Reduction of noise at source by our airlines using newer, quieter aircraft types with a lower noise profile.
- Noise insulation and compensation schemes will be considered at an appropriate time in the Masterplan, in line with current legislation.
- Working with local planning authorities and developers to direct inappropriate new development away from areas where the noise levels are the highest and ensuring schemes within or close to the contours are designed to deliver acceptable internal and external noise levels. We will work with developers of schemes proposed close to our contours to ensure that site specific noise monitoring is undertaken over an extended period during the peak season to understand the present noise environment on that site.

- General aviation directed away from residential areas and training circuits varied to different areas.

Aircraft 'Ground' Noise

- Acoustic screening around new apron and the possible runway extension to buffer ground noise from Prestwick, Dinnington and Great Park.
- Phasing out diesels APU's to Fixed Electrical Ground Power (FEGP).
- Continuation of restricted hours for ground engine testing unless there are exceptional overriding operational reasons.
- Closely consider noise in the orientation and design of new stands.

Surface Access

- Fully assess the potential noise impact of any new surface access infrastructure.
- Consider the use of low noise road surfaces and acoustic buffers, as well as other suitable mitigation measures in the design of new developments.

10.33 In terms of monitoring noise levels over the plan period to determine the success of mitigation, the Airport currently permanently operates noise monitors at 5 locations which continuously record noise levels –

- Dinnington First School
- Heddon-on-the-Wall Library
- Ponteland Middle School
- Woosington, Middle Drive
- Seaton Burn Community College

³² Paragraph 7.5 of the SA Noise Roadmap

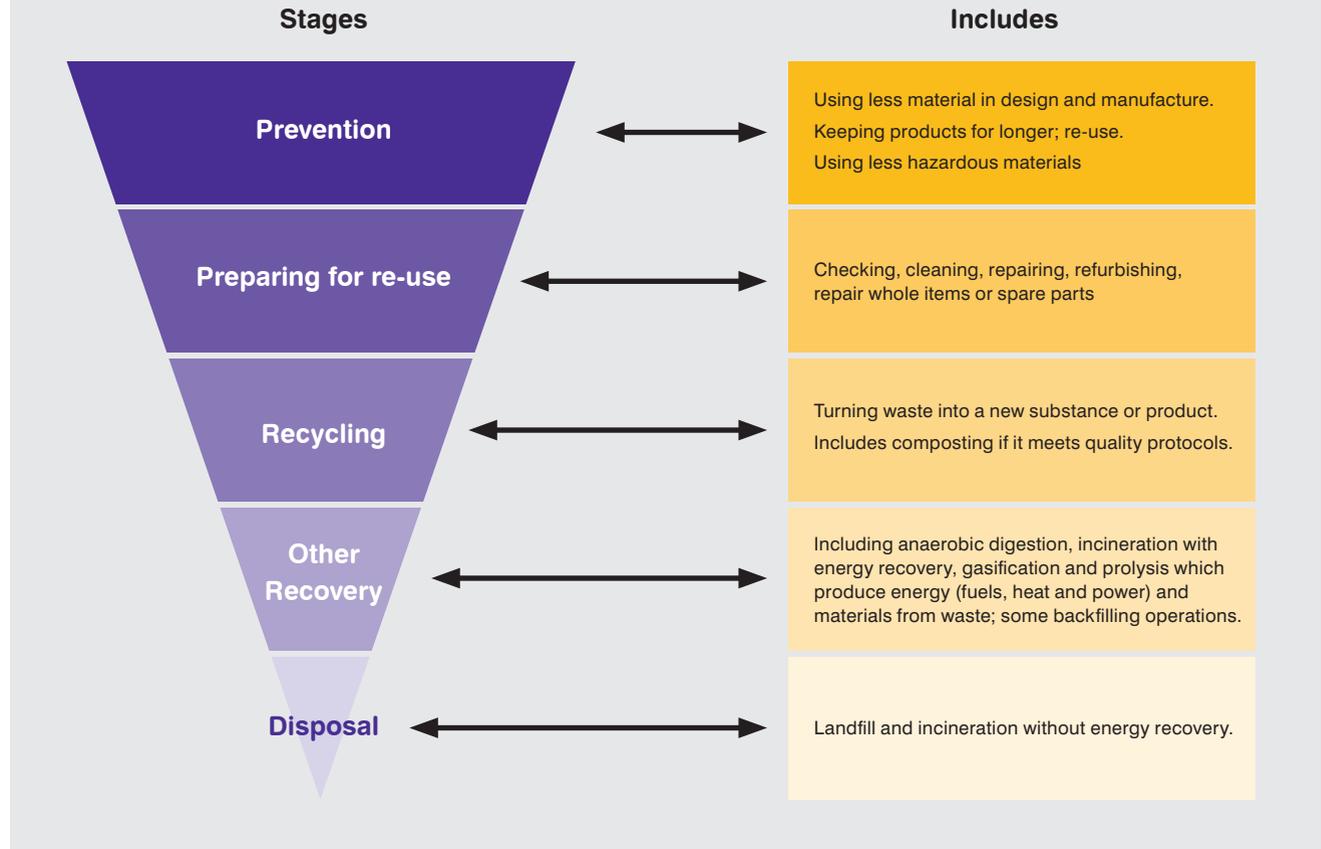
10.34 The monitors are part of a Noise and Track Keeping System. Any spikes in noise levels can be assessed against operations and the computerised system allows us to monitor aircraft operations against designated flight routes. In addition to these permanent monitors we can deploy a portable monitor to determine noise levels at specific locations. We will continue to engage with communities and respond to all noise complaints.

Waste

10.35 The management of waste is controlled under the Waste (England and Wales) Regulations (2011) which encourage the waste hierarchy of prevention, re-use and recycling and disposal being a last resort. The waste hierarchy forms the principles of waste management at the Airport. The Regulations also impose a 'duty of care', which requires the waste producer to demonstrate the correct disposal route of all waste.

10.36 Waste is generated across the differing functions and businesses operating from the Airport site. The duty of care for managing and disposing of waste lies with the Airport Company and as such great efforts are made to ensure the waste hierarchy is followed. Following the hierarchy is the most sustainable management approach to waste, protecting the environment alongside resource and energy conservation.

Figure 35 - The Waste Hierarchy



10.37 In 2016 a total of 1,377 tonnes of waste was generated by Airport activities, 94% of this waste was recovered for recycling and the remaining residual waste was sent to an energy from waste facility. Therefore, no waste was sent to landfill, a target which was stated in the previous Masterplan.

10.38 As the Airport grows, so will the amount of waste produced and it is important to ensure that processes are in place to manage this waste in the most sustainable way. The amount of waste produced could grow by 93% by the end of the Masterplan period. This projected increase has implications for future cost levels and the carbon footprint of the Airport.

10.39 During 2017, investment has been made in new recycling bins throughout the terminal; this provides an opportunity for passengers to recycle their waste directly. A dedicated waste sorting area to the north of the terminal provides facilities for segregated disposal of paper, cardboard, plastic, metal, glass, wood and cans. However, 22% of our

waste is currently segregated on site, with the rest instead being sorted offsite for recycling or energy production.

10.40 As we are currently recycling a high percentage of our waste, with none going to landfill, it is proposed that over the Masterplan period the focus will be to recycle more on-site. This could allow for better segregation with less contamination at source, and more efficient transport of waste from site with consequential cost benefits.

10.41 Following a review of waste management, the following actions have been identified for the Masterplan;

- Continue to send zero waste to landfill;
- Achieve 40% on-site recycling rate by 2025;
- Achieve 50% on-site recycling rate by 2030;
- Achieve 60% recycling rate on site by 2035;
- Produce a recycling and waste strategy to develop strategic policy for waste management and set a broader range of KPIs.

Air Quality

10.42 Air quality is regulated under the European Directive on Ambient Air Quality (2008) and Air Quality (England) Regulations (2010). The potential growth in air traffic movements and ground transport could impact on local air quality. Concentrations of nitrogen dioxide (NO2) are a key consideration given the potential impacts on health and wellbeing and the environment. When considered alongside nitrogen oxide they are collectively known as NOx. Concentrations of fine particulates (PM10) are also important.

10.43 Air quality (NO2) is assessed on a monthly basis through the use of 21 diffusion tubes around the Airport site. The legislated air quality objective is for the annual mean concentration to be under 40 (µg/m3). From 2013-2016 there were only two incidences of exceedance, both airside locations, and each time being only slightly over the objective threshold. Some landside locations show that concentrations are less than 75% of the annual mean NO2 objective level.

10.44 Newcastle City Council is obliged to monitor air quality and take action when prescribed levels are exceeded. It has declared two air quality management areas (AQMA) in Gosforth and the City Centre; following exceeded of the maximum annual mean NO2 in 2008 and 2004, respectively. The impact on these will have to be closely monitored.

Road Traffic

10.45 Road traffic travelling to and from the Airport is forecast to increase during the Masterplan period, and so local air quality effects could rise from the increase in vehicle movements. Analysis shows that concentrations are projected to be below the annual mean NO2 objective of 40µg/m3 at all receptors over the Masterplan period. The largest increase in NO2 is predicted to be found at the roundabout entrance to the Airport, but this would still be significantly below threshold levels. As the annual mean NO2 and PM10 concentrations are forecast to be under the targeted mean annual concentrations, we consider that the impact of increased ground vehicle movements on air quality to be negligible. However, we will continue to pursue initiatives to reduce this further.

Table 6 – Forecast Future Waste Generation

Year	Waste (tonnes)	% increase on 2016 levels
2016	1,377	n/a
2025	2,142	56
2030	2,470	79
2035	2,657	93



Air Traffic

10.46 The assessment of aircraft movements has shown that there would be an increase in NOx emissions of approximately 60% by 2035 compared to 2015, which aligns with the increase in air traffic movements and passengers. However, future emissions from aircraft are unlikely to result in exceedances of pollutant levels within areas of prolonged public exposure. There is also anticipated to be a decrease in the tonnes of NOx per passenger in the future, due to the use of newer aircraft with improvements in fuel flow and emissions, and larger passenger capacity aircraft. Figure 35 shows the forecast reduction in NOx levels per million passengers per annum to 2035.

Mitigation measures

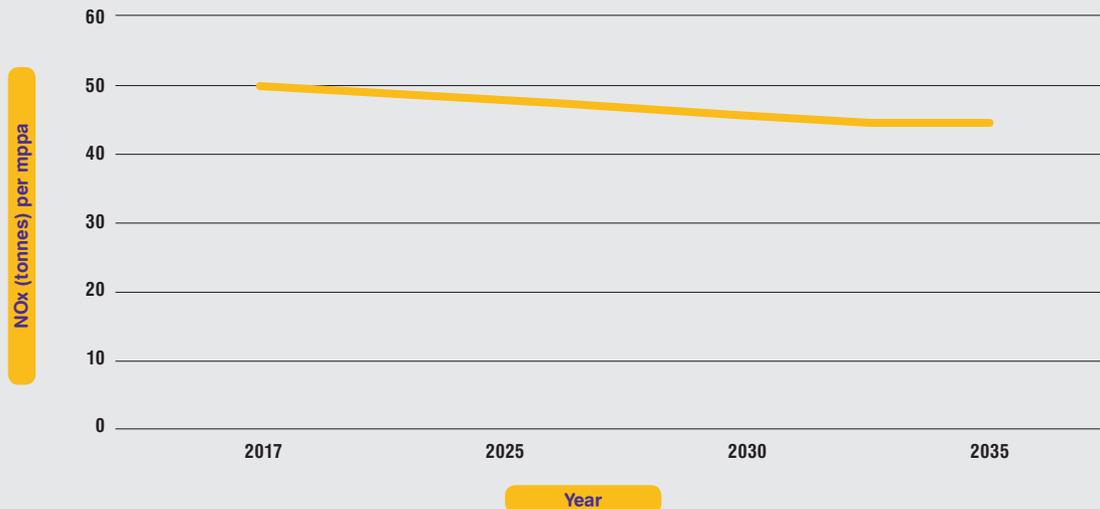
10.47 The Airport’s Air Quality Strategy contains a number of policies with the overall aim to improve air quality, which will be continued going forward. This strategy will be reviewed during the Masterplan period when new initiatives will be considered.

10.48 The following actions are will be continued or implemented over the Masterplan period;

- Maintain a programme of spot sampling across the Airport site and extend the study area to include local villages and areas which are sensitive to air pollution;
- Assess the potential to install permanent continuous air quality monitors on the Airport site;

- Review the types of vehicles used on site and their impact on air quality, potentially moving to an electric operational vehicle fleet.
- Encourage the use of more sustainable surface access modes, as set out in the Surface Access Strategy.
- Minimise emissions from Auxiliary Power Units (APU) for aircraft while on the ground by using Fixed Electrical Ground Power (FEGP) at stands if available.
- Establish an information and education programme for airport staff, relevant operators and the general public, with the aim of informing them of the issues concerning air pollution
- Continue to work with Sustainable Aviation to encourage the industry as a whole to reduce air quality emissions.

Figure 35 – Tonnes of NOx per million passengers per annum over the Masterplan Period



Water Quality

10.49 The management of water on site requires significant infrastructure, therefore it is important to ensure that the capability of the drainage system is assessed for future developments. A drainage study was undertaken in 2016, which reviewed drainage systems, and undertook manhole CCTV and flow monitoring surveys. On completion of this work a detailed hydraulic model was produced for the Airport site. This model is used to assess any impact new developments will have on drainage.

10.50 The current drainage system has developed over the last 15 years, to include a dedicated polluted water system to manage all surface water. The run-off is stored in a series of lagoons and attenuated until the water is deemed clean. A Total Organic Carbon (TOC) monitor analyses water quality and releases it automatically when the water is clean. Water is released into two watercourses –

- River Tyne via Sunnyside Drain and Ouseburn to the south of the airfield
- River Pont via Hawthorn and Whins Drains to the north of the airfield

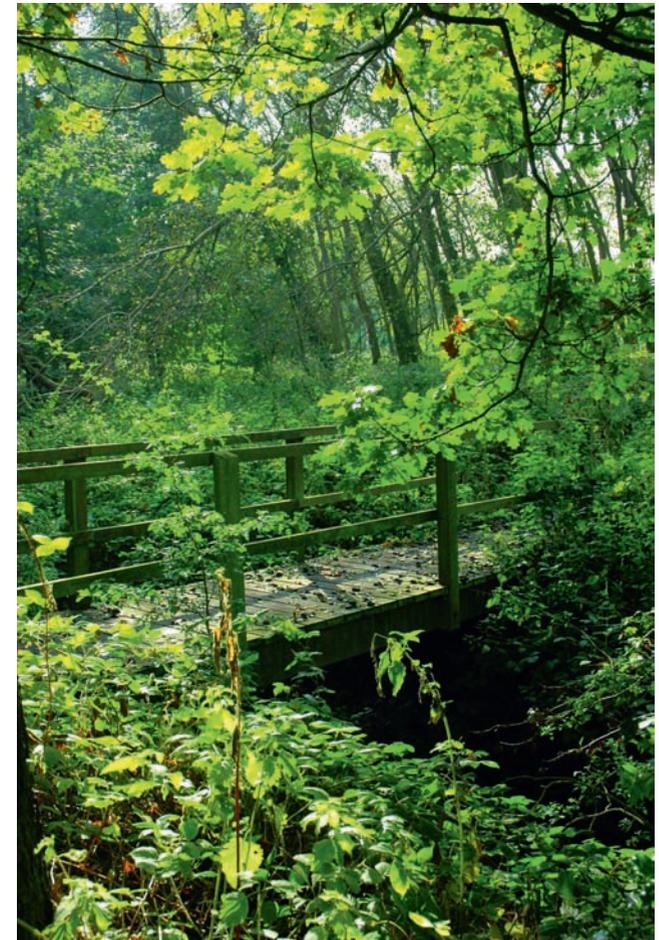
10.51 This release is carried out under a consent issued by the Environment Agency (EA). If the water quality does not meet the requirements of the EA consent, it is discharged to the foul sewer, under consent from the Northumbria Water. Discharge permits are issued by the Environment Agency under the Environmental Permitting (England and Wales) Regulations 2010. Northumbrian Water issues discharge consents through the Water Industry Act 1991. In addition to the on-site analytical system the Airport carries out monthly water monitoring across the site and weekly monitoring during winter, when anti-freeze is being used on aircraft and hard surfaces.

10.52 Key developments in the Masterplan, including the potential runway extension, car park and apron extensions have been reviewed against the hydraulic model. There is an identified need to improve the drainage system for surface water at the appropriate time in the Masterplan period to develop additional on-site water treatment infrastructure. This takes into consideration space requirements for these facilities on the Airport site and water flow and fall characteristics. This may be in the form of -

- Extension of existing holding lagoons;
- Additional above ground holding lagoons;
- New underground holding lagoons incorporated into new developments;
- Sustainable Urban Drainage Systems (SUDS) where the runoff would be acceptably clean.

10.53 The development of additional above ground infrastructure would require quite large areas of land within the Airport site to be used. There is an opportunity for this need to be accommodated on land to the north of the airfield which is owned by the Airport, and we will safeguard this land for this purpose. We consider that the development of lagoons / SUDS basins would be an appropriate development in the Green Belt. Complementary planting could also help to mitigate any landscape impact. However drainage ponds will be designed to minimise bird activity to safeguard against increased bird strikes with aircraft.

10.54 The growth of the Airport may also lead to increased foul water discharge into Northumbrian Water's network. Domestic flow from buildings will likely not present any issues, but the discharge of contaminated runoff could demand investment in new pumping infrastructure and additional sewer network capacity. The latter may be improved to deliver other developments in the area. We will work closely with Northumbrian Water when we are in a position to develop detailed designs for new water quality infrastructure.



Climate Change and Energy

10.55 The UK Climate Change Act (2008) set a legally binding set of targets to reduce greenhouse gas emissions by 80% by 2050, against a 1990 baseline. In 2009 a specific target was introduced for aviation emissions to be no more than 2005 levels by 2050.

10.56 The Airport is a signatory of Sustainable Aviation, a UK industry coalition of airlines, airports, aerospace manufacturers and air navigation service providers. Sustainable Aviation is 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 back to the absolute carbon emissions level of 2005, including the use of carbon offsetting.

10.57 The aviation sector, which includes airports, is responsible for 1-2% of global greenhouse gas emissions. In the UK the equivalent figure is 6%, and it accounts for 22% of emissions from the transport sector. As other forms of transport decarbonise this proportion is expected to grow. However, aircraft technology is advancing continuously to reduce fuel burn and therefore carbon output. The development of aircraft design and the decision for airlines to use newer aircraft is beyond our control, although we do encourage the use of more fuel efficient models. We recognise that airports are also large consumers of energy and producers of greenhouse gases, and we are committed to improving the sustainability of our operations over the Masterplan period.

10.58 The Airport is a complex piece of infrastructure, with multiple parties under different management operating on the site. Our greatest influence is over the sustainability of existing buildings and new development. The heating,

lighting, and cooling of buildings, running of appliances and equipment, as well as the lighting of external area like car parks and the airfield, are all areas where there is opportunity for greater efficiencies.

10.59 As a high energy user the Airport is a participant in the CRC Energy Efficiency Scheme (formerly known as the Carbon Reduction Commitment). This scheme is a mandatory carbon emissions reporting and carbon offsetting mechanism. As part of the involvement in the CRC Energy Efficiency Scheme, the Airport has successfully achieved the Carbon Trust Standard. Any development needs to ensure that energy efficiency is core to the design process.

10.60 The 'Energy Savings Opportunity Scheme' (ESOS) is a mandatory assessment scheme for organisations in the UK above a certain size and requires the calculation of energy consumption and identification of opportunities for energy savings. The Airport undertook such an assessment which identified possible interventions to reduce our energy consumption.

10.61 We are committed to lowering our energy use and carbon output through the following measures -

- **Improvement of the energy efficiency of our buildings** through measures like enhanced insulation, draft proofing, maximising the use of solar gain and natural ventilation, and the installation of more efficient equipment such as lighting.
- **Improving the efficiency of our energy supply** and use through measures such as smart controls, better energy use management, and elimination of waste and inefficiencies (e.g. combined heat and power).
- **Generation of our own renewable or low carbon energy**, either on-site or through offsetting away from the Airport site

10.62 The 2013 Masterplan sets a target to reduce the Airport's carbon output against the 2010 level of 11,197 tCO₂e³³. The Airport's energy usage and fuel consumption for 2015-16 show that this has dropped by 22% to 8,703 tCO₂e, based on electricity consumption of 22,161,003 kWh and the use of 55,331 litres of fuel.

10.63 A significant amount of this reduction was achieved through a lighting renewal scheme, with more scheduled for 2018 and 2019. This is one of range of measures we have identified to improve efficiency and reduce our energy consumption. Indeed the Airport's Energy Savings Opportunity Scheme (ESOS) identified investments which could deliver a 13% reduction in energy usage, which would save 3,130,427kWh and 1,188 tons of carbon per annum. We therefore aim to reduce our carbon emissions against 2010 levels by –

Table 7 – Targeted Reduction in Carbon Emission against 2010 levels



³³Tonnes of carbon dioxide emitted



10.64 Whilst the above reductions are achievable we are aware that the target may be more challenging if the Airport expands.

10.65 As part of the delivery of this Masterplan we will develop a carbon and energy reduction strategy to map detailed long term actions to reduce our carbon footprint, including from new development. The strategy could include carbon foot printing to fully understand and quantify our carbon output, and therefore the effectiveness of mitigation measures. The possibility of doing this as part of the Airport Carbon Accreditation Program will be considered, which is based on evidencing mapping, reduction, optimisation, and neutralising of carbon emissions. We will also explore the possibility of introducing energy reduction targets alongside those for carbon reduction in the Masterplan.

10.66 We recognise that efficiency improvements can only go so far to reduce our carbon output and as the Airport grows there may be a need to reduce carbon output through the generation of renewable and/or low carbon energy.

10.67 We consider that the Airport has much potential for on-site energy generation, particularly given its large land holding, with much land to the north currently in agricultural use. This land could be used for renewable energy production and will be safeguarded for this purpose. Developments could be -

- A solar farm;
- Commercial scale wind turbines;
- Crop rearing for the production of bio-fuels for use on or off-site.

10.68 We believe there is also opportunity to increase use of small scale on-site renewable or low carbon energy production incorporated into new developments and retrofitting onto existing infrastructure. This could include –

- Solar photovoltaic panels;
- Vertical axis and column mounted wind turbines;
- Biomass fired on-site combined heat and power boilers (CHP) or combined heat, power and cooling (CCHP) units;
- Air source heat pumps.

10.69 The technical and financial viability of these schemes will be a key consideration as to whether they can be delivered, as well as potential safeguarding issues to ensure the safe operation of the airfield isn't compromised.

10.70 Building Regulation requirements dictate demanding efficiency and carbon reduction standards for the development of new buildings and extensions to existing ones. Alongside meeting these standards we will also reasonably consider 'passive design measures' to ensure that the orientation of new buildings, the arrangement of internal space, and their design maximises the use of natural light and ventilation to reduce the need for artificial alternatives. We will also explore the possibility of meeting industry recognised standards, such as BREEAM, for suitable developments, principally the employment sites south of the runway.

10.71 The Airport's fleet of vehicles are already being benchmarked for vehicle fuel efficiency and carbon output in selecting new vehicles. The carbon and energy

reduction strategy will explore options such as the use of electric and automated vehicles, and the moving away from fuel powered auxiliary power units on the airfield, to fixed electrical ground power. In addition, as set out in the surface access strategy we will also look to expand electric vehicle charging facilities in line with demand.

Biodiversity

10.72 The Airport is committed to ensuring that development to deliver the Masterplan carefully considers the potential impact on biodiversity and that any impact is appropriately mitigated.

10.73 Although the fenced airfield is low in ecological value, the wider Airport site contains a broad range of habitats, including hedgerows, mixed and broadleaf plantations, scattered trees, and scrub and fenland. Wildlife habitat is particularly concentrated to the south of the Airport site.

10.74 The 'Wildlife and Countryside Act 1981' (as amended) is the primary legislation for the protection of habitat and species. Whilst 'The Conservation of Habitats and Species Regulations' (2010), offers protection to a number of plant and animal species throughout specific conservation designations, which are close to our eastern approach paths.

10.75 There are a number of protected habitats close to the Airport, but none on the site itself. Big Waters, Brenkley Meadows, and Prestwick Carr are 'Sites of Special Scientific Interest' (SSSIs), and Sunnyside Pond, Dinnington Road Fen, Havannah Nature Reserve, Moorey Spot Pond, Woosington Hall, Prestwick Burn, and Foxcover Wood, are all either sites of Nature Conservation Importance or

Local Conservation Interest. There are also a number of wildlife corridors running through or close to the Airport site. Although quite distant from the Airport, there are also sections of the South East Northumberland coast designated as a Ramsar and Special Protection Area because of the bird life. Any changes to approaches associated with the runway would need to closely consider any impact on the wildlife associated with these areas.

10.76 Analysis of on-site habitat and recorded species on sites within a certain radius of the Airport showed that Badgers, Otters, Water Voles, Red Squirrels, and number of bat species are known to be present close to the Airport and there is suitable on-site habitat to support them. Numerous protected bird species have also been recorded close to the site.

10.77 Any potential impacts from the delivery of the Masterplan will be carefully considered and controlled through the planning system, and we will ensure that required surveying and mitigation are undertaken in line with guidance and policy in Local Development Plans.

Mitigation could include –

- Management of on-site habitat;
- On-site habitat enhancement or creation, or when this is not possible offsite mitigation;
- Future landscaping associated with the new development designed to maximise appropriate biodiversity value;
- Continued work with local wildlife action groups;
- Creation of new wildlife corridors in relation to new development, particularly the potential runway extension.

10.78 Biodiversity enhancement close to the airfield has to be balanced with the need to safeguard the operation of the airfield from an increased risk of wildlife strikes, particularly in relation to birds. Therefore the Airport cannot support the creation of habitat such as open water close to the Airfield, which has the potential to bring an increased number of hazardous species such as geese and gulls into close proximity to the airfield. There is still much opportunity for biodiversity enhancement, particularly mammalian habitat, such as measures to support red squirrel populations.



Historic Environment

10.79 There is one listed building and registered Park and Garden of Special Historic Interest located close to the Airport site: Woolsington Hall (grade II*) and its former estate grounds. The hall was recently substantially damaged by fire, but has an extant planning permission to convert it into a hotel, and develop the grounds as a golf course and housing.

10.80 Development of the employment site and the Great Park Link Road in Particular will need to closely consider the impact of this historic asset and its setting, and mitigate any impact if required. It is not considered that other listed historic assets in Dinnington and Ponteland will be impacted by the delivery of the Masterplan.

10.81 Undeveloped parts of the Airport site have been subject to archaeological survey. Full archaeological surveying will be carried out on other areas of the site in consultation with Tyne and Wear Archaeology, where this is considered to be required, and appropriate action taken.

Agricultural Land

10.82 The majority of the land within the Masterplan area is classified as Grade 3, according to the Government's Agricultural Land Classification maps. There is a small area of land categorised as 3a (best and most versatile), although the majority of the land is 3b (moderate quality).

10.83 Some areas of Grade 3a and 3b land will be lost as a result of development. Best practice techniques will need to be employed to ensure that the topsoil is removed in a suitable manner to allow for its use elsewhere on site. Loss of higher quality land will be minimised where possible.

Landscape

10.84 The Airport site is located within national character area 13: South East Northumberland Coastal Plain. This is characterised by large open arable fields, gap hedges with sparse woodland cover but some distinctive parkland associated with country house estates, such as Woosington Hall. It also falls within 4 local designations with the majority of the site falling into area C28 which is characterised by its built-up nature, with notable reference to the tarmacked elements of the airfield, managed grasslands, and shelterbelts.

10.85 A number of local planning policies set out of how landscape impact should be considered in relation to a planning application. The Airport will closely consider the requirements of these policies in the design of future developments and seek to minimise adverse landscape impact.

10.86 The Airport’s mature boundary planting helps to screen much of the Airport site and integrate it with the surrounding landscape. The Airport is committed to actively managing these belts, with thinning and replanting where needed. The northern perimeter tree belt plays a particularly important role to screen the Airport from Dinnington and Prestwick, and this will be extended in advance of any development.

Table 8 – Expected Landscape and Visual Impacts

Development	Potential effects	Mitigation
Enhanced passenger facilities (terminal and apron area)	<ul style="list-style-type: none"> • Loss of vegetation • Introduction of new hardstanding • Visibility of aircrafts over an extended area/ changes to views • Introduction of new built form • Increased visibility/changes to views 	<ul style="list-style-type: none"> • Consider tree planting to help screening views from sensitive visual receptors such as from Public Rights of Way and nearby residential properties.
Car park extension	<ul style="list-style-type: none"> • Loss of woodland, trees, hedgerows and areas of open grassland • Introduction of new surface level car parking • Localised change in landscape character 	<ul style="list-style-type: none"> • Retain existing vegetation, especially mature trees where possible. • Extending woodland belt by planting native species of local provenance. Where possible to be implemented as advance works. • Sensitive use of lighting while not compromising safety.
Possible runway extension	<ul style="list-style-type: none"> • Loss of woodland, trees and hedgerows • Introduction of hardstanding • Change in landscape character • Changes to Public Rights of Way 	<ul style="list-style-type: none"> • Retain existing vegetation, especially mature trees where possible. • Improvements to existing hedgerows and additional tree planting to form screening belt. Use native species of local provenance where possible. • Apply for redirection of Public Right of Way. • Sensitive use of lighting while not compromising safety.
Southside employment sites	<ul style="list-style-type: none"> • Loss of trees and hedgerows • Introduction of new built form • Impact on long range views • Change to landscape character 	<ul style="list-style-type: none"> • Retention of existing vegetation and active integration of it into development design • Native planting to create landscape belts potentially with earth mounds for additional screening.

10.87 There are a number of key visual receptors which will need to be closely considered in relation to our detailed approach to future mitigation. Table 8 shows the main developments proposed, their possible effect, and potential mitigation we will look to implement.

10.88 A number of Public Rights of Way and other cycle and pedestrian routes pass close to or traverse the Airport site. We will seek to mitigate impact where possible through screening; however delivering the Masterplan will require diversion of routes in relation to the southside employment sites and the runway extension. We will seek to redirect and improve these routes in line with the legislated process.

10.89 The Airport site is also within the Tyne and Wear Green Belt. It is not strictly a landscape policy, but rather a land use planning designation. However it is intended to maintain openness. Therefore the development of any building can impact on this. We believe that there is sufficient land outside of the Green Belt to deliver the Masterplan. However, we will closely evaluate all development proposals against the purposes of the Green Belt.



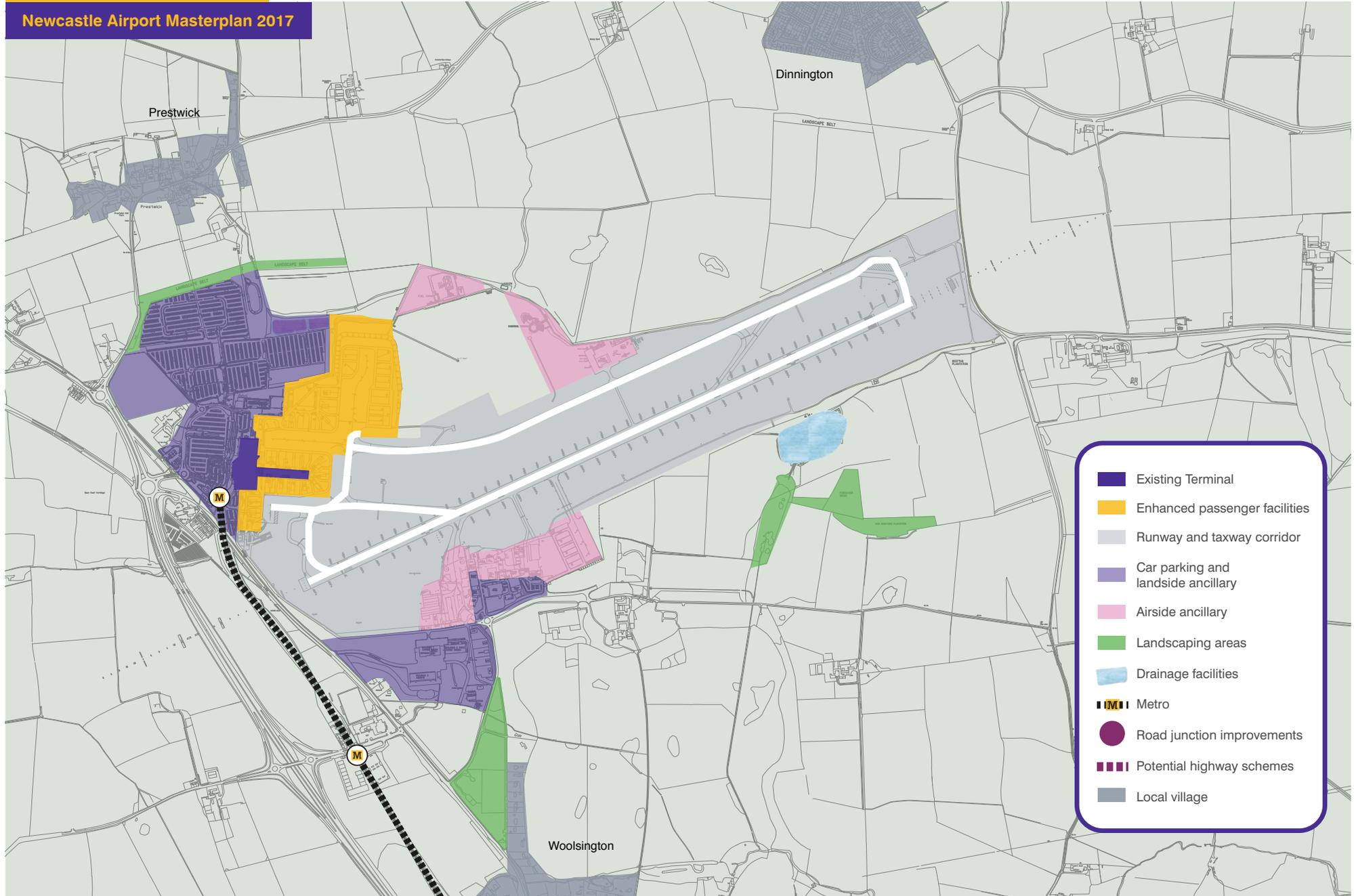


Appendices

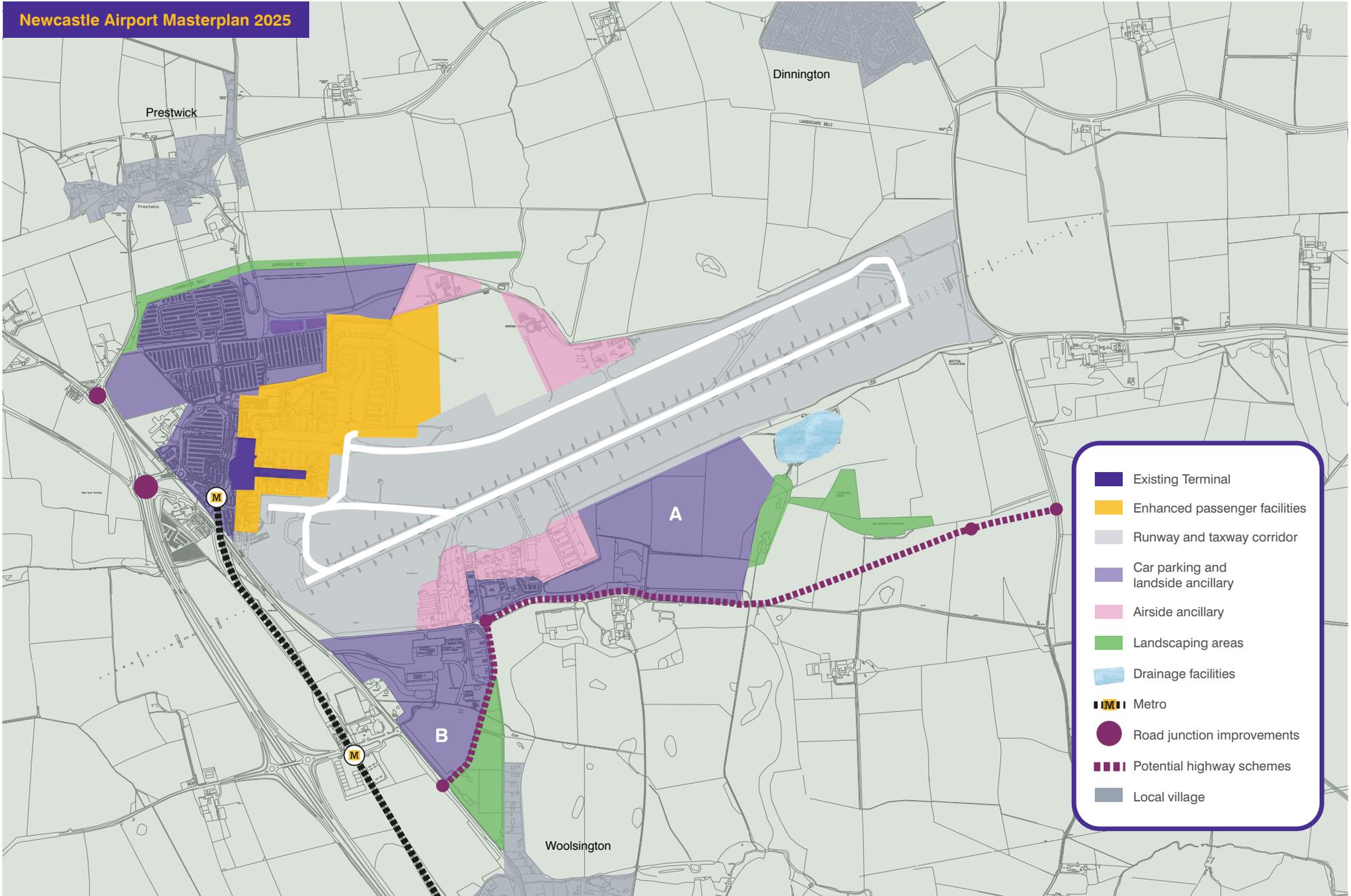
Key Diagrams and Noise Contours

Appendix 1 - Key Diagrams

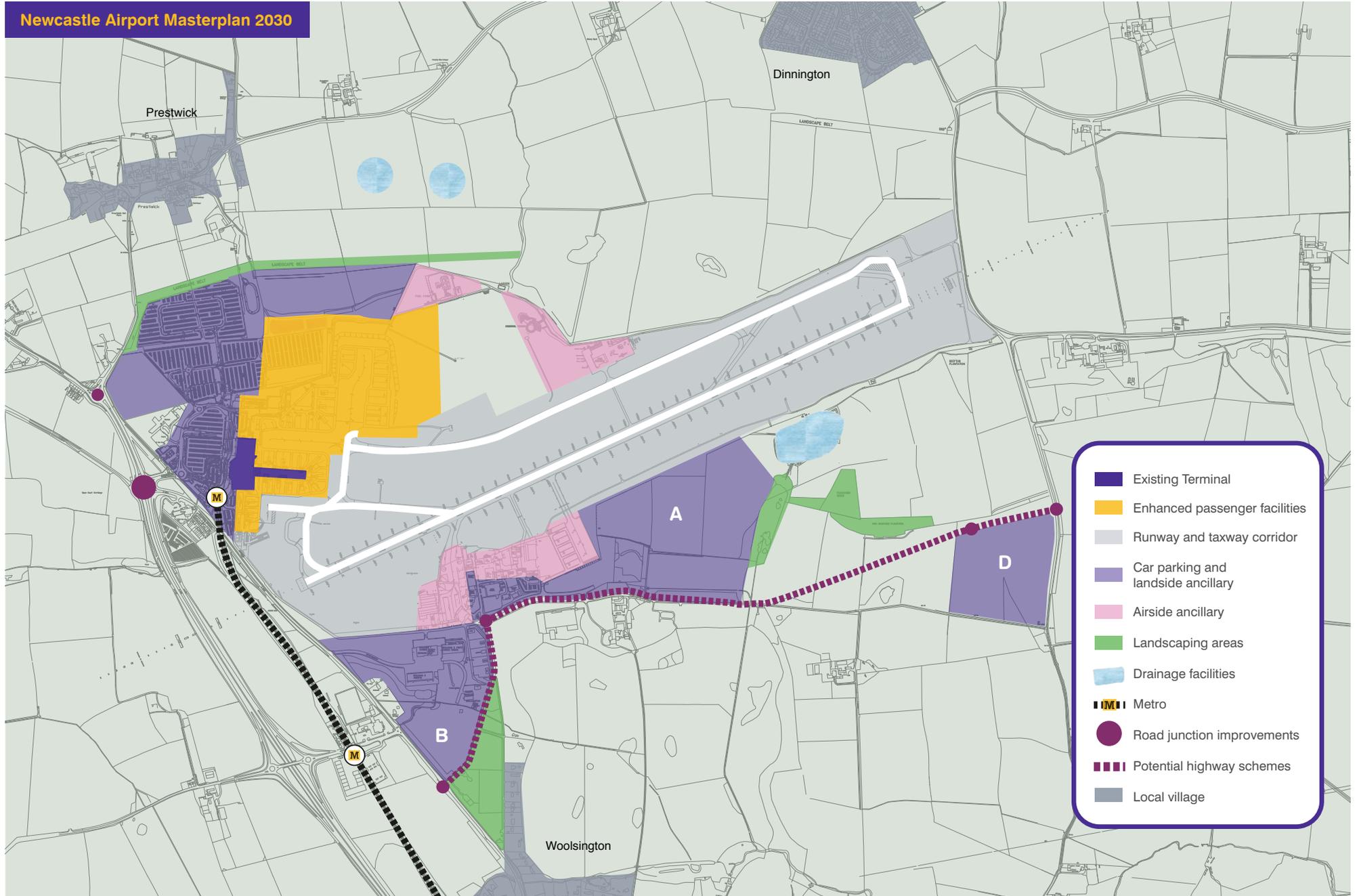
Newcastle Airport Masterplan 2017



Newcastle Airport Masterplan 2025

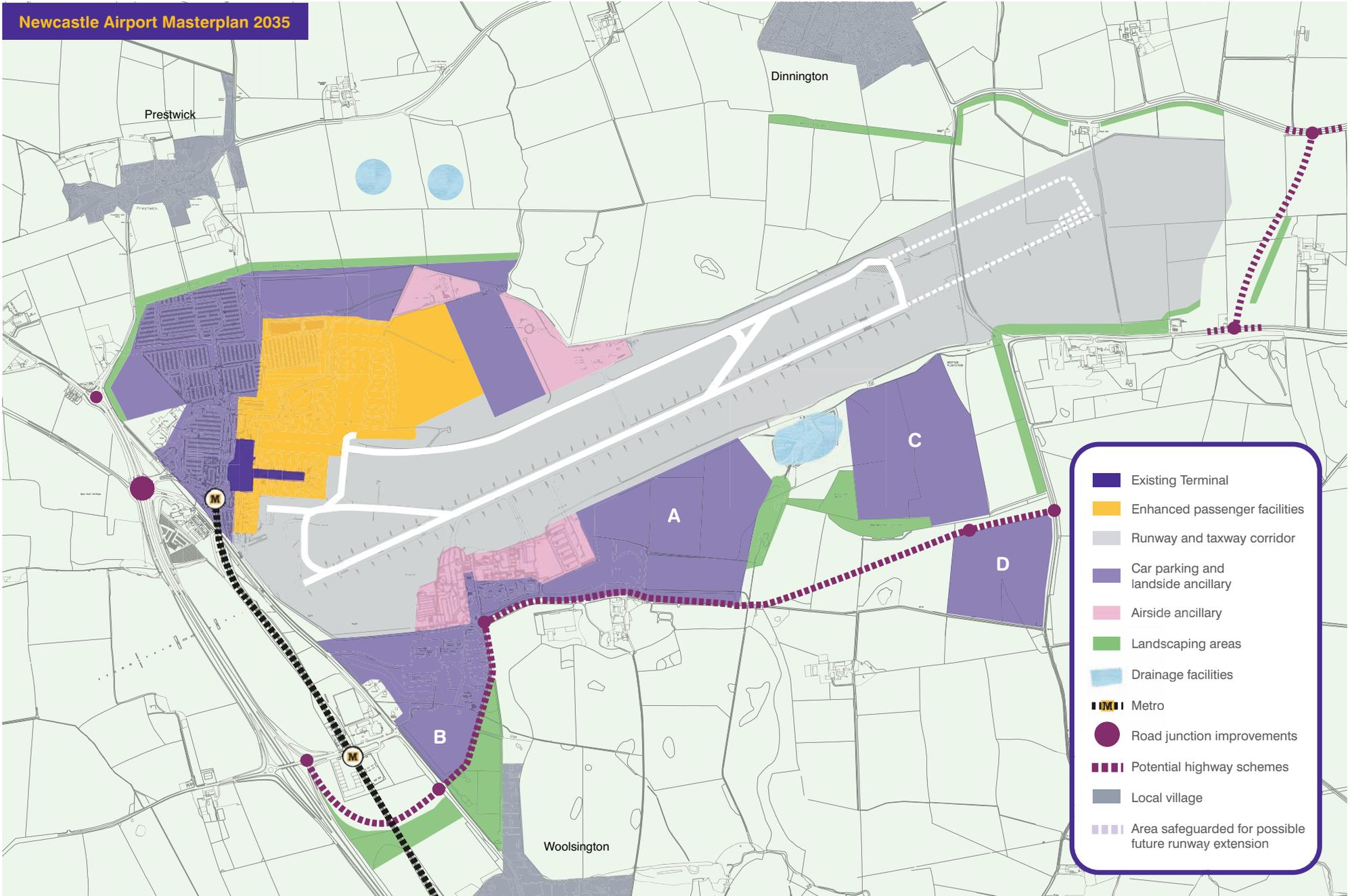


Newcastle Airport Masterplan 2030

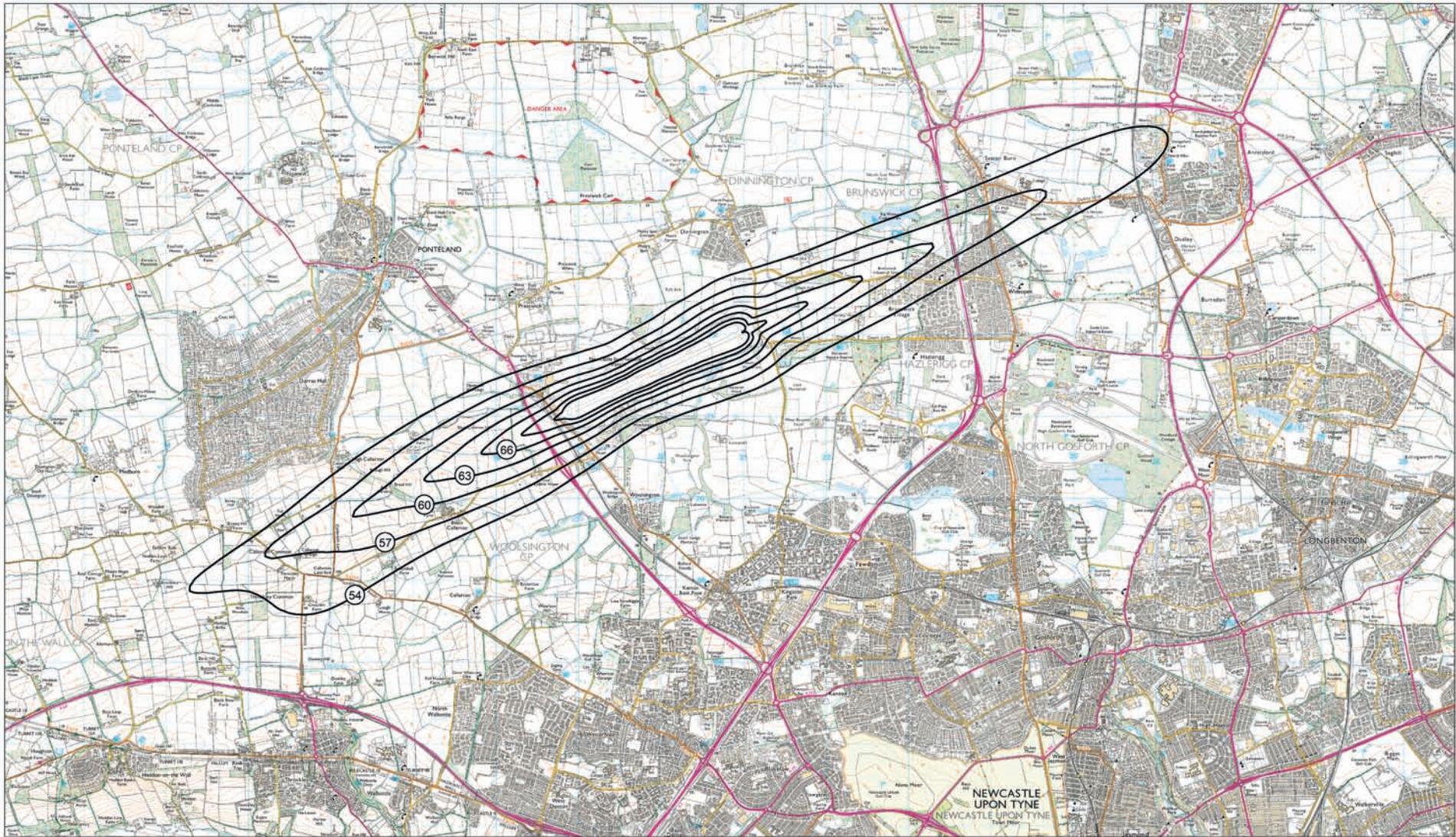


- Existing Terminal
- Enhanced passenger facilities
- Runway and taxiway corridor
- Car parking and landside ancillary
- Airside ancillary
- Landscaping areas
- Drainage facilities
- M Metro
- Road junction improvements
- Potential highway schemes
- Local village

Newcastle Airport Masterplan 2035



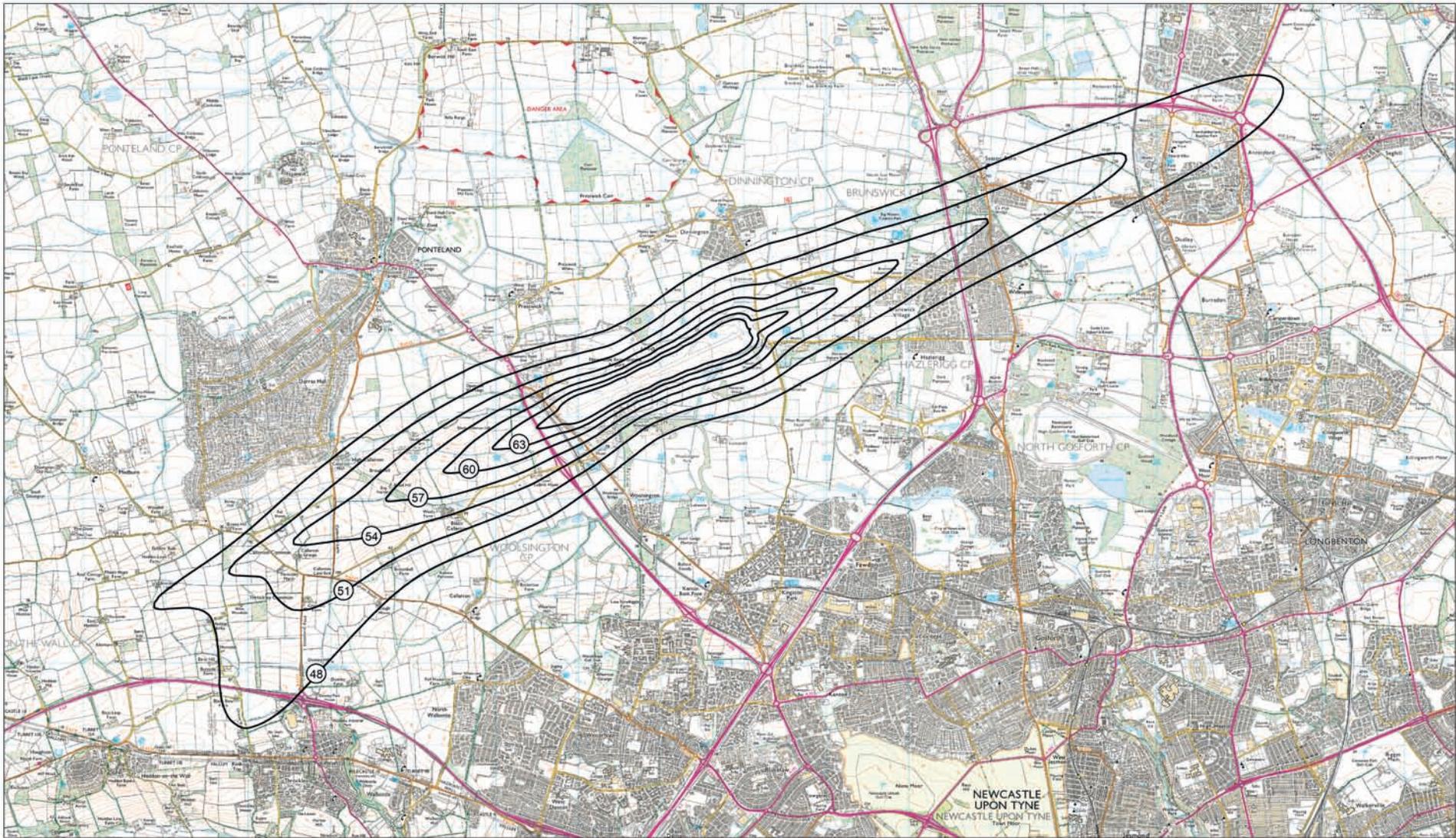
Appendix 2 - Noise Contours



NEWCASTLE INTERNATIONAL AIRPORT
2016 Peak Summer Day $L_{Aeq,16hr}$ 54-72 dB(A) Contours
Modal Split 71% W / 29% E

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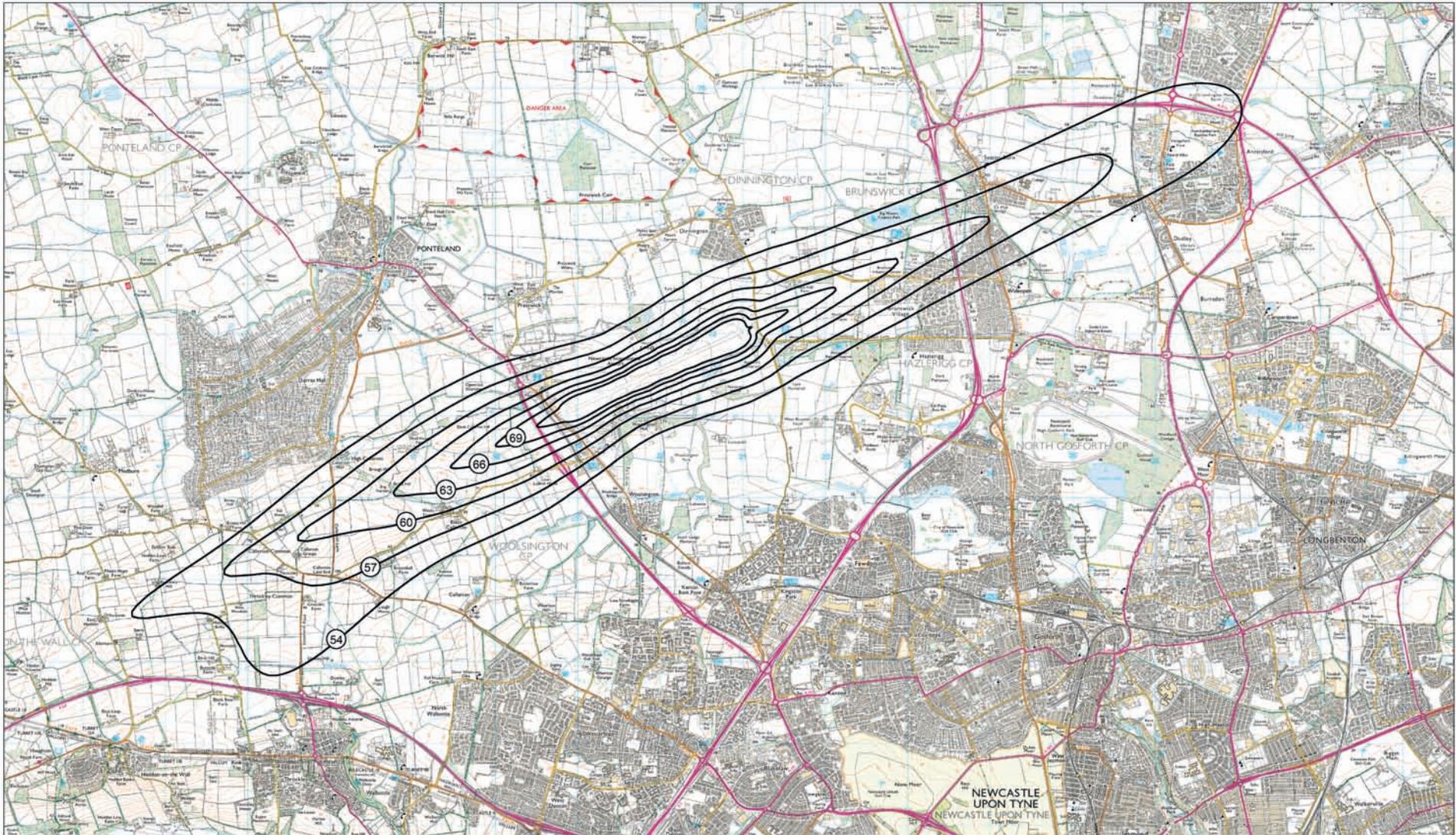
Appendix 2 - Noise Contours



NEWCASTLE INTERNATIONAL AIRPORT
2016 Peak Summer Night $L_{Aeq,8hr}$ 48-66 dB(A) Contours
Modal Split 71% W / 29% E

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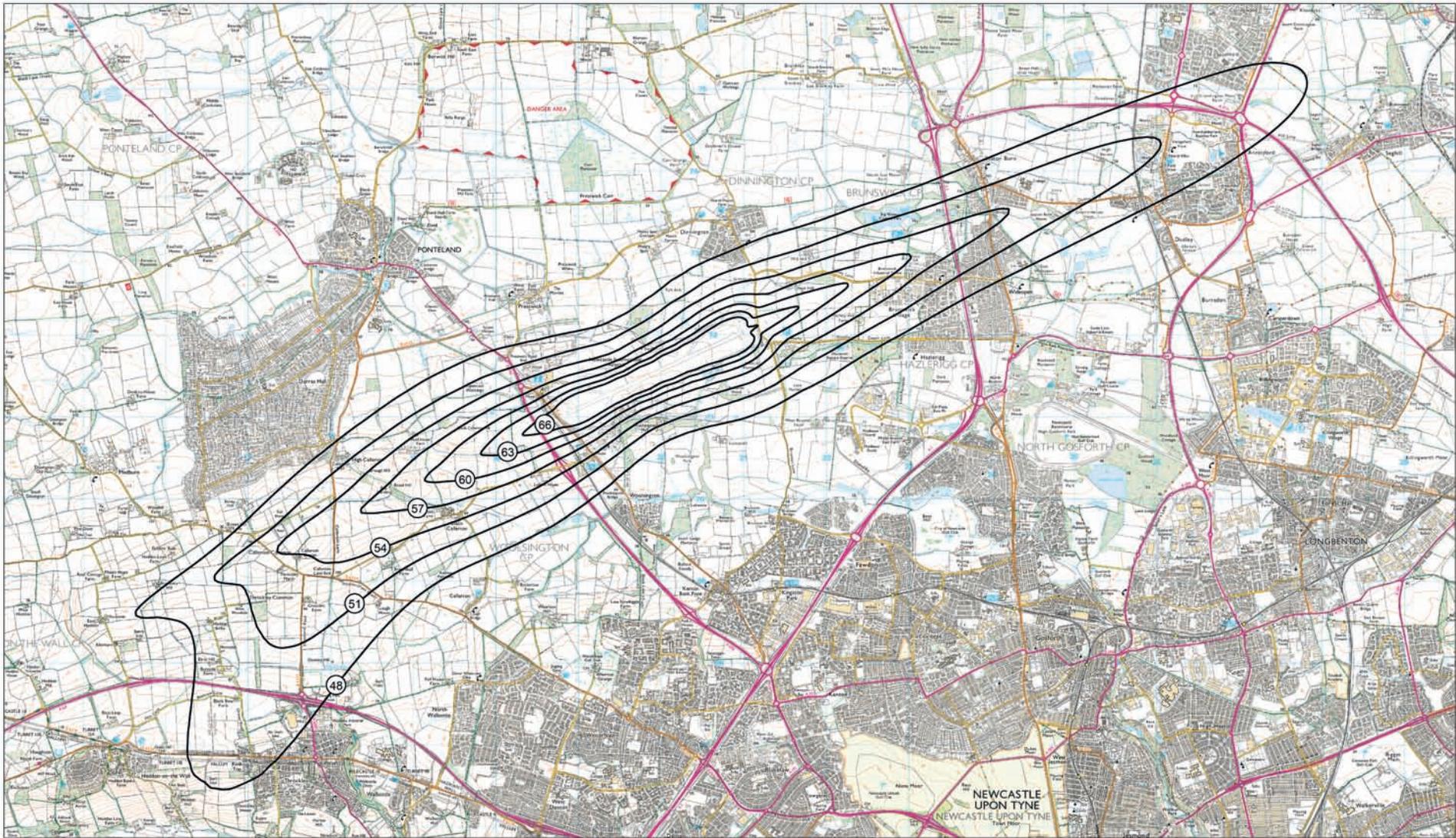
Appendix 2 - Noise Contours



NEWCASTLE INTERNATIONAL AIRPORT
2025 Peak Summer Day $L_{Aeq,16hr}$ 54-72 dB(A) Contours
Modal Split 71% W / 29% E

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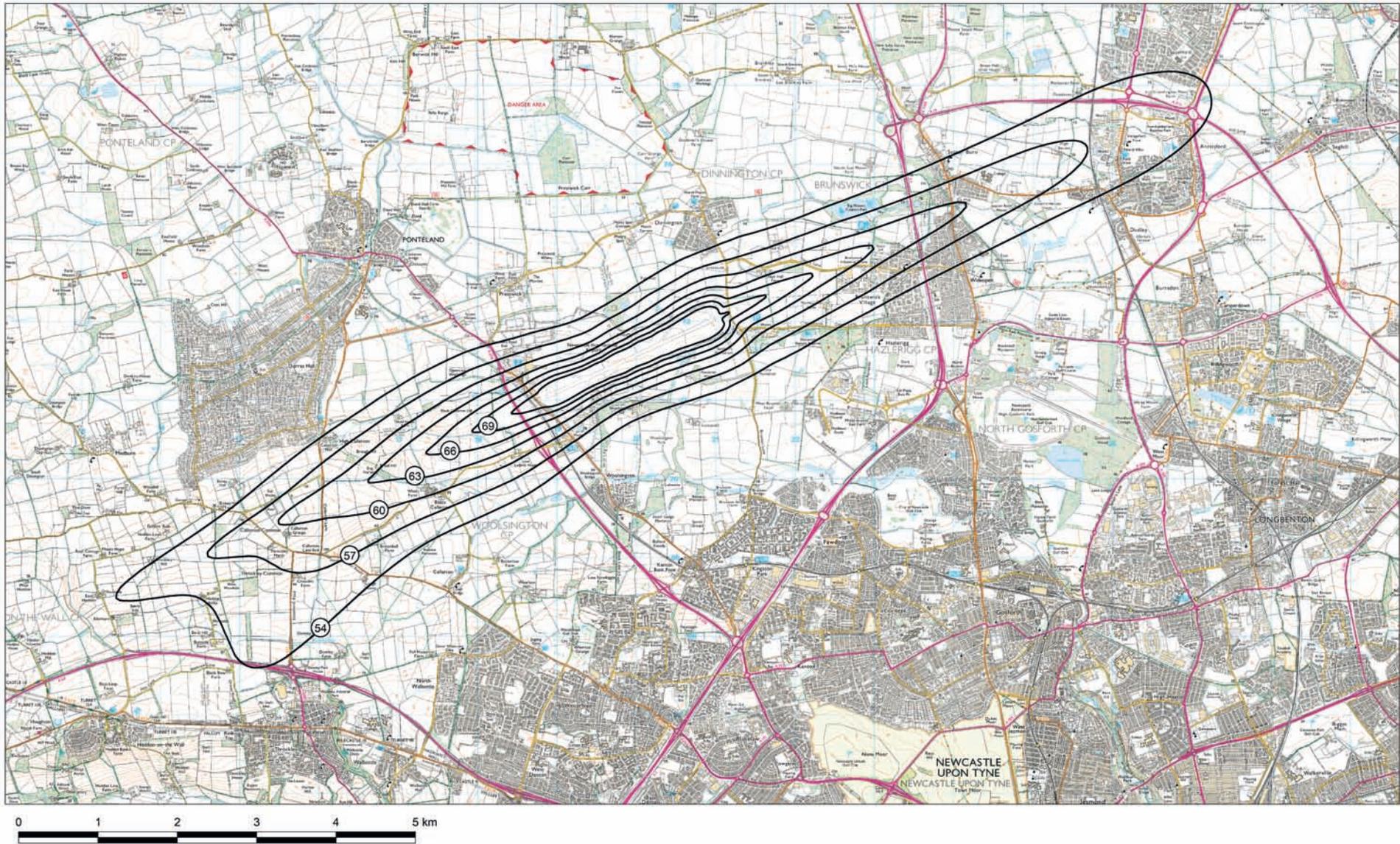
Appendix 2 - Noise Contours



NEWCASTLE INTERNATIONAL AIRPORT
2025 Peak Summer Night $L_{Aeq,8hr}$ 48-66 dB(A) Contours
Modal Split 71% W / 29% E

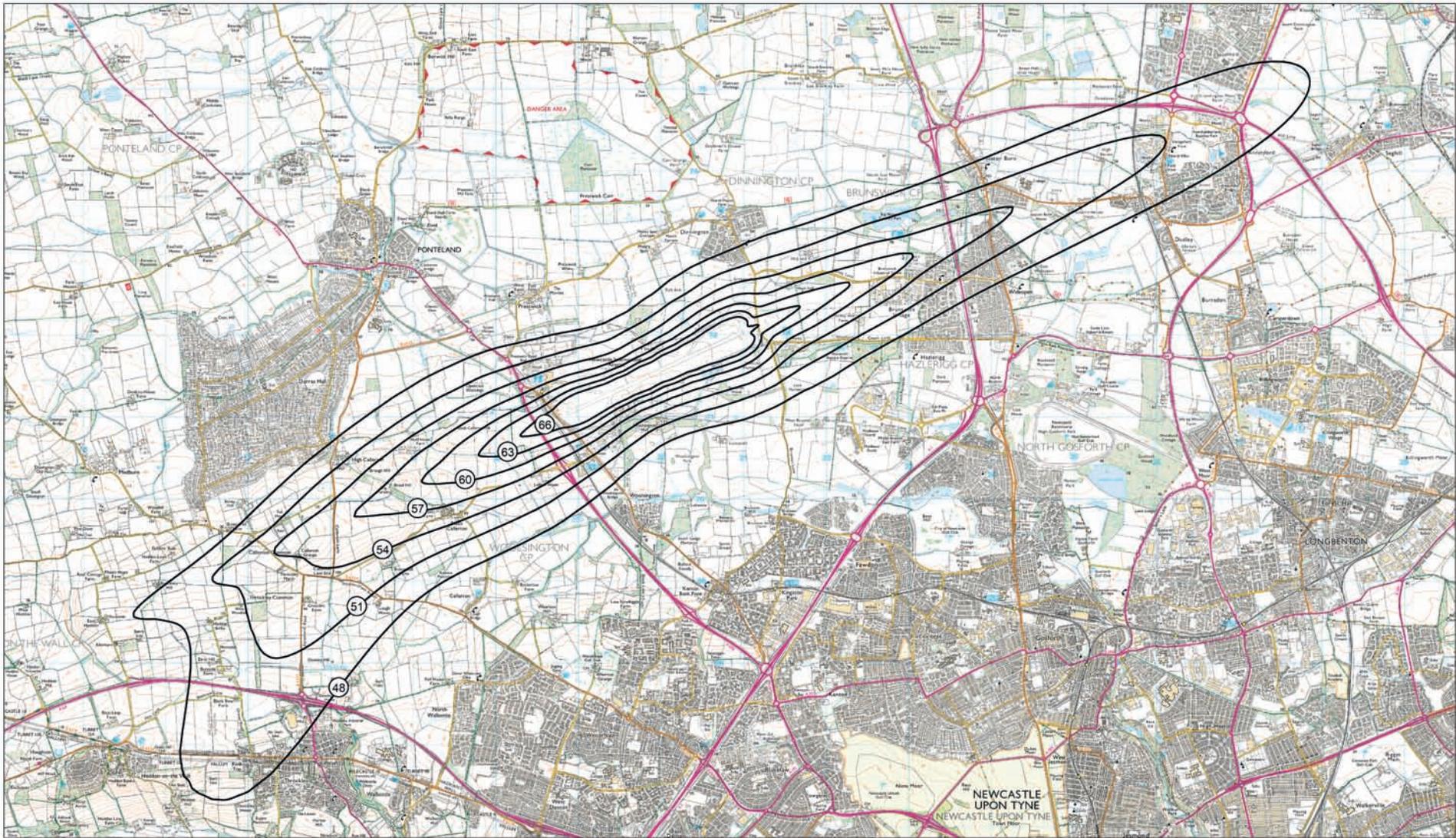
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Appendix 2 - Noise Contours



NEWCASTLE INTERNATIONAL AIRPORT
2030 Peak Summer Day $L_{Aeq,16hr}$ 54-72 dB(A) Contours
Modal Split 71% W / 29% E

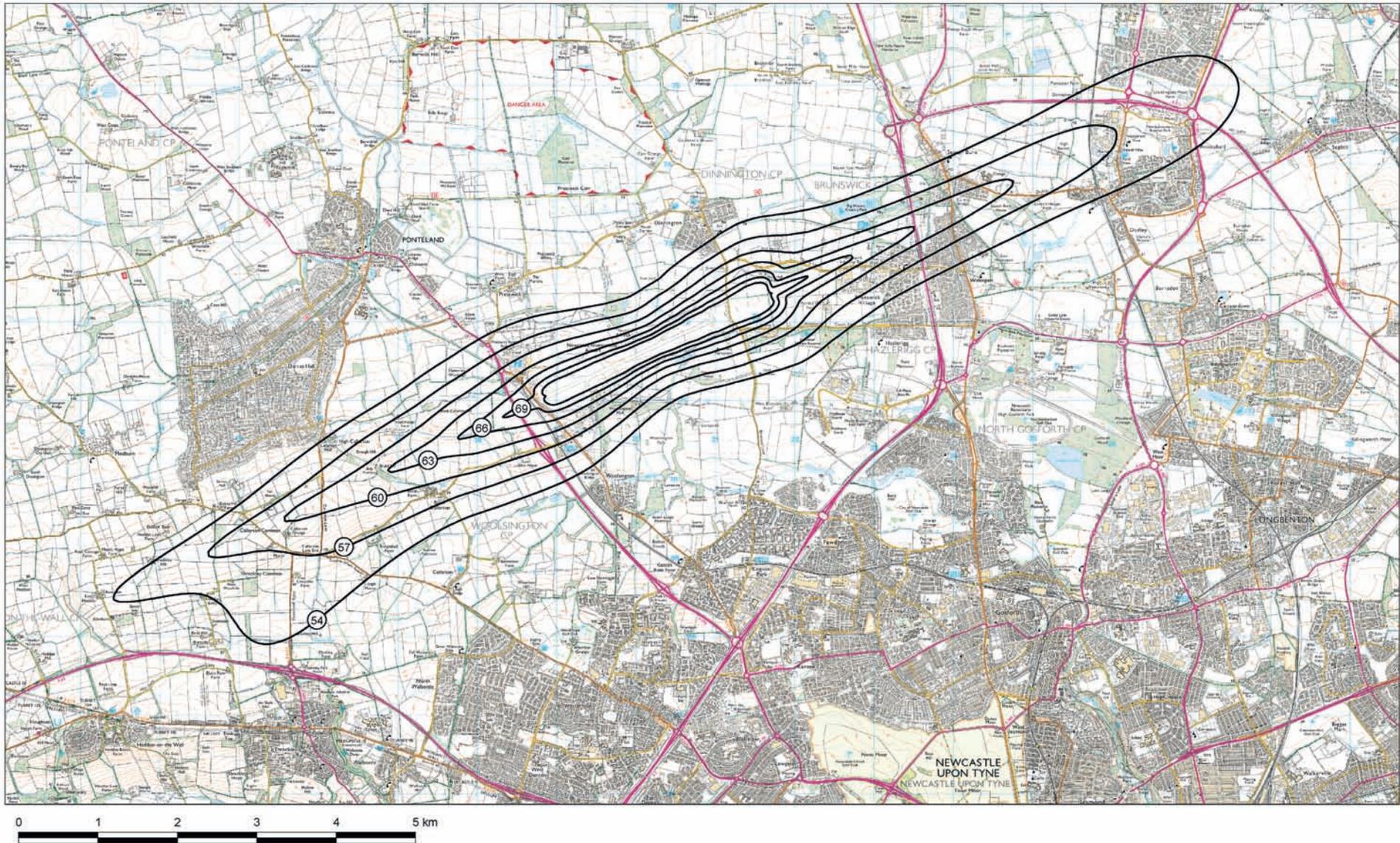
Appendix 2 - Noise Contours



NEWCASTLE INTERNATIONAL AIRPORT
2030 Peak Summer Night $L_{Aeq,8hr}$ 48-66 dB(A) Contours
Modal Split 71% W / 29% E

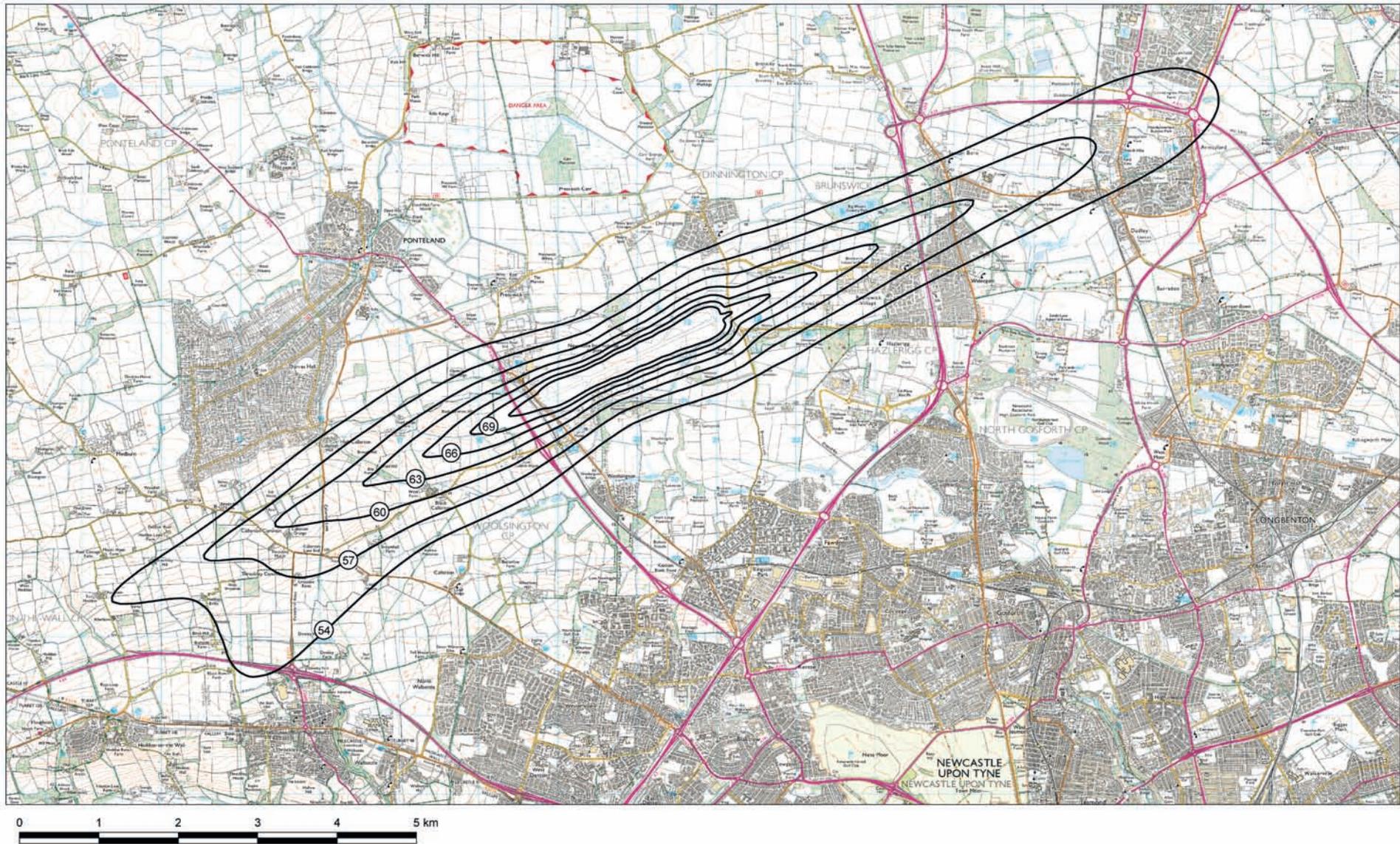
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Appendix 2 - Noise Contours



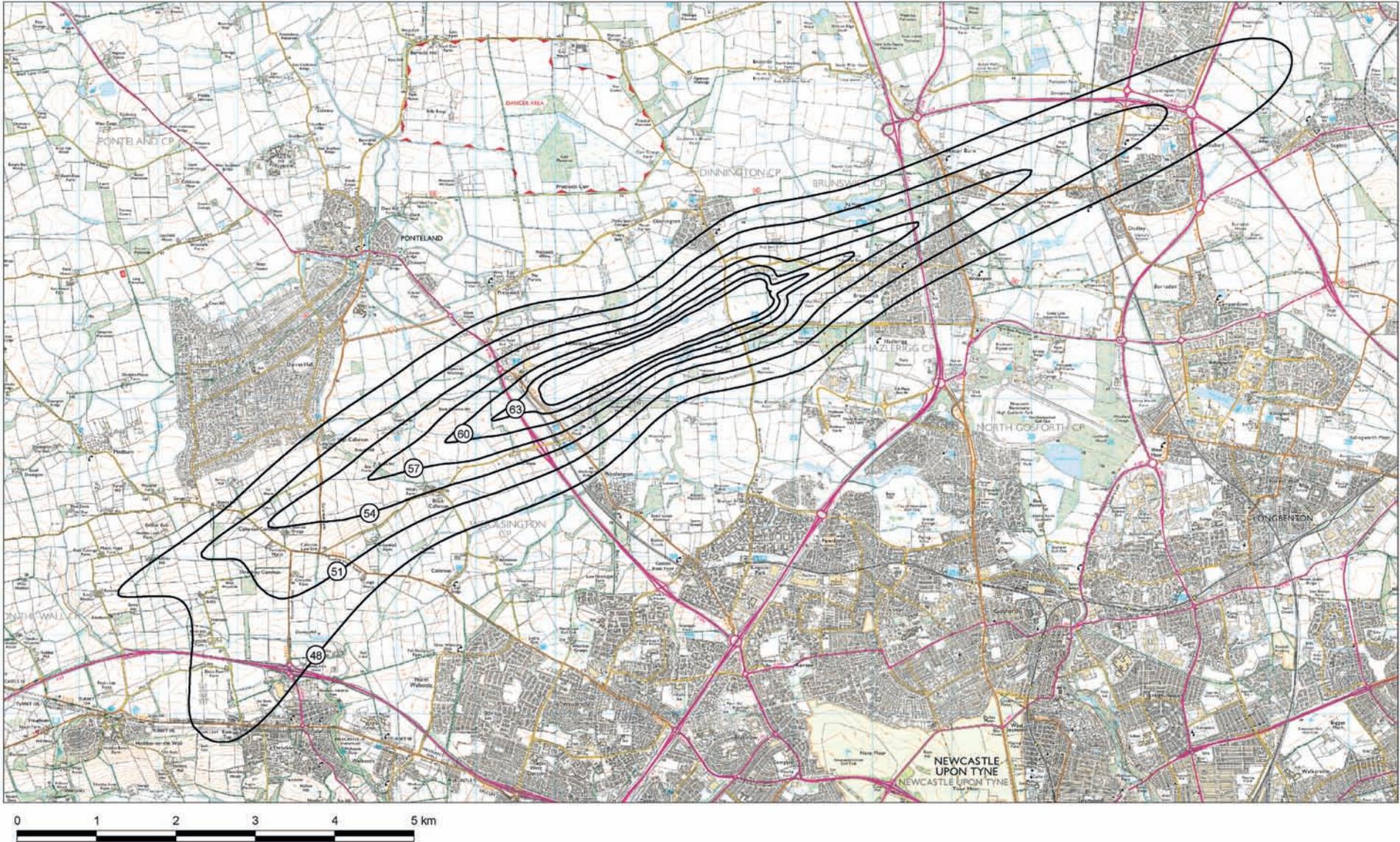
NEWCASTLE INTERNATIONAL AIRPORT
2035 Peak Summer Day L_{Aeq,16hr} 54-72 dB(A) Contours - With Runway Extension
Modal Split 71% W / 29% E

Appendix 2 - Noise Contours



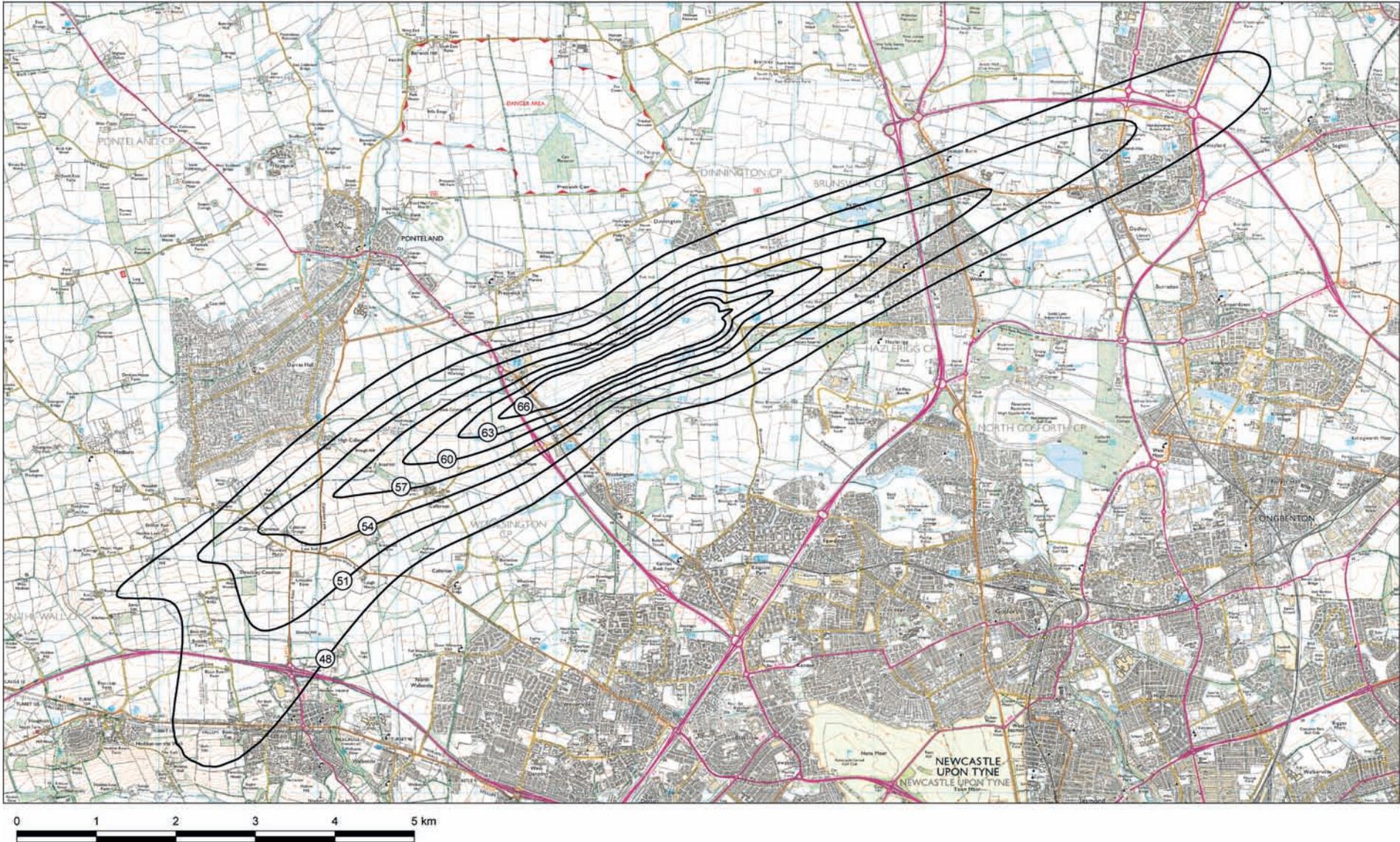
NEWCASTLE INTERNATIONAL AIRPORT
2035 Peak Summer Day $L_{Aeq,16hr}$ 54-72 dB(A) Contours - Without Runway Extension
Modal Split 71% W / 29% E

Appendix 2 - Noise Contours



NEWCASTLE INTERNATIONAL AIRPORT
2035 Peak Summer Night $L_{Aeq,8hr}$ 48-66 dB(A) Contours - With Runway Extension
Modal Split 71% W / 29% E

Appendix 2 - Noise Contours



NEWCASTLE INTERNATIONAL AIRPORT
2035 Peak Summer Night $L_{Aeq,8hr}$ 48-66 dB(A) Contours - Without Runway Extension
Modal Split 71% W / 29% E

Glossary of terms

Airside

The area of the airport beyond security, accessible only to authorised airport staff and visitors, and passengers holding valid boarding cards for imminent travel.

ANCON II

A mathematical model used by the CAA to produce the annual dBLAeq 16hr and dBLAeq 8hr noise exposure contours forecasts related to projected future airport operations.

ANIS (Aircraft Noise Index Study)

DfT study into the effects aircraft noise which defined a relationship between aircraft noise exposure and the proportion of the population that would be expected to be 'highly annoyed'. The study found LAeq as the most appropriate metric to measure noise. It defined 57 LAeq16h as the approximate onset of significant community annoyance.

ATC

Air Traffic Control.

Air Traffic Movement (ATM)

Any aircraft take-off or landing at an airport. For airport traffic purposes one arrival and one departure are counted as two movements.

Air Passenger Duty (APD)

Air Passenger Duty is an excise duty which is charged on the carriage of passengers flying from a United Kingdom airport on an aircraft that has an authorised take-off weight of more than ten tonnes or more than twenty seats for passengers.

Apron

The area of the airport where aircraft are parked, unloaded or loaded, refueled, or boarded, as distinct from the runway and taxiways.

Aviation Policy Framework

The Governments current overarching policy document for the aviation industry.

AOA

Airport Operators Association. The industry body representing the interest of UK airports.

APU (Auxillary Power Unit)

A small engine which produces power for an aircraft when it is on the ground and the main engines are turned off.

BREEAM (Building Research Establishment Environmental Assessment Method)

A method of assessing, rating, and certifying the sustainability of buildings, used globally.

Callerton link road

The road linking B6918 with the A696.

CDA

Continuous Descent Approach. A method by which aircraft approach airports to land, designed to reduce fuel consumption and noise.

CAA

Civil Aviation Authority, regulatory authority for aviation in the UK, creating and enforcing rules and regulations for aircraft, airports and airlines.

Continuous Decent Approach

Method by which aircraft approach airports prior to landing. It is designed to reduce fuel consumption and noise compared to other conventional descents. Instead of approaching an airport in a stairstep fashion, throttling down and requesting permission to descend to each new (lower) altitude, CDA allows for a smooth, constant-angle descent to landing.

dB

Decibel. A unit of measurement for sound.

dB(A)

Units of sound level on the A-weighted scale, which incorporates a frequency weighting approximating the characteristics of human hearing.

dB LAeq

The A-weighted equivalent continuous sound pressure level which is a notional continuous level.

dBLAeq 8hr

The LAeq,8hr over the period 2300 - 0700, local time.

dBLAeq 16hr

The LAeq,16hr over the period 0700 – 2300, local time.

DfT

Department for Transport.

FDI (Foreign Direct Investment)

Investment made by a company or individual in one country, in business interests in another country.

FECP (Fixed Electrical Ground Power)

Fixed electrical supply system to allow the aircraft to get electricity straight from the local grid when it is on the ground and the main engines are turned off.

Freight Village

A cluster of buildings at the southside of the airport site, used by airport-related businesses such as cargo operators and car hire companies.

Green Belt

An area of open land around a city, on which building is restricted.

GRESB (Global Real Estate Sustainability Benchmark)

Assesses the sustainability performance of real estate and infrastructure portfolios and assets worldwide, allowing for benchmarking against other airports.

GVA (Gross Value Added)

Measure of the value of goods and services produced in an area, industry or sector of an economy.

Hub Airport

Used by multiple airlines to concentrate passenger traffic and flight operations at a given Airport. They serve as transfer points to get passengers to their final destination.

International Air Transport Association (IATA)

A trade association for airlines, it support many areas of aviation activity and help formulate industry policy on critical aviation issues.

ICAO

International Civil Aviation Organisation: is a specialized agency of the United Nations fostering the planning and development of international air transport to ensure safe and orderly growth.

LA7

The holding company comprising the majority 51 per cent shareholder of the airport, the seven North East local authorities – South Tyneside, Newcastle, Sunderland, Gateshead, Northumberland, Durham and North Tyneside.

Landside

The area of the airport before security, accessible by all visitors, but with restricted access in many areas.

LEP (Local Enterprise Partnership)

Locally-owned partnerships between local authorities and businesses. They play a central role in deciding local economic priorities and undertaking activities to drive economic growth and create local jobs.

LOEL (Lowest Observed Effect Level)

Noise level above which adverse effects on health and quality of life can be detected.

Modal Share

The portion of people using a particular type of transport.

NIAL

Newcastle International Airport Limited.

NOAL (No Observed Effect Level)

Noise level below which no effect can be detected. In simple terms, below this level, there is no detectable effect on health and quality of life due to the noise.

Noise Exposure Contours

A noise contour is a line on a map that represents equal levels of noise exposure.

Noise Action Plan

The Noise Action Plan sets out a 5 year noise management programme for the airport. The plan was produced in 2009 to comply with the Environmental Noise Directive 2002/49/EC.

Noise Road Map

Collective approach from UK aviation to tackle the issue of aircraft noise.

Non-Commercial Aviation

All civil aviation operations other than scheduled air services and non-scheduled air transport operations, remuneration or hire, gliders, corporate jets, emergency services.

NOx

The gases nitric oxide and nitrogen dioxide that are produced when fuel is burned and can be harmful to the environment and human health.

NO2

Nitrogen Dioxide, a gaseous air pollutant from the exhaust of internal combustion engines.

NPPF

The National Planning Policy Framework (NPPF): A document which sets out the Governments requirements for the planning system in England.

Parallel Taxiway

A pathway adjacent to the runway for aircraft to travel to the runway from the apron area.

PBN (Performance Based Navigation)

A flight route system allowing more flexible positioning of routes and enables aircraft to fly them more accurately. This helps improve operational performance in terms of safety and capacity, and also offers the flexibility to attempt to design routes to mitigate the environmental impact of aviation. It allows for greater concentration of aircraft on route centrelines.

PDRs (Preferential Departure Routes)

Published routes for the airport, designed to avoid residential areas.

Pier

The narrow structure extending from the main terminal building around which aircraft are parked.

PM10

Particulate matter, microscopic solid or liquid matter suspended in Earth's atmosphere which are 10 micrometers or less.

Public Safety Zone

Areas of land at the end of runways where certain planning restrictions apply, which aim to control the number of people on the ground at risk in the unlikely event of an aircraft accident on take-off or landing.

RESA

Runway End Safety Area: An area of land required to be kept free of most development for safety reasons, in the event of an aircraft undershoot, overshoot or runway excursion.

Runway 25

Western runway orientation, dependent on meteorological conditions (aircraft departing to the west and arriving from the east).

Runway 07

Eastern runway orientation, dependent on meteorological conditions (aircraft departing to the east and arriving from the west).

SOAEL (Significant Observed Adverse Effect Level)

Noise level above which significant adverse effects on health and quality of life occur.

Southside

The southside is a term used to describe the area to the south and east of the terminal and airfield. This area hosts the Freight Village, Newcastle College's Aviation Academy, Samson Aviation, several flying schools and other aspects of airport operations.

Southside Business Park

Southside Site B, office and light industrial development.

Southside Employment Development

Land to the south of the Airport site allocated for the development of office, light industrial, and/or freight and warehousing facilities.

SSSI (Site of Special Scientific Interest)

A site designated by Natural England as an area of special interest by reason of any of its flora, fauna, geological or physiographical features.

SUD (Sustainable Urban Drainage)

System to reduce the potential impact of new and existing developments with respect to surface water drainage discharges, they transport (convey) surface water, slow runoff down (attenuate) before it enters watercourses, by providing areas to store water in natural and man-made contours.

Sustainable Aviation Road Map

UK aviation industry plan how to manage noise from aircraft operations between now and 2050 as the industry maintains sustainable growth.

tCO2e

Tonnes of carbon dioxide emitted.

Terminal

The main terminal building to the western end of the airport land. All commercial passengers pass through the terminal to use the airport.

World Heritage Site

A landmark or area which is selected by the United Nations Educational, Scientific and Cultural Organization (UNESCO) as having cultural, historical, scientific or other form of significance, and is legally protected by international treaties.

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