Liverpool John Lennon Airport

above us only sky

Airport Master Plan to 2030

November 2007

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Contents


09

Foreword

Over the last ten years Liverpool John Lennon Airport (JLA) has been one of the UK's fastest growing airports with an annual turnover now in excess of five million passengers. In this same period over £100m, including EU Objective One funding, has been invested in developing and improving its facilities. JLA has become a key asset for Merseyside and the North West region. Its growth has been evidence of, and a

catalyst for, the regeneration of Liverpool and the social and economic benefits of JLA are felt right across the city region. Access to UK and European markets which JLA offers has been vital in attracting inward investment and has been instrumental in supporting the business development of existing companies. The increasing range of routes now available from JLA provides those in the North West with access to established and emerging tourist and business destinations from their doorsteps and attracts inbound visitors from all over Europe.

Government policy, set out in the White Paper, 'The Future of Air Transport', endorses the long-term continued growth of JLA, including expansion of its passenger and cargo facilities and the extension of the runway. The Department for Transport (DfT) has asked airports to prepare Master Plans detailing how the developments set out in the White Paper can be achieved. The final Master Plans will establish a clear long term framework for the development of the UK's air transport system and will be important in shaping local and regional economic, transport and planning policies.

This Master Plan shows how the Airport intends to respond to the White Paper's objectives. It sets out how we can capture the opportunity to serve new routes, including long haul destinations, and support Merseyside by capitalising on the prospects to create jobs at JLA and in the wider Merseyside economy. The potential of capturing synergies with the Port of Liverpool and developing an enhanced world cargo market are identified. It considers the scale of expected growth at JLA and how much of this can be accommodated within the existing site, and where additional land will be required for future expansion. It considers options and puts forward proposals in some detail to 2015 and in broader land use terms to 2030.

The Airport takes its environmental responsibilities seriously and has an established Environmental Management Strategy. It is a stakeholder in 'A Strategy Towards Sustainable Development of UK Aviation'[1] which seeks to ensure that the environmental impacts of air travel are managed and mitigated. As part of planned growth, this Master Plan sets out actions which will be taken to ensure that environmental effects, particularly on those living close to JLA, are minimised.

In preparing this Master Plan, the Airport sought the views of those with an interest in the growth of JLA including local communities, business interests, tourism and regeneration agencies and representatives of local and regional government. In July 2006,

1. Published in June 2005 by Sustainable Aviation – a group of airlines, aviation manufacturers, airports and National Air Traffic Service Ltd

the Airport embarked on its largest ever public consultation exercise over a ten week period during summer 2006. About 6,500 Summary Leaflets, which included a short questionnaire, were sent to those communities closest to JLA in Speke and Hale. A series of consultation events were held across the sub-region to publicise and seek comment upon the draft Master Plan. Almost 1,000 individual responses were received. All the comments were analysed and the results publicised in an Interim Consultation Report in December 2006. The Airport was very pleased with the outcome which demonstrated a broad measure of support for the expansion proposals, including from Liverpool City Council, Halton Borough Council, Knowsley Metropolitan Borough Council and Wirral Metropolitan Borough Council, particularly for the economic regeneration benefits they would bring. However, this support is contingent upon the Airport continuing to address environmental impacts, especially noise, experienced by those people living closest to JLA. While no changes have been made to any of the preferred development options, amendments have been made to parts of the Master Plan to include reference to additional environmental policies and designations, which will need to be taken account of in any future planning applications for significant proposals. More importantly, the existing sound insulation grant scheme has been improved and includes a greater number of qualifying residential properties.

It is clearly important for the Airport to continue its dialogue with local people and others with an interest in the development of JLA. Indeed, many people want to see further consultation prior to any plans being finalised. A number of suggestions were received to help improve links with the local communities surrounding JLA ranging from the use of better publicity, including newsletters, the website and attendance at forums and boards run by local councils and other organisations. The Airport will be pleased to look at all these suggestions and do what it can to keep local communities informed of its future plans.

The Master Plan will now be submitted to the DfT, together with the reports on the public consultation exercise. It is hoped that the Master Plan will give all those with an interest in JLA a common understanding of the Airport's long-term aspirations and future development needs. It will be subject to review every five years in accordance with DfT advice[2] and further public consultation each time.

Copies of the Master Plan are available to download from the JLA website: www.@liverpoolairport.com and hard copies can be ordered from the Airport by telephone on 0151 907 1622, or by writing to:
Airport Master Plan
Liverpool John Lennon Airport
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Thank you for all your comments and contributions.

Neil Pakey
Managing Director, Liverpool John Lennon Airport.

2. Guidance on the Preparation of Airport Master Plans', Department for Transport, (2004).

1. Introduction

Why Prepare A Master Plan?

1.1 Air travel is essential to the UK economy and to our continued prosperity. The last 30 years have seen a five-fold growth in air travel: indeed, half the UK population now flies at least once a year and many fly more often than that. Nationally, demand for air travel is projected to be between two and three times current levels by 2030.

1.2 The Government's White Paper, 'The Future of Air Transport' (2003) (the White Paper) establishes a strategic framework for the sustainable development of airport capacity in the UK over the next 30 years in the context of wider developments in air transport; and sets out the conclusions of the Government on the case for future expansion at airports across the country. The White Paper does not of itself authorise or preclude any particular development, but sets out policies that will inform and guide the consideration of specific planning applications brought forward by airport operators. It requires individual airports to prepare and publish Master Plans for their growth and development over this period.

1.3 The Government has since published a report[3] on progress made in implementing the policies and proposals in the White Paper. The report reaffirms the Government's commitment to the strategy set out in the White Paper, that is, support for the development of the aviation sector across the UK, mainly through making the best use of existing capacity, and ensuring where additional capacity is required its provision is in line with its environmental obligations.

1.4 This Master Plan sets out the development proposals to 2030 for JLA in accordance with advice from the DfT on the preparation of master plans[4]. A draft of the Master Plan was consulted upon widely within the local community; various councils, including Liverpool City Council, Halton Borough Council, Knowsley and Wirral Metropolitan Borough Councils; and business and environment agencies and organisations. All the comments received were taken into account in the preparation of this, the final version of the Master Plan.

The National Importance of Air Transport

1.5 The White Paper recognises that airports and air services play a key role in the UK's economy. Research undertaken by York Aviation on behalf of the Airport Operators Association (AoA)[5] highlights this importance, and a recent report by the Air Transport Action Group (ATAG)[6] places these issues in their international context.

1.6 York Aviation concluded that the nation's airports:

- support the UK's position as one of the leading global economies;
- facilitate the growth of the UK tourism sector;
- provide a building block for future economic development strategies;
- provide accessibility to all areas of the country;
- offer opportunities for travel for UK residents; and
- provide employment and prosperity.

1.7 York Aviation noted the global nature of the UK economy and found that in 2004: the UK's export of goods and services were valued at £290 billion; imports were valued at £328 billion; foreign direct investment in UK stock was valued at £398 billion; and UK direct investment

3 'The Future of Air Transport Progress Report'. Department for Transport, (2006)
4 'Guidance on the Preparation of Airport Master Plans', Department for Transport, (2004).
5 'The Economic and Social Impacts of Airports', Airport Operators Association, (2005).
6 'The Economic and Social Benefits of Air Transport', Air Transport Action Group, (2005).

overseas was valued at £722 billion. Airports play a vital role in facilitating this activity and in making the UK a more attractive place to invest.

1.8 Airports also play a vital role in less direct ways. In 2004, the tourism sector employed around 1.4 million people, which is around 5% of total employment, and around 28 million people visited the UK, spending some £13 billion. These visitors accounted for around 85% of tourism expenditure and 70% of them arrived by air.

1.9 York Aviation estimate that air transport directly supports around 185,900 jobs and contributes about £11.2 billion of gross value added (GVA). Taking into account indirect and induced effects, this rises to 580,000 jobs and £22.2 billion of GVA. York Aviation consider that if UK airports are able to grow to meet their full potential, by 2015 the industry will support around 672,000 jobs and £32.1 billion of GVA.

1.10 The national strategy set out in the White Paper supports the generation of this level of economic benefit for the national economy. Importantly, it seeks to spread these benefits to the regions, both as a means of reducing the pressure on the South East's airports, as well as maximising the opportunity for economic growth in the regions to facilitate a reduction in regional disparities.

1.11 ATAG recognises the major role that air transport plays in the development of a globalised economy:

> "One of air transport's most important economic benefits is its spin-off effect on international trade… Air transport is an important trade facilitator. It increases the global reach of companies, enables them to get products to market more quickly and allows them to be more responsive to customer needs, thereby contributing to improved living standards."[7]

Liverpool John Lennon Airport as an Economic Driver

1.12 The White Paper's objectives for the sustainable growth of regional airports are intended to ensure that the economic and social benefits that airports deliver are spread throughout the UK. This is particularly important in the context of JLA. Liverpool has lagged behind many parts of the European Union (EU) in terms of economic performance and experienced widespread economic and social deprivation. As a consequence, it received support from the EU through regional assistance (Objective One).

1.13 Although Merseyside may not yet have reached the economic performance that would eliminate the need for European funding, recent experience has been more positive, and JLA has a key role to play in its ongoing regeneration. JLA is a significant employer in its own right and supports many more jobs in the region (see Chapter 10). Access to JLA is a significant factor in investment decisions for individual businesses and a key requirement for some of Merseyside's growth sectors, including professional services, bio-technology and creative industries. For example, the Speke area around JLA is emerging as a cluster location for bio-technology with the National Biomanufacturing Centre on Estuary Commerce Park, and for printing and publishing with the location of Prinovis' gravure printing operation on Liverpool International Business Park. Businesses in these sectors are frequent users of air transport services and value locations close to airports.

1.14 Liverpool has a history built upon international trade. JLA is a key gateway for visitors and for many will be their first experience of the city. Inbound tourism is therefore a major growth

7 'The Economic and Social Benefits of Air Transport', Air Transport Action Group, (2005), page 14.

sector and will be increasingly so as Liverpool becomes European Capital of Culture in 2008[8] (see Chapter 3). For the residents of the sub region, rising standards of living and technological progress have opened up the potential of travel and cost efficiencies and competition in the aviation industry have made air travel accessible to many more people.

1.15 The significance of aviation in the drive to develop a knowledge based economy in the UK has been recognised by the Government in the report: 'State of the English Cities':

> "The growing importance of the international economy, and the need for face-to-face communications when making significant decisions, means that air travel makes a critical contribution to the connectivity of international nodes in knowledge based economies."[9]

1.16 The report acknowledges that whilst some regional airports, such as JLA, have increased their international connectivity, there is still some way to go before the balance between the regional airports and those in the South East is more appropriate to their needs.

1.17 JLA's role as an economic driver assumes even greater significance because of its location within an area of particular need for regeneration. The Speke Garston area around JLA is amongst the most deprived parts of the UK[10] where, notwithstanding the considerable recent progress, employment levels, income, educational attainment and business success remain significantly lower than national and regional averages.

1.18 The White Paper acknowledges that JLA has, "seen rapid recent growth providing a welcome boost to the local economy"[11]. It has made an important contribution to the regeneration of the Speke Garston area over the last decade creating jobs and attracting investment to this part of Liverpool. Significant public and private sector investment has been focussed on sustaining existing economic activity and attracting large scale inward investment to the area. It is estimated that between 1996 and 2003 the Speke Garston area attracted £330 million of investment, including over £80 million at JLA.

1.19 In this respect, the State of the English Cities report recognises that the expansion of regional airports like JLA, "should maintain the economic status of their associated urban centres."[12]

1.20 During this period some 5,600 jobs were created and safeguarded and around 230,000m^2 of commercial floor space was built or improved[13]. Associated landscape

8 11 million visits to the Liverpool City Region and a visitor spend of some £500 million are expected during the European Capital of Culture in 2008 (see 'The Liverpool City Region, Transforming Our Economy, The Strategic Proposals', The Mersey Partnership, 2005). 712,000 visits are estimated to be overseas staying visits compared to 153,000 in 2000 (see 'European Capital of Culture 2008, Socio Economic Impact Assessment of Liverpool's Bid', ERM Economics, May 2003).

9 'State of the English Cities: A Research Study', Office of the Deputy Prime Minister, (2006), para. 4.3.16.

10 As measured using the Office of the Deputy Prime Minister's Indices of Multiple Deprivation (IMD) 2004.

11 'The Future of Air Transport', Department for Transport, (2003), para. 8.17.

12 'State of the English Cities: A Research Study', Office of the Deputy Prime Minister, (2006), para. 10.5.24.

13 'Speke Garston Development Company Review' (2003).

Liverpool Town Hall viewed from Castle Street

enhancements and improvements to buildings, including the local housing stock, have also uplifted the environment of this part of Liverpool.

1.21 The sustained growth of JLA, built on this impressive legacy, will ensure that it remains a key driver in the regeneration of the Liverpool City Region.

Policy Conclusions for Liverpool John Lennon Airport

1.22 As noted above, the White Paper acknowledges the rapid recent growth of JLA and its impact on the local economy:

> "The Government therefore considers that the airport's capacity should continue to grow to accommodate increased demand. This growth will require further terminal capacity but there is land available for this within the airport site… There may in future be a case for extending the runway to around 2,700m if required for long haul charter and freight operations. This would be acceptable provided there is no encroachment on the River Mersey Site of Special Scientific Interest, Ramsar Site and Special Protection Area…The airport will also need to continue to work with regional and local partners and surface transport providers to bring forward surface access enhancements that will be needed to cater for increased passenger volumes. These should include improved public transport links."[14]

1.23 The Government's Progress Report on the White Paper, states, with reference to the proposals in the draft Master Plan, that:

> "Liverpool Airport is a leading 'no-frills' airport in the North of England, handling 4m passengers in 2003 and operating to over 90 destinations. Liverpool proposes a runway extension in the early part of the next decade. Additional terminal capacity and improved surface access are also necessary to meet future demand. The airport also has plans to establish a world cargo centre."[15]

1.24 The Progress Report also acknowledges the proposals to address the impact of the Oglet World Cargo Centre scheme through the 2.2 mile extension of the Speke Garston Coastal Reserve. This would double its area and create a nature conservation, heritage and recreational resource of regional significance that would be retained in perpetuity (see Chapter 8).

1.25 This Master Plan examines the likely scale of growth of JLA, as envisioned in the White Paper; considers its physical implications in terms of the requirement for additional infrastructure within the existing airport boundary; and assesses the need for expansion onto adjacent land.

Time Frame

1.26 This Master Plan sets out the Airport's plans for growth at JLA over the next 23 years. In accordance with the DfT's guidance, it considers proposed development to 2015 in detail, and to 2030 in more general land use terms.

Preparation of the Master Plan

1.27 Preparation of this Master Plan has been overseen by a Steering Group which comprises representatives of key stakeholders, including regional and local government, transport authorities and regeneration agencies. This process has been important to ensure that proper account is taken of emerging regional policies, including the Regional Economic Strategy, Regional Spatial Strategy, and at the local level, Local Development Frameworks.

14 'The Future of Air Transport', Department for Transport, (2003), paras. 8.19 to 8.21.
15 'The Future of Air Transport Progress Report', Department for Transport, (2006), page 61 (2006)

Liverpool John Lennon Airport Master Plan Steering Group
Cheshire County Council
Government Office for the North West
Halton Borough Council
Highways Agency
Knowsley Metropolitan Borough Council
Liverpool City Council
The Mersey Partnership
Merseyside Policy Unit[16]
Merseytravel
Network Rail
Northwest Development Agency
Northwest Regional Assembly
Wirral Metropolitan Borough Council

1.28 In addition to consultation with the Steering Group, the Airport has held discussions with individual stakeholders and the DfT. Regular updates have also been provided to the Airport Consultative Committee, which comprises representatives of the local communities, local councils, airport user groups and airlines; and to the Airport Transport Forum. Transport issues affecting JLA, including modelling of the traffic impacts of the Master Plan proposals, have been considered by a Transport Working Group that includes representatives of Liverpool City Council and its transport consultants.

Peel Group of Companies

1.29 JLA is owned by Liverpool Airport PLC which is a subsidiary of Peel Airports Ltd. Other airports within the Peel Airports group include Durham Tees Valley Airport in the North East, and Robin Hood Airport Doncaster Sheffield in the Yorkshire and Humber region. The wider Peel Group includes Peel Ports Ltd of which Mersey Docks and Harbour Company, Clydeport and the Manchester Ship Canal Company are subsidiaries.

1.30 In addition to JLA, Peel Land and Property has made significant investments in the Speke Garston area. It is progressing a number of large development schemes, including the Liverpool International Business Park on the site of the former Northern Airfield; Wings Leisure and Entertainment Park; and Blue Lands Business Park. These will provide over 340,000m² (3.5 million ft²) of mixed office, industrial, warehousing and commercial leisure accommodation within 2 km (1.2 miles) of JLA.

The Master Plan and the Planning Process

1.31 This Master Plan is not an application for planning permission and will not of itself grant approval for any works. Development at JLA will remain subject to the normal requirements for planning permission. The Airport (in common with other airport operators) is able to undertake certain types of development without

16 The Merseyside Policy Unit is the coordinating body comprising the local authorities of the former Merseyside county and Halton.

Seaforth Container Terminal, part of Mersey Docks & Harbour Company

the need for planning permission following consultation with the local planning authority. These types of development are known as 'permitted development'. The scope of permitted development is set out in Part 18 of Schedule 2 to the Town and Country Planning (General Permitted Development) Order 1995. Such development must be on operational land and relate to the provision of airport services and facilities. Developments, such as extending the runway, significantly increasing the floor space of the terminal, or provision of a hotel, would require planning permission.

1.32 This Master Plan provides a framework for setting out the Airport's longer term aspirations within which proposals can be considered and planning applications made as and when necessary, including informing the emerging Local Development Framework process. It is the intention of the Airport, to submit a planning application(s) to the relevant councils when the commercial circumstances are right which will encompass the main proposals to the year 2015. This will be subject to full and appropriate appraisal having regard to (among other things) the Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999.

Structure of the Master Plan

1.33 In accordance with the DfT's guidance on the content of Master Plans, the remainder of this document adopts the following structure:

1 Introduction

2 Vision and Objectives

3 Liverpool John Lennon Airport in 2007
A description of the current airport operations and infrastructure

4 National & Local Policy Context
A summary of relevant statutory local and regional policy and regulatory controls

5 Recent Trends in Passenger & Cargo Traffic
Performance over the last 10 years in its market context

6 Forecasts for Future Growth to 2015 & 2030
Forecasts of future passenger and cargo activity including consideration of new routes and markets

7 Assessment of Development Options
A summary of the main alternatives for infrastructure provision

8 Liverpool John Lennon Airport: Phased Growth to 2015 & 2030
Identifying the main requirements for new and improved infrastructure

9 Surface Access
Outline proposals for achieving sustainable access to and from the Airport

10 Economic & Social Considerations
What the proposals mean for local people and businesses

11 Environmental Considerations
The main likely effects of the proposals and measures to mitigate any adverse impacts

12 Safeguarding, Risk Assessment & Compensation Issues
The likely land take of the proposals and implications for Public Safety Zones and aerodrome safeguarding

13 Sustainability Appraisal
An overview of the Master Plan against sustainability criteria

14 Next Steps

1.34 A Glossary of Terms and Abbreviations is provided at the back of the Master Plan to aid understanding of technical and aviation terms.

2. Vision & Objectives

Vision and Objectives

2.1 JLA is one of Europe's leading regional airports. Its **Vision** is to:

- retain its position as the airport of choice for business and leisure travellers from Greater Merseyside, Cheshire, North Wales and beyond;
- develop its synergy with the Port of Liverpool and become an international gateway for freight handling and distribution; and
- maximise its contribution to the regeneration and renaissance of Liverpool as an international city.

2.2 In pursuit of this Vision, the **Objectives** for the Master Plan are to:

- Improve affordable access to more destinations and with better frequency for business and leisure travellers of the region by providing the right infrastructure, at the right time, at a cost the airlines can afford, consolidating JLA's passenger airline base.
- Complement the Port of Liverpool and enhance Liverpool as a major cargo destination by developing an opportunity for air freight by providing state of the art facilities at JLA, which will enable freight and mail operators to compete on cost and availability of runway slots.
- Maximise the potential of JLA as an economic driver creating employment and stimulating investment in support of the ongoing economic and physical regeneration of Liverpool.
- Optimise the contribution of JLA to the profile and image of Liverpool as a vibrant, modern European city by maintaining high quality facilities which reflect the aspirations of the city and the region.
- Establish a framework for improving the physical appearance of JLA, its landscape quality and its interface with neighbouring land uses, including the Speke Hall Estate.
- Deliver a 50ha (124 acres) managed coastal reserve on the Oglet as part of a Regional Coastal Park.
- Maintain a vibrant and profitable business as a stable and secure basis for ongoing investment in order that the continuing development of JLA is feasible and can be funded.
- Uphold the highest possible safety standards concerning air traffic control (ATC) and airspace in accordance with Civil Aviation Authority (CAA) requirements; and maintain the security and safety of passengers and staff.
- Maintain a sustainable airport by safeguarding and enhancing the special character and interest of the Mersey Estuary; and the historic environment, including the Speke Hall Estate; minimising environmental impacts at source through good design and mitigating or compensating for any residual impacts; and by addressing the potential effects of aviation on climate change through JLA's Carbon Sequestration Scheme: 'Last Call!', and commitment to 'Sustainable Aviation'.
- Reduce the need for passengers to travel long distances to other airports, principally in the South East, and develop a long haul capability to enhance international linkages, particularly to the USA.
- Improve the opportunities for sustainable travel, including public transport, to and from JLA through the provision of an appropriate Airport Surface Access Strategy (ASAS) that enhances capacity in the Speke Boulevard Corridor and facilitates the ongoing regeneration of South Liverpool.
- Set out the long term growth plans of JLA in order that these can be taken into account by local authorities in preparing their development, economic and transport plans and by others in making investment decisions.
- Address the requirements of the business and general aviation community.

Passenger Services

2.3 Recent growth of JLA has been focused on enhanced passenger services. The decisions of low cost operators to establish European

short haul services from JLA have been key to meeting increased demand for international travel to and from Merseyside. The range of destinations served includes major business centres, such as Paris, Berlin and Amsterdam, and popular tourist and cultural destinations across Southern and Central Europe. New destinations in Northern and Eastern Europe, including Warsaw and Gdansk, have also been added over the last few months.

2.4 This expansion in services was marked by the recent announcement by the CAA that amongst the ten largest UK regional airports, JLA was the joint fastest growing, with passenger numbers up by 13% in 2006. Such growth has continued and in February 2007 JLA reached a significant milestone by becoming a 5 mppa airport.

2.5 The benefits to Merseysiders of these widening opportunities for travel are obvious. Reciprocal benefits arise from inbound tourism, international trade and inward investment from European businesses. New services to EU accession states in eastern and central Europe offer particular opportunities for new trade links. Convenient international travel offers opportunities to forge cultural links with numerous European cities. This will assume increased importance as Liverpool approaches its European Capital of Culture year in 2008 (see Chapter 3). There are also growing opportunities for overseas students to access Merseyside's world class higher education services.

2.6 2007 will see the commencement of JLA's first transatlantic scheduled services with regular flights to New York's JFK Airport and to Toronto. The City region already has strong, historic links with New York established through many years of maritime trade and this new service is aimed at both leisure and business travellers on both sides of the Atlantic.

2.7 Alongside international routes, maintenance of UK services has been key in providing essential business links. The Merseyside business community cites the retention of the London link as being vital to the future economic and investment performance of Liverpool.

2.8 This Master Plan seeks to maintain and consolidate existing routes and facilitate opportunities for additional European services for both business and leisure travellers. To complement this, and in recognition of the potential economic, social and cultural benefits it could bring, the Master Plan provides for the establishment of further long haul passenger services from JLA.

2.9 The Airport has carried out projections which show passenger traffic growing from 5 million passengers per annum (mppa) in 2006 to around 8.3 mppa by 2015 and 12.3 mppa by 2030 (see Chapter 6). An extension of the runway as provided for in the White Paper[17] would facilitate additional long haul services to a range of destinations in North America and the Middle and Far East. Such services would open up a range of popular destinations which Merseysiders currently have to access from airports outside the sub-region. Importantly, it would also offer further direct long haul access to Liverpool and the North West's other major tourist attractions from American and Far Eastern airports. For example, Liverpool is twinned with Shanghai and direct links between the two cities could stimulate important business and tourism relationships.[18]

17 "There may in future be a case for extending the runway to around 2,700m if required for long haul charter and freight operations": 'The Future of Air Transport', Department for Transport, (2003), para. 8.20.

18 It is estimated that 130,000 Chinese come to the UK as tourists each year and 34,000 students are based here.

Cargo Services

2.10 Cargo handling and distribution is an important part of JLA's activities. JLA handled almost 50,000 tonnes per annum in 1997, which represented over 8% of the market share of air freight at UK regional airports. Since then, strategic decisions by major users of JLA to transfer from air to road freight has seen a decline in cargo handling (in tonnage carried and market share). Indeed, Royal Mail ceased its mail operation from JLA in 2006.

2.11 Market projections, including those upon which the White Paper are based, indicate global growth in, and increasing importance of, air freight. The Airport has commissioned its own assessment of the potential market for freight at JLA (see Chapter 6). These projections indicate that JLA can grow its cargo business and re-capture market share. The Airport is encouraged in this regard by the recent opening up to competition of Royal Mail services from the likes of TNT, which has a well established express parcel and mail operation at JLA.

2.12 The forecasts consider the potential to expand and diversify the current UK and European cargo activities which include facilities for TNT and a number of smaller operators. TNT has recently invested £6 million in the provision of a new large distribution facility on a 1.6 ha (4 acre) site to the east of terminal.

2.13 Assuming incremental growth in line with wider market projections, the Airport considers that over the medium term to 2015 JLA would grow its cargo business to around 40,000 tonnes per annum. This assumes improving market share from current levels of around 2.3% to approximately 3%.

2.14 Liverpool has a strong heritage as an international trading city based around transatlantic sea routes. The Port of Liverpool handles more container trade with the United States of America and Canada than any other port in the land; and remains one of the busiest container ports in the UK[19], and the most significant in the North. It includes the Seaforth Deep Sea Container Terminal and two major freight ferry terminals to Ireland. Planning approval has recently been given for a £90 million post-Panamax[20] container terminal at Seaforth, the first on the West coast, which would almost double container capacity at the Port. The Port is a vital link in the North European Trade Axis (NETA) that connects Europe across northern England with Ireland (see Figure 2.1).

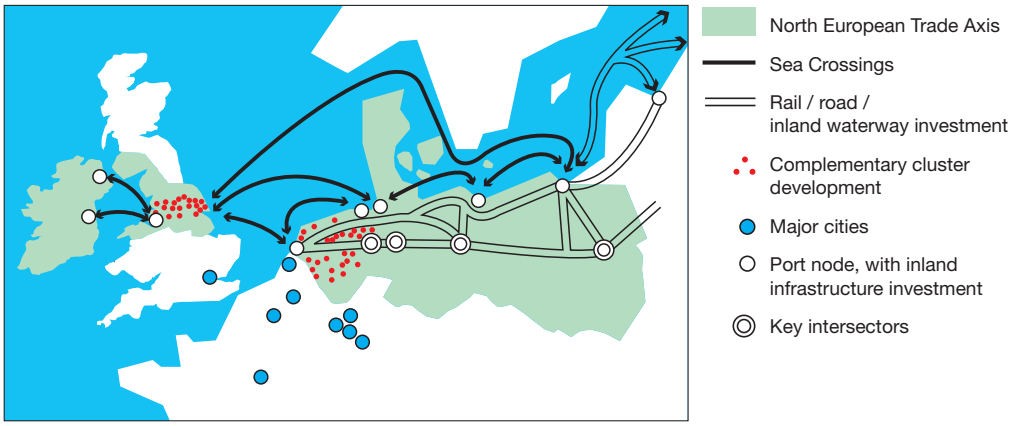
2.15 The proximity of the Port, Manchester Ship Canal and JLA offers a particular opportunity for Liverpool to maintain and enhance its role as a major hub for cargo distribution. The common ownership of these transport assets by the wider Peel Group can ensure that the synergy between the businesses and their economic potential for the Liverpool City Region are maximised. Work is now underway to explore and develop these relationships to create the UK's first 'Superport' (see Chapter 6).

2.16 Economic projections recognise the substantial and growing importance of the Indian sub-continent and Chinese markets to the world economy. In the medium and longer term, direct connections to these markets will be vital for trade links and the movement of goods. Development of long haul services to these markets direct from Liverpool represents a huge economic opportunity for Merseyside and the North West.

19 In 2006 the Port handled 630,000 teus (20ft containers) and its established in-dock Royal Seaforth Container Terminal can handle up to 800,000 teus a year. The Port now serves over 100 non-European locations across the globe.

20 Post-Panamax vessels include supertankers and the largest modern container ships.

Figure 2.1 The North European Trade Axis



2.17 The freight community is growing, enhanced by the accessibility of JLA to the national motorway network; and the increasing presence of major distribution facilities in Merseyside, including at Liverpool International Business Park: a Peel scheme, the development of which has been encouraged by changes in operational practices within the haulage sector, such as the Working Time Directive.[21] There are also two international rail terminals at Ditton and Garston within 2 km (1.2 miles) of JLA.

2.18 In order to capture this opportunity and maximise its benefits to the Liverpool City Region, this Master Plan sets out proposals for the longer term (post 2015) development of state of the art cargo handling and distribution facilities on land to the south of the runway: the 'Oglet World Cargo Centre' (see Chapter 6). This would work towards recapturing the market share achieved in 1997 and facilitate achievement of the White Paper's forecast cargo capacity for JLA of around 220,000 tonnes per annum by 2030.

Business and General Aviation

2.19 JLA supports a wide range of other business and general aviation activities, which are part of its history and heritage. These activities include pilot training (for light aircraft and helicopters), use by private and executive aircraft, the Police and RAF, and maintenance and repair of small aircraft.

2.20 Business and general aviation is not expected to grow as rapidly as passenger or cargo will remain an important part of the services to the air transport, business and military communities at JLA. Proposals in this Master Plan include provision of new hangarage and associated office and commercial accommodation adjacent to the existing business and general aviation centre to the north east of the runway.

Environmental Sustainability

2.21 The Airport assigns a high priority to its environmental responsibilities. It is a stakeholder in 'A Strategy Towards Sustainable Development of UK Aviation'[22], which seeks to

21 The Road Transport Directive, part of the EU Working Time Directive (93/104/EC), came into force in April 2005. The Directive limits driver hours to a 48-hour week (over a 17-26 week reference period) and a 60 hour maximum working week and places a 10-hour limit on night work (although extendable by workforce agreement). The Directive is beginning to effect the location and configuration of warehouses as haulage companies seek to address the rising costs of meeting delivery targets and delays caused by road congestion on major routes. (See 'Working Time Impact Study', Freight Transport Association, 2006).

22 Published in June 2005 by Sustainable Aviation – a group of airlines, aviation manufacturers, airports and National Air Traffic Service Ltd.

ensure that the environmental impacts of air travel are addressed. As part of planned growth, this Master Plan sets out actions that will be taken to ensure that any environmental effects on those living close to JLA, local wildlife, ecology, landscape and cultural heritage are minimised through good design and by mitigating or compensating for any residual impacts. In addition, the Airport has adopted an Environmental Management Strategy (EMS) that includes a range of policies and operating procedures that addresses issues such as noise, air quality and a Waste Management Minimisation Strategy (see Chapter 4). The objectives of the EMS seek to:

- minimise noise disturbance locally;
- reduce emissions from aircraft and related uses;
- increase the use of public transport by passengers and staff;
- minimise the volume of waste created;
- develop conservation practices that do not conflict with security or safety practices; and
- promote regeneration for the local community.

2.22 Environmental impacts are also controlled via a legal agreement with Liverpool City Council related to a previous planning permission[23] to extend facilities at JLA. This agreement sets out a series of obligations on the Airport covering air and ground noise, water quality, air quality, waste management, landscape management and conservation. In a number of instances, the Airport is required to monitor impacts and publish its findings.

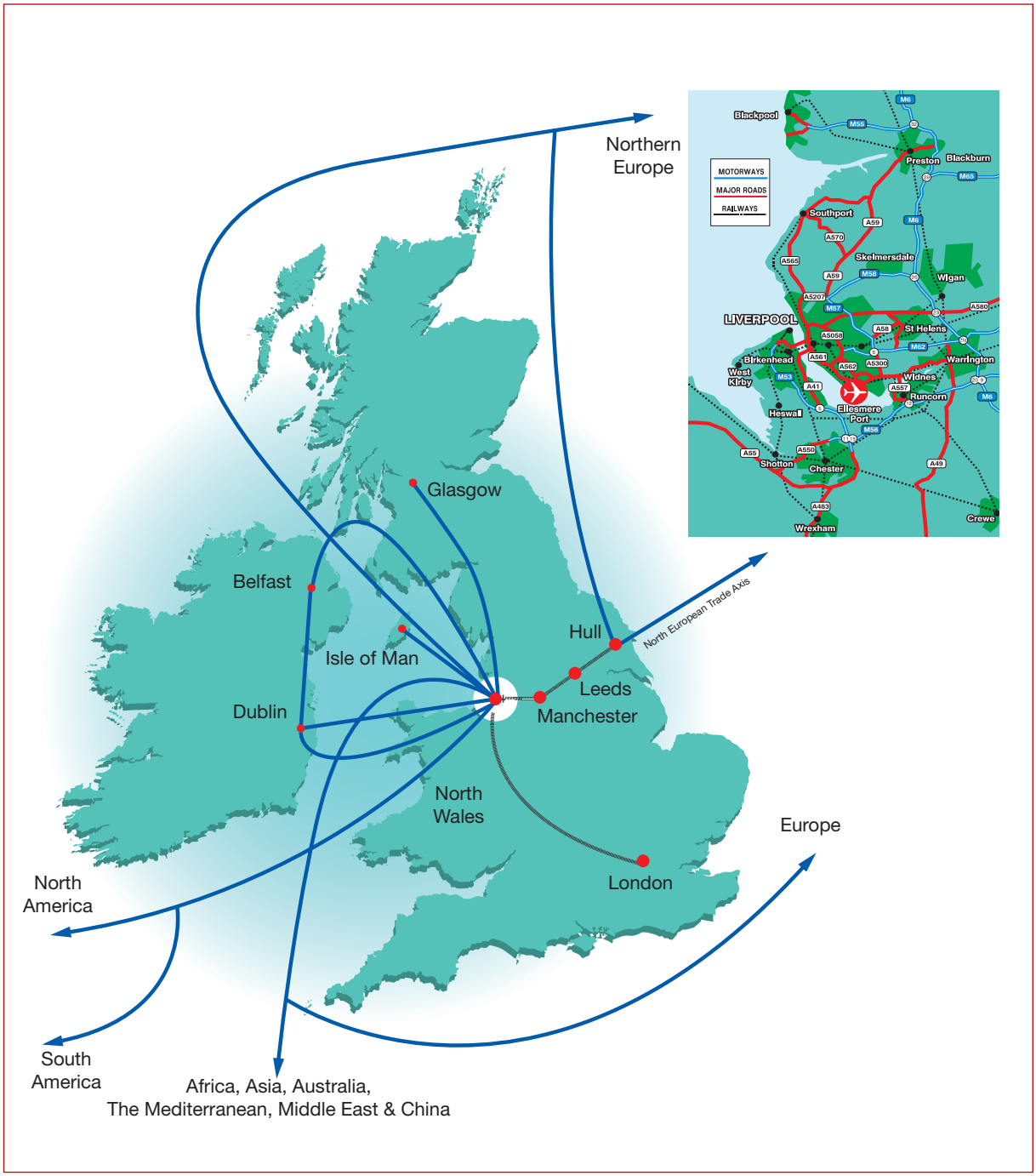
23 Liverpool City Council ref. 01F/2860 dated 5 February 2003.

3. Liverpool John Lennon Airport in 2007

Location

3.1 Liverpool is strategically located on the North West coast astride the transport routes (NETA) which link northern Europe, northern England, Wales and Ireland, and the south to north corridor from London and Birmingham to the West of Scotland. JLA provides the city with connectivity to a wide range of UK and European cities and regions. Figure 3.1 shows Liverpool's strategic connections with the rest of Europe, the Americas, the Middle East and Africa.

Figure 3.1: Liverpool's Strategic Connections



3.2 JLA is well integrated with other modes of transport. It has high quality dual carriageway access to the national motorway network, including the M56, M57, M62 and M6 (Junction 6 of the M62 is approximately 10 km (6.2 miles) to the north east of JLA). It is served by rail via the recently opened Liverpool South Parkway transport interchange on the Liverpool to London line, and Runcorn station on the West Coast line; and, importantly, it is within 20 km (12.4 miles) of Seaforth deep-sea Container Terminal and two major freight ferry terminals to Ireland.

3.3 Road access from Cheshire and North Wales will be improved following the construction of the proposed Mersey Gateway - a second river crossing near Runcorn that will link to the M56 – due to open in 2014 or sooner.

3.4 Frequent bus services provide connections to the new Liverpool South Parkway rail station with mainline and local rail services, as well as to Liverpool and Manchester city centres, neighbouring towns and residential areas.

3.5 The principal access to JLA is by road from Speke Boulevard (A561) via Speke Hall Avenue – a dual carriageway road. Access to the business and general aviation centre and the Airport's administration offices is via Hale Road.

3.6 JLA lies approximately 10 km (6.2 miles) to the south east of Liverpool City Centre on the northern bank of the Mersey Estuary (see Plan 1). Its neighbours include the residential communities of Speke to the north and Hale Village, within the Borough of Halton, to the east. To the west, JLA borders Liverpool International Business Park on the old northern airfield, and the grounds of Speke Hall with the communities of Garston and Allerton beyond. To the south, between the runway and the Estuary, is agricultural land known as the Oglet. The new control tower and radar installation are situated within the Oglet and are accessed separately off Dungeon Lane, which passes close to the eastern end of the runway.

3.7 There are several environmentally sensitive sites in the vicinity of JLA (see Plan 4). The Mersey Estuary, consisting of large areas of saltmarsh, intertidal sand and mudflats, is an internationally important site for wildfowl and Liverpool's pre-eminent environmental asset (see Chapter 11). It is designated as a Site of Special Scientific Interest (SSSI) and Special Protection Area (SPA) and as a Wetland of International Importance under the Ramsar Convention[24] due to its importance to passage and wintering wildfowl and waders. The birds feed on the rich invertebrate fauna of the intertidal sediments as well as plants and seeds from the salt-marsh and agricultural land. The Estuary is also a valuable staging post for migrating birds in spring and autumn.

3.8 Speke Hall is a Grade 1 listed building set within an historic park and gardens of regional importance, which is owned and managed by the National Trust. There are six listed buildings on the site, including Home Farm. In addition to being a major tourist destination and cultural icon, Speke Hall is a permanent place of residence for six people. A planted mound to the east of the visitor car park provides visual and physical enclosure along this boundary with JLA. Hale contains several listed buildings and parts of the village are designated as Conservation Areas.

3.9 The Speke Estate is home to around 16,000 residents. The Estate has seen around £100 million of investment in improving its housing stock and enhancing living conditions. The Airport supports ongoing regeneration; e.g. by

24 These designations confer protection of the Mersey Estuary in European and UK law on account of its ornithological value.

working with local agencies such as JET South Liverpool (Jobs, Education and Training) to provide opportunities for local people to take jobs at JLA (see Chapter 10).

Historical Development

3.10 JLA is one of the UK's oldest operational airports where the first scheduled flights commenced in 1930. Airport operations were originally located on the Northern Airfield site, which is in the process of being redeveloped as high quality business parks called Estuary Commerce Park and Liverpool International Business Park, together with a large area of open space adjacent to the Estuary known as the Speke Garston Coastal Reserve. The original art deco terminal building and hangars built in the 1930s that lie within Estuary Commerce Park have been listed as some of the finest examples of early aviation buildings in the country and are now in use as a hotel, leisure centre and for general commercial purposes.

3.11 In the years leading up to World War 2, Liverpool became the second busiest airport in the UK. Full airport status was attained in 1933 when it was licensed by the Air Ministry and early operators included Midland and Scottish Air Ferries, Railway Air Services, KLM and Aer Lingus. In addition, Liverpool and District Aero Club moved from Hooton in 1934 and No. 611

(West Lancashire) Squadron, RAuxAF, formed there in 1936. A large hangar was constructed in 1937 along with the six storey control tower, while the wings of the terminal were completed in 1939.

3.12 During World War 2, Liverpool was used for a variety of military purposes and a Rootes Shadow Factory, built alongside in 1938, produced Blenheim and Halifax aircraft. The proximity of the Port led to Liverpool being used by No. 1 Aircraft Assembly Unit which assembled mainly Lockheed aircraft carried across the Atlantic by ship. The Merchant Ship Fighter Unit provided the pilots and aircraft that protected those convoys. Civil air services to Ireland and the Isle of Man were maintained throughout the war by Railway Air Services and Aer Lingus.

3.13 In 1944 the airfield was released back to the Director General of Civil Aviation, and commercial services to London, Croydon and Belfast were resumed. However, its pre-war eminence as one of the busiest airports in the UK began to fall away as a result of the ever-expanding Manchester Ringway. Ownership of the airport rested with the Government until 1961 when it reverted to Liverpool Corporation. In the early 1960s, the deficiencies of the site were recognised and the Corporation master planned

what was effectively a new airport on the existing JLA site. A new runway of 2286m (bearing 09/027) and taxi-way was opened in 1966 (by which time, Manchester was handling 1.4 mppa – over three times Liverpool's 0.45 mppa). Following a period in which the old terminal continued to be used, a new terminal was opened on the north side of the runway in 1986.

3.14 Passenger throughput during the 1970s to mid 1990s was modest ranging between 0.25 and 0.6 mppa. In 1997 the purchase of a 76% share in JLA by Peel Airports Ltd led to immediate steps to give JLA better strategic direction and scope to realise its potential. A major capital investment programme was launched to improve operational facilities and airline services. New hangars, a general aviation centre, aircraft aprons and control tower were constructed along with a major redevelopment of the terminal. The environment was transformed by these works and passenger facilities, service standards and overall comfort significantly enhanced. These initiatives proved timely and combined with the emergence of new airlines, particularly in the low cost sector, have resulted in significant passenger growth reaching approximately 5 mppa by the end of 2006 as shown in Figure 3.2. Further detail on the trends in passenger and cargo traffic is provided in Chapter 5.

3.15 In 2001 Peel Airports Ltd acquired the remaining shareholding and now wholly owns and operates JLA as part of the Peel Airports Group (which also includes Robin Hood Airport Doncaster Sheffield and Durham Tees Valley Airport).

3.16 Peel Airports' £100m capital development programme (1997 to date) has been supported by European Objective One funding in recognition of the need to tackle deprivation and promote economic growth and regeneration within South Liverpool.

3.17 In parallel with the capital investment programme, new airlines were encouraged to operate from JLA. In 1997 only 3 destinations were served (see Figure 3.3). The decision in that year by easyJet to locate at JLA acted as a catalyst to a number of other airlines to do the same. The range of routes and destinations now available from JLA is shown in Figure 3.4 and totals over 60. JLA is now the leading low cost airport in the North of England.

Figure 3.2: Liverpool John Lennon Airport - Annual Passenger Totals 1989-2006
Source: JLA

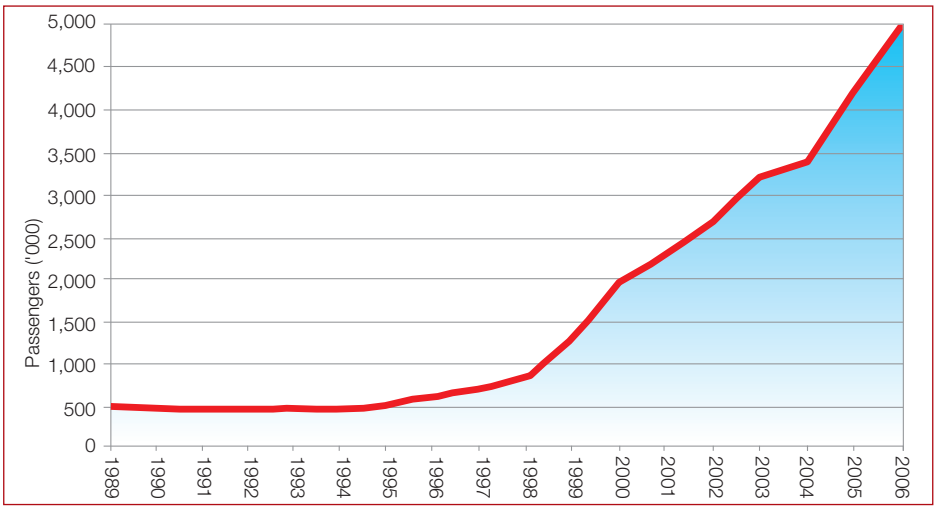


Figure 3.3: Liverpool John Lennon Airport - Scheduled Destinations 1997

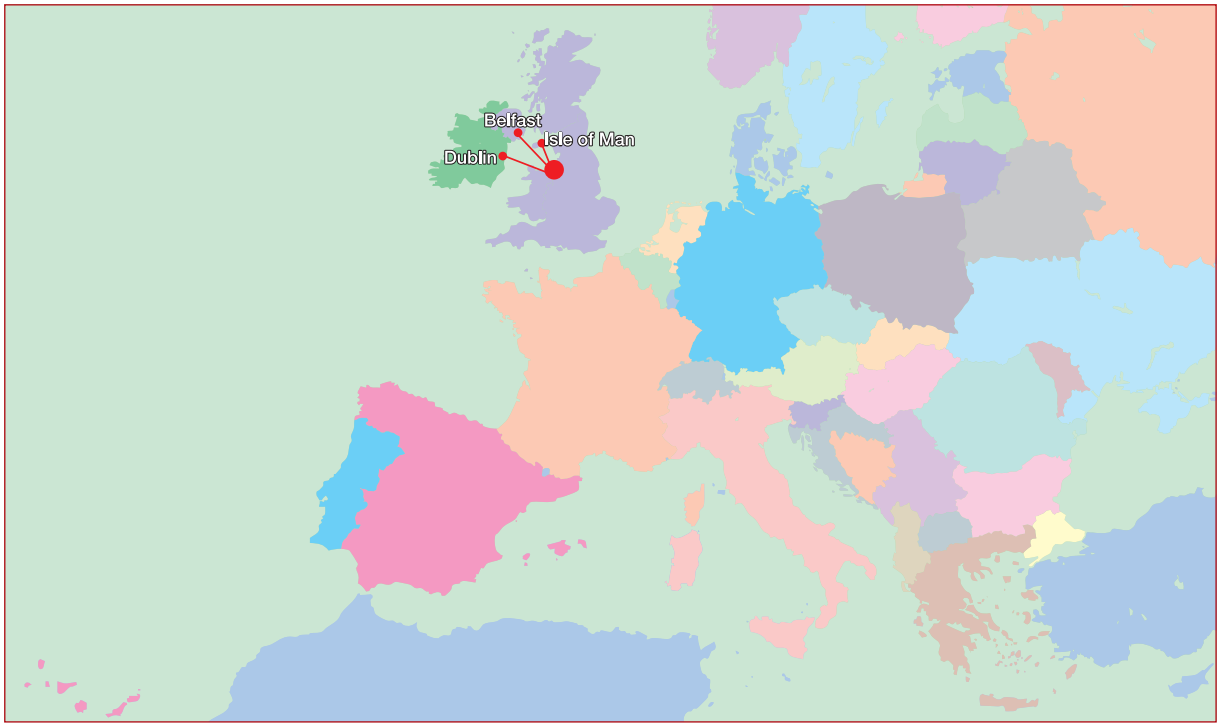
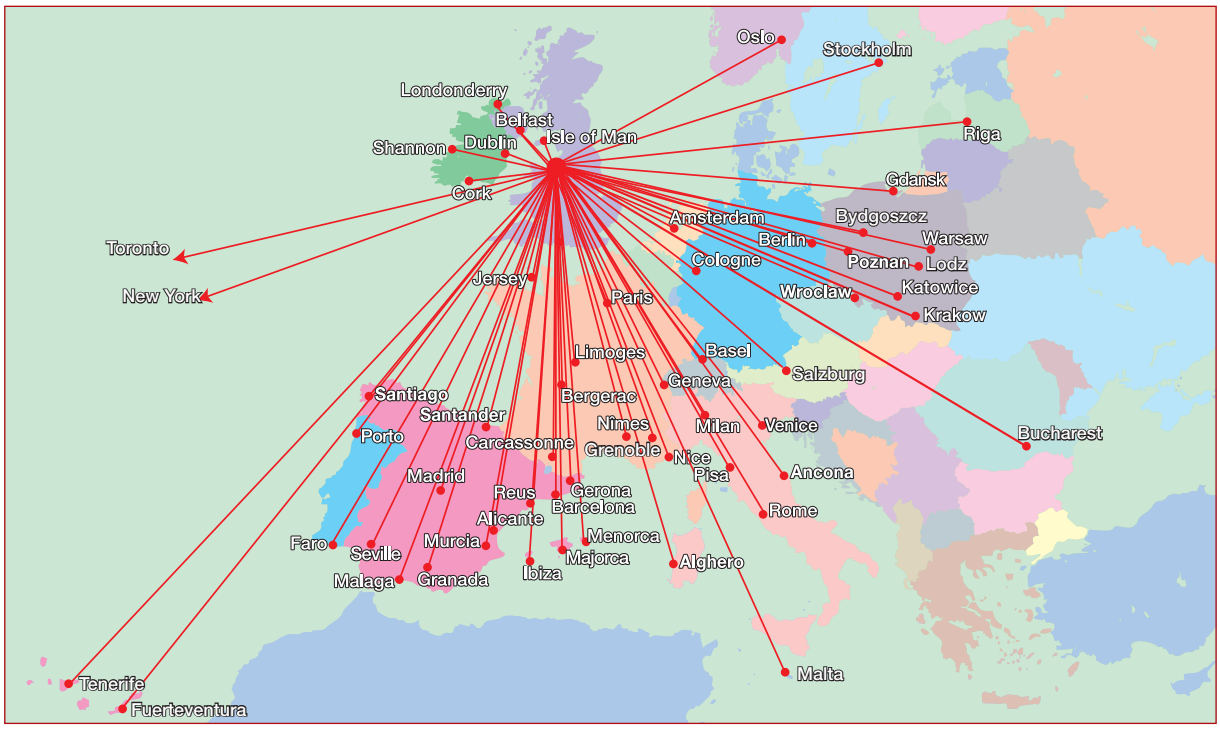


Figure 3.4: Liverpool John Lennon Airport – Scheduled Destinations 2007



Current Services

Scheduled Services

3.18 JLA is served by eight airlines providing scheduled services. Ryanair currently has 7 B737-800 aircraft based at JLA serving 38 destinations including:

Alghero	Milan – Bergamo
Alicante	Murcia
Ancona	Nîmes
Barcelona – Reus	Oslo – Torp
Belfast (City)	Palma
Bergerac	Pisa
Budapest	Porto
Bydgoszcz	Poznan
Carcassonne	Riga
Cork	Rome (Ciampino)
Dublin	Salzburg
Fuerteventura	Santander
Gerona	Santiago de Compostela
Granada	Seville
Grenoble	Shannon
Krakow	Stockholm
Limoges	Tenerife
Lodz	Venice – Treviso
Londonderry	Wroclaw

3.19 easyJet has 8 Airbus A319 aircraft based at JLA, serving 17 destinations including:

Alicante	Ibiza
Amsterdam	Krakow
Barcelona	Madrid
Basle	Malaga
Belfast International	Mahon
Berlin Schoenefeld	Nice
Cologne/Bonn	Palma
Faro	Paris CDG
Geneva	

3.20 Euromanx operates domestic daily flights to the Isle of Man. Wizz Air, an East European airline, operates an A320 fleet with flights from Katowice, Warsaw, Gdansk and Bucharest. Flyglobespan commenced Summer services to New York and Toronto in May 2007; and Air Malta started a scheduled service to Malta also in May 2007.

3.21 There are numerous flights and package holidays on offer from JLA to holiday destinations in Europe, the Mediterranean region, North Africa and the Canary Islands (see Figure 3.5). The majority of these flights are provided through major tour operators such as MyTravel, TUI, First Choice and Balkan Holidays. However, a number of smaller charter operators, including Gold Trail, Discover Jersey, Island Cruises and Holidays 4 You also operate from JLA. The major charter airlines operating holiday flights are Thomsonfly, Futura, Spanair, Balkan Holidays Air, Air Europa, MyTravel and Onur Air. Thomsonfly currently has one B757-200 aircraft based at JLA.

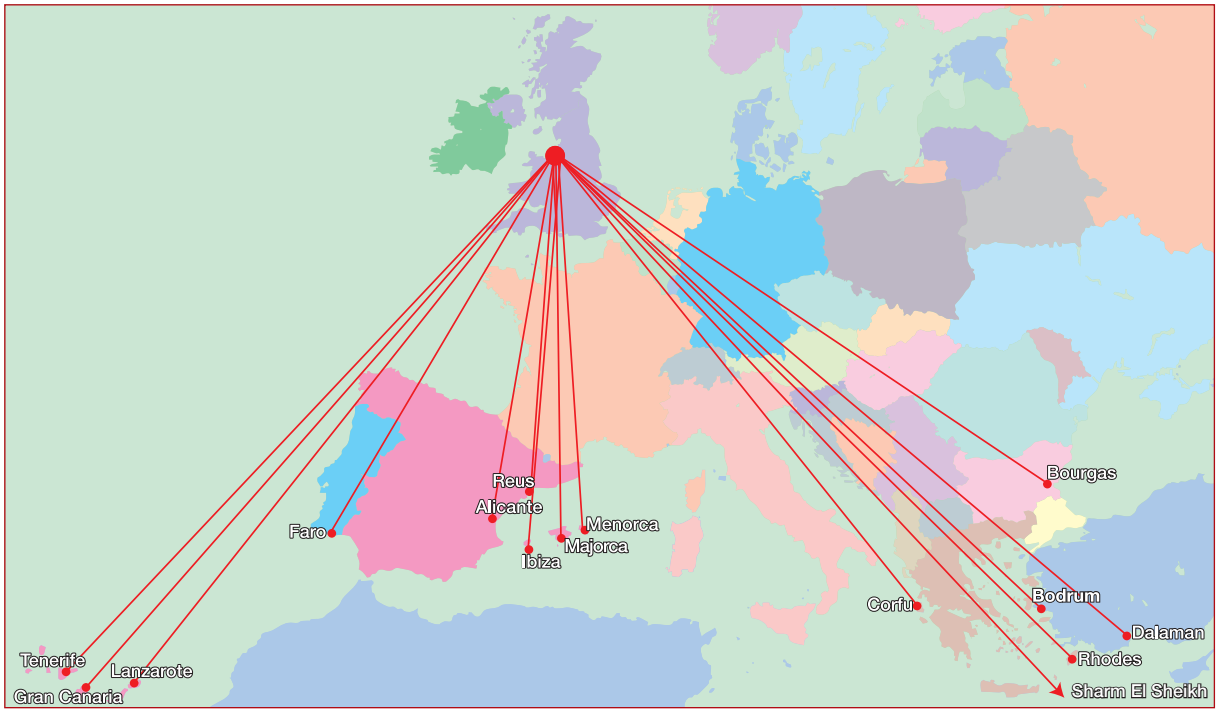
Role of JLA in the Social Fabric of the City

3.22 JLA brings a number of wider benefits not only to South Liverpool, but to Merseyside and the North West as a whole. The economic benefits can be measured in terms of job creation at JLA and the 'catalytic' or 'spin off' benefits it generates that facilitate growth in the local economy; and the commitment the Airport has to working with local communities and regeneration organisations; e.g. in developing training initiatives (see Chapter 10). Also important are the social benefits outlined below that arise through the diversity of airport services available.

- The continued success of the three universities on Merseyside attracts a growing number of students from overseas, particularly from Northern Ireland and the Republic of Ireland. Access to affordable and convenient air travel via JLA adds to this attraction helping to boost student numbers in Liverpool. The attraction for overseas students to other leading academic

Charter Services

Figure 3.5: Liverpool John Lennon Airport - Charter Destinations 2007



institutes in the region such as the Liverpool Institute of Performing Arts has similarly been helped by the recent growth in flights to and from JLA.

- Whilst access to health care in the region is often taken for granted, it is important to recognise that for those living further afield this is not always the case. The specialist health care available at hospitals on Merseyside such as Clatterbridge and Alder Hey means that JLA is often used by air ambulance flights or by passengers travelling on scheduled services courtesy of health authorities to minimise journey times. In particular, JLA is regularly used by passengers travelling to local hospitals from the Isle of Man.
- JLA has been integral to the success of the mass movement of football supporters travelling to and from high profile matches / tournaments, bringing travel cost savings and ease of access benefits in particular to local supporters. The national media coverage of the successful handling of the 20,000 Liverpool supporters departing from JLA to Istanbul for the final of the European Champions' League in 2005, and the subsequent triumphant return to Merseyside of Liverpool FC, gave a lasting positive impression of the region and its capabilities. Similarly, visiting supporters have a greater propensity to stay in the region rather than near to an alternative arrival/departure airport.

- Sport is an important part of the region's sense of well being and JLA plays an important role in attracting visitors to a host of national and international events. Aside from Liverpool and Everton Football Clubs, high profile sporting events such as the Grand National at Aintree and the British Open Golf Tournament to be held at Royal Birkdale near Southport in 2008, will bring spectators and participants to the region via JLA.
- The tourism benefits of an airport to a region are well recognised, but JLA has been particularly successful in developing services that facilitate travel for another type of leisure traveller – those visiting friends or relatives. Additional services to both Northern Ireland and the Republic of Ireland have commenced recently. The historic social links between Merseyside and Ireland means that these new services are important to communities on both sides of the Irish Sea.
- JLA is also used for casualty evacuation flights and as an arrival point for refugees placed into the region.

Liverpool – European Capital of Culture 2008

3.23 Liverpool was chosen to be the 2008 European Capital of Culture in June 2003 with the accessibility to the City and the Region afforded by JLA being a factor in the successful bid.

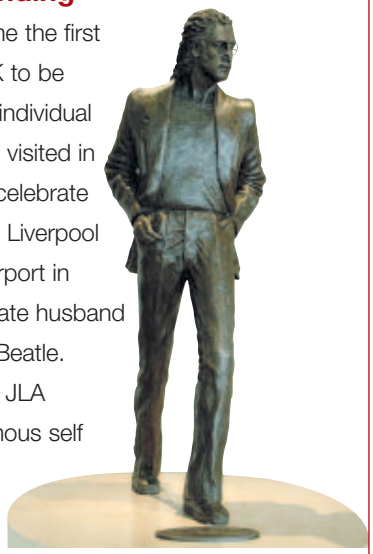
3.24 The dramatic increase in the range and number of scheduled services from JLA (14 in summer 2003 to over 60 in summer 2007) is viewed as a tremendous opportunity by the Liverpool Culture Company[25] to further develop inbound tourism in the run up to 2008. Likewise, the City's year of cultural celebrations has been an attraction for airlines to further grow their businesses at JLA. An increasing range of overseas air links will be particularly important in efforts to maximise tourism in the period leading up to and beyond 2008. It is anticipated that the celebrations will lead to a significant increase in visits to Liverpool; e.g. short city breaks, from residents of both the UK and overseas markets.

3.25 JLA works closely with the Liverpool Culture Company, The Mersey Partnership[26] and the airlines to target potential visitors at a growing number of European destinations now linked by air to Liverpool. A number of branding and promotional initiatives are also due to be implemented to heavily promote the Capital of Culture celebrations to all arriving passengers at JLA.

3.26 The NWDA have funded improved regional tourism branding and information at JLA through the 'Portal Project'. This initiative will provide passengers visiting the region via JLA with information and increase awareness of the region's tourism offer. The project utilises a variety of mediums, including audio visual and distinctive graphics and branding located throughout the arrivals and departures areas. Work is due to be completed in Autumn 2007.

John Lennon Branding

3.27 Liverpool became the first airport in the UK to be named after an individual when Yoko Ono visited in March 2002 to celebrate its re-naming as Liverpool John Lennon Airport in memory of her late husband and the former Beatle. The logo for the JLA includes the famous self



25 The organisation created by Liverpool City Council to deliver the Capital of Culture initiatives.

26 The Mersey Partnership includes representatives from all six local authorities as well as key figures from other public and private sector organisations across the region, working to win more economic development, investment and tourism for Merseyside.

portrait drawing by John Lennon and the strap line, "above us only sky", is taken from the lyrics of Lennon's 'Imagine', one of the most popular songs of all time. This has since helped raise the profile of JLA both locally with the general public and within the aviation industry as a whole.

3.28 It is now the Airport's intention to develop the link with the John Lennon name and with the arts. In 2005 JLA developed its strong Beatles association further with the re-siting of the famous giant Yellow Submarine at the front of the terminal building, visible to all arriving passengers and visitors. Further Beatles links are planned with JLA working closely with other local organisations involved in The Beatles 'industry'.

3.29 The Airport has provided financial support to The National Trust to help fund a minibus to take visitors from Speke Hall to The National Trust owned former Liverpool homes of Paul McCartney and John Lennon. The John Lennon statue in the terminal has already become part of The Beatles' tourism trail alongside the famous Yellow Submarine sited at the terminal entrance.

Existing Site and Facilities

3.30 The operational site of JLA, which is edged red on Plan 1, extends to around 186 ha (460 acres). The runway and its associated taxiway is aligned east-west across the southern part of the site. All terminal, aprons, cargo buildings and airside facilities are currently situated on land to the north of the runway and south of Hale Road. The ATC tower and radar installation are situated to the south of the runway in the Oglet.

Runway, Taxiway and Aprons

3.31 The current runway (bearing 09/27) is 2,286m long. A full length parallel taxiway to the north of the runway serves all airside facilities. The main aircraft stands provide capacity for 28 aircraft and are situated towards the north western part of the site.

3.32 A landing light gantry extends into the River Mersey at the western end of the runway. To the east, landing lights are situated on land to the east of Dungeon Lane. Both of these lighting installations are outside the operational site boundary.

Main Passenger Facilities

3.33 The terminal and main passenger car parks (see Plan 2) are accessed directly from Speke Hall Avenue. The original 1986 terminal has itself been extended and enclosed by a new terminal opened by the Queen in 2002. This has provided significantly enhanced customer comfort and is a fitting international gateway to Merseyside. The three storey terminal is visible from both the eastern and western approaches, which ensures that passengers are able to find their way to the building intuitively. Planning permission exists for further expansion of the building to the west[27].

3.34 The terminal is sited parallel to the runway for reasons of operational efficiency and ease of access to airfield facilities. It is essentially a

27 Liverpool City Council ref. 01F/2860, dated 5 February 2003.

clear span building within which the various elements of passenger processing, security and retail operate. The three storey glazed frontage makes the building readable upon approach with the check-in desks at ground level clearly visible from the car park. This building readability makes the passenger process easier and more enjoyable. The departure hall houses 44 check-in desks with a queue capacity of 14m enabling over 600 passengers to be handled at busy times (usually 7.30 to 11.00am). From check-in at ground level, departing passengers move directly up to the second floor via stairs, escalators and lifts to a landside lounge with extensive views over the airfield and the Mersey Estuary beyond through full height glazed walls. This lounge is housed within an exposed structure vaulted space within which the retail pods and seating are situated.

3.35 From here passengers move to the first floor, through security to the extensive airside lounge area, again, with large open voids and full height glazing for an ambiance of an open and well lit space. Passengers await embarkation onto the aircraft from this area via the 14 gates to the east and west of the departure lounge. Arriving passengers generally enter the building at ground level and are processed through the building at this level. From the arrivals hall, after passing through immigration and collecting their baggage[28], the passengers travel through the Customs channels to the large landside triple

height concourse area before exiting the building to the bus stops, taxi ranks and car parks adjacent. The arrivals hall also includes booking desks for car hire and also a public transport information point run jointly with Merseytravel and tourism information facilities. Retail and catering facilities are convenient to all public areas both landside and airside.

3.36 Bus stops and set-down/pick-up points for taxis and private cars are situated immediately in front of the terminal building. The main passenger terminal car parking areas (around 6,500 spaces) are situated to the north, north-west and north-east of the terminal. Car hire and staff parking facilities are located to the west of the terminal.

3.37 Construction started in 2007 on a new 157 bedroom hotel and multi-storey car park containing over 860 spaces on a site directly opposite the terminal. The scheme will include a pedestrian bridge link from the hotel to the

28 The baggage sortation and collection system comprises 5 belts.

Artists' impression of the proposed hotel and multistorey car park

terminal. Improvements to traffic circulation, surface car parking (including for disabled persons) and access for buses and taxis are also planned. The scheme is expected to be completed by late 2008.

Administration and Support Facilities

3.38 There is almost no office accommodation within the terminal and that which exists is very constrained. Administration and airline offices are housed in temporary modular buildings to the east of the terminal. These modest facilities do not meet airline and other user expectations and restrict the ability of the Airport to attract further airport related business activity to JLA. Total office floor space is in the region of 3,500 m^2.

Cargo Handling Facilities

3.39 Cargo handling and distribution facilities are located to both the east and west of the terminal

building. TNT has a well established operation at JLA having been based there since 1988. It has recently expanded its operation by opening a new state of the art freight distribution facility to the east of the terminal. TNT offers key parcel delivery services between business customers in the UK and global markets, including a nightly service linking into its European hub at Liege in Belgium. There are two bonded transit sheds at JLA; i.e. buildings with both land-side and air-side access, which are approved by HM Customs and Excise for the control and distribution of import and export cargo. TNT manages its own shed, but the main shed is managed by Penauille Servisair, a major third-party handler with a global operation.

3.40 A number of handling agents along with the Airport Company perform cargo ramp handling at JLA. Although the ramp loading facilities are geared toward handling narrow-bodied aircraft, JLA can handle types as big as Antonov-124, Ilyushin-76 and Boeing 747 freighters. These aircraft are sometimes employed on motor parts charters either for Jaguar at Halewood (about a mile from JLA), or for Vauxhall at Ellesmere Port, on the other side of the Mersey. There are also pallet handling facilities for some of the larger aircraft that operate on behalf of TNT.

3.41 Most general cargo is carried at night, mainly to Ireland, the Isle of Man, and Belgium. This includes parcels for national carriers such as ANC, DHL, Target, Lynx, Parcelforce and Securicor Omega. These services are mainly flown by airlines using ATP and Shorts S360 type aircraft uplifting up to 8,000 kgs. The main aircraft type used by TNT is the Electra (L188) and BAe146, although it also has B737 types within its fleet which can uplift 15-18 tonnes.

Business Aviation & General Aviation

3.42 Business and general aviation facilities are situated to the east of the terminal complex between the runway and Hale Road. Lead tenant, Ravenair, operates two purpose built hangars having a combined footprint of 4,750m^2 (51,000ft^2), with a third facility planned. Ravenair offers maintenance and storage of aircraft, flight training, and business charter services.

3.43 Keenair operates a CAA approved maintenance facility from a 1,670 m^2 (18,000ft^2) hangar to the west of Ravenair's hangars in association with the Liverpool Flying School which offers flight training services from the same facilities. The

Cheshire Air Training Service and Helicentre offer flight training and charter services on aeroplanes and helicopters, respectively. JLA is an important destination for executive and business visitors to the region; e.g. VIP visits to local companies and for sporting and cultural events.

Military, Police and Aid Flights

3.44 JLA caters for a variety of flights organised by the military services, Police, Government and by aid and refugee agencies for humanitarian purposes.

Aircraft Maintenance

3.45 easyTech undertakes around the clock maintenance services from Hangar 1 on easyJet Boeing 737 aircraft. Storm Aviation provides support services and basic maintenance for Ryanair's Boeing 737 fleet. When necessary, aircraft engine tests are performed on a section of taxiway to the west of the airfield.

Air Traffic Control

3.46 A new control tower was constructed in the Oglet to the south of the runway (see Plan 2) in 2002 to comply with CAA regulations, which require air traffic controllers to have clear unobstructed views of the airport movement area, including all parking aprons. The location of the tower was selected as being future proofed for all further development both north and south of the runway. It is 41 m high above ground level with a concrete column and pre-formed viewing cab.

Fire Station and Training Rig

3.47 The current fire station is located east of the terminal building, adjacent to the old control tower. The station has five bays for Rescue and Fire Fighting Service (RFFS) vehicles, in addition to space for offices, training, equipment support, and staff accommodation.

3.48 The recently upgraded fire training rig is situated on a disused section of the taxiway on the west of the airfield and is fitted with a steel replica Boeing 767 fuselage and a breathing apparatus heat and smoke chamber. These use pressurized hydro carbon fuel to simulate various emergency conditions during training exercises.

Airport Capacity and Constraints to Growth

Planning & Design Standards

3.49 Airports are developed using a variety of capacity standards. The International Civil Aviation Organisation (ICAO) and International Air Transport Association (IATA), publish various guides to recommended best practice. All airports have to comply with mandatory ICAO and CAA requirements, which have been applied to the Master Plan proposals, where appropriate.

Terminal Building

3.50 IATA identifies level of service standards (LOS) which are adopted on the basis of airline / passenger expectations and affordability. These service levels, together with benchmarking against similar sized regional airports, are used by the Airport to determine space standards and requirements (per passenger) for terminal facilities. Key measures relate to passenger flows through JLA when it is operating at capacity in the peak times in the summer season (i.e. the busy hours). Currently, JLA can be considered to have a LOS value of D or 'adequate' level of service during peak times,

as outlined by IATA, while the accepted industry standard for a regional airport is a value of C or greater.

3.51 These service levels are becoming increasingly important as airlines (and passengers) demand low charges, but equally require improved operational performance. This presents challenges and requires the Airport to maximise revenues while meeting passenger demands. The Airport aims to provide sustainable capacity with operational efficiency at JLA. However, in order to achieve those aims in the light of forecasted growth, it will be necessary to improve the standard of the terminal to at least a category C level through future developments.

3.52 The existing terminal was constructed in 2001 and planning permission was granted for an extension of the terminal to the west shortly after.[29] Additional floor space has since been constructed to provide more gate lounges and improved internal flexibility and scope exists under that consent to provide further floor space. Current processing areas; i.e. check-in, security search, immigration, baggage reclaim, outbound baggage system, gates etc. are becoming increasingly constrained.

3.53 The Airport is currently installing covered walkways externally to offer passengers protection while queuing to enter the terminal for immigration processing or while walking from the terminal to their aircraft. These will help in the immediate future, but further improvements will be needed in the short term.

3.54 Despite the developments mentioned above, the terminal experiences long periods of congestion and over crowding during daily peak periods, particularly during the summer. This lowers the level of service available to passengers and inhibits the Airport's ability to work with airlines to achieve a more efficient operation. One serious consequence of this is that airlines could become discouraged from initiating or diversifying services such that passenger traffic is lost to other airports. Analysis shows that by providing floor space for which permission has been granted, sufficient capacity will exist in the terminal to provide key operational areas; e.g. outbound baggage and arrivals hall, to handle about 6mppa; i.e. the forecast throughput of passengers to about 2009. A number of piers, gates and apron areas will also need to be constructed under permitted development.

Apron

3.55 The existing apron currently has 28 stands able to accommodate a range of aircraft sizes. The CAA publishes stand standards based on aircraft design codes that are derived from a variety of criteria unique to every aircraft series. The apron currently comprises 21 code C, 5 code C+ (< Boeing 767), 1 code D, and 1 code E stand. Approximately 7 stands are designated to accommodate freight aircraft while the remaining 21 are designated for use by passenger aircraft.

3.56 Currently, up to 18 passenger aircraft may occupy the apron at the same time. This leaves capacity for only 3 additional passenger aircraft before the maximum capacity of the apron is reached (provided freight throughput stays constant). The limited type of aircraft a stand can accommodate, together with overall apron space, restricts operations and emphasises the need to reconfigure the apron to meet the demands of forecasted traffic.

The Airfield

3.57 Simulations have shown the current single runway airfield layout is suitable to cope with forecasted traffic to European passenger

29 Liverpool City Council ref. 01F/2860 dated 5 February 2003.

destinations. However, the runway length hinders the Airport's ability to attract new carriers to JLA and to diversify its destination portfolio and, importantly, prevents it from catering for cargo aircraft serving longer range destinations in emerging markets (see Chapter 6).

3.58 To combat these constraints, the White Paper supports the extension of the runway.[30] This would allow JLA to realise its cargo potential by enabling carriers access to a wider range of destinations allowing for long haul passenger services. The location of Dungeon Lane, close to the eastern end of the runway, places it within the Runway End Safety Area[31] (RESA). This does not accord with modern accepted standards, which at some point will require the closure of Dungeon Lane. The presence of the landing lights outside the airfield boundary is also becoming increasingly unacceptable.

Surface Access and Airport Circulation System

3.59 Access to JLA, and its associated internal circulation systems, has been incrementally improved as it has grown. The highway network serving JLA is capable of accommodating further growth in the short term. In the medium to longer term it will be necessary to consider provision of a new eastern access route along an Eastern Access Transport Corridor (EATC) (see Chapter 8). Detailed transport modelling to inform the timing and nature of such investment is ongoing in collaboration with Liverpool City Council.

3.60 JLA has an Airport Surface Access Strategy (ASAS)[32] that forms part of the Master Plan, which seeks to increase the proportion of journeys by public transport. In support of this objective, it is planned to develop a public transport interchange (PTI) at JLA. This will provide a covered terminus for all bus services with direct access to the terminal. The interchange will also be capable of being served by any future light rapid transit (LRT) system serving JLA.

3.61 As part of planned expansion, the capacity of internal roads and car park access and egress arrangements will need to be increased with provision for segregated public transport access in order to maximise the operational efficiency of bus services and maintain necessary standards of security. This will result in the creation of a one-way circulation system serving the bus stops (and future PTI), taxi rank and car parks.

Services Infrastructure

3.62 As JLA grows and the regeneration of South Liverpool continues, existing services and utilities infrastructure will require significant investment. Improvements to infrastructure are ongoing but it remains, in some cases, outmoded. The Airport will continue to ensure that there is adequate capacity in its services and utilities, and that there is development of additional capacity; e.g. through selective reinforcement in line with the proposals in the Master Plan. In addition, appropriate facilities will be safeguarded for key operational functions such as stand-by electricity generators and water supply and storage for fire fighting. The Airport aims to develop a network of services corridors, where practical, to provide an efficient service and utility distribution system throughout JLA.

30 'The Future of Air Transport', Department for Transport, (2003), para. 8.20.

31 RESA is an area that must be kept free of above ground obstructions and which is secured to prevent unauthorised access.

32 See 'Guidance on Airport Transport Forums and the preparation of Airport Surface Access Strategies', Department of Environment, Transport and the Regions, (1999).

4. National & Local Policy Context

Aspects of Policy

4.1 Various aspects of national, regional and local policy have a bearing on the future growth and development of JLA. These include:

- national policies, such as the White Paper, which sets a long term strategic framework for the development of airports;
- regional policies which establish economic objectives, set transport priorities and relate these spatially within a sustainable framework; and
- local policies which seek to ensure that the social and economic benefits of development are balanced with the need to protect the environment.

4.2 Additional controls are exercised by regulatory bodies and the Airport also operates policies of its own to manage and mitigate environmental impacts.

4.3 This Master Plan is part of an iterative process. As proposals respond to the prevailing policy context they are in turn to be taken into account in the formulation of future policy. This Chapter summarises current policies that have been considered in planning the future of JLA. It also sets out the key statutory and regulatory requirements with which development must comply.

National Policy

'The Future of Air Transport' White Paper (2003)

4.4 The White Paper is the Government's strategic policy statement on airports, and is the starting point for the preparation of airport Master Plans. Prior to its publication, a number of regional air service consultation studies, including for the North of England, were carried out. The Regional Air Services Coordination Study (RASCO) consolidated the various studies and its final report was published in 2002.[33]

4.5 The White Paper is based on the principles of sustainable development set out in the 'UK Sustainable Development Strategy' (1999) and seeks to optimise the social and economic benefits of increased air travel whilst managing its environmental impacts.

The principles of sustainable development:

- maintenance of high and stable levels of economic growth and employment;
- social progress which recognises the needs of everyone;
- effective protection of the environment; and
- prudent use of natural resources.

4.6 The Government has updated its approach towards delivering sustainable development in 'Securing the Future – UK Government Sustainable Development Strategy'[34]. The new strategy, which puts greater emphasis on 'quality of life outcomes' than previous strategies, sets five principles that will guide future policy:

- living within environmental limits;
- ensuring a strong, healthy and just society;
- achieving a sustainable economy;
- promoting good governance; and
- using sound science sensibly.

4.7 The proposals to support the future growth of JLA set out in this Master Plan will be guided by these principles.

4.8 The purpose of the White Paper is described as being to:

- "provide a clear policy framework against which the airport operators, airlines, regional bodies and local authorities can plan ahead. The lack of such a framework has been a

33 Regional Air Services Co-ordination Study (RASCO), Final Report, Department for Transport, (2002).

34 'Securing the Future – UK Government Sustainable Development Strategy', Department for Environment, Food and Rural Affairs, (2005).

serious hindrance to the efficient development of airports in this country, resulting in over-lengthy planning inquiries and unnecessary delay;
- give greater certainty wherever possible to those living close to airports and their flight paths. Again, the lack of a clear long-term strategy and the slow progress of decision-making has helped create unnecessary blight, uncertainty and distress for many people;
- take a view of the long-term demand for air travel and airport capacity, both for the country as a whole and across regions, and of the best long-term strategy to respond to that demand, rather than addressing each separate proposal in a piecemeal and uncoordinated fashion;
- set out a strategic and sustainable approach to balancing the economic benefits of airport development, the social benefits of easier and more affordable air travel, and the environmental impacts that air travel generates; and
- ensure that airport development is properly linked in to our wider transport strategy and to our other transport networks."[35]

4.9 Accordingly, the White Paper adopts a balanced approach to meeting future air transport needs which:

- "recognises the importance of air travel to our national and regional economic prosperity, and that not providing additional capacity where it is needed would significantly damage the economy and national prosperity;
- reflects people's desire to travel further and more often by air, and to take advantage of the affordability of air travel and the opportunities this brings;
- seeks to reduce and minimise the impacts of airports on those who live nearby, and on the natural environment;
- ensures that, over time, aviation pays the external costs its activities impose on society at large – in other words, that the price of air travel reflects its environmental and social impacts;
- minimises the need for airport development in new locations by making best use of existing capacity where possible;
- respects the rights and interest of those affected by airport development; and
- provides greater certainty for all concerned in the planning of future airport capacity, but at the same time is sufficiently flexible to recognise and adapt to the uncertainties inherent in long-term planning."[36]

4.10 The Government seeks to achieve this balanced approach through encouraging:

"the growth of regional airports to serve regional and local demand, subject to environmental constraints. This will have a number of benefits, including:
- supporting the growth of the economies of Scotland, Wales, Northern Ireland and the English regions;
- relieving congestion at more over-crowded airports, particularly in the South East, and therefore making better use of existing capacity;
- reducing the need for long-distance travel to and from airports; and
- giving passengers greater choice."[37]

35 'The Future of Air Transport', Department for Transport, (2003), para. 1.6.
36 Ibid, para. 2.18.
37 Ibid, para. 4.35.

4.11 In the context of a national plan for increasing airport capacity, the White Paper provides for continued growth of passenger and cargo services at JLA:

> "Liverpool John Lennon Airport has seen rapid recent growth, providing a welcome boost to the local economy. Passenger numbers have quadrupled in the last five years, mainly as a result of expansion by 'no-frills' airlines, and are now approaching 3.5 mppa. Forecasts suggest that by 2030 throughput could be two or three times current levels, and the airport's master plan caters for up to 12 mppa.
>
> Noise levels at the airport are rising because of the very large increase in operations from a low base, and will continue to do so as traffic volumes increase. However, the number of people affected is, and should remain, relatively low.
>
> The Government therefore considers that the airport's capacity should continue to grow to accommodate increased demand. This growth will require further terminal capacity, but there is land available for this within the existing site.
>
> There may in the future be a case for extending the runway to around 2,700 metres, if required for long-haul charter and freight operations. This would be acceptable provided there is no encroachment on the River Mersey Site of Special Scientific Interest, Ramsar site and Special Protection Area.
>
> The airport will also need to continue to work with regional and local partners and surface transport providers to bring forward surface access enhancements that will be needed to cater for increased passenger volumes. These should include improved public transport links."[38]

4.12 The Progress Report on the White Paper refers to proposals in the Master Plan and states that:

> "Liverpool Airport is a leading 'no-frills' airport in the North of England, handling 4m passengers in 2003 and operating to over 90 destinations. Liverpool proposes a runway extension in the early part of the next decade. Additional terminal capacity and improved surface access are also necessary to meet future demand. The airport also has plans to establish a world cargo centre."[39]

4.13 The White Paper, 'The Future of Transport' (2004), recognises the need to provide for air freight:

> "The speed of delivery that air freight can offer is an increasingly important factor for many modern businesses, especially where just-in-time practices and high value commodities are concerned. The Air Transport White Paper expressed the Government's wish to accommodate the anticipated growth in the demand for air freight, subject to the satisfactory resolution of environmental concerns, especially in respect of night noise."[40]

4.14 'The Future of Transport' White Paper reflects the conclusions of 'Sustainable Distribution: A Strategy'[41] that demand for the transport of goods by all modes must continue to be met sustainably by balancing the needs of the economy with social and environmental considerations.

38 'The Future of Air Transport', Department for Transport, (2003), paras. 8.17-8.21.
39 'The Future of Air Transport Progress Report', Department for Transport, (2006), page 61 (2006).
40 Ibid, para. 7.4. See also paras. 4.28-4.30 in 'The Future of Air Transport', Department for Transport, (2003).
41 Department of Environment, Transport and the Regions, (1999).

4.15 Government guidance[42] encourages airport companies to produce an ASAS. The main purpose of an ASAS is to encourage shift from access by car to more sustainable travel and to devise strategies for achieving these targets which can be incorporated into Local Transport Plans and Regional Transport Strategies. Progress towards these targets is monitored by an Airport Transport Forum (ATF).

4.16 JLA first prepared an ASAS and established its ATF in 2000. The ASAS has been regularly reviewed as JLA has grown. Initial targets for public transport usage have been achieved and further challenging targets have been agreed in the context of this Master Plan (see Chapter 9).

Climate Change

4.17 The White Paper states that the aviation sector needs to take its share of responsibility for tackling the problem of climate change[43] and to putting the UK on a path to a reduction in carbon dioxide emissions by some 60% from current levels by 2050. The Government believes that the best way of ensuring this is through a well designed international emissions trading regime. It is pressing for the development and implementation through the ICAO of such a regime. In the short term, however, the Government is seeking the inclusion of intra-EU air services in the EU Emissions Trading Scheme (ETS)[44] from 2008, or as soon as possible thereafter – an approach supported by Sustainable Aviation[45], of which the Airport is a signatory. The European Commission has since put forward a proposal to include flights within the EU in the ETS from 2011 and all flights to and from EU airports from 2012. The Government is now looking to the German and Portuguese presidencies of 2007 to give this issue priority to enable negotiations to progress.[46]

4.18 Two important reports to HM Treasury in 2006 have addressed the issue of climate change and make clear that transport should cover the full costs of its own climate impacts. Sir Nicholas Stern's report[47] on the economics of climate change has identified emissions trading and new technology as the key to tackling this global problem. He argues that the challenge of preventing dangerous climate change can be met, at a lower cost, if international cooperation involving Europe and the US and China is stepped up. Sir Rod Eddington's report[48] on the links between transport and the UK's economic productivity recognises the vital role that aviation has to play in the UK's prosperity and quality of life, with international gateways identified as a key strategic priority for future economic competitiveness. The inclusion of aviation in an ETS, endorsed by Sir Nicholas Stern, is recognised as the means by which the industry would cover the cost of its climate impacts.

4.19 In February 2007 Air Passenger Duty for those people leaving the UK was doubled from £5 to £10 for the majority of flights out of JLA. Presented by the Government as an environmental tax on aviation, the extra money raised by the increase should, according to the Government, be spent on improving public transport.

42 'Guidance on Airport Transport Forums and the preparation of Airport Surface Access Strategies', Department of Environment, Transport and the Regions, (1999).
43 For example, see The Special Report of The Royal Commission on Environmental Pollution (2002), 'The Environmental Effects of Civil Aircraft in Flight' that expresses deep concern about the global impact on climate change of the rapid growth in air travel.
44 'The Future of Air Transport', Department for Transport, (2003), Annex B. The EU ETS has been in operation since 2005 and is one of the policies implemented across Europe to tackle emissions of carbon dioxide and other greenhouse gases, thereby combating the serious threat of climate change. It covers around 1000 installations in the UK and more than 12,000 across the EU.
45 See 'A Strategy Towards Sustainable Development of UK Aviation' (2005).
46 Department for Environment, Food, and Rural Affairs, News Release, 2 December 2005.
47 'Stern Review on the Economics of Climate Change', HM Treasury and Cabinet Office, (2006).
48 'Eddington Transport Study', HM Treasury and Cabinet Office, (2006).

Planning Policy Statements

4.20 National planning policy is contained in Planning Policy Guidance (PPG) and Planning Policy Statements (PPS). These policies, and the compliance of particular development proposals, will be considered in detail as part of any future planning applications. The provisions of this Master Plan have, however, had regard to the main themes of national policy.

Delivering Sustainable Development (PPS1)

4.21 PPS1 sets out the overarching planning policies on the delivery of sustainable development through the planning system. It states that sustainable development should be pursued in an integrated manner that promotes outcomes in which environmental, economic and social objectives are achieved together over time. Development plans should contribute to global sustainability by addressing the causes and potential impacts of climate change through policies which reduce energy use, reduce emissions; e.g. by minimising the need to travel by private car, promote the development of renewable energy resources and take climate change impacts into account in the location and design of development[49]. Other key principles relate to the promotion of inclusive access to meet people's diverse needs and community involvement in decision making.

Transport (PPG13)

4.22 PPG13 sets out the Government's commitment to sustainable travel. It seeks to co-ordinate land use and transport policy to minimise the need to travel and maximise opportunities for walking, cycling and public transport use. This includes making provision for walking and cycling, facilitating reliable and efficient public transport access, and managing car parking to support these objectives. Details of measures planned as part of this Master Plan are set out in the ASAS. PPG13 indicates that local planning authorities should consult the Airports

Policy Division of the DfT on draft development plan policies and proposals relating to airports and airfields. In consultation with DfT Airports Policy Division, local planning authorities should:

- identify and, where appropriate, protect sites and surface access routes, both existing and potential (including disused sites), which could help to enhance aviation infrastructure serving the regional and local area; and
- avoid development at or close to an airport or airfield which is incompatible with any existing or potential aviation operations.

4.23 PPG 13 states that local authorities will need to consider:

> "The growth of regional airports: many are at a point where the introduction of new services is becoming increasingly attractive and where higher utilisation, and thus economics of scale, may be achieved. The New Deal for Transport encourages regional airport growth to cater for local demand where it is consistent with sustainable development."[50]

49 See 'Planning and Climate Change: Supplement to Planning Policy Statement 1 (Consultation)', Department for Communities and Local Government, (2006).

50 PPG 13: Transport, Annex B, para. 5.

4.24 PPG 13 recognises that airports have become major transport interchanges and road traffic generators[51]. Local planning authorities are encouraged to consider the extent to which development, including terminal facilities, transport interchanges and car parking, is related to the operation of the airport, and is sustainable given the prevailing and planned levels of public transport.

4.25 PPG 13 advises that:

> "surface access needs should be planned as part of the wider transport strategy for the local area. Local transport plans should reflect the wider transport role defined for airports in regional strategies… This may involve for example, parking restraints and the development of a travel plan for the airport…"[52]

4.26 In terms of the location of aviation related development, PPG 13 goes on to state that:

> "the environmental impacts of aviation proposals will always need to be carefully considered. Existing sites with established aviation uses… will often provide the best opportunities for aviation facilities, in so far as neighbouring development is likely to be compatible with aviation use."[53]

Green Belt (PPG2)

4.27 PPG2 sets our national policy for Green Belts. It provides that development within the Green Belt should only be allowed in "very special circumstances" and that Green Belt boundaries in development plans should only be altered in "exceptional circumstances" and where "defensible" boundaries are maintained. Green Belt issues arising out of the Master Plan proposals are discussed in Chapter 7.

Noise (PPG24)

4.28 PPG24 provides guidance on acceptable levels of noise in respect of developments that generate noise and land uses which are sensitive to noise. It does so with reference to "Noise Exposure Categories" related to the extent and duration of noise. JLA monitors noise associated with its activities and has published noise contour diagrams which illustrate the areas most affected by aircraft noise. Modelling of potential future noise impacts is an important part of this Master Plan (see Chapter 11).

Tourism (PPG21)

4.29 PPG21 states that:

> "Tourism makes a major contribution to the national economy and to the prosperity of many cities, towns and rural areas. Its continuing growth generates a range of economic activity and new job opportunities."[54]

4.30 PPG21 recognises that the tourism industry is a major employer within the UK. The guidance goes on to promote and encourage the growth of tourism and advises that a sustainable balance should be found between tourism and the environment.

51 PPG 13: Transport, Annex B, para. 7.
52 Ibid, para. 8.
53 Ibid, para 9.
54 PPG 21: Tourism, para. 1.9.

Biodiversity and Geological Conservation (PPS9)

4.31 PPS9 seeks to protect features of ecological interest and promote biodiversity. It provides that new development should have minimal impacts on biodiversity and enhance it wherever possible. The accompanying Circular 06/05 sets out the statutory obligations, including the Wildlife and Countryside Act 1981 and the Conservation (Natural Habitats &c) Regulations 1994, in respect of such interests and their impact on the planning system. This Master Plan has had particular regard to the location of JLA close to the sensitive and internationally recognised coastline of the Mersey Estuary (see Chapter 11).

Other Planning Policy Statements

4.32 PPGs and PPSs cover a range of other social and environmental issues which are relevant to this Master Plan. For example, PPGs 15 (Planning and the Historic Environment) and 16 (Archaeology and Planning) advise that development should respect the cultural heritage value of its surroundings. In particular, development must preserve and enhance listed buildings and their settings, conservation areas and scheduled ancient monuments. PPS7 (Sustainable Development in Rural Areas) seeks to safeguard rural environments and landscape quality. It advises that all new development should respect and where possible enhance its landscape setting. The proposals in the Master Plan are assessed in terms of their potential impacts on cultural heritage, ecology and landscape in Chapter 11.

Regional Policy

Regional Spatial Strategy

4.33 The Regional Spatial Strategy (RSS) for the North West[55] is part of the statutory development plan which applies to JLA, and is produced by the North West Regional Assembly. It sets the context for local planning, transport (through the incorporation of the Regional Transport Strategy (RTS)) and regeneration policies. The overarching objective of the RSS is to promote sustainable patterns of development[56].

4.34 It recognises that economic growth must be sustainable and should therefore support the renaissance of the Region's urban areas, foster greater levels of social inclusion and safeguard environmental quality.

4.35 The RSS, therefore, gives priority to the:

> "development and resources which will enhance significantly the economic strength, complementarity of roles, overall quality of life, environmental enhancement, and social regeneration within: the city centre of Liverpool and its surrounding inner area…and will enhance the major, strategic infrastructure which supports them."[57]

4.36 The RSS recognises that a high quality transport system is essential to support the Region's competitiveness and attract investment. It requires development plans to capitalise on the economic activity that is sustained and generated by the Region's airports in accordance with the principles of sustainable development.

55 This was formerly 'Regional Planning Guidance for the North West', (RPG 13) (2003) produced by the Government Office for the North West prior to the introduction of RSS in the Planning and Compulsory Purchase Act 2004 as part of the statutory development plan system.

56 See also 'Action for Sustainability: The Regional Sustainable Framework for the North West, North West Regional Assembly: www.actionforsustainability.org.uk

57 'Regional Planning Guidance for the North West', (RPG 13) (2003), para. 3.6.

4.37 The RSS recognises the recent growth of JLA and its capacity to be developed further:

> "Liverpool John Lennon Airport has the potential to sustain further growth, and become an important gateway for Merseyside and the second airport for the North West. This can be achieved by specialising in complementary roles to Manchester, for example, niche markets: charter, freight and low-cost services, and scheduled services for local business and leisure travellers on core routes. The opportunity exists to develop its mail facility into a freight centre. Public transport links are currently poor, with access mainly by car. Further investment and improvement in public transport infrastructure will be required to provide opportunities for a greater shift for both passengers and the workforce."[58]

4.38 The RSS (and RTS) is in the process of being reviewed and updated. The draft of the North West Plan was submitted to the Secretary of State in January 2006. Public consultation on the draft took place between March and June 2006. An examination in public[59] commenced in autumn 2006 and ended in early 2007. The Panel report was published in spring 2007. The Secretary of State's Proposed Changes are due to be published in autumn and the finalised version in late 2007.

4.39 The draft replacement RSS reaffirms that a strong regional economy is vital to the prosperity and quality of life of the residents of the North West. It maintains support for the economic activity sustained and generated by the airports and it provides that future plans should be based on the strategic framework of the White Paper. It provides that in determining requirements for physical extension beyond the existing airport boundaries, proposals should take into account the scope to intensify within current boundaries; the scope to relocate non essential functions off-site; and the scope for developing other facilities off-site. The relevant policies, as recommended by the Panel, are set out below.

4.40 Policy DP1 sets out the sustainable development principles that should underpin the RSS and RTS. It states:

> "Other regional, sub-regional and local plans and strategies (including documents such as the RES, RHS and RFA, non land-use strategies such as health and education, subregional plans such as the City Region Development Plans or the West Cheshire/North East Wales Strategy, LDDs, SPDs, and Local Transport Plans) and all individual proposals, schemes and investment decisions should adhere to these principles. All may be applicable to development control in particular circumstances:
>
> - Promote sustainable communities;
> - Promote sustainable economic development;
> - Make the best use of existing resources and infrastructure;
> - Manage travel demand and reduce the need to travel, increase accessibility and seek to marry opportunity and need;
> - Promote environmental quality;
> - Safeguard rural areas;
> - Reduce emissions and adapt to climate change.
>
> The seven Policies DP2-8 amplify these principles and should be taken together as the spatial principles underlying the Strategy.
>
> They are not in order of priority.
>
> The whole of the RSS should be read together and these principles should be applied alongside the other policies which follow."

58 Ibid para. 10.15.

59 Where representations on the key issues of the draft RSS are discussed and considered by an independent panel.

4.41 In recognition of both the role of Liverpool as the core city and major economic driver for its City Region, and its transport connections, Policy LCR1: Liverpool City Region Priorities, seeks to develop the role of JLA in line with Policy RT5: Airports, and support the roles of the Mersey Ports[60] in line with Policy RT6: Ports. LCR1 seeks to promote development in locations that can contribute to the priorities identified. The relevant sections are as follows:

"Plans and strategies in the Liverpool City Region should:

- Improve the City Region's internal and external transport links in line with the priorities for transport investment and management set out in Policy RT9;
- Support and develop the roles of Liverpool John Lennon Airport and the Merseyside Ports, in line with Policies RT5 and RT6, especially the Port of Liverpool as the only Port of national significance for deep-sea trade in the North of England;
- Develop the role of Liverpool as a key public transport interchange and gateway to the Region in line with Policy RT3 and enhance the accessibility of the Regional Centre, particularly by public transport walking and cycling to support its role as the main economic focus for the City Region.

Proposals and schemes should be directed primarily towards locations where they can contribute to these priorities."

4.42 Policy RT5: Airports states:

"Plans and strategies should support the economic activity generated and sustained by the Region's airports, in particular, the importance of Manchester Airport as a key economic driver for the North of England and Liverpool John Lennon Airport for the Liverpool City Region.

Airport operators should implement surface transport initiatives which ensure that access by public transport for both passengers and staff is continually enhanced to reduce car dependency and ensure that all local environmental standards are met.

For Manchester, Liverpool John Lennon and Blackpool Airports, the future operational and infrastructure requirements, surface access demands and environmental impacts for each airport should be identified in Airport Master Plans and other relevant plans and strategies, based on the strategic framework for the development of airport capacity set out in the White Paper, 'The Future of Air Transport'.

Airport boundaries, as existing or as proposed, should be shown in local development documents. In determining requirements for the expansion of an airport beyond its existing boundary, account should be taken of:

- the scope for intensification and rationalisation of activities and facilities within the existing boundary;
- the scope for relocating existing activities or facilities off-site;
- the scope for developing proposed activities or facilities off-site.

Plans and strategies for airports and adjacent areas should include measures to regulate the availability of car parking space for passengers and staff.

In considering applications for development at airports, account will be taken of:

- the extent to which surface access and car parking arrangements encourage the use of public transport;
- the effect of the proposed development on noise and atmospheric pollution, and the extent to which this can be mitigated."

60 The ports of Liverpool, Birkenhead, Garston and the Manchester Ship Canal.

4.43 JLA, on the whole, is outside the Merseyside Green Belt, but the control tower and radar to the south of the runway and the approach lighting land to the east are within it. The draft RSS provides that the need for a review of Green Belt boundaries should be the subject of a strategic study of development needs. The Regional Assembly's consultants, White Young Green, have carried out such a study[61] and its findings inform the draft RSS.

4.44 Policy RDF5: Green Belts provides that, overall, the general extent of Green Belt will be maintained and provides that exceptional, small scale changes, including those to meet operational aviation related infrastructure requirements of JLA (and Manchester Airport) should be considered through the Local Development Framework process. (This is further explained in the supporting text at para 7.21). The policy states:

> "Overall the general extent of the Region's Green Belt will be maintained.
>
> There is no need for any exceptional substantial strategic change to Green Belt and its boundaries in the North West within the timescales set out below:
>
> After 2011 the presumption will be against exceptional substantial strategic change to the Green Belt in Cheshire, Greater Manchester, Lancashire or Merseyside.
>
> If potential changes are identified they should be investigated by strategic studies, undertaken by NWRA, together with the relevant local stakeholders. The findings will inform future reviews of RSS and subsequent reviews of plans and strategies."
>
> "Local Development Frameworks may provide for detailed changes in Green Belt boundaries to accommodate the expansion of Manchester Airport and Liverpool John Lennon Airport; and to provide for an inter-modal freight terminal at Newton-Le-Willows.
>
> Subject to the agreement of NWRA, any other local detailed boundary changes should be examined through the LDF process."

4.45 The Technical Appendix to the draft RSS in respect of airports states that:

> "Airports are playing an increasingly important role in the supply and distribution of goods, with air services having a vital role in reducing journey times and increasing accessibility, and hence improving economic efficiency and productivity. Supply chains are enhanced, with the majority of air freight being high value, low weight, just-in-time goods."[62]

4.46 Policy RT7: Freight Transport includes a provision to deal with the growth of air freight at the region's airports. It states:

> "Local authorities should work with airport operators to facilitate the development of air freight at the region's airports, in line with the

New development at Liverpool International Business Park

61 'Merseyside Green Belt Study', prepared on behalf of the North West Regional Assembly, (December 2004).
62 Technical Appendix to the draft 'North West Plan', North West Regional Assembly, (2006), para. 5.241.

White Paper 'The Future of Air Transport', particularly having regard to the need to minimise and mitigate environmental impacts (including night noise)."

4.47 The North West Regional Freight Strategy (2003), which itself informs the RTS, recognises that airports:

"…serve an important role in attracting inward investment, which helps to stimulate and sustain the growth of local businesses by opening up new markets,' and are, 'frequently the focus of clusters of businesses serving the aviation industry directly, or requiring frequent access to air services…"[63]

Regional Economic Strategy

4.48 The Northwest Regional Economic Strategy (RES) (2006), prepared by the Northwest Regional Development Agency, seeks to transform the economy by building on the region's assets and tackling under performance. The RES establishes a clear vision of:

"A dynamic, sustainable, international economy which competes on the basis of knowledge, advanced technology and an excellent quality of life for all where… Manchester and Liverpool are vibrant European cities… and… Key Growth Assets (including Airports) are fully utilised..."[64]

4.49 The RES identifies three major drivers of the economy:[65]

- to improve productivity and grow the market;
- to grow the size and capability of the workforce; and
- to create and maintain the conditions for sustainable growth and private sector investment.

4.50 The factors and objectives[66] which influence these drivers include several of direct relevance to JLA:

- to maximise opportunities from globalisation and emerging markets;
- to realise opportunities from international trade;
- to develop airports and ports;
- to develop the quality of the visitor experience; and
- to support and sustain conditions for growth in areas with strong economic drivers.

4.51 Specific references to JLA are also made in the following Action Points in the RES:

- Action Point 72: to grow JLA as set out in the White Paper for the reason that it acts as a driver for the knowledge-based economy and tourism, supports the City Centre and improves the region's image.
- Action Point 75: to support the development of more international business an inbound tourism and routes serving the region's airports.
- Action Point 96: to support Liverpool European Capital of Culture 2008 to maximise the full economic benefit. JLA, as a major international gateway, is in the position to provide a good, welcoming visitor experience that will enhance the reputation of not only JLA, but Liverpool and the North West region as well.

4.52 The RES expressly supports the growth of JLA as a 'Transformational Action' on the basis that it is fundamental to achieving the vision.[67]

Northern Way – Liverpool City Region

4.53 The key themes of the RSS and RES are drawn together in the Northern Way initiative. This has a central objective of reducing the £30 billion

63 'North West Regional Freight Strategy', North West Freight Advisory Group, (2003), page 36.
64 'Northwest Regional Economic Strategy, Northwest Regional Development Agency, (2006), page 3.
65 Ibid, page 5.
66 Ibid, page 6.
67 'Northwest Regional Economic Strategy, Northwest Regional Development Agency, (2006), Annex A.

output gap between the North of England and the rest of the UK. The Northern Way identifies eight City Regions, including Liverpool, which will be the focus for development and growth.

Liverpool City Region Development Programme

4.54 The Liverpool City Region Development Programme has been assembled under the overview of The Mersey Partnership through an operational group chaired by Liverpool City Council and comprising the local authorities of Wirral, St Helens, Knowsley, Sefton and Halton and other stakeholders. The Mersey Partnership published its Strategic Proposals document in 2005 which identifies JLA as an opportunity for a step change in the region's economy:

> "the fast growth and further potential as a magnet and economic driver in its own right of John Lennon Airport – the fastest growing regional airport in the UK – opening up new connections with national and international markets, benefiting the development of the city region economy."[68]

4.55 The five strategic priorities in the Strategic Proposals document include: 'The Well Connected City Region'. Focussing on the 'key assets' of the 'Ports' of Liverpool and JLA, it identifies the Liverpool City Region as, "the sea and air gateway to the North West, connecting North America, Ireland, and Northern Europe and serving international, national and regional markets, investors and visitors", including the multi-modal NETA (see Chapter 2). Accordingly, together with other actions to support the 'Ports', Priority Action 3 seeks to, "Develop Liverpool John Lennon Airport as an international airport serving global destinations."[69] Key interventions by The Mersey Partnership include infrastructure investments to support the expansion of JLA.

4.56 The Liverpool City Region is recognised in the Northern Way as a major economic asset for the North of England. Enhanced connectivity with regional, national and international markets is seen as being critical to delivering the necessary growth and expansion of the key economic assets.

4.57 The Northern Way Growth Strategy acknowledges the "substantial evidence to show that airports attract jobs", and adds that:

> "Companies who wish to locate on, or near, airports include direct suppliers of services to airport users, high value industries (such as electronic component distributors) – that are part of 'just in time' logistics networks heavily reliant on air freight services – and knowledge service industries (such as ICT companies) whose staff make frequent journeys by air to customers and suppliers."[70]

4.58 The Growth Strategy continues:

> "Across the North, there are significant opportunities for new office, industrial and warehouse developments in **close proximity to airports**."[71]

4.59 The Northern Way's 'Strategic Direction for Transport'[72] sets out the interventions needed over the next 20-30 years in terms of productivity gains. It states that:

> "There is clear evidence of the importance of access to international gateways for the growth sectors of the North's economy. Improved rail access to Manchester Airport and integration of

68 'The Liverpool City Region Transforming Our Economy: The Strategic Proposals', The Mersey Partnership, (2005), page 23.
69 Ibid, page 41.
70 Ibid, para. 6.12.
71 Ibid, para. 6.13, (original emphasis).
72 Published in 2007

the North's airports with local transport networks are required, along with rail gauge and capacity enhancements to the major northern ports."

Local Planning, Economic and Transport Policy

4.60 One of the main purposes of this Master Plan is to set out the proposals for growth at JLA in order that these can be taken into account in preparing future development plan documents. A number of existing local planning authority documents contain polices and statements applicable to JLA and its environs. These are referred to in general terms below. The relationship of the Master Plan proposals to these policies (or those that subsequently replace them) will be considered in detail as part of any future planning applications for particular developments.

4.61 Policy E4 of the Liverpool City Council Unitary Development Plan (UDP) (2002) states that:

"The City Council will support the expansion of Liverpool Airport as a major catalyst for substantial economic development activity in the city as a whole, and in the Speke Garston area in particular, provided that an acceptable balance is achieved in any development proposal between the projected economic benefits of expansion and its potential impact on the natural and built environment."

4.62 The policy sets out a series of detailed criteria against which proposals will be considered including impact on Green Belt and the special ecological and landscape value of the Mersey Estuary and coast.

4.63 The land outside the current boundary of JLA, to its east and south, including the site of a proposed runway extension, and the routes of the proposed EATC, is part of the Merseyside Green Belt. The current development plans of Liverpool City and Halton and Knowsley Borough Councils all provide that permission for development in the Green Belt would only be granted in very special circumstances.

4.64 As mentioned in Chapter 3, the Mersey Estuary is subject to a number of important designations (SSSI, SPA/Ramsar Site) as a result of its ecological value, particularly its ornithological interest. Its value is recognised at national and international level and its special interest and integrity must be safeguarded.

4.65 Land to the south in the Oglet, is designated in the Liverpool UDP as Undeveloped Coast. Policy OE4 provides that development unrelated to the coast, or its use for recreation, would not be permitted unless it could not realistically be located anywhere else in the city. Proposals to expand JLA would require mitigation and compensatory measures designed to minimise and to compensate for any damage to the coast's value for recreation, agriculture, amenity, nature conservation and archaeology[73]. The policy supports proposals to improve the coast's landscape quality and accessibility for recreation, whilst protecting its nature conservation interest.

73 Liverpool Unitary Development Plan, (2002), para 8.52.

4.66 Liverpool City Council is in the process of preparing the Core Strategy for its Local Development Framework (LDF) which will replace the existing UDP. Issues and Options consultation took place in early 2006 and Preferred Options consultation is scheduled to take place in September and October 2007. In developing the Core Strategy the City Council has acknowledged the growth of JLA and the potential need to expand onto land outside the existing site. Following Preferred Options consultation the City Council will prepare and submit for independent examination a final version of the Core Strategy setting out the City Councils strategic policies for JLA. Submission is expected to take place in May 2008 and the independent examination in December 2008. Adoption of the Core Strategy should then take place in September 2009. Subsequently other development plan documents such as a land Allocations plan or an area action plan will also be produced which will deal with the detailed site issues that cannot be addressed in the Core Strategy.

4.67 The Merseyside Local Transport Plan 2006 - 2011 supports the economic growth of JLA and acknowledges that:

> "the Airport is a major employer, promotes economic growth and regeneration and provides international business and leisure links to Europe."[74]

4.68 In respect of the proposed EATC, it confirms that:

> "The scheme is vital to the wider city-region growth strategy and is fully supported, in principle, as part of the LTP's transport strategy."[75]

4.69 Parts of the preferred route of the EATC are within Halton and Knowsley (see Chapter 7). The Halton UDP (2005) acknowledges that Manchester and JLA have a role to play in the local economy by promoting investment and regeneration and by providing employment opportunities. These airports are recognised as important elements of the transport network for both passengers and freight. Policy TP20: Liverpool Airport, provides that measures to improve surface access to JLA, which accord with the ASAS, will be supported. It also provides support for minor works required to maintain the safe operation of JLA.

4.70 The second Halton LTP (2006) endorses the growth of JLA and the construction of the EATC.[76] Policy T1: An Integrated Transport System, of the Knowsley UDP (2006) recognises the importance of JLA to Merseyside's economy and provides that the Council will support further development to facilitate this, including new access roads:

> "2. The Council will use its powers as Local Planning Authority to support the following strategic schemes within the Plan period:
>
> d, Further development which is required for the expansion of Liverpool Airport in accordance with its Surface Access Strategy…"[76]

4.71 Each of the development plans for Liverpool City, Knowsley and Halton Borough Councils contains policies that seek to protect environmental quality; e.g. safeguard and enhance landscape character, protect nature conservation interest and preserve or enhance listed buildings, conservation areas and ancient monuments. Of particular relevance to the Speke Hall Estate, Liverpool City Council UDP includes policies that seek to safeguard the

74 'The Merseyside Local Transport Plan 2006–2011', (2006), para. 7.92.
75 Ibid, para. 7.104.
76 Halton Borough Council Final Local Transport Plan 2006/7 to 2010/11, para 4.5.1

setting of listed buildings (HD5); protect ancient monuments (HD16) and defend important areas and views within the Mersey Coastal Zone (OE4).

4.72 The Halton UDP includes policy GE22 that seeks to protect ancient woodlands, including Mill Wood and Hopyard Wood, in Hale that lie to the north east of JLA, close to the route of the EATC, for their ecological and landscape importance. Other policies relate to the JLA Public Safety Zone (PR9) and aerodrome safeguarding (PR10).

4.73 The Vale Royal Borough Local Plan (2006) profiles Vale Royal as a highly accessible location for business and for the promotion of tourism and leisure activities through its links to JLA.

Economic Regeneration Initiatives in the Speke Garston Area

4.74 There has been a long history of economic development activity in the Speke Garston area of Liverpool since the decline in manufacturing industry and Garston Docks in the 1970s. In 1995 the Speke Garston Partnership was established and with its partners, including South Liverpool JET and Sure Start Speke, promoted economic development initiatives focused on the community, education and training for local people. Funding of initiatives has been available since the mid 1990s via Objective One of the European Regional Development Fund (ERDF) (see below). In 2003 Objective One funding continued through the designation of the Speke Halewood Strategic Investment Area (SIA). The core projects for Speke Halewood have made the maximum contribution towards driving the economy forward by creating wealth and generating jobs, whilst making links between the areas of opportunity and communities with needs. The successful delivery of the Speke Halewood SIA is heavily reliant on the growth of JLA.

Objective One Funding

4.75 The Merseyside Objective One Single Programme Document (SPD) for 2000-06 identifies four priorities: Priority 1 – Developing Business; Priority 2 – Developing People; Priority 3 - Developing Locations; and Priority 4 – Developing Pathways Communities. European Commission guidance on the ERDF emphasises that improvements to transport infrastructure are a central part of increasing competitiveness and support economic development. JLA is identified in the SPD SWOT analyses as a key strength, both generally for the sub-region and under Priorities 1 and 3. In setting the context for the programme, the SPD notes, “the port and airport have grown substantially in passenger and freight handling with particular prospects in niche freight markets and linkages with the larger North West region.” It states that JLA (and the port) are key elements in developing export linkages, and assist in promoting and developing Merseyside’s business image.

4.76 Considering the environmental impacts of freight transportation, the SPD notes that the transport of goods underpins activity and its efficiency is highly important. JLA is highlighted as having an important role to play in the transport of freight.

4.77 Numerous development proposals funded through Objective One have been linked to the expansion of JLA, including measures to improve its profile, image and accessibility for visitors. Specific development proposals include improvements to the terminal and apron capacity, environmental enhancements and strategic public transport improvements.

4.78 In the North West, the Objective One Structural Fund was replaced at the end of 2006 by the Competitiveness Fund. However, Merseyside qualifies for ‘phasing in' transitional funding,

worth around £300m to 2013, to cushion the withdrawal of the Objective One programme. Potential therefore remains for JLA to receive financial support for infrastructure and marketing in the short and medium term through the Northwest Development Agency who will manage these funds.

Mersey Waterfront

4.79 The Mersey Waterfront programme seeks to capitalise on the coastal and waterfront assets of the whole of Merseyside. The idea of harnessing the waterfront assets in a strategic manner emerged around 2001 in direct response to a growing recognition of the potential role of the waterfront in driving economic growth within the sub-region. The programme delivered through a pan-waterfront strategic partnership, was initially established with £8.5 million of funding from the North West Development Agency and is now supported by £13.25 million of Objective One funding. To date the programme has funded about 35 projects covering a number of themes: the ports and maritime cluster; Estuary development and management; tourism; and sport. One such project is the Speke Garston Coastal Reserve that Peel as a group along with other stakeholders, including the Mersey Basin Campaign, is involved in implementing (see Chapter 8).

Aerodrome Safeguarding Regulations

4.80 JLA (along with other major UK airports) is officially safeguarded as shown on plans prepared by the CAA (see Chapter 12). The safeguarding of aerodromes includes a process of consultation between local planning authorities and airport operators. This process:

- ensures that an airport's operation is not inhibited by developments, buildings or structures in the vicinity which exceed certain heights;
- protects visual flight paths; e.g. by ensuring that runway approach lighting is not obscured by development and that lights elsewhere cannot be a cause of confusion;
- protects the accuracy of radar and other electronic aids to air navigation (including from wind farm developments within 30 km (18.6 miles) radius of airports); and
- reduces the hazard from bird strikes to aircraft, associated with such land uses as waste disposal and sewage treatment, areas of water and large landscaping schemes. JLA has a dedicated Bird Control Unit to monitor bird activity and provide bird detection and bird dispersal measures[77].

4.81 The development proposals in this Master Plan must comply with safeguarding requirements.

Airport Design Criteria (CAA Publication CAP168)

4.82 The UK, as a signatory to the 1944 Chicago Convention, is required to operate its airports in accordance with internationally agreed criteria. In the UK, responsibility for ensuring this takes place is given to the CAA. Airports operate in accordance with the terms of a licence and adhere to the CAA's exacting safety-related standards.

4.83 Those standards affecting the design of airports are detailed in a CAA publication, CAP168, and are subject to revision in the light of ongoing monitoring and review, including international co-operation to consider the effects of the introduction of new aircraft.

4.84 The facilities at JLA meet the CAA's requirements, and future development will also need to do so (including meeting new requirements as they emerge). Current standards cover such matters as:

77 At JLA, bird and animal control is exercised through habitat management, patrolling on a 24/7 basis, surveillance and pest control. Bird dispersal is achieved through dedicated bird control operators and use of recorded bird distress calls and bird dispersal cartridges fired from a hand pistol.

- the layout, separation and widths of runways and taxiways;
- aircraft stand sizes and apron layouts;
- airport fire service facilities;
- the height and design of buildings and structures; and
- aviation safety and security matters.

The Environmental Management Strategy

4.85 The Airport seeks to ensure that environmental considerations underpin all activities of the day to day operation of JLA and related businesses. To achieve this, the Airport has developed a range of environmental monitoring and mitigation measures known collectively as the Environmental Management Strategy (EMS). The EMS covers environmental media including noise, air quality, sustainable surface access, water quality, nature conservation, waste management, landscape management and the control of construction effects; the objectives of which are as follows:

- minimise noise disturbance locally;
- reduce emissions from aircraft and related uses;
- increase the use of public transport by passengers and staff;
- minimise the volume of waste created;
- develop conservation practices that do not conflict with security or safety practices; and
- promote regeneration for the local community.

4.86 The Airport recognises that in operating an airport there will inevitably be some environmental impact on individuals, communities and businesses close by. The operation and development of an airport requires a careful balance to be struck that takes account of economic, social and environmental influences. The Airport in maintaining its commitment to sustainable growth, seeks to minimise and mitigate environmental effects wherever practicable.

Liverpool John Lennon Airport Environmental Management Strategy Commitments

4.87 The Airport has made a number of commitments, as set out below:

Noise - to minimise noise disturbance whilst recognising the needs of our customers. The Airport operates a Quiet Operations Policy, which includes noise monitoring and aircraft track keeping, noise complaint procedures, a night time quota count system that restricts noisy aircraft types and provides a sound insulation grant scheme (SIGS) to minimise and mitigate the impact of noise.

Air Quality – to monitor and report air quality and seek to reduce airport related emissions where practical. The Airport monitors Nitrogen Dioxide (NO_2) locally, in partnership with Liverpool City Council and publishes the results of the NO_2 monitoring annually.

Vortex Damage – the Airport is due to introduce the Vortex Damage Rectification Scheme to enable quick, essential repairs (normally the replacement of displaced roof tiles) to properties caused by aircraft vortices, which the operators of the aircraft concerned are liable for.

Access – to increase the use of public transport to access JLA and to reduce the level of single occupancy private car journeys by staff. Sustainable transport includes the use of public transport, walking, cycling, car sharing and other similar initiatives. In line with Government policy, the Airport has established an Airport Transport Forum made up from a wide cross section of transport related organisations.

Waste – to minimise the amount of waste going to landfill. The Airport has recently introduced a Waste Minimisation and Management Strategy; the objective being to decouple the growth in the amount of waste generated from the growth in passenger numbers.

Conservation Management – to promote conservation on the site were there is no conflict with aviation safety and security.
Sustainability – The Airport has endorsed the Sustainable Aviation Strategy[78] developed jointly by the Government, AOA, SBAC, BATA and NATS. The principles and commitments in the Strategy are the first step and a recognition that the Government and the aviation industry have a responsibility to work together towards environmental goals. The Airport shares the vision set out for 2020 and beyond – that the UK aviation industry should meet the needs of society for air travel and transport, while removing or minimising any negative impacts on the local and global environment and maximising its contribution to the UK economy.

4.88 The objectives of the EMS are continually improved through consultation with the local community and ongoing research. The Airport provides regular reports on the progress of the EMS to the Airport Consultative Committee and publishes an annual Environmental Report[79]. It has established a Noise Monitoring Sub Committee to assess the effectiveness of the Quiet Operations Policy and other measures to minimise noise nuisance (see Chapter 11).

4.89 Monitoring has shown that JLA performs well in respect of the EMS objectives. For example, air quality around JLA continues to meet all relevant UK and European Union standards; public transport usage targets have been achieved ahead of schedule and now account for 10.4% of journeys to JLA; and 8% of its waste is recycled. The Airport regularly reviews its procedures and considers the need for further environmental management measures, where appropriate. It is, for example, about to begin making contributions to the Mersey Forest Campaign[80] as part of its 'Last Call!' scheme that allows passengers to off-set the climate effects of their flights.

4.90 The EMS will include reference to appropriate construction codes of practice, and the use of method statements etc to ensure sustainable materials and construction methods are used as the Master Plan proposals are implemented; energy efficiency initiatives, including use of bio-fuels for airport vehicles and micro-generation through wind turbines, will also be added. The Waste Minimisation and Management Strategy will incorporate measures to address the growing volumes of construction and demolition waste by reusing as much building material as possible within the site. In terms of aviation related impacts, operational reviews will take place of helicopter and training activity and the use of tugs for taxiing currently being trialled at SE airport to minimise noise.

Airport Security

4.91 Maintaining the security of JLA and safety of passengers and staff is extremely important. In accordance with DfT Regulations, the Airport operates stringent security and anti-terrorist procedures and works closely with a variety of agencies to review and update security and safety procedures and practices at JLA. These practices are implemented in conjunction with the MATRA (Multi Agency Threat and Risk Assessment) process, which include representatives of Merseyside Police, DfT and others.

78 Developed jointly by the Government, Airport Operators Association (AOA), Society of British Aerospace Companies (SBAC), British Air Transport Association (BATA), National Air Traffic Services Ltd (NATS).
79 The Environmental Report is available on the JLA website:www.liverpooljohnlennonairport.com
80 The Mersey Forest is the biggest of the UK's 12 community forests. It works through partnerships involving nine local authorities, the Countryside Agency and the Forestry Commission to create new community woodlands, which benefit people, wildlife and the economy in Merseyside and North Cheshire.

5. Recent Trends in Passenger & Cargo Traffic

Passenger Traffic Overview

5.1 JLA is one of the fastest growing airports in Europe. It has enjoyed significant growth over the last ten years (averaging 23% passenger growth per annum between 1994 and 2004). This compares to the UK average growth rate of 5.8% over the same period. In 2004[81], it was the UK's thirteenth largest airport and ninth largest airport outside the South East and handled 3.4 million terminal passengers (In 2006 this figure reached 5 million). Of this traffic, 79% was carried by low cost scheduled airlines, with a further 9% carried on scheduled full service airlines. The majority of the remaining traffic was international charter, as shown in Figure 5.1.

5.2 The fastest growing UK airports (see Figure 5.2) have all benefited from the significant expansion of low cost airline operations, and JLA was the first regional airport to become a low cost base.

81 The figures and tables in Chapters 5 and 6 are based upon the CAA's 2004 data. The 2005/6 data became available after the Airport's forecasting consultants had completed their reports, and has been used in the environmental assessments in Chapter 11.

Figure 5.1: 2004 Traffic Breakdown at Liverpool John Lennon Airport

Source: DfT/CAA

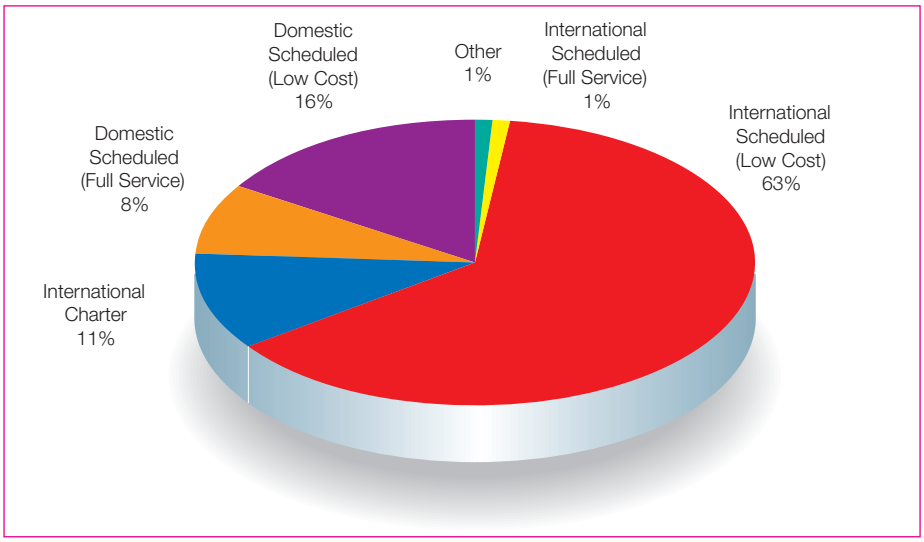
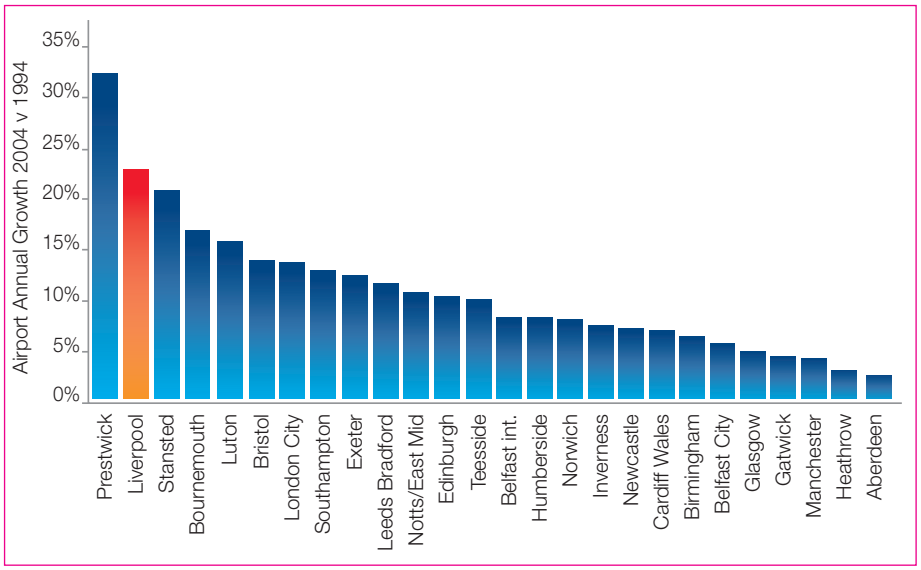


Figure 5.2: Average Growth in Terminal Passengers at UK Airports 2004 v 1994

Source: DfT/CAA



5.3 The CAA carried out a major study in 2005 into UK Regional Air Services (CAP 754). Under a strap-line of 'A good news story for the UK regions' it identified 3 underlying reasons for market growth:

- the liberalisation of European air services from 1993, which allowed new and existing airlines to exploit new opportunities;
- these new services unlocked latent demand from passengers who were keen to travel from their local airport, rather than via London or some other connecting point; and
- simultaneously, regional airports began to change the way they viewed their operations, sometimes spurred by a move from public to private sector ownership thus creating a 'virtuous circle' which facilitated continued growth.

5.4 Between 1998 and 2004, JLA added 2.5 million passengers, of which almost 2.4 million came from low cost carriers. During the same time period, international charter traffic grew by circa. 200,000 whilst full service domestic scheduled traffic fell by circa 100,000 (Figure 5.3).

5.5 Low cost air travel is proving increasingly popular with business travellers, particularly those small and medium sized enterprises (SMEs) where travel costs can affect competitiveness. The Travel In Business Survey 2004-2005 (Barclaycard Business) reported that: "Overall low cost airlines remain popular, growing yet again with 71% of business travellers having used it in the last year. Of those who fly with low cost airlines 96% are very satisfied and would use low cost services again." The main reasons for travelling with low cost airlines are given as availability of flights (26%) and managing costs (71%) with the favourite airlines for low cost travel being easyJet and Ryanair. The proportion of passengers flying for business purposes at JLA (around 20%) is as high as many other airports in the UK, including Manchester.

5.6 Notably, JLA has a far higher share of inbound leisure passengers than any other English regional airports. 14% of passengers were in the category 'foreign leisure', similar to the proportion at most London airports. Manchester and Birmingham have a much lower proportion of inbound leisure passengers (see Table 5.4).

5.7 Together, the business and inbound leisure passenger figures underline the importance of JLA to the economy of the region and to its tourism potential.

Figure 5.3: Liverpool John Lennon Airport Traffic Growth by Segment
Source: DfT/CAA

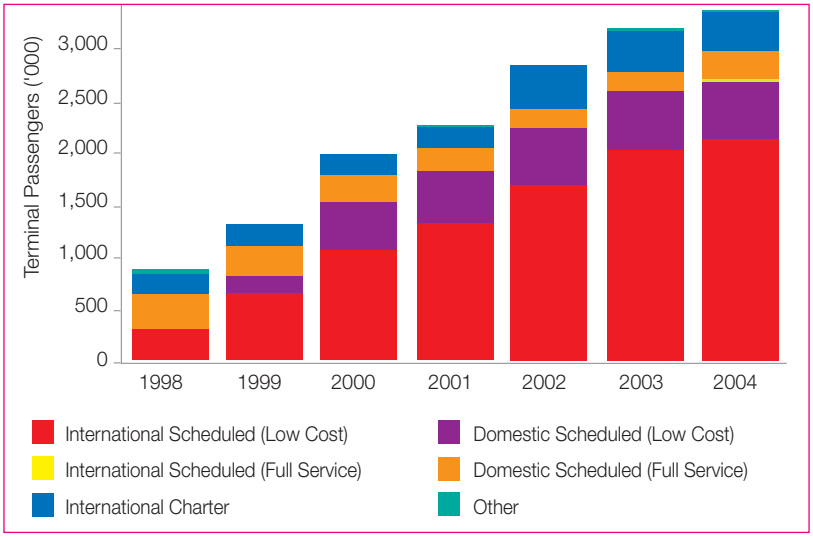


Table 5.1: UK/Foreign and Business/Leisure Splits at UK Airports
Source: CAA Passenger Surveys conducted in 2003 (all figures are subject to rounding)

Airport	UK Business	UK Leisure	Foreign Business	Foreign Leisure
Liverpool	15%	67%	5%	14%
Manchester	15%	72%	5%	7%
Birmingham	17%	69%	6%	7%
Nottingham East Midland	14%	80%	2%	4%
Gatwick	11%	70%	5%	13%
Heathrow	23%	37%	16%	24%
Stansted	14%	57%	4%	25%

Market Share Relative to Other UK Airports

5.8 In 2003, JLA captured a 1.6% share of all UK passengers (UK total: 198,750,000) and 3.9% share of all UK passengers outside of the South East (see Figure 5.4). JLA's share of both the UK total market and UK regional market has grown significantly in recent years, though it fell marginally in 2004. However, it has picked up in 2005 and 2006 with JLA handling about 5 mppa.

5.9 JLA has a catchment area population of 5.6 million people within 60 minutes drive time. This rises to 10 million within 90 minutes. It competes for passengers with other airports, including Manchester, which is 56 km (35 miles) from the centre of Liverpool, Blackpool, and to a lesser extent those in the South East, in particular, Heathrow and Stansted.

5.10 Although 87% of JLA's traffic originates in the North West and North Wales, it also draws passengers from a wider area – including Yorkshire and the Humber, the West Midlands and Cumbria as well as small amounts from Scotland, the North East and the East Midlands (see Figure 5.5 overleaf).

Figure 5.4: Liverpool John Lennon Airport Share of UK Terminal Passengers 1993-2004
Source: CAA/Dft

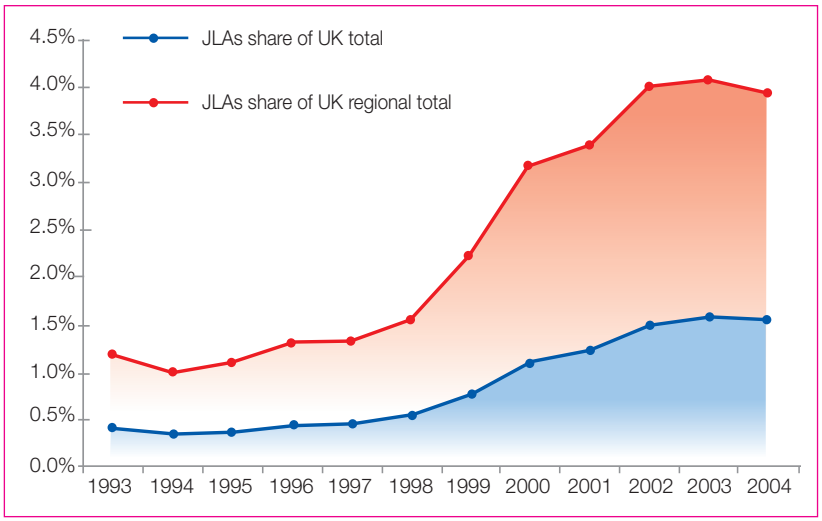
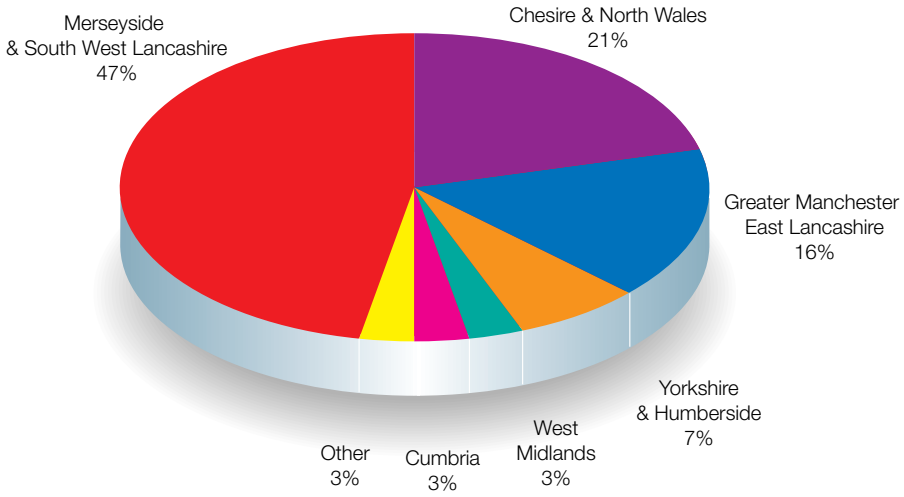


Figure 5.5: Passenger Surface Origin within the Liverpool John Lennon Airport Catchment
Source: CAA Survey 2003



5.11 Until recently, JLA has been the dominant airport in the North West for low cost services, with Manchester dominant in the full service short haul, long haul and charter segments. However, Manchester has developed the low cost airline part of its business to the point where it competes with JLA on a number of routes. However, in Ryanair and easyJet, JLA is a base for the two best known national low cost airlines.

5.12 The other North West airport, Blackpool, serves a localised catchment and has seen recent growth, but is not anticipated to have a major impact on traffic growth at JLA over the next 25 years. In the long haul market, Manchester, Birmingham and the London airports play a role with many passengers having to make long surface journeys to access long haul travel.

Cargo Traffic Overview

5.13 The UK is a major trading nation and its island position makes air cargo an important industry. The cargo sector is made up of freight traffic (goods, which are usually low weight and high value) and mail. Cargo traffic can be handled in the hold of passenger aircraft (belly hold) or on dedicated freighter aircraft. Some freighters will be specially chartered for particular jobs and within this sector will also be included heavy lifts or just in time loads for the automotive industry, for example. Companies, such as DHL, UPS, FedEx and TNT, that operate fast parcel services in their own aircraft fleets, are called integrators, and have seen rapid growth in recent years. TNT, which occupies a cargo warehouse at JLA, is such an operator.

Aerial view of the airport's current Business and General Aviation Centre

Freight Traffic

5.14 Table 5.2 shows UK total air freight figures for 1997-2004, including those of JLA.

5.15 Table 5.2 shows the drop in national throughput after the attacks on the World Trade Centre in September 2001, and also the subsequent resurgence.

5.16 Heathrow is the main freight airport due to its long haul connections and is dominant in the belly hold sector. Manchester has also been growing in this sector. Nottingham East Midlands is the UK's main dedicated freighter airport. Liverpool, likewise, serves the dedicated market but has seen freight throughput reduce since 2000. The figure for 2004 was 68% below the peak tonnage recorded in 2000 and JLA's share of the UK regional total has fallen from 7% to 2%. This has been a reflection of changes in the ordering and supply procedures in the car industry and the movement of printing for the Irish editions of national newspapers to Belfast. JLA's presence in the belly hold market is minimal, primarily because major low cost passenger operators do not presently take freight.

5.17 However, in recent years, freight carried by dedicated freight aircraft has grown faster than the market overall. In 1997, such freight accounted for 29% of UK tonnage carried. In 2004, this had reached a 37% share, and this demonstrates the potential for JLA to regain traffic.

Mail Traffic

5.18 The changes made by the Post Office in 2002-03, with a move away from rail to road based distribution mode, meant JLA's relationship to the West Coast Mainline was no longer strategically important. Mail traffic was concentrated at Nottingham East Midlands Airport. Table 5.3 shows how this has reduced

Table 5.2: Total Freight Uplift Carried ('000 tonnes)

Source: CAA

Airport Groupings	1997	1998	1999	2000	2001	2002	2003	2004	CAGR
Liverpool	**26**	**25**	**25**	**29**	**23**	**14**	**12**	**9**	**-14%**
Manchester	94	101	108	117	106	113	123	149	7%
Nottingham East Midlands	126	123	129	179	195	219	227	253	10%
London Airports	1,572	1,692	1,762	1,830	1,649	1,682	1,668	1,795	2%
Other Regional Airports	149	162	190	183	183	177	189	173	2%
UK Airport Total	1,967	2,104	2,214	2,338	2,156	2,206	2,218	2,380	3%
LJLA Share of UK Regional	6.6%	6.1%	5.6%	5.7%	4.5%	2.6%	2.1%	1.6%	

Table 5.3: Total Mail Uplift ('000 tonnes)

Source: CAA

Airport Groupings	1997	1998	1999	2000	2001	2002	2003	2004	CAGR
Liverpool	**17.2**	**16.3**	**16.7**	**17.1**	**14.0**	**14.0**	**12.7**	**7.3**	**-12%**
Manchester	4.4	4.6	4.5	4.1	3.8	3.8	3.1	4.1	1%
Nottingham East Midlands	12.8	12.7	13.9	14.4	9.2	9.2	10.3	24.1	10%
London Airports	119.6	124.4	124.1	128.5	109.1	109.1	91.6	108.8	-1%
Other Regional Airports	97.0	89.6	92.4	98.8	83.2	83.2	64.8	80.6	-3%
UK Airport Total	250.9	247.7	251.6	262.9	219.3	219.3	182.5	224.9	-2%
LJLA Share of UK Regional	13.1%	13.3%	13.1%	12.7%	12.7%	12.7%	14.0%	6.3%	

JLA's market share to just above 6%. Volumes continued to fall and in 2006 the Royal Mail ceased operating at JLA. However, following the recent opening up of postal services to competition from express mail and parcels operators like TNT, it is anticipated that business in this sector will be recaptured over the medium to long term.

Recent Trends in General Aviation Traffic

5.19 General aviation traffic comprises private flying including aero clubs, test and training activity, military flying, business aviation (including company owned aircraft) and some other small sectors, such as official government flights. It predominantly features small aircraft, often single engine types. Air taxi businesses which are commercially run are usually considered alongside general aviation.

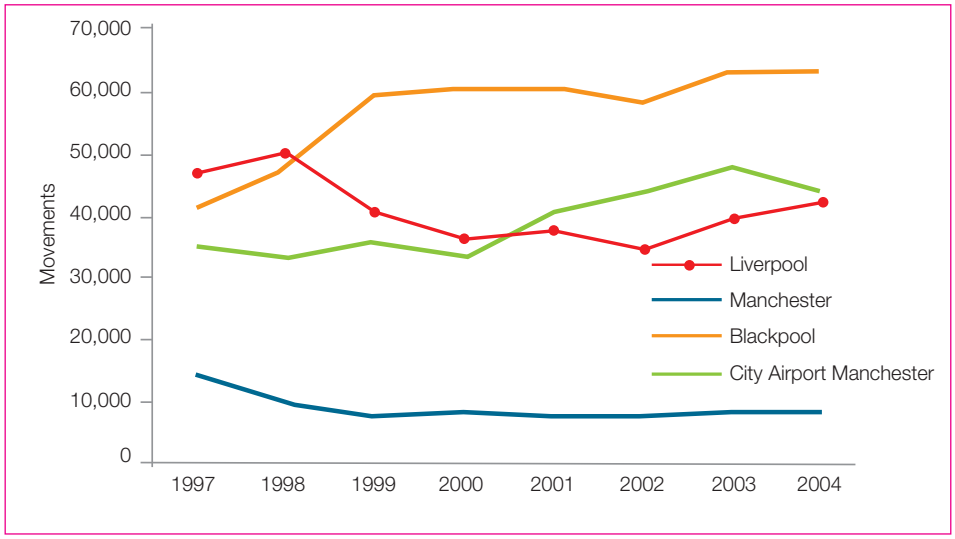
5.20 For the four airports in the North West: JLA, Manchester, Blackpool and Barton Aerodrome, non-commercial movements have grown modestly since 1997 at 2.0% a year (with slightly faster growth in recent years) (see Figure 5.6). This has been driven by growth at Blackpool, in particular of the flying club in the late 1990s. City Airport Manchester, formerly Barton Aerodrome, in Salford (also part of the Peel Airports Group) has also grown fairly steadily over the period. Manchester has followed a similar trend to JLA, with sharp declines in the late 1990s followed by partial recovery more recently.

5.21 Non commercial movements at JLA are dominated by aero clubs (32,000 or circa 75% of the total of approximately 42,500). The number of movements has been increasing in the short term (4% per annum growth since 2001). However, movements did decline steadily from 1998 to 2002, giving a medium term annual decline of 1.5% per year since 1997. Training flights accounted for a further 5%.

5.22 The Airport has developed plans to improve and expand the existing general aviation facilities at JLA to serve the business community in Liverpool and the wider Merseyside area. The Airport has been encouraged by the investment in new modern facilities by operators such as Ravenair and Keenair. Helicopter movements from the general aviation Helicentre, which comprised 8,382 movements in 2004, also fall within this sector.

Figure 5.6: North West Airports - Annual Non Commercial Movements

Source: CAA, Liverpool John Lennon Airport for Barton Aerodrome



6. Forecasts for Future Growth to 2015 & 2030

Forecasts

6.1 The Airport has commissioned independent consultants to predict future passenger and cargo throughputs. This work has taken account of the forecasts within the White Paper, and the continued growth of airline activity at JLA. The forecasts have been finalised in consultation with the DfT. These forecasts are used to guide the need for additional and improved physical infrastructure, which is described in this Chapter of the Master Plan.

6.2 It is clearly difficult to predict developments in the air transport market over long periods of time. Therefore, the Airport has to continually monitor future trends and infrastructure needs as part of its on-going Master Plan process. The consultants' best mid-range estimate is termed the 'Baseline Scenario' and it is this that has been used in the preparation of this Master Plan.

Passenger Sector Forecasts

6.3 At a high level, all JLA traffic forecasts have been produced by:

- growing underlying traffic demand for JLA's catchment from a base of 2003; and
- estimating the market share that JLA captures of the traffic from the catchment area.

6.4 The exception to this is domestic traffic, where issues of traffic substitution from land surface modes are considered; e.g. competition by rail and road.

6.5 The DfT has forecast the long term growth in passenger demand for both the UK as a whole and regions of the UK. DfT forecast demand at UK airports in 2020 is 400 million passengers, rising to 500 million passengers by 2030. The Department of the Environment, Transport and the Regions (DETR) provided the following summary of its forecasting approach in the publication 'Air Traffic Forecasts for the United Kingdom 2000':

> "The forecasts are based on econometric equations, which specify a relationship between passenger traffic and a number of explanatory variables, which determine it…The key variables determining air traffic were found to be domestic and foreign economic growth (principally GDP); air fares; trade and exchange rates."

6.6 The forecasts were updated in 'The Future of Air Transport Progress Report'[82]. The Report points out that even with substantially higher costs, or slower economic growth, the trajectory for air travel is still strongly positive; and that the revised forecasts remain in line with those made in the White Paper in 2003[83].

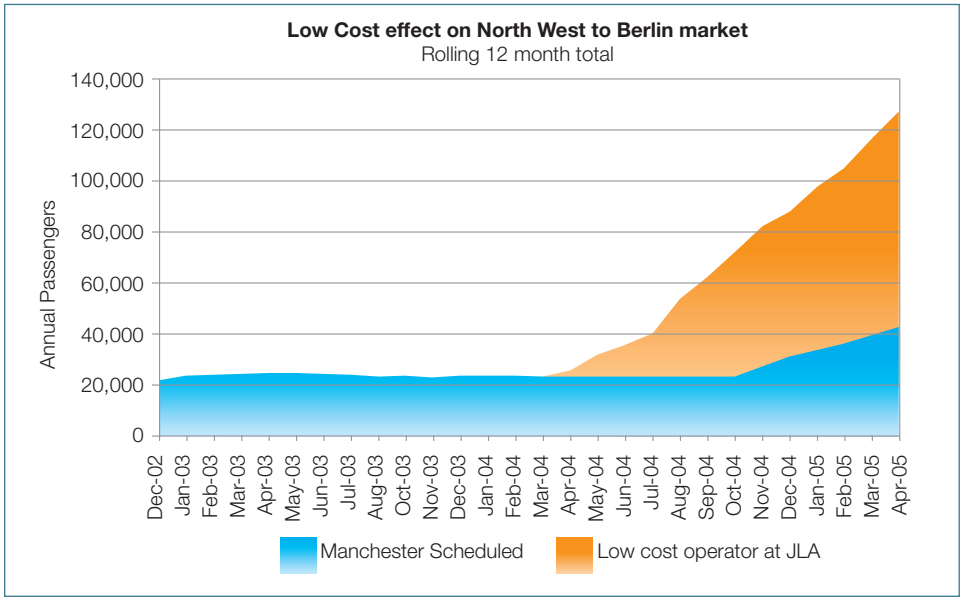
6.7 The Airport's consultants have, as far as possible, applied DfT growth rates to the underlying demand. The majority of routes were forecast using a traffic allocation model on a route by route basis.

6.8 There is evidence that the inauguration of a new service leads to market stimulation. Passengers from the North West are more likely to fly to a destination if it is served direct from a local airport, as potential passengers avoid the need

82 'The Future of Air Transport Progress Report', Department for Transport, (2006).

83 Ibid, paras. 4.8 and 4.10.

Figure 6.1: Market Stimulation of Low Cost Carriers



to make a long surface journey to an airport with a direct service (usually London), or to connect via an intermediate airport. Such an example can be seen in the Berlin market opened up by a low-cost operator at Liverpool (see Figure 6.1).

6.9 Traffic forecasts for the holiday charter sector are undertaken for the sector as a whole – split by long haul and short haul – rather than individual routes. Experience shows that forecasting for the sector as a whole is robust. This is because:

- compared to scheduled passengers, charter passengers tend to be less focussed on specific destinations – charter passengers will be influenced by the overall package, including hotel etc.
- Demand for different leisure destinations can fluctuate considerably over time – fashions change, destinations develop a reputation.

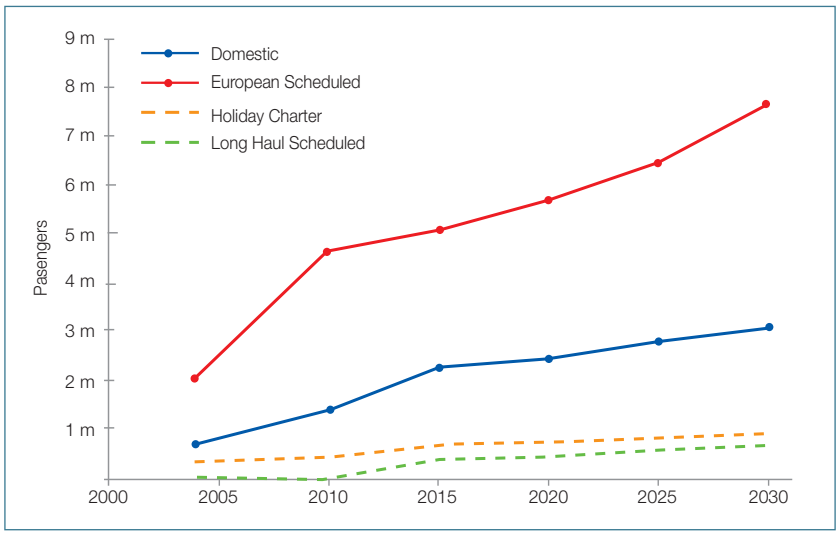
6.10 Demand for domestic services is much more localised than demand for international flights, as passengers are less prepared to travel significant surface distances to an airport to then fly on a domestic service. It is more likely a passenger will fly from their local airport, or if a service does not exist, complete the entire journey by a surface mode of transport.

6.11 Domestic traffic relates to passengers travelling between JLA and points in the UK (including Northern Ireland), Channel Islands and Isle of Man. International scheduled forecasts are broken into two segments – European and Long Haul. Holiday Charter relates to those passengers travelling on inclusive tour flights to destinations in countries such as Spain, Portugal and Greece, as well as long haul charter destinations such as Florida (see Figure 6.2).

6.12 The forecasts predict strong traffic growth in future years at JLA. Total annual traffic throughput is forecast to reach 8.3 million by 2015 and 12.3 million by 2030. European scheduled traffic is predicted to be the main source of growth – rising from 2 million towards the end of 2004 to 7.6 million in 2030. Rapid growth is also anticipated in the domestic traffic segment.

6.13 It is not anticipated that there will be a significant change in charter services, which will continue to concentrate at Manchester, but organic growth is predicted.

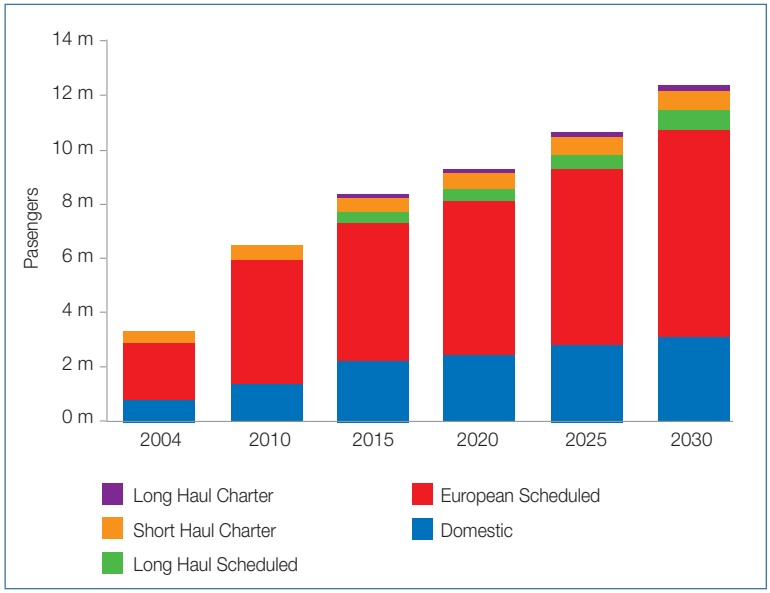
Figure 6.2: Liverpool Baseline Scenario Traffic Forecasts by Segment 2004-2030



6.14 In addition to increased numbers of flights to existing and new European destinations, the forecasts identify the opportunity for JLA to handle further long haul passenger services. Summer services to New York and Toronto from JLA commenced in May 2007 ahead of Capital of Culture Year 2008. Despite the proximity of Manchester, New York and Toronto were adjudged to have sufficient demand to be viable as destinations in their own right, as well as gateways to North America. The current runway length, while it will accommodate long haul operations to the East coast of the US, could not do so further inland on a consistent basis in all operating conditions. This would require the extension of the runway in length to allow aircraft to take off with a greater fuel load without compromising passenger load factors to a degree which made services uneconomic.

Figure 6.3: Liverpool John Lennon Airport: Forecast Traffic by Segment

Source: AviaSolutions Baseline Forecasts



Cargo Sector Forecasts

6.15 The cargo opportunities at JLA are largely governed by the scheduled passenger or freighter services that operate. Neither easyJet nor Ryanair carry cargo and this limits the uplift capability on passenger flights (belly hold). The main growth opportunities lie, therefore, with freighter operations, and the development of any complementary services. For example, Penauille Servisair has a night truck operation to Manchester whereby forwarders can deliver into JLA.

6.16 The cargo facilities at JLA have been enhanced by the construction of the new TNT handling facility for mail and express parcels to the east of the terminal. TNT relocated to this facility from its former shed to the west of the terminal adjacent to the depot previously occupied by the Royal Mail, which ceased its mail service from JLA in 2006. Neither facility provided much growth opportunity and the land is needed for operational reasons, including extending the terminal.

6.17 A significant cargo development is planned which will involve the construction of a new freight terminal south of the main runway, on what is currently agricultural land known as the Oglet. This will be a large purpose-built facility, with parking stands for narrow-bodied and wide-bodied freighter aircraft. Surface access would be via the new road (the EATC) to be built from Hale Road, running east of the threshold[84] of runway 27. This proposal is considered further below.

6.18 Over the last five years, cargo throughput at JLA has declined, but as explained in Chapter 5, this has been due to a number of withdrawals of service or customer: the newspaper traffic to Ireland and the Royal Mail contract seeing the major reductions. However, there is now reason to assume that there will be a return to growth, albeit incremental and organic. The 2004 throughput of 9,467 tonnes has been used as the base level on which future forecasts can be built.

6.19 Nationally, air cargo continues to grow, with certain regional variations. There are a number of different growth forecast measures for civil aviation, and two of the most common are those provided in the annual reviews by the Boeing Company and also by Airbus Industrie.

6.20 The Cargo Market Forecast published by Boeing in December 2004 offers some very broad growth data, and suggests that intra-European traffic will continue to grow over the next 20 years at an average rate of 5.3%. Its global forecast gives a baseline figure of 6.3% growth over the same period and this is very much led by intra-Asian traffic. The Airbus Market Forecast predicts similar numbers, indicating an intra-European annual average growth rate for the period 2004-2023 of 5.0%. This also ties in with a likely future annual GVA growth in the region, of around 5.0%, supported by the Government in terms of wealth creation schemes.

6.21 To 2015, a market scenario is adopted which assumes the Airport introduces a step change in the marketing and promotion of cargo traffic at JLA through the provision of new infrastructure,

84 A threshold is the end of the runway over which an aircraft first passes when landing.

concerted approaches to airlines, integrators and cargo forwarders and the attraction of services from other airports. This scenario does not necessarily represent what will happen, but sets out a reasonable assessment of what could be achieved if the Airport is successful in its objectives for its cargo business, stems recent decline and returns to growth.

6.22 For this market led scenario, cargo volumes for JLA have, in addition, been forecasted using a top down approach; i.e. a share of (future) total UK air cargo is allocated to JLA. This scenario has been developed with reference to previous studies undertaken by the DfT.

6.23 Currently, the UK air freight industry is consolidated around Heathrow Airport. In 2004, 55% of all UK freight was flown from Heathrow, with a further 20% of freight flown from other South East airports. Only 25% of total UK freight was flown from UK regional airports. Nevertheless, as cargo capacity becomes scarce in the South-East, it is likely that a higher proportion of cargo will be consolidated at regional airports than is currently the case. This would better reflect the distribution of demand between the South East and the rest of the UK.

6.24 Forecasts for freight have been developed as follows:

- Organic growth of UK regional freight of 5.5% per annum from 2004 to 2015.
- JLA is assumed to achieve 2.9% share of UK regional freight by 2015.

6.25 The growth in cargo under this scenario requires JLA to grow its market share of the regional cargo market from 1.6% currently to 2.9% by 2015 (Table 6.1). This is much lower than the historic peak share achieved in 1995 of 8.5%.

6.26 A similar approach has been adopted for mail:

- Organic growth of UK regional mail of 2.2% per annum from 2004 to 2015.
- JLA is assumed to achieve 6.3% share of UK regional mail market by 2015.

6.27 This is the same as in 2004, but much lower than the 12.9% share achieved in 1995 (Table 6.2).

Table 6.1: Freight Forecasts

	1995	2004	2015
UK Regional (000 tonnes)	353	585	1,054
UK Regional Growth per annum from 2004			5.5%
Liverpool Share of Regional Freight	8.5%	1.6%	2.9%
Liverpool Freight (000 tonnes)	**30.0**	**9.2**	**30.6**
Liverpool Freight Average Annual Growth		-12.2%	11.5%

Table 6.2: Mail Forecasts

	1995	2004	2015
UK Regional (000 tonnes)	69	116	147
UK Regional Growth per annum from 2004			2.2%
Liverpool Share of Regional Mail	12.9%	6.3%	6.3%
Liverpool Mail (000 tonnes)	**8.9**	**7.3**	**9.3**
Liverpool Mail Average Annual Growth		-2.4%	2.3%

6.28 Using these assumptions, total cargo throughput is estimated at 40,000 tonnes in 2015 (see Table 6.3).

General Aviation Forecasts

6.29 For non-commercial movements, growth at JLA is forecast at 2.0% pa – at the medium term historic growth rate for North West airports. This assumes JLA will suffer a slight loss to Blackpool of its market share of non-commercial movements.

6.30 The number of air taxi movements in the North West has fallen in recent years. It is forecast that the market remains flat at its current low level for the region as a whole. However, 2004 could be considered an exceptionally low year for JLA, so recovery to a more typical level of 1,000 movements per annum has been assumed.

6.31 It is difficult to forecast the mix of general aviation movements going forward. However, it might be expected that the share of aero club or test and training flights would fall to circa 70% of non commercial movements by 2030. The balance of flights would grow faster than the average growth rate, especially the business aviation category, which could account for 5%-10% of all non commercial movements by 2030. The total of general aviation movements is estimated at almost 54,000 in 2015 and over 72,000 in 2030 (see Table 6.4).

Schedules of Activity

6.32 These sets of forecasts: passenger, cargo and general aviation, underpin the Master Plan proposals, and guide the provision and timing of the various items of infrastructure.

6.33 The annual forecasts have been refined into detailed schedules of activity: passenger and cargo ATMs and general aircraft movements (see Table 6.5). These form the basis of the identified need for additional airport infrastructure (options for which are considered in detail in Chapter 7) and have been used for the assessment of economic benefits and

Table 6.3 - Cargo Forecasts Total

	1995	2004	2015
Liverpool Cargo (000 tonnes)	**38.9**	**16.5**	**39.9**
Liverpool Cargo Average Annual Growth		-9.1%	8.3%

Table 6.4 - Forecast Air Taxi and Non-Commercial Annual Movements

	2004	2010	2015	2020	2025	2030
Air Taxi	503	1,000	1,000	1,000	1,000	1,000
Non-Commercial	42,494	47,855	52,836	58,335	64,407	71,110
Total	**42,997**	**48,855**	**53,836**	**59,335**	**65,407**	**72,110**

Table 6.5 - Aircraft Movements[85]

Year	Passenger ATMs	Cargo ATMs	Non-Commercial Movements	Total
2006	45,610	3,028	42,836	91,474
2015	104,000	5,800	52,900	162,700
2030	151,200	8,800	71,100	231,100

85 Figures rounded to nearest 100 movements. 2006 figures are taken from actual data.

environmental impacts (see Chapters 10 and 11). In particular, the schedules include day and night traffic for noise assessment purposes and busy day / hour schedules to analyse both the capacity of infrastructure such as the terminal and the effects of surface access movements, particularly by private car on the road network surrounding JLA (see Chapter 9). In respect of terminal planning, the schedules are related to passenger comfort standards produced by IATA to help the Airport's architects plan future improvements.

Future Cargo Development to 2030 - The Oglet World Cargo Centre

6.34 Significant growth is expected in world air freight tonnages in future years due to changing patterns of trade, particularly the emergence of China and India as major trading nations, and also the growth expected in Eastern European nations following their accession to the European Union. Eastern Europe will be the recipient of major funding for infrastructure under the next round of EU Objective One and a number of major airports are being developed, some of them from former Warsaw Pact airbases. The major growth of trade to the Far East is reflected in the fast developing hubs in the Middle East, such as Dubai. The United States of America will also remain an important market and the recent relaxation of Fifth Freedom rights will encourage the development of through traffic to the Continent, as well as UK bound traffic.

6.35 Global air freight operators are positioning themselves to take advantage of this growth and this is reflected both in the growth of air freight at existing airports, but also the emergence of new centres. In considering development at JLA, it is important to consider not only patterns emerging within the UK, but also what is happening at the other end of international trading routes.

6.36 There are 21 world airports handling over 1 million tonnes, of which Heathrow was 18th in the world at 1.3 million tonnes in 2006. Some of those on the list reflect belly hold freight handled at international passenger hubs, but others are very focused on dedicated freight, including the world leader, Memphis, the home of the operator FedEx (see Table 6.6).

Table 6.6 - World Leading Airports for Cargo Throughput 2006

Source: ACI Top 30 Airports

Rank	(Airport)	Metric Tonnes	Year % Change	Rank	(Airport)	Metric Tonnes	Year % Change
1	Memphis, TN (MEM)	3,692,205	2.6	16	Amsterdam, NL (AMS)	1,559,787	4.3
2	Hong Kong, CN (HKG)	3,608,789	5.1	17	Dubai, AE (DXB)	1,503,696	14.4
3	Anchorage, (ANC)	2,803,792	5.9	18	London, GB (LHR)	1,343,932	-3.1
4	Seoul, KR (ICN)	2,336,571	8.7	19	Bangkok, TH (BKK)	1,181,814	3.6
5	Tokyo, JP (NRT)	2,280,026	-0.5	20	Indianapolis, IN (IND)	1,044,293	0.3
6	Shanghai, CN (PVG)	2,159,321	16.3	21	Beijing, CN (PEK)	1,028,908	31.6
7	Frankfurt, DE (FRA)	2,127,797	8.4	22	Newark, NJ (EWR)	969,936	2.1
8	Louisville, KY (SDF)	1,982,985	9.3	23	Osaka, JP (KIX)	842,085	-3.1
9	Singapore, SG (SIN)	1,931,881	4.2	24	Tokyo, JP (HND)	832,854	4.3
10	Los Angeles, CA (LAX)	1,907,173	-1.1	25	Guangzhou, CN (CAN)	824,906	9.9
11	Paris, FR (CDG)	1,854,950	5	26	Luxembourg, LU (LUX)	751,645	1.9
12	Miami, FL (MIA)	1,830,592	3.9	27	Dallas/Ft Worth, TX (DFW)	748,056	1.5
13	Taipei, TW (TPE)	1,698,808	-0.4	28	Atlanta, GA (ATL)	746,500	-2.8
14	New York, NY (JFK)	1,660,158	0.2	29	Brussels, BE (BRU)	691,250	-0.3
15	Chicago, IL (ORD)	1,618,331	4.8	30	Cologne, DE (CGN)	691,110	7.4

6.37 Those experiencing considerable growth in 2006 include Beijing and Shanghai in China and Dubai in the Middle East. China has seen considerable growth in its airports' sector with operators opening up new routes to serve gateways to major economic regions; i.e. Guangzhou in the Pearl River Delta (see Table 6.7). China recently overtook the UK as the world's fourth largest economy and is also the world's third largest importer and exporter. China's exports reached a record 640 billion in 2005, a year on year increase of 28%, whilst imports rose by 18% to €555 billion.

6.38 The major US airports also present particular potential for growth. UPS, another integrator, has its base at Louisville (see Table 6.8).

6.39 Transit times on these trading routes are also increasingly important. Shipping times from China to Europe are commonly one month, but can be cut almost by half in sea-hub-air combinations; e.g. via Dubai, or less by direct air routes.

6.40 Major logistics groups have seen the potential. In December 2005, as a further step in the opening of internal markets following China's membership of the World Trade Organisation in 2001, it became possible for foreign companies to have wholly owned subsidiaries within China. FedEx, for example, acquired its joint venture partner and is developing Guangzhou into its main Asia Pacific hub.

6.41 In early 2007, TNT took a significant step to realise its ambition of becoming China's leading domestic transportation company and acquired China's leading freight and parcels transportation operator, Hoau Logistics Group, based in Heilongjiang. Through this acquisition, TNT will become the largest privately owned transportation network for freight and parcels in China. TNT already operates the largest distribution infrastructure in China with 140 operating facilities, covering 2.4 million sq metres of warehouse space across 600 cities. Outside China, TNT has acquired Speedage Express Cargo Services and Mercurio, the

Table 6.7 - World Leading Airports for Cargo Growth 2006

Source: ACI Top 30 Airports

Rank	(Airport)	Metric Tonnes	Year % Change
21	Beijing, CN (PEK)	1,028,908	31.6
6	Shanghai, CN (PVG)	2,159,321	16.3
17	Dubai, AE (DXB)	1,503,696	14.4
25	Guangzhou CN (CAN)	824,906	9.9
8	Louisville, KY (SDF)	1,982,985	9.3
4	Seoul, KR (ICN)	2,336,571	8.7

Table 6.8 - US Continental Cargo Hubs 2006

Source: ACI Top 30 Airports

Rank	(Airport)	Metric Tonnes	% Change		Rank	(Airport)	Metric Tonnes	% Change
1	Memphis, TN (MEM)	3,692,205	2.6		15	Chicago, IL (ORD)	1,618,331	4.8
3	Anchorage, (ANC)	2,803,792	5.9		20	Indianapolis, IN (IND)	1,044,293	0.3
8	Louisville, KY (SDF)	1,982,985	9.3		22	Newark, NJ (EWR)	969,936	2.1
10	Los Angeles, CA (LAX)	1,907,173	-1.1		27	Dallas/Ft. Worth, TX (DFW)	748,056	1.5
12	Miami, FL (MIA)	1,830,592	3.9		28	Atlanta, GA (ATL)	746,500	-2.8
14	New York, NY (JFK)	1,660,158	0.2					

leading road express companies in India and Brazil, respectively. This activity has resulted in greater volumes of air cargo traffic being handled at TNT's European hub at Liege where the company is investing some £60 million to double the size of its operation. It is leasing two B747-400 freighters on a 10 year lease to provide dedicated capacity between China and Europe. The first is providing four weekly flights between Shanghai and Liege.

6.42 Such acquisitions are not confined to the Far East with the East European market also seeing such activity. In 2006, TNT acquired ISH Nocní Expres, the leading innight distribution services provider in the Czech Republic and Slovakia. The acquisition will further strengthen TNT's European innight network and its Eastern European business. DHL similarly has reported 35-40% growth a year in the Chinese market and is likewise building its network in China and connections to Europe.

6.43 Connectivity within these world markets presents opportunities for airports able to provide the necessary infrastructure. It is the intention of the Airport to be able to meet this challenge in the future in the spirit of Liverpool's heritage as a world trading city.

Liverpool - A Trading History

6.44 Liverpool has an historic reputation worldwide as a trading city. Built upon its Port, the international trading links are undergoing a renaissance. Mersey Docks & Harbour Company, part of Peel Ports, is experiencing growing trade to long established US and Canadian markets.

6.45 It has, for example, recently been announced that Liverpool is to be the UK port of call for a new trans-Atlantic container service to be launched by CMA CGM and China Shipping Container Lines, two of the world's top container shipping operators. The decision to make Liverpool the weekly services' last call outbound from Northern Europe consolidates the Port's position as Britain's major gateway for container trade with North America. The service will maintain a port rotation of Le Havre, Antwerp, Rotterdam, Bremerhaven, Liverpool, New York, Baltimore, Norfolk, Charleston, Le Havre. The new service will be the fifth operated out of the Seaforth Container Terminal by the CMA CGM Group, which is ranked third among the world's container shipping lines and has its UK head office in Liverpool. The focus of more than £25 million worth of investment over the past five years, the Terminal handled a record 624,000 teus in 2005.

6.46 The Mersey Docks & Harbour Company has obtained a Harbour Revision Order to enable the development of an £80 million container terminal on the River Mersey as an extension to Seaforth. The scheme is being undertaken in anticipation of the introduction of post-Panamax container ships on the North Atlantic and further expansion of Liverpool's total container trade.

6.47 Other elements of the Port's diverse range of cargos have added further optimism to the Port's prospects with new trades and rising volumes, which totalled a record 33,780,000 tonnes in 2005. But an increasingly significant

influence upon Liverpool's success is the Port's geographic location as the gateway to the second richest cargo hinterland in the country and its ease of access by road and rail. The national motorway network runs virtually to the dock gates at Liverpool. From most of the Port's major terminals, a dual carriageway link of less than 3.2 km (2 miles) takes traffic to the M57 - which, in turn, links with the East-West M62 and the Southbound M6 - and to the M58 for connection to the M6 heading north.

6.48 Being within the Peel Group of Companies, there are synergies here for the development of JLA with the ability to promote both simultaneously and to offer a comprehensive freight shipment service - by sea - and by air for higher value, less bulky cargos and express delivery.

6.49 With its Port and JLA, the City of Liverpool has a rare potential within the UK. However, within the wider context of world trade, these relationships exist in many major "port" cities. For example, Newark Liberty International Airport, operated by the Port Authority of New York and New Jersey, is a major hub for the shipment of air freight, as well as serving more passengers than any other airport in the New York metropolitan region. The Port is the busiest Atlantic Ocean containerised seaport in the western hemisphere. The combined airport/seaport neighbourhood of Newark totals approximately 30 km^2 (11.5 $miles^2$), with significant industrial, warehousing and distribution developments based around major transport and logistics infrastructure.

6.50 In Dubai, construction began in 2006 of Dubai Logistics City (DLC): the world's biggest and most ambitious integrated air, sea and logistics project. Located directly inland from Jebel Ali port and free-zone, DLC will provide 25 km^2 (9.6 $miles^2$) of free-zone to host multi-modal logistics businesses, adjacent to the new Jebel Ali Airport. Ultimately, the new airport will have six runways and 16 cargo terminals with a capacity of 12 million tonnes and a total area of 10 times that of Dubai International Airport today.

6.51 Following this theme, Athens International Airport (AIA) and the Piraeus Port Authority (OLP) signed an agreement in March 2006 for the development of a "sea-air" link[86]. Through this joint effort, AIA and OLP aim to create new cargo opportunities, via a multi-modal "sea-air" link, by implementing quicker, simpler, and internationally competitive procedures, attracting additional transit cargo to Athens, through a seamless link with the airport and port being the transit points. It is noteworthy that significant benefits should arise both for OLP and AIA. By offering alternative services to its clients, OLP will support its incentive strategy aiming to attract more cargo, at the same time contributing to the development of multimodal transport. Moreover, for AIA the cooperation with OLP is expected to bolster the airport's cargo community, while contributing to the launch of additional cargo routes. The new service is also predicted to boost cargo through Athens, by utilising the new infrastructure of the region and providing additional development possibilities for the industry.

6.52 These are examples of what might be termed 'super ports' and set an aspiration and template for the modern trading city.

6.53 Work is underway in Liverpool to ensure the wider potential of the maritime sector is co-ordinated. Since 2003, 'Mersey Maritime' has been the recognised lead body for maritime cluster development on Merseyside. During this time, the maritime sector has enjoyed considerable growth. Mersey Maritime leads on

86 'Piraeus Port Authority - Athens International Airport - Signing of "Sea-Air Link" Agreement', Press Release, 21 March 2006.

regional issues as Chair of the Maritime NW Skills and Productivity Alliance. It is also proactive in national policy and initiatives through involvement with the DfT. This has provided positive feedback on the cluster development, profile raising and skills agenda that Mersey Maritime has co-ordinated on behalf of maritime companies.

6.54 In Merseyside, there are nearly 1,000 maritime companies with 15,000 employees and a turnover in excess of £3 billion per annum. Based on research carried out, the suggested direct and indirect economic impact of the industry on the North West region is 28,000 jobs and £4.9 billion. The Department of Trade and Industry has recognised Liverpool as having the "largest value added contribution" of any port in the UK.

6.55 Mersey Maritime has, working with private and public sector partners, produced a Ports' Growth Strategy that sets out a vision for the Port's infrastructure, road and rail access and land needs for the development of the maritime logistics and freight community on Merseyside for the next 20 years. The partners recognise the part they can play in developing and retaining as much economic value as possible for this business within the region. Mersey Maritime will also link JLA and adjacent distribution, logistics and freight services as a complete "freight community".

6.56 If the Airport is to grow its freight capability in the long term, it needs to likewise invest in the infrastructure at JLA to take the larger aircraft. In particular, the runway needs to be lengthened and strengthened to take long haul wide-bodied aircraft with the tonnage and fuel loads necessary to reach the major intercontinental freight hubs. It needs the aprons separate from passenger aprons to park these aircraft and the land resource for the large distribution and handling warehouses through which the goods will pass. The only locations available for such a development is to the south of the runway within the area of farmland known as the Oglet.

6.57 Such development would only occupy a part of this area and would be combined with a major extension of the Speke Garston Coastal Reserve currently being laid out south of the International Business Park on the old Northern Airfield. A pre-requisite of the development would be the extended runway and the EATC, from which a new access road would be constructed around the eastern end of the runway.

6.58 Studies have been carried out to determine the runway length and related infrastructure appropriate for such a business plan. It has considered a number of factors, including:

- Potential for Growth in the UK Air Cargo Market;
- Operational Criteria for and Characteristics of a Runway Extension; and
- Land and Building Requirements.

Potential for Growth in the UK Cargo Market

6.59 CAA statistics show that in 2004, a total of 2.59m tonnes of air cargo (freight and mail together) passed through UK airports. Of this total, 74.5% passed through South East airports, of which 54.5% passed through Heathrow (see Table 6.9).

6.60 Between 1997 and 2000 and between 2002 and 2004, mean annual growth rate for intra EU and domestic air freight was 3.9% per annum. As was the case for air freight overall, there was a major downturn in the 2000-2 period.

6.61 In the case of non EU air freight, the main area of growth was from the Far East, which by 2004 made up 41% of all non EU airfreight within the UK. For the periods 1994-2000 and 2002-4 (8 years) mean growth rate from the Far

Table 6.9 - UK Airfreight – 2004

Source: CAA

'000s tonnes

	Domestic and EU	Non EU	Mail	Total
Heathrow	146	1179	87	1412
Other South East	105	392	22	519
Other UK	307	241	112	660
Total	558	1812	221	2591
Growth, 1997-2004	+ 10%	+ 25%	+ 12%	+ 18%

East was 20.5% per annum, a quite remarkable rate of growth. The growth rate for air freight from North America (the second most important air freight market) for the same combined 8 year period was 8.5% per annum. The statistical evidence is, therefore, that there are very strong growth rates for the two major long haul air freight markets to the UK.

6.62 Heathrow's traditional dominance of the air freight market is almost entirely due to the wide range of long haul flights operated. As a consequence, Heathrow had a 65% market share of non EU air freight in 2004. This is, however, a market in which Heathrow's share will inevitably decline because:

- there is inadequate development land around the airport to handle much more air freight;
- the airport itself will concentrate increasingly on passengers; and
- an increasing proportion of air freight will fly in 'freighters' because there is adequate critical mass available, and Heathrow will not have runway capacity.

6.63 This pattern whereby Heathrow is gradually losing market share in non EU air freight is clear. Notwithstanding the 'blip' in growth between 2000 and 2002, non EU air freight through Heathrow grew by only 17% between 1984 and 2004 while growth through all other airports was 148%. The 'other' airports enjoyed a 374% growth in Far East air freight.

6.64 Between 2000 and 2002, the UK Government issued a number of papers on Aviation policy, which considered air freight growth to 2030 and how air freight was likely to be distributed between regions and their airports.

6.65 Long haul imports of air freight have been growing by some 12% per annum over most of the last decade. Growth in EU and domestic airfreight has been around 4%. Approximately 74% of all air cargo (including mail) in 2004 was with non EU countries. Taking these factors together, a growth in air cargo from the 2.6m tonnes handled in 2004 to 13.2m tonnes by 2030 forecast for the Government in the context of aviation policy of total UK air freight does remain a reasonable assumption.

6.66 By value, air freight accounts for around 25% of the value of UK visible trade. By tonnage, of course, the proportion is much lower. Total international airfreight in 2004 was some 2.4m tonnes as compared with 420m tonnes of seaborne and Channel tunnel non-bulk international cargo. However, the proportion of non EU non bulk cargo carried by air is much higher. In 2004, air freight accounted for around 1.6m tonnes.

6.67 Air freight can be expected to grow at a significantly higher rate because the 'light' or 'high value' end of the market spectrum is itself growing more rapidly. The value of air freight per tonne (non EU traffic) was £51,400 in 2004 (derived from HM Revenue and Customs data) as compared with £1,800 per tonne for lift on –

lift off maritime container traffic. Altogether, air freight accounted for 42% of all non EU international cargo trade by value.

6.68 An increasing proportion of air freight is being handled at airports beyond Heathrow and on freight only aircraft. Between 1997 and 2004, freight on passenger planes grew by only 8% while that carried on freight only aircraft grew by 54%. Freight through Heathrow grew by only 15% whereas traffic through all other airports grew by 31%.

6.69 Such extrapolations would imply that, including mail, in 2030 Heathrow would handle some 3.8m tonnes while all other airports would handle 9.4m tonnes of air freight. Some 80% of air freight carried by passenger planes would continue to pass through Heathrow, but overall, 75% of air freight would be carried on freighters. In fact, the forecasts made assumed such constraint on South East airport capacity that freight through Heathrow would be limited, as set out above, and that even more would be carried by air freighters.

6.70 The proportion of total air freight passing through 'regional' airports; i.e. north of Luton and Stansted and west of Oxford, was expected to rise to 43% (around 5.7m tonnes), as compared to only 25% (660,000 tonnes) in 2004.

6.71 The allocation of those 5.7m tonnes, which will be overwhelmingly in air freighters, will clearly depend heavily upon the facilities that are made available; the ability to fly at night to facilitate next day delivery; and immediate access to adequate storage and distribution facilities.

6.72 The aviation exercise conducted by the Government made an allocation of air freight to the different regional airports, which included between 208,000 and 220,600 tonnes (of which 27,400 was mail) for JLA, out of a North West region share of 0.9 million tonnes[87].

6.73 It is evident that JLA cannot handle such large volumes of air freight given present facilities. It can expect to attract some 40,000 tonnes per annum given incremental development of facilities on the north side of the runway. The extension of JLA to handle 220,000 tonnes per annum, including mail, carried mainly in large air freighters, would require a runway extension and further built development to the south of the runway.

Operational Criteria for and Characteristics of a Runway Extension

6.74 Any runway extension would need to consider the requirement of current fleets of aircraft, but also future trends towards larger freighter types. Both Airbus and Boeing enjoyed a successful year in securing orders for new aircraft in 2005 with both hitting sales records. This not only reflected the confidence of the passenger sector with the low cost operators, particularly strong purchasers, but also reflected growth in the cargo sector. Boeing launched its 777 freighter and the 767-300 converted freighter. Orders for 747 aircraft were dominated by the cargo sector, with approximately 40 orders. Airbus began commercial production of the A380, the freighter version of which will be able to carry a payload of 150 tonnes over 5,600 nautical miles (nm)[88].

87 'The Future Development of Air Transport in the UK: North of England (Full), Department for Transport, (2002), Section 4.7, page 68.

88 1 nautical mile is equivalent to 1.15 miles.

6.75 The assessment of the likely range of particular aircraft from a particular runway is complex and requires consideration of a multitude of factors. The limits of travel are governed largely by the runway length available for take-off. However, as well as the physical runway length, the topography beyond the ends of the runway will affect how quickly an aircraft needs to climb after take off. This is influenced by obstacles such as towers and masts and by the level of the ground.

6.76 The direction of take-off can also have an impact. At JLA, the runway is orientated almost exactly east-west, the runways being designated 27 (take-off to the west, land from the east) and 09 (take-off to the east, land from the west). At JLA, prevailing winds have traditionally directed that the primary runway is the 27 Runway; i.e. with landing and take-off to the west.

6.77 JLA currently promulgates CAT I and CAT II[89] precision approach capabilities on runways 27 and 09 respectively. In order to enhance safety and maintain operations during extreme weather conditions a CAT III capability is planned for runway 27. Presently the approach lighting on 27 is already at a CAT III standard and upgrades to runway lighting are due for completion shortly. These upgrades will be complemented with new localiser antennae equipment on both runways within the next few years regardless of the intended extension of the runway.

6.78 Civil aircraft mostly fly in controlled airspace along specified airways or advisory routes. Clearance along these airways is generally dictated by ATC and may not necessarily be the shortest route. In the North Atlantic, tracks vary on a daily basis to facilitate adverse winds or, in the case of eastbound flights, to take advantage of them. Depending on the track allocated to the flight, 200 to 300 nm can be added to the track distance. Political routes through Europe and the Middle East can vary route distances by 300 nm for flights to the Far East.

6.79 The existing runway is over 30 years old and was designed for the types of aircraft operating at the time. Refurbishment works have been recently completed. The main constraint on aircraft usage is the runway length available.

6.80 Runways, like aircraft, can be said to have a performance capability. The aircraft operator utilises the runway declared distances, coupled with published obstacles in the approach and take-off path, to evaluate the payload of the aircraft on the day. The weather conditions need to be taken into account. In wet weather, landing and take-off involve more complex procedures and required landing distances are extended. For the purposes of assessing the viability of a particular destination, it is important to consider the most onerous weather conditions. The summaries opposite in Table 6.10 are, therefore, based upon wet conditions.

6.81 A series of studies were carried out to consider the optimum distance to which to lengthen the runway given operational and environmental constraints, and the business case based upon the forecasts.

89 There are three categories of instrument landing system (ILS) which are bounded by pilot decision height, visibility and/or runway visual range distance minima. CAT I is the lowest category with CAT III being the most sophisticated and subdivided further into (a), (b), and (c). CAT IIIc systems for example require no minima and are capable of using the aircraft autopilot to land and guide the aircraft. In each case a suitably equipped aircraft and appropriately qualified crew are required.

Table 6.10 - Increase in Aircraft Range due to Runway Extension

Aircraft Type	Range from Existing 2286m wet	Range From Extended 2750m wet	Range Improvement	% Gain
B737-300 Schedule	1265	1265	0	0
B737-700 Schedule	1535	1590	55	3
B737-800 Schedule	1625	2140	515	30
B757-200 Schedule	3345	3690	345	10
B757-200 Charter	3080	3370	290	10
B767-300 Schedule	3955	4985	1030	26
B777-85B Schedule	4420	5775	1655	30
A330-200 Charter	4495	5255	760	17
B767F Freighter	3620	4780	1160	32
B747-400F Freighter	3885	4460	575	14
A330-200 Freighter	4615	5495	880	18
MD11 Freighter	500	3920	3420	680
B757-200 Freighter	3190	3535	345	11
A300-600 Freighter	3260	3980	720	22

Note: Distances are airways track range in nautical miles.

6.82 A runway extension of 314m from its current length of 2,286m, along with the provision of 150m starter strips in both 09 and 27 directions, provides a take-off running distance of 2,750m, and maximum landing distance of 2,400m. This would entail the eastern threshold being relocated a maximum of 120m eastwards.

6.83 At 2,750m, B767, B757 and B737 aircraft can all take-off without payload restriction, and B747-400F types can land at maximum landing weights.[90] Extension options providing over and above 2,750m have been discounted on the basis of:

- major land take required to the east of the site;
- greater noise and air quality implications to Hale Village and Speke; and
- encroachment on the Mersey Estuary.

90 The proposed runway length is also expected to accommodate aircraft under development that are more environmentally friendly and produce less noise, such as the Boeing 787 Dreamliner.

Table 6.11 - New Key Cargo Destinations Achievable from a 2,750m Runway

B757-200F	B767-300F	A330-200F	MD11F	B747-400F
Chicago	Beijing	Hong Kong	Chicago	Chicago
Dubai	Louisville	Los Angeles	Cincinnati	Cincinnati
Louisville	Memphis	Memphis	Dubai	Louisville
	Miami	New York	Louisville	Memphis
	Indianapolis	Shanghai	Memphis	Miami
	Atlanta	Guangzhou	Miami	New York
	Dallas/Ft Worth	Nanjing	New York	Dubai
		Oakland	Newark	Atlanta
			Indianapolis	Indianapolis
			Atlanta	

Table 6.12 - New Key Passenger Destinations Achievable from a 2,750m Runway

B737-800	B757-200 (Charter)	B757-200 (Schedule)	B767	A330-200 (Charter)	B777
Antalya	Bermuda	Chicago	Dominic. Rep.	Bangkok	Cancun
Cairo	Dubai	Cincinnati	Goa	Beijing	Cape Town
Canary Is	New York	Detroit	Houston	Belize	Denver
Morocco	Philadelphia	Islamabad	Las Vegas	Cuba	Hong Kong
Rhodes	Toronto	Karachi	Maldives	Dallas	Johannesburg
	Washington	Minneapolis	Miami	Detroit	Los Angeles
			Orlando	Dominic. Rep	Sao Paulo
			Phoenix	Las Vegas	Shanghai
			Puerto Vall.	Seychelles	Singapore
			Sri Lanka		

6.84 The 2,750m proposal would bring the following benefits:

- affords aircraft longer take-off and landing distances, thereby enabling less thrust to be used (forward and reverse), achieving both air quality and noise benefits;
- increases the height and reduces the noise of aircraft climbing out over Hale to the east;
- improves the pay load and range for existing aircraft; and
- opens up new passenger and cargo markets, such as North America and Asia.

6.85 In general, the heavier wide-bodied aircraft all show a significant advantage with the longer runway length.

6.86 The Table 6.11 indicates the new key cargo destinations which would be reached from an extended runway by the most common freighter aircraft.

6.87 The MD11F shows the greatest gain in range. This aircraft does not perform well from a short take-off (2,286m) and has a very small range from the existing runway of 500 nm, but increases dramatically to 3,900 nm with the extended runway length.

6.88 A comparison with Table 6.6 shows the key transcontinental freight hubs which such a runway extension would access, including in the US and China. Some of the percentage gains shown in Table 6.10 are crucial to enabling these destinations to be served.

6.89 In addition to freight traffic, the extended runway would extend the range for passenger services, particularly with the Central and West Coast US, and make journeys to East Coast airports less susceptible to weather disruption (see Table 6.12). The benefits are not limited to long haul routes. The B737-800, as operated by Ryanair, cannot reach their full potential from the existing runway and an extension to 2,750m would allow a range increase of about 500 nm.

6.90 It has been decided, therefore, that the runway should be extended to its optimum length of 2,750m. Such an extension would need to be carried out to enable the Oglet World Cargo Centre to proceed and, as such, it would place the development in the period just prior to or post 2015.

Land and Building Requirements

6.91 On the basis of evidence at other airports, approximately 0.3m^2 of cargo buildings is required per tonne of air freight per annum. That implies that around 54,000m^2 of cargo

buildings with airside access would be required to handle the additional freight (180,000 tonnes) anticipated between 2015 and 2030. The requirement for further maintenance provision for both passenger and cargo operations would also need to be accommodated in the Oglet area in the longer term.

6.92 There may be significant further regenerative advantages in locating further distribution buildings[91] in the immediate area. As explained above, logistics operators can expect to receive cargo from a wide range of sources and modes in order to satisfy their role in supply chains. A supermarket may receive cargo sourced from Ireland (by ferry), North America (by container through Liverpool) and by air from the Far East, all to be assembled into one truck load. It follows that those distributors, including air cargo in the mix of cargo being delivered, could benefit from also being located around JLA, while receiving goods by road from the docks.

6.93 The Oglet World Cargo Centre would accommodate about 95,000 m^2 of floor space, including a large single unit of up to 40,000 m^2. Development of this area would possibly be phased to extend beyond the Master Plan end date of 2030. Such a cargo development would require in the order of 10 aircraft stands (based upon benchmarking at other airports which shows a relationship of one cargo stand per 10,000 tonnes (Code D[92]) to 20,000 tonnes (Code E) handled annually) to be created within the area south of the runway served by a new parallel taxiway and two new rapid turn-offs.

6.94 The area of the Oglet is flat with easy access to airfield infrastructure and is able to accommodate this form of development. It is of such size to enable it to be carried out in association with a major extension to the Speke Garston Coastal Reserve (see Chapter 8).

Office and Ancillary Accommodation

6.95 The White Paper recognises that:

> "Many airports increasingly act as a focal point for clusters of business development. By offering the potential for the rapid delivery of products by air freight and convenient access to international markets through the availability of flights for business travel, they attract inward investment to a region."[93]

6.96 The Northern Way likewise noted the potential when it said:

> "There is substantial evidence to show that airports attract jobs. Companies who wish to locate on or near airports include direct suppliers or services to airport users, high value industries that are part of "just in time" logistics networks highly reliant on air freight services - and knowledge service industries, whose staff make frequent journeys by air to customers and suppliers". It added, "across the north, there are significant opportunities for new office, industrial and warehouse units in close proximity to airports."[94]

6.97 Many airports have such development in their environs, including, for example, Manchester Business Park at Manchester Airport, Pegasus at Nottingham East Midlands Airport, and Airport West at Leeds Bradford Airport. Liverpool International Business Park, located on the old Northern Airfield at JLA, has seen significant development. Granted planning permission for 307,000 m^2 of B1, B2 and B8 development, it has been a major success and to date has secured substantial investment in

91 Class B8, storage and distribution, under the Town and Country Planning (Use Classes) Order 1987.
92 International Civil Aviation Organisation code letters.
93 'The Future of Air Transport', Department for Transport, (2003), para.4.25.
94 'Moving Forward: The Northern Way, First Growth Strategy Report', The Northern Way, (2004), paras. 6.12 and 6.13.

the form of the Prinovis' gravure printing works, a 46,000 m² development, creating up to 1,000 jobs and 'The Vault', a 57,000 m² distribution scheme by Gladman Developments, which is expected to secure around 650 jobs.

6.98 It is important that this Master Plan considers what will be required in the future in the way of provision to ensure JLA can compete for such aviation related development in the future. Such competition is as likely to be at European airports as it is UK airports. Providing for this type of occupier is also important to the continued success of an airport. Airports rely on a variety of income streams to remain commercially viable and companies locating at airports are not only important in order to support the functioning of the airport in operational terms, they also provide a stream of income that binds them to the success of the airport as a business.

6.99 The question of whether a particular business is Airport Related is a matter to be considered by the local planning authority and guidance is provided in PPG13: Transport, which states:

> "Airports have become major transport interchanges and traffic generators, and attract a range of related and non-related developments. In preparing their development plans and in determining planning applications local planning authorities should consider the extent to which development is related to the operation of the airport, and is sustainable given the prevailing and planned levels of public transport. In this respect:
> 1. the operational needs of the airport includes runway and terminal facilities, aircraft maintenance and handling provision, and warehousing and distribution services related to goods passing through the airport;
> 2. related development appropriate to airports includes transport interchanges, administrative offices, short and long stay parking;
> 3. less directly related development includes hotels, conference and leisure facilities, offices and retail. For such activities, the relationship to the airport related business should be explicitly justified, be of an appropriate scale relative to core airport related business and be assessed against relevant policy elsewhere in planning policy guidance; and
> 4. non-related development which should be assessed against relevant policy elsewhere in planning guidance."[95]

6.100 Also to be considered are Direct Airport Operational employers. These include, for example, the offices of the airport administration and airlines, which are currently located mainly to the east of the terminal in temporary buildings. These users need to be close to the terminal, but such land is also under pressure for other operational uses and some requirements can be met a short distance away. Indeed, some such uses can be found already on the Sky Park Industrial Park - easyJet have their car hire operation located here.

6.101 Based on a consideration of employment densities at other airports, and available guidance[96] used for planning purposes, it is evident that expansion of JLA will generate an additional requirement for B1, B2 and B8 uses, or an appropriate mix of such uses.

6.102 The options considered to meet this requirement are: in the expanded terminal; in the vicinity of the old control tower; and through the creation of a new business area in locations to the east and west of Speke Hall Avenue.

95 PPG13: Transport, Annex B, para. 7.
96 'Employment Densities: A Full Guide', English Partnerships and the Regional Development Agencies, (2001).

6.103 The land to the west of Speke Hall Avenue is currently vacant and would be accessed by the new roundabout to be constructed as a part of the EATC. It would be combined with the current Sky Park Industrial Park.

6.104 The Dunlop site to the east of Speke Hall Avenue, which is partly used as playing fields and partly vacant, is to be developed for office and storage uses and hotel accommodation. The Airport has sought planning permission to develop this site for 15,000m^2 within Use Class B1 and 15,000m^2 within Class B8 and for a 100 bedroom hotel. The Airport is working with Liverpool City Council to ensure that the current sports and recreation provision is replaced in the area. The City Council has resolved to grant planning permission for the proposals subject to the completion of a legal agreement to ensure that replacement facilities are available before work on the site commences.

6.105 The inclusion of the Dunlop site within JLA as a high quality location for airport related activity, such as air transport services, freight forwarding and high tech orientated business, can be justified on the basis that the greatest concentration of airport related business activity is, in most circumstances, within 6 km (3.7 miles) of an airport, or along an access corridor within 15 minutes of the airport[77]. The Airport's consultants have found that sites within the locality (6 km) of JLA are being developed at an average rate much quicker than the sites within the wider sub-region, and that JLA is responsible to some extent for this higher take up. The economic benefits could also be significant in that employment growth within 6 km of airports can be 2-5 times faster than in the sub-regional economy.

6.106 The inclusion of the Dunlop site would, in effect, move the 'gateway' to JLA further north from Dunlop Avenue to the bend in Speke Hall Avenue. It may be appropriate to mark this gateway with appropriate public art, possibly on the new roundabout, which would link to the east and the new EATC. The accessible location makes it particularly appropriate for a future hotel development.

97 Paper presented to the PTRC International Transport Conference, Manchester, 1993, by the Economic Development Research Group, Boston MA.

7. Assessment of Development Options

Accommodating Infrastructure Requirements

7.1 The forecasts set out in Chapter 6 anticipate continued growth of JLA to handle around 8.3 mppa and 40,000 tonnes of cargo pa by 2015 and to about 12.3 mppa and 220,000 tonnes of cargo pa by 2030. Accommodating this level of activity will require expansion and upgrading of JLA's infrastructure. This Chapter examines the options for accommodating that infrastructure, largely within the existing site operational boundary to 2015, but later onto adjacent land in the Oglet.

7.2 By considering a number of permutations of these options, the Airport has assessed three Master Plan scenarios (aligned with the three criteria set out in RSS policy RT5):

- development of all activities and facilities within the existing operational boundary;
- scope for relocating off site such activities and facilities that are not essential to the functioning of JLA; and
- scope for developing off site all other essential activities and facilities.

7.3 In considering the potential for expansion beyond the existing boundaries of JLA, the Airport has been mindful that the land to the east and south is presently within the Merseyside Green Belt. Such land would only be released from its Green Belt designation in the development plan in exceptional circumstances or planning permission granted on it for inappropriate development, including airport related development, in very special circumstances.

7.4 The Airport has, therefore, assessed how much of the planned growth could be achieved on the existing JLA site without requiring additional land. This exercise has informed the timing of the need for any development in the Green Belt or changes to Green Belt boundaries.

7.5 This work has shown that whilst the White Paper's policy conclusions for passenger traffic at JLA can be accommodated within the current boundary, cargo development would be constrained at around 40,000 tonnes pa without additional land. This would facilitate incremental growth of European short haul cargo business, but not the step change in economic benefit envisaged in the White Paper that the penetration of markets in North America, South East Asia and the Middle East would deliver. As these markets grow in importance[98], failure to capture the opportunities they represent would place Merseyside at a severe competitive disadvantage relative to other regions. This Master Plan, whilst considering development to 2030, should also not assume this as an end date beyond which no further activity occurs. Therefore, how JLA develops beyond this date, and caters for economic needs later into the Century, should be considered in the Airport's business planning for the future.

7.6 The Airport considers that the social and economic benefits arising from the expansion of cargo facilities, and the cost of failing to realise them, comprise exceptional circumstances which justify the Airport's proposal for longer term development in the Green Belt. As set out in Chapter 4, the draft RSS makes provision for adjustment of the Green Belt boundary to accommodate airport related infrastructure requirements of JLA. In respect of timing, such a development would not proceed without the runway extension or the EATC. These will take a number of years to process through the planning system. The draft RSS considers that an overall review of Green Belt[99] may take place

98 The 'Chindia' economic bloc – China and India – will, if current growth rates persist, account for approximately 50% of total global output by 2050. See 'Dreaming with BRICs: The Path to 2050', Goldman Sachs, Global Economics Paper No: 99, (2003).

99 Policy RDF5: Green Belts.

post 2011 and this may also be an appropriate timescale in respect of the Oglet cargo development.

7.7 However, it will be necessary to take decisions on these issues of longer term strategy now, given the time it will take to plan and implement these important infrastructure schemes.

Design Parameters:

7.8 In considering infrastructure requirements to facilitate growth, account has been taken of the Airport's vision for JLA to remain one of the leading regional airports in Europe. The Airport has devised a set of design parameters based upon 'industry' planning standards to guide the provision of the infrastructure needed to overcome existing constraints and accommodate the forecast growth of JLA in accordance with the White Paper. These include:

Passenger terminal – comfort and convenience must meet passenger and airline expectations and support JLA's position as a leading European regional airport and international gateway to Liverpool and the North West.

PTI – sustainable travel to and from JLA should be encouraged with the provision of a dedicated PTI with direct access to the passenger terminal.

Surface access – the local transport network must be able to accommodate demand for travel, including public transport, to and from JLA. In particular, a potential new access from the east, the EATC, will be considered.

Internal circulation – the current two-way internal circulation system within JLA has finite capacity. Planned expansion must include a one way system with segregated public transport and private car access.

Car parking – the quantity of car parking should accord with the Airport Parking Strategy to support sustainable travel targets, and to boost public transport share, and its location should be accessible for all and convenient to the terminal.

Aircraft stands – to achieve the efficiency of operation required by low cost airlines, wherever possible, stands should be accessible from the terminal via covered piers. Remote stands should be served by shuttle bus services.

Runway and taxiways – the runway and associated taxiways must support the number and type of aircraft required to facilitate planned growth.

Airfield infrastructure – JLA must be able to accommodate operational and safety requirements of growth; e.g. fire training facilities, fuel farm facilities, engine testing area, radar installations etc.

Cargo centre – JLA's potential as a gateway to the North West and its synergy with the Port of Liverpool will be optimised with the provision of state of the art air freight handling and distribution facilities to serve current and emerging markets.

Environmental management – to ensure the efficient use of resources, including previously developed land; minimise and mitigate environmental impacts, where appropriate; and use sustainable construction methods.

Design Constraints

7.9 The design of airport development has to address the statutory, regulatory and environmental policy context set out in

Chapter 4. This includes detailed technical and safety standards within which airports operate, such as limitations on building positions and heights and constraints on layout, for operational reasons. In addition, the design of new access roads and structures should take account of the requirements of the fire and rescue and ambulance services at an early stage.

7.10 Environmental and planning policies also need to be addressed in the design of development. Plan 4 shows some of the key policy designations which apply to JLA and its surroundings. These have been taken into account in the development of this Master Plan and in the assessment of infrastructure options. A detailed 'baseline' assessment of the area around JLA has been undertaken including its nature conservation interest, landscape character, built heritage value, agricultural value and current noise and air quality environment. These are considered in more detail in Chapter 11, and in a separate Sustainability Appraisal (SA) (see Chapter 13). In appropriate cases and having regard to the relevant Regulations[100], the likely effects of any development on these attributes will be considered as part of a formal Environmental Impact Assessment (EIA) that would accompany any future planning applications for any significant, detailed proposals emerging from this Master Plan. Early consultation with statutory authorities forms part of that process.

7.11 The following section outlines the infrastructure options that have been considered. The sustainability of the options and their relative merits have been reviewed as part of the SA. Chapter 8 explains in more detail the preferred option which has emerged from this assessment process.

Development Options

7.12 The Airport has considered alternative ways of accommodating the main infrastructure requirements; e.g. the provision of terminal accommodation, locations for car parking, extension of the runway, options for a new access route and locations for new business and general aviation facilities and cargo development. Numerous permutations were considered at the draft Master Plan stage which were subject to both the sustainability appraisal process described in Chapter 13 and public consultation. The following sections outline all the options considered to explain how the preferred options, set out in more detail in Chapter 8, were arrived at.

Extension of Passenger Terminal

7.13 Additional terminal capacity will be essential to handle the forecast increase in passenger numbers whilst maintaining comfort and convenience levels. Planning permission exists for an extension at the western end of the existing building which would meet short term needs. In the medium and longer term, however, significant further extension will be required.

7.14 Based on current standards, it is estimated that the terminal will need to be extended to provide floor space of around 107,000m^2 by 2015 and 128,000m^2 by 2030. This additional accommodation will have to be of a higher standard of quality to reflect the modern expectations of passengers and airlines, particularly those serving long haul destinations, and the prominent role of JLA as an international gateway to the North West.

7.15 In terms of IATA standards, the existing terminal is a C - D grade whereas these proposals seek to upgrade it to C - B. This will require an increase in the overall pro-rata floor space per passenger. In particular, it will require additional

100 The Town and Country Planning (Environmental Impact Assessment) (England & Wales) Regulations 1999.

check-in and luggage handling facilities, enlarged arrivals and departures halls and additional airside and landside lounge facilities, including associated catering, retail and office uses.

7.16 As part of the terminal expansion, provision will also be made to improve the facilities for public transport through the provision of an integrated PTI.

7.17 The following options to extend the terminal, illustrated on Figure 7.1 were considered.

Option T1: parallel to the runway

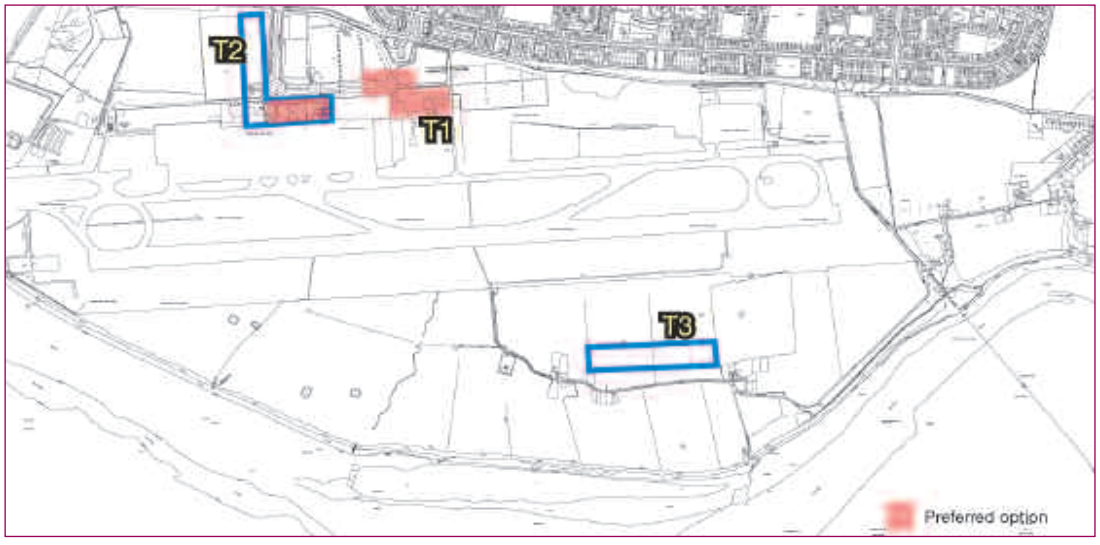
7.18 This option considers potential to extend the existing terminal at either or both ends, and to the north, whilst maintaining its linear relationship with the runway, as shown coloured red on Figure 7.1. The advantages of this option are that the terminal would maintain a close relationship to aircraft stands and taxiway to facilitate ease of access and movement for passengers and retain its strong, simple design statement. It would also allow the integration of the terminal with public transport through the creation of the PTI. The disadvantages mainly concern the practicalities of maintaining operations during construction works and the displacement of existing cargo operations from the west of the terminal.

7.19 These difficulties are not insurmountable, however, as previous extensions to the existing terminal have been successfully managed during the construction process; and an alternative location for the displaced cargo operations has been identified to the east of the terminal.

Option T2: 'dog leg' arrangement

7.20 This option involves constructing a linear extension of the terminal to the east and west with the western element turning at right angles to the existing building, as edged blue on Figure 7.1. The 'dog leg' would avoid the need to relocate existing cargo operations. Whilst sharing some of the advantages of option T1, this arrangement would not make such efficient use of space and internal circulation. In particular, it would require duplication of certain facilities and the increased land take would result in a less convenient arrangement of aircraft stands relative to the runway. It would also result in a less 'legible' layout and be less convenient for passengers to access public transport. As with option T1, careful management of the construction phase would be required. There would also be displacement of some existing passenger car parking.

Figure 7.1 Terminal Extension Options



Option T3: second terminal south of the runway.

7.21 It would be possible to provide additional terminal capacity in a separate terminal to the south of the runway in the Oglet. This would avoid disrupting the operation of the existing terminal during construction and dislodging the existing cargo operation and car parking to the west of the terminal. This advantage would, however, be outweighed by several significant disadvantages including: the cost of providing new access and car parks to the south of the runway; the increased journey lengths for passengers to access the terminal; and it would dissipate the number of passengers arriving at the existing terminal that encourages public transport provision. More importantly, the option of constructing an entirely separate terminal would be uneconomic in that it would duplicate many of the services provided in the existing terminal. In the longer term, passenger activity south of runway would constrain potential future expansion of cargo activities in this location.

Preferred Option:
T1: extension to terminal parallel to the runway.

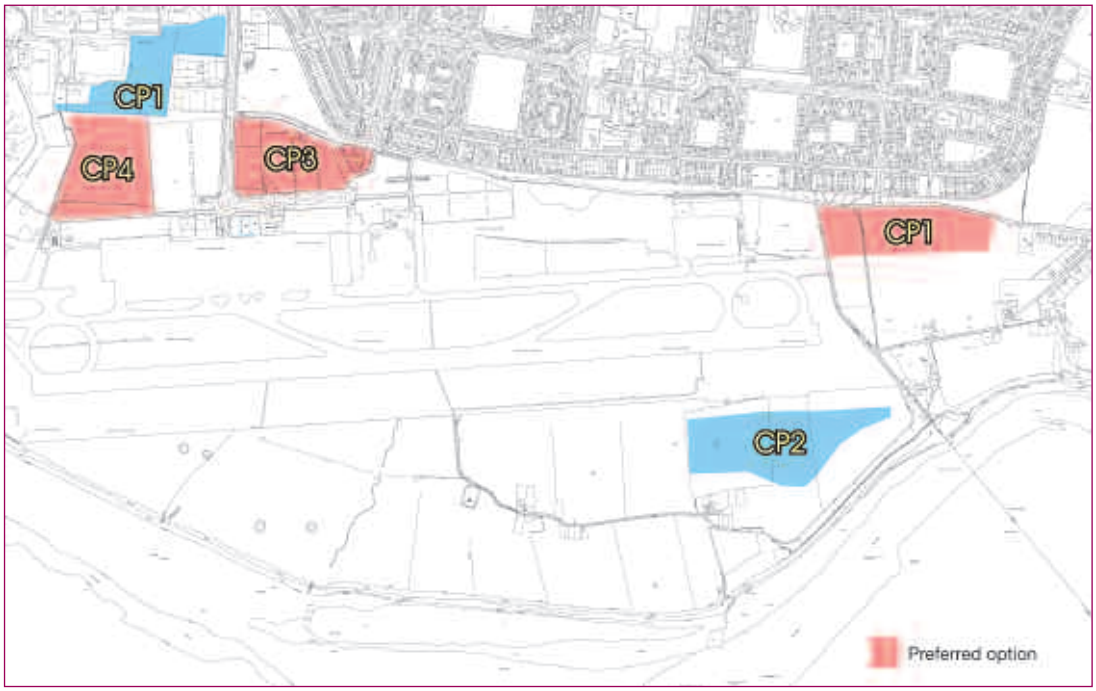
Car Parking Provision

7.22 Additional short and long stay parking will be required as JLA grows. The overall parking provision will continue to be managed to support sustainable transport targets in accordance with the ASAS and under the auspices of the ATF. However, it is estimated that around 10,700 spaces for passengers, staff and business visitors will be needed by 2015 and a further 3,500 by 2030 (see Chapter 9). There will also be a car hire parking requirement of 250 spaces in 2015 and a further 150 spaces in 2030. The options considered are illustrated on Figure 7.2.

Option CP1: surface parking north side

7.23 This option would meet required needs with additional surface car parking providing about 4,500 spaces within open land within the extended boundary of JLA fronting Hale Road

Figure 7.2: Car Parking Options



to the east of the existing alignment of Dungeon Lane, and to the north west of the terminal on land adjacent to the Sky Park Industrial Park.

7.24 The advantages of this option are that surface car parking would be simpler and cheaper to construct and maintain than multi-storey provision. The disadvantages include the relative remoteness of the car parking from the terminal and associated inconvenience for passengers with luggage and/or the need to provide shuttle bus services to the terminal. Additional resources would also be required to maintain car park security in parking areas furthest from the terminal. Whilst this is not a preferred option in the short term, it may be pursued in the longer term when the parking could be planned in association with the provision of the EATC. This would allow bus services from the east to pass these locations on their way to the terminal.

Option CP2: surface parking south side

7.25 This option, which would also provide for about 4,500 spaces, has all the disadvantages of option CP1 and would require extensive service infrastructure to provide. It would not be practicable in the absence of significant other development in the Oglet; e.g. a terminal or cargo development.

Option CP3: multi-storey parking north side

7.26 This option provides for the phased construction of a multi-storey car park (MSCP), comprising 10,000 spaces in total, on the existing car park to the north of the terminal building. It includes rationalisation of the existing car park by incorporating the site of the former Pegasus public house. The advantages of this option are that it would reduce the overall land take required for car parking and internal roads and provide ease of access to the terminal. Although it would be significantly more expensive to build than surface parking, and would result in a large structure at the entrance to the terminal, these disadvantages would be overcome by incorporating other development above, including hotels, to offset the cost of a carefully designed structure. (Options for hotel provision are set out below). The first phase of the MSCP (and hotel)[101], received planning permission in spring 2007. Work has started on the scheme and is scheduled to be completed in late 2008.

Option CP4: extension of existing long stay car park west of Speke Hall Avenue

7.27 This option would provide 2,500 spaces in addition to the existing provision in this area of 2,400 spaces. The location is nearer to the terminal than option CP1, but is not as convenient to the terminal for short stay use. The site is vacant and appropriate for further long stay parking until the area becomes part of the extended apron. Replacement parking could be provided by decking parts of the retained car park west of Speke Hall Avenue.

Option CP5: off-site car parking

7.28 Assessments by the Airport have shown that adequate land exists within JLA to meet all car parking requirements throughout the Master Plan period. The option of providing remote 'off-airport' car parking by other parties, outside of the ASAS/ATF process, is not supported because it would undermine both public transport services to JLA, which are part of a comprehensive package of fiscal measures in the ASAS, reliant on the income generated by parking charges and the ability to meet modal shift targets in the ASAS (see Chapter 9).

Preferred Option:
CP3: multi-storey for short stay parking (with phase one completed in 2008); Option CP4: extension to long stay parking and surface parking north side; CP1: parking to the east in the longer term to 2030.

101 This scheme includes 869 car parking spaces and a 157 room 3 star hotel. Application No. 06F/1713, dated 3 April 2007.

Runway Extension

7.29 The White Paper highlights that there may be a case to extend the runway to support long haul operations. The Airport has undertaken a detailed appraisal of the capacity of the current runway that is 2,286m long. It has assessed the economic benefits that serving new long haul markets could bring and the operational and environmental implications of a longer runway.

7.30 As set out in Chapter 6, the ability to serve long haul destinations from JLA offers significant commercial opportunities for air passenger and cargo operators that would secure substantial economic and social benefits for the Liverpool City Region and the wider Merseyside economy. The introduction of new long haul passenger services would deliver significant potential for additional inbound tourism. Access to global cargo markets would open up opportunities for trade with China and the Middle East, as well as North America to reaffirm Liverpool's strong maritime heritage connections. These factors combine to make a powerful case for additional runway capacity. Technical studies commissioned by the Airport have shown that the optimum length of runway is 2,600m at full width (an extension of 314m) with narrower 'starter strips' of 150m in length at each end (starter strips are parts of the runway only needed in take-off). This would give a total effective runway length of 2,750m which is the minimum requirement to meet the above.

7.31 It is proposed that the new runway ends be connected to the terminal and apron by extension of the existing parallel taxiway, offering greater operational flexibility and maintaining runway capacity. Concurrent with the runway works, new rapid access/exit points would be required between the runway and existing taxiway system, minimising turn-around times for the low cost carriers.

7.32 In formulating these Master plan proposals, the Airport has considered the following options (see Figure 7.3).

Option R1: retaining current runway length

7.33 This option involves optimising existing runway capacity without extending its length. Its advantages relate to the financial and environmental costs that would be foregone compared to the options that seek to extend the runway. It would, however, have the considerable disadvantage of constraining the development of commercial passenger and cargo long haul routes that would forego the significant economic and social benefits that such operations would secure.

Option R2: extension to the west

7.34 This option involves extending the full width runway by 314m to the west with the addition of 150m starter strips at each end. The western end of the existing runway is close to

Figure 7.3 Runway Extension Options

the Mersey Estuary with the RESA being immediately adjacent to it.

7.35 There is insufficient land available to extend the runway and provide the necessary RESA without development beyond the current cliff into the Estuary. The existing lighting gantry, which is partly within the Estuary, would also need to be extended. Such development would have significant adverse impacts on the special environmental and nature conservation interest of the Estuary and as such would not accord with the White Paper.

Option R3: extension to the east

7.36 This option involves building a 314m full width runway extension to the east of the existing runway with 150m long starter strips at each end. As the western starter strip could be provided within the current RESA, this option would be deliverable without disadvantages of the physical impacts in the Estuary that option R2 would have.

7.37 Realignment of Dungeon Lane and relocation of existing landing lights to the east would be required as part of this option. The current proximity of Dungeon Lane to the eastern end of the runway and the position of approach lighting outside the boundary does not meet the national standards recently introduced by the CAA and, therefore, currently needs to be subject to independent risk assessment. This option would enable this deficiency to be addressed.

7.38 Agricultural land within the Green Belt is available to the east of the existing runway beyond the existing operational boundary. This land is not of particular heritage, environmental or nature conservation interest, and scope exists to mitigate any relevant impacts.

7.39 A disadvantage of an eastern extension is that it would bring the runway closer to Hale Village. However, as a result of providing a starter strip at the western end of the runway, the majority of aircraft that operate from JLA would be able to take off earlier and, therefore, fly over Hale Village at greater heights than at present. Additionally, the landing threshold would only be displaced 120m further to the east rather than the full length of the extension. As a result, aircraft arriving over Hale Village would only be slightly lower than at present. Aircraft take off and landing heights, and the impacts in terms of noise and safeguarding, will be considered at the detailed planning stage. However, current indications are that one property, in addition to those that the Airport has already offered to purchase, would be subject to high levels of noise: (69 dB LAeq,16h) (see Chapter 11).

Preferred Option:
R3: extension to the east with 150m starter strip extension to the west.

Improved Surface Access

7.40 The Airport recognises that maintaining safe, convenient and sustainable access is key to securing growth and has considered a range of measures to achieve this. It has adopted an ASAS that commits to maintaining and extending high quality bus services to the terminal and managing car parking provision to encourage sustainable travel. The Airport continues to work with the PTE, Merseytravel, through the ATF to improve bus, coach and rail access to JLA (particularly, through the recently opened Liverpool South Parkway station). As part of this Master Plan, it has established ambitious medium and long term targets for increasing the proportion of journeys by public transport to JLA. The Airport is also committed to encouraging its staff, and those of other companies based at JLA, to use sustainable means of travel.

7.41 The Airport, nevertheless, recognises that the majority of journeys will continue to be made by

car. Adequate highway capacity must, therefore, be maintained in the interests of safe and convenient access, but, importantly, also to maintain highway capacity to facilitate the ongoing regeneration in the Speke Boulevard Corridor and South Liverpool generally. In drawing up its long term growth plans the Airport has considered how to optimise the use of the existing network and the potential to provide additional capacity in the form of the EATC. Three potential routes have been considered (see Figure 7.4). Each is considered to be capable of accommodating a high quality single or dual carriageway road (as required) that would accommodate cycle and pedestrian facilities and provide for improved public transport and car based access from the east, set within a substantial landscaped buffer.

Option SA1: optimise capacity of existing network

7.42 This option involves examining ways in which the existing highway network could be improved to optimise capacity to 2015 and 2030.

7.43 The Airport is working with Liverpool City Council and looking at the forecast traffic demands on the Speke Boulevard Corridor. This work involves use of an updated version of the City Council's Southern Corridor Transportation Model. The traffic forecasts reflect not only the expansion of JLA, but also the substantial amount of employment development that has been granted consent in the Corridor.

7.44 The modelling shows that the two junctions on Speke Boulevard close to JLA would experience congestion in the highway peaks due to this forecast increase in demand once this development all comes on stream. These are the Speke Boulevard junctions with Western Avenue and Speke Hall Avenue. The delays at these junctions could also encourage rat running through the Speke Estate to avoid them.

7.45 Consequently the Airport is working with the City Council to identify improvements that can be made within the existing highway boundaries. The two junctions currently take up large areas of tarmac but are conventional signalised cross-roads with large 'through' movements along Speke Boulevard and relatively small other turning movements. The designs and operational performance are

Figure 7.4 Surface Access Options

inefficient, and both the Airport and City Council believe that improvements can be achieved.

7.46 Improvements are being examined based on 2011 and 2015 peak hour demand forecasts. This includes all the currently non-JLA committed development being fully developed, other than consents which themselves require highway improvements which are as yet not specified. Improvement schemes have been agreed which provide capacity up to around 2015.

Option SA2: EATC route option 1

7.47 This option for the EATC would follow a route of about 2 km (1.2 miles) that would pass to the east of the Speke Estate and join Speke Boulevard (A561) to the east of the ancient woodland, consisting of Mill and Alderwood and Hopyard Wood, adjacent to the Jaguar plant, via the creation of two roundabouts and associated slip roads.

7.48 This is the shortest of the three routes considered. It would not result in the loss of any land or features of particular heritage, landscape or agricultural value. However, the junction with the A561 could affect a site of Biological Interest on land to the north of Speke Boulevard (Crab Tree Rough) and the ancient woodland. Nevertheless, it is considered that scope exists to mitigate any adverse impacts, including the provision of a substantial landscaped buffer along the length of the EATC. Although no significant impacts are envisaged, careful consideration would need to be taken of the potential effects on St Ambrose Primary School, particularly children's use of its playing fields. This option would involve the smallest land take and have least environmental impact of the three routes. The route would not cross any existing roads or railway lines and, as such, would not require bridge structures or alteration of the existing highway access to Hale village.

Option SA3 – EATC route option 2

7.49 This route would follow the course of Option SA2 to the north east, but then turn eastwards crossing Higher Road past the existing waste water treatment works on Ramsbrook Lane and connect directly to the Knowsley Expressway (A5300) on its existing grade separated junction with the A561. It involves the creation of a slip road from the A561 and the realignment of the existing southern slip road.

7.50 At 3.75 km (2.3 miles), this is a significantly longer route than Option SA2, as it would provide direct access to the A5300 and potentially provide a link road to serve the Ditton rail freight interchange on the Liverpool – Manchester railway line. Being a longer road, it would require more land take than Option SA2. It would also have greater environmental impacts: it would pass closer to residential areas in Hale with consequent additional traffic noise; have a greater heritage impact, as it would pass close to a Conservation Area in Hale and to a Scheduled Ancient Monument at Lovel's Hall, and cross an area of known medieval settlement activity (adjacent to the potential junction with the A5300). The road would need to bridge over the railway line and three existing roads (Halebank Road, Carr Lane and Ramsbrook Lane) en route to the A5300. It would, therefore, have greater construction and visual impacts and be considerably more expensive to build.

Option SA4: EATC route option 3

7.51 This route would follow the initial alignment of Option SA2, but then turn eastwards crossing Hale Bank Road south of the waste water treatment plant before turning northwards to join the A5300. It would require the creation of a slip road from the A561 and the realignment of the existing southern slip road. At about 4 km (2.5 miles), this is the longest route of all and would have similar disadvantages to Option SA3 with no material advantages.

7.52 In view of the above, it is concluded that of the three EATC routes, Option SA2 is the least environmentally harmful[102] and most cost effective to construct.

Preferred Option:
SA1: optimise the capacity of the existing network in the short term with Option SA2: EATC route option 1 to commence planning now for delivery in around 2015.

Business and General Aviation Centre

7.53 Business and general aviation (BAGA) is an important part of the aviation services provided at JLA that is expected to continue to grow to about twice its existing size by 2030. In making provision for future growth, the following two options were considered (see Figure 7.5).

Option BAGA1: east of the terminal

7.54 This option involves rationalisation and expansion of the existing BAGA centre to the east of the terminal building, adjacent to Hale Road. Additional hangarage and other facilities could be built adjacent to the existing buildings.

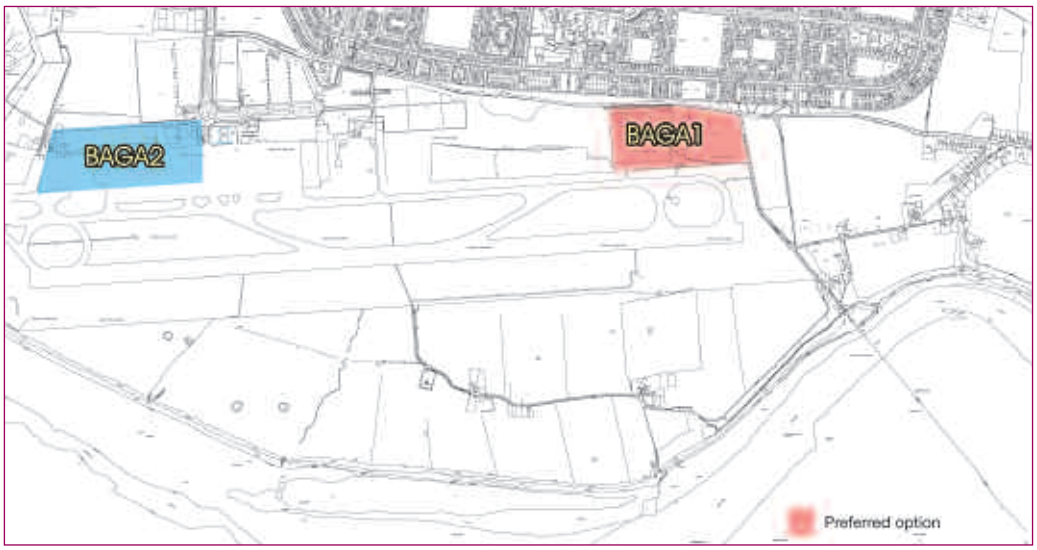
7.55 Land is already available at this location and there would be no displacement of other activities. The main issue to be addressed would be protection of houses in the Speke Estate from increased noise or visual impact. This would be achieved by enhancement of the acoustic and landscape bund along Hale Road. This option has the advantage of segregating BAGA traffic from passenger traffic by retaining direct access to the BAGA centre from Hale Road. It would also make use of recent investment in BAGA facilities (three new hangars were erected between 2001 and 2004).

Option BAGA2: west of the terminal

7.56 This option involves consolidating BAGA activity to the west of the terminal. There are no advantages with this option given the availability of land within the existing BAGA centre to expand its services. However, there are several disadvantages: it would constrain the potential to provide additional aircraft stands with immediate access from the terminal; preclude further western extension of the terminal building; and require BAGA traffic to use the main passenger / public transport access routes.

102 See Chapter 11 for further analysis of the environmental effects of each of the EATC Options.

Figure 7.5 Business and General Aviation Options



Preferred Option:
BAGA1: east of the terminal.

Cargo Development

7.57 The White Paper identified significant potential for additional cargo handling and distribution facilities at JLA. As set out in Chapter 6, this Master Plan seeks to realise this potential and the economic and social benefits such development can bring to the Liverpool City Region and Merseyside.

7.58 Historically, cargo has been a significant part of the business of JLA. This Master Plan envisages its importance growing significantly in the longer term. The Airport has commissioned detailed market research and forecasts of potential demand for cargo facilities based on providing a long haul capability at JLA to penetrate established markets in North America and emerging markets in South East Asia and the Middle East. Such development would also encompass maintenance and repair facilities, the requirements for which would grow as more aircraft use, and are based at, JLA.

7.59 This research indicates steady incremental growth of current cargo activities in the short and medium term and more rapid growth in the longer term, as the proposed runway extension facilitates operation of larger freight aircraft on long haul routes. Accordingly, the following options have been considered (see Figure 7.6).

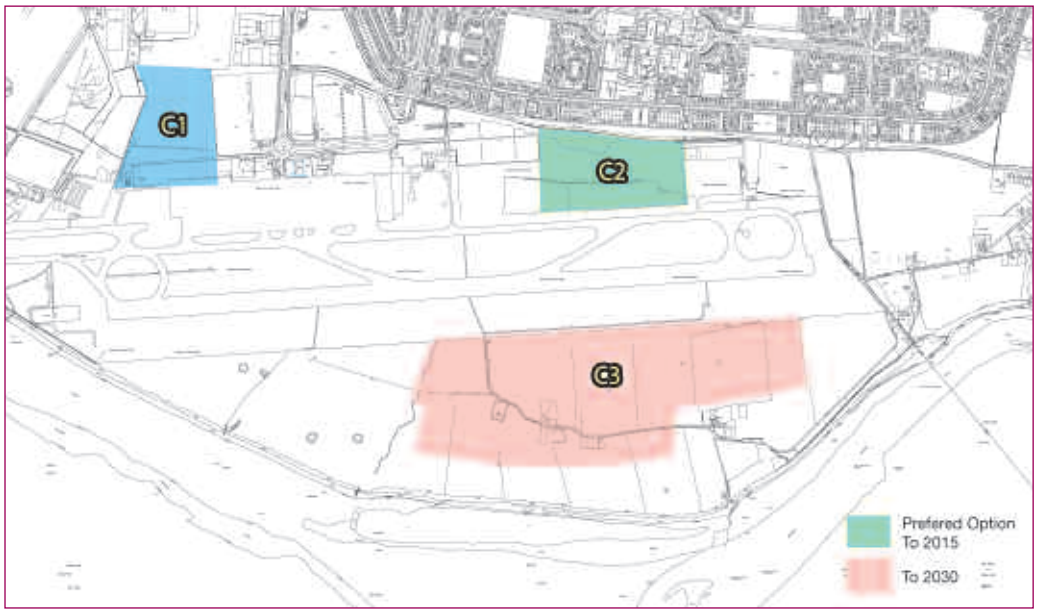
Option C1: within existing boundary west of the terminal

7.60 This option involves accommodating cargo development by the expansion of existing facilities within the boundary of JLA. Existing cargo facilities formerly used by Royal Mail and TNT are located to the west of the terminal. As explained above, this area has been considered as a potential location for BAGA facilities. However, it was ruled out as it would compromise provision of passenger aircraft stands and constrain expansion of the terminal. The same applies in respect of expanding cargo development in this area The only alternative location for cargo facilities in the period to 2015 within the boundary is to the east of the terminal adjacent to the long stay car park.

Option C2: within existing boundary east of the terminal

7.61 This area fronts the existing taxiway and has its

Figure 7.6 Cargo Development Options



own surface access from Hale Road. The TNT operation has been relocated and expanded on the western end of this land that also provides scope for further cargo development. Any noise or visual impact of such development on housing to the north would be mitigated by appropriate building design and enhancement of the acoustic and landscape bund along Hale Road.

7.62 This area has capacity to serve the forecast 40,000 tonnes of cargo pa in the short and medium term; i.e. up to 2015.

Option C3: expansion beyond existing boundaries

7.63 Since Option C2 cannot meet long term demands, consideration has been given to the potential for expansion beyond existing boundaries. Cargo development would require direct airside access. Development to 2015 would maximise the use of airside access from the north side of the runway and additional access for the scale of development envisaged could only be achieved to the south of the runway in the Oglet.

7.64 This would require construction of a parallel taxiway south of the runway and creation of apron areas, hangars and associated storage and distribution buildings. There is sufficient land in the Oglet to provide a state of the art cargo complex capable of handling long haul air freight. This development would avoid impacting the Mersey Estuary and preserve the integrity, recreational, heritage and nature conservation value of the proposed Speke Garston Coastal Reserve.

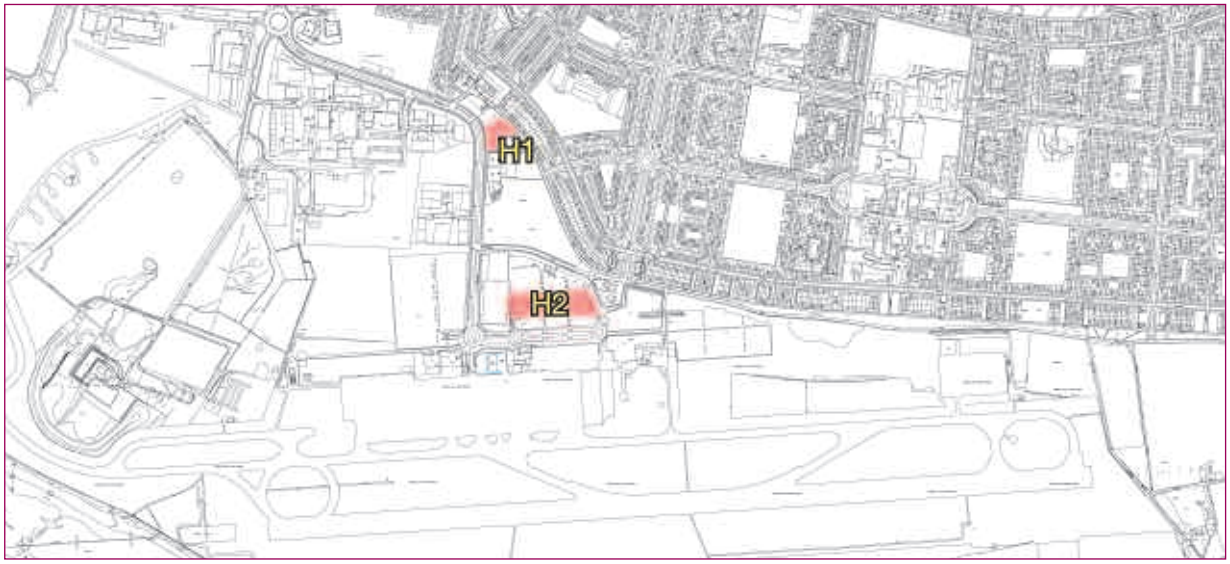
7.65 Land south of JLA is in the Green Belt. Draft RSS for the North West provides that revisions to the Green Belt boundary around JLA to accommodate airport related infrastructure could be considered through the LDF process, and refers to the potential for a strategic review of Green Belt boundaries on Merseyside after 2011.

Preferred Option:
C2: cargo development within existing boundary to 2015 and Option C3: expansion beyond existing boundaries to 2030.

Hotel Provision

7.66 Growth of JLA will result in increased demand for hotel accommodation (including from passengers, air crew, and in related businesses). Existing hotel provision in the vicinity is limited. Whilst additional provision

Figure 7.7 Hotel Provision



may be made off-site, this Master Plan seeks to make provision for a range of hotel accommodation within easy reach of the terminal. Locations which provide a range of choice are shown on Figure 7.7.

H1: land off Speke Hall Avenue

7.67 This site is on the approach road to JLA and is capable of accommodating a medium sized hotel. As part of the proposed rationalisation of the access road and internal circulation, this would form part of a gateway to JLA. It is likely to be attractive to providers of budget or mid market hotel accommodation.

H2: adjacent to the terminal

7.68 The preferred option of constructing a MSCP (see Option CP3 above) presents an opportunity to develop a three star hotel above with direct access to the terminal. Planning approval has been obtained for this development, which is expected to be completed in late 2008. The incorporation of the hotel will help to meet the additional cost of construction of multi-storey parking.

Preferred Option:
H1: for budget/mid range hotel and Option H2: for higher quality hotel.

Engine Testing

7.69 Engine testing currently takes place on a taxiway to the west of the terminal. Whilst this location remains suitable in the short term, as JLA grows this activity would need to be relocated. The most appropriate location for a new facility consisting of a concrete bay in the long term is considered to be south of the runway adjacent to the proposed fire station. This is furthest from residential areas and as such would minimise noise impacts. It would also be close to the longer term cargo and maintenance facility south of the runway and would therefore be operationally convenient. It is therefore proposed that a purpose built engine testing facility be located as shown on Figure 7.8 alongside other airport infrastructure; i.e. development needed for the operation of the airfield.

Radar Installation

7.70 The new replacement radar comprising the latest technology has recently been installed on a site to the south of the runway and west of the control tower. This site, shown in Figure 7.8 best meets the relevant technical requirements, and is well away from residential development.

Figure 7.8 Airport Infrastructure

Fuel Farm

7.71 The existing fuel farm location is capable of being extended to cater for the fuel needs arising from the proposed growth of JLA, and, consequently, there is no requirement to develop any further facilities elsewhere.

Office and Commercial Accommodation

7.72 The Airport's offices and those of airlines and other businesses based at JLA are accommodated mainly in a variety of temporary modular buildings. Accordingly, high quality, permanent accommodation is required as part of the expansion proposals. In order to maximise the employment generating potential of JLA, it is intended to provide accommodation for a wide variety of airport related businesses that will need to be located in close proximity to the terminal and other landside and airside facilities. A variety of locations for such accommodation shown on Figure 7.9 have been considered.

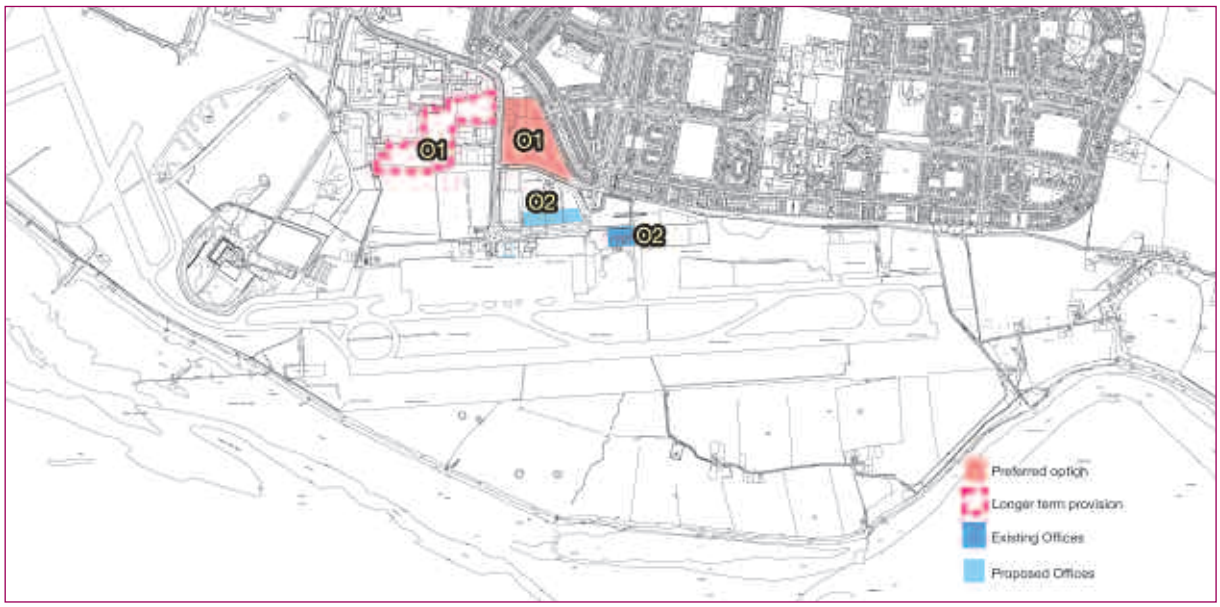
O1: former Dunlop Site, Speke Hall Avenue

7.73 The expansion of JLA to the north would create a high quality, airport related business park. This would provide a range of office and storage accommodation for businesses based at JLA and other airport related uses that may be attracted to the area. This site would meet the commercial requirements of potential occupants and would enhance the entrance to JLA as a key gateway. It would facilitate clustering of airport related businesses and provide a critical mass of accommodation. Such a scheme would be linked to the replacement of the existing playing fields with enhanced facilities at Central Drive within the Speke Estate. The Airport is also seeking to facilitate the relocation of the Dunlop Sports and Social Club to a suitable venue in the area. In the longer term there would be an opportunity to expand the business park to the west of Speke Hall Avenue, further improving the range of accommodation available and enhancing the approach to JLA.

O2: north and east of the terminal

7.74 The existing administration offices are located to the east of the terminal. The potential to provide permanent accommodation in that location has been considered. Bearing in mind the requirements for extending the terminal, including a PTI and for additional car parking,

Figure 7.9 Office and Commercial Accommodation



there would be limited space for office accommodation. This location would not offer the critical mass or commercial profile that other airport related businesses would be attracted to. This Option would not, therefore, maximise the job creation potential of JLA, albeit in the short term it is likely to remain in its current form. There is scope to provide some accommodation in further in the area around the hotel / MSCP under Option H2.

O3: further off site

7.75 Seeking to provide airport related office and commercial accommodation further off site; e.g. specifying that it could take place in Liverpool City Centre, is an option that would potentially either free up land for other types of development or keep it undeveloped, but would suffer from a number of disadvantages. Failure to provide appropriate sites for airport related businesses at JLA, with ready access to the terminal and critical mass of high quality accommodation, would mean that some of the employment that JLA has the potential to attract could go to other airports outside the City Region. This would reduce the economic and social benefits that such development can bring to an area like Speke. Furthermore, for those uses needing ready access to JLA, requiring them to locate elsewhere could undermine the principle of sustainable development by encouraging journeys by car.

Preferred Option:
O1: office and commercial accommodation on the former Dunlop Site, Speke Hall Avenue.

Development at Liverpool International Business Park

8. The Airport – Phased Growth to 2015 and 2030

Infrastructure Proposals – Preferred Option

8.1 This Chapter describes the additional infrastructure and facilities required to support the planned growth of JLA, as identified in the preceding Chapter. This represents the preferred option which most closely fulfils the Airport's vision.

8.2 In order to comply with the DfT's guidance on the preparation of airport Master Plans, the requirements are presented in two time frames: 2006-2015 and 2016-2030. However, growth will continue to occur incrementally throughout that time. Planning applications will be made in due course for phases of development – the first phase is likely to seek permission for the majority of the passenger related infrastructure requirements to 2015 that fall outside the scope of permitted development (i.e. works that do not require planning permission) or via smaller applications where the need arises. The implementation of approved works will continue to reflect operational and safety requirements, airline needs and passenger and market demand.

Proposals 2007 to 2015

8.3 The following key developments shown on Plan 2 are identified for development by 2015.

A Expansion of the Passenger Facilities

- The expansion of the existing terminal building to bring the gross total terminal floor space from about 34,000 m^2 to around 107,000m^2. This would provide capacity to accommodate about 8.3 mppa, and include: baggage handling facilities, check in facilities, lounges, office space, retail and restaurant areas, visitor and public transport information kiosks, piers, link corridors, plant and viewing facility. This expansion would comprise phased extensions at each end and to the north of the terminal building. All new development would be accessible to the disabled and compliant with the requirements of the Disability Discrimination Act 1995.
- A new internal road circulation system to facilitate direct access for public transport services and efficient access to and egress from car parks. This is likely to include re-routing of the western part of Dunlop Road to create a new link between Hale Road and Speke Hall Avenue. A new roundabout access point would be created in the vicinity of the southern end of Woodend Avenue but there would be no direct access from Woodend Avenue. Infrastructure required to achieve this would be provided in phases, with the early enabling works being delivered over the next few years as additional car parking and hotel development is implemented.
- A new PTI to accommodate existing and improved bus and coach services alongside rental car pick up and set down areas. This would comprise a dedicated facility with additional bus stops with direct access to the terminal building. It would also incorporate provision for taxi services and would be segregated from entrances to the car parks.
- Car parking provision through expansion of the existing long stay car park to the north west of the terminal building and erection of multi-storey parking adjacent to the terminal to provide a total of around 11,000 spaces (a net addition of around 4,500 spaces over current provision) together with short-term drop off and pick up provision.
- A new hotel adjacent to the terminal, in association with the proposed MSCP.
- Street and other lighting for the car park(s) and internal highways.

B Improvement of Operational Infrastructure

- Extension of the runway to the east from 2,286 m to 2,600m at full width with 150m

long starter strips (narrower sections of runway only used on take-off), together with associated apron enhancements, including the extension of the parallel taxiway to the north of the runway at each end of the runway, and lighting.

- Provision of 'rapid turn offs' to enhance the capacity of the runway in times of peak usage.
- A new purpose built engine testing facility south of the runway within the Oglet in the vicinity of the existing radar in the medium term.
- A new fire station to cater for higher category fire service protection in the medium term.
- Structural landscaping, including planted acoustic bunds where appropriate, particularly around site boundaries; e.g. with Speke Hall, the Speke Estate and around the proposed runway extension.
- An additional 10 aircraft stands located to the east and west of the terminal and linked to it via covered piers.
- Relocation/replacement of the landing lights at the eastern end of the runway and associated provision of enhanced navigational aids including relocation of the instrument landing system (ILS) 'Glidepath'.
- Provision of a new radar close to the existing installation to the south of the runway in the Oglet.
- Construction of new perimeter fencing (security fencing), Restricted Zone (RZ) fencing and routes for airfield vehicles (perimeter track)
- Laying out of a new RESA entailing the closure of Dungeon Lane, Ashton Lane and parts of Bailey's Lane, and replacement by a new road to the east of the extended runway.
- Mast lighting for the aprons and taxiway.

C Enhancement of Associated Business Development

- Phased expansion of the general and business aviation centre (to around 7 ha) to the north of the existing runway adjacent to Hale Road.
- New mixed use development adjacent to Speke Hall Avenue to provide potential locations for airport offices, airline suppliers (in flight catering and cleaning services) control authority offices, storage and hotel development on the former Dunlop site and on land adjoining the Sky Park Industrial Park. Many airports also have petrol filling stations to serve the needs of departing passengers travelling home as they leave, particularly in the night period.

D Cargo and Maintenance Facility

- An expanded cargo and maintenance facility of around 7 ha to handle forecast growth of cargo to around 40,000 tonnes pa on the northern side of JLA adjacent to Hale Road. This is to provide dedicated facilities for maintenance of aircraft and sheds for cargo handling and distribution operations, and to accommodate the expansion needs of existing cargo companies, together with new businesses attracted to JLA.
- Provision for the relocation of the existing maintenance hangars to allow for their replacement by a more efficient apron arrangement adjacent to the terminal. The hangars would be dismantled and rebuilt.
- Facilities for the Airfield Engineering Department to accommodate steps, ground power units, tugs, snow equipment, airfield vehicles, aircraft washing equipment and stores.
- Where necessary, new areas of apron adjacent to the proposed cargo and maintenance buildings.
- Structural landscaping including acoustic bunds/screens to ensure an appropriate

interface with the Speke Estate and Speke Hall.

E Eastern Access Transport Corridor

8.4 The Airport is investigating ways to maximise the capacity of the existing transport network around JLA and also considering proposals to increase the capacity of the Speke Boulevard Corridor.

8.5 Detailed transport modelling has been undertaken by the Airport and Liverpool City Council to assess the likely traffic generation of JLA and other developments in the area. The results of this work will help to inform decisions about the details of the additional infrastructure that will be needed, when it should be provided, and how it will be funded.

8.6 This Master Plan includes the preferred route, Option SA2, as shown in Figure 7.4, for the EATC to link Speke Boulevard (A561) with Hale Road and Speke Hall Avenue.

8.7 The current brief for the EATC shows it as a dual carriageway, with 7.3m wide carriageways, 1m wide hard strips and a minimum 4.5m wide central reservation, with widening to suit visibility requirements; and a cycleway. It would incorporate five roundabouts along its length at grade. At the Speke Boulevard junction an existing bridge over Higher Lane would be used to provide access beneath the Boulevard. This solution, rather than a new grade separated junction, means that the road would be kept as low as possible, reducing the earthworks and the associated visual and noise impact. The proposed layout is designed to minimise impact on the landscape, in particular, Hopyard Wood and the south-east corner of the Jaguar site.

8.8 Initial discussions about the alignment have been held with Liverpool City, Knowsley and Halton Borough Councils, through whose boundaries the road passes. Along Hale Road, the alignment generally follows the existing route, but with larger radius curves to improve the road geometry. It would be at approximately the same level as the existing Hale Road with appropriate screen landscaping to the boundary with Speke Estate.

8.9 It is proposed that a 50mph speed limit would be applied from the junction on Speke Boulevard down to Hale Road. From there, across to Speke Hall Avenue, this would be reduced to 40mph; i.e. the same as on Speke Hall Avenue.

8.10 Where the route from Speke Boulevard meets Hale Road, a spur is proposed, extending into the Oglet. This road would replace the existing Dungeon Lane, which would be severed by the proposed runway extension. The spur alignment has been carefully selected to fit as close to the boundary of JLA as possible, but outside the proposed RESA, and within the Airport's land ownership boundary. Currently Dungeon Lane passes through the RESA, with traffic light control only, which is undesirable. The spur road would provide access to the control tower, rescue and fire fighting services facilities and the proposed Oglet World Cargo Centre (see below).

8.11 Where the Hale Road section meets the JLA car park boundary, a roundabout is proposed, which would become the main entry point to JLA. From this point to Speke Hall Avenue, the EATC would become one section of a one way access loop (subject to agreement with the highways authority) around the landside airport zone, linking to the PTI, set down and central car park areas. The roundabout position is tightly constrained by the existing MEPAS pumping station.

8.12 The preferred route crosses land currently in agricultural use to the east of Speke. The Airport owns some of the land required to deliver the EATC. Where it does not own any land required, it will make early approaches to land owners to acquire the required land. Every effort will be made to acquire by negotiation. Compulsory purchase procedures will only be used if there is no other reasonable alternative (see Chapter 12).

8.13 In addition to the land required for the route of the EATC, land may also be required for landscaping and/or as a potential site for habitat creation to compensate for other land lost to development closer to the operational area of JLA. An initial feasibility study of the scheme is underway and more detailed design work will be carried out once a final route is confirmed.

F Coastal Reserve

8.14 Expansion of JLA presents an opportunity to establish an extension to the Speke Garston Coastal Reserve over a 3.5 km (2.2 mile) stretch of coast and about 50 ha (124 acres) in size. This would more than double the extent of the existing Reserve, and create a nature conservation, heritage and recreational resource of regional significance that would be retained in perpetuity.

8.15 The Coastal Reserve project is underway and is delivering a unique, attractive, wild and naturalistic landscape setting for the Mersey Way footpath that runs along the cliff top to the south of Liverpool International Business Park and adjacent to the Estuary on the old Northern Airfield. It will provide a wide range of habitats for wildlife. Visitor facilities and an interpretation centre are planned, and the new 'Park' is a key part of a coordinated programme to regenerate the coastal areas all around Liverpool as part of the Mersey Waterfront Park. The project is managed by a group of stakeholders including Peel, Mersey Basin Campaign, Liverpool City Council and the National Trust. A Management Company has been established by Peel and the Mersey Basin Campaign to ensure the long term management and development of the landscape.

8.16 A key principle of the landscape of the existing Coastal Reserve is the establishment of a strong and defensible boundary between commercial areas and the Reserve alongside the Estuary. To the west of JLA, this is being achieved by raising ground levels within the Liverpool International Business Park, which lies alongside the Coastal Reserve, placing the secure boundary fencing in a ditch to reduce its visual impact, and widening the ditch to create new damp scrape habitats for amphibians.

8.17 At Oglet, it is proposed that a similar bold approach is taken, but in this case, due to the operational levels of the airfield, it would not be possible to raise land within this area. Levels would, therefore, be raised within the area of the Coastal Reserve itself, to enhance the natural slope inland from the cliff top, and create a screen behind which the airport boundary fence would be concealed from within the Reserve. The existing wooded cloughs, which are the characteristic feature of the Oglet area, would be protected and integrated into the new landscape.

8.18 Following the establishment of the boundary, the Reserve at Oglet will be laid out in full consultation with key stakeholders. Plan 5 shows the re-creation of a former pattern of small fields and hedgerows, which can accommodate small songbirds and would discourage the use of the land by large groups of larger birds which are a hazard to aircraft. Insects and amphibians would be encouraged by the creation of species rich grasslands, beetle banks and hedge banks, and damp scrapes.

8.19 The Mersey Way footpath would be properly surfaced to increase the enjoyment of its use by walkers and cyclists, and the route carefully laid out to minimise disturbance to wading birds resting on the shore from people on the cliff-top. Vehicular access to the area would be controlled to reduce the problem of fly tipping and environmentally damaging motor sports that currently affect the area.

8.20 Yew Tree Farm, which is a listed building, would be incorporated into the project and may be suitable for use as a Visitor Centre, or as a warden's residential accommodation. Close by, a small aircraft viewing area would be created providing views north over the airfield and south across the Reserve to the Estuary.

8.21 A long term habitat creation and landscape management scheme would be developed, which would incorporate management measures to be undertaken within the new Reserve area, around the EATC along Hale Road, and within the airport complex to ensure the long term sustainability of the landscape and ecological mitigation works. Early delivery would enable the extension to the Reserve to provide an established landscape context to the later delivery of the Oglet World Cargo Centre (see below).

Airspace

8.22 The Airport maintains the highest possible safety standards concerning ATC and airspace for JLA in accordance with CAA requirements. It has responsibilities for safeguarding the airspace capacity of JLA necessary to make maximum use of the existing runway and its proposed extension.

8.23 The White Paper recognises the need to provide airspace capacity to support airport expansion and states:

> "If the additional airport capacity which would result from the proposals in this White Paper is to be effectively utilised, it must be matched by a corresponding increase in airspace capacity…This must be done without compromising the existing standards of safety, and must also take account of any environmental impacts."[103]

8.24 As a result, the White Paper tasks the CAA, with the involvement of National Air Traffic Services Limited (NATS), and the other major providers of air traffic services, to work up future proposals for the UK's airspace:

> "…with a view to the phased implementation of changes to eliminate constraints and permit the integration of the forecast increases in aircraft movements…"[104]

8.25 Whilst airspace planning and regulation is formally the CAA's responsibility, the potential local airspace issues and impacts will be considered by the Airport in bringing forward the proposals in this Master Plan.

Local Airspace Capacity

8.26 The UK has a complex airspace structure to support an extensive network of arrival and departure routes, with the interaction of various airports having an impact on capacity in the surrounding airspace.

8.27 The regulated airspace around JLA is designated as Class D Controlled Airspace. Aviation legislation requires all aircraft wishing to enter, or fly, within this Controlled Airspace to make radio contact with JLA ATC and obtain clearance to operate. JLA ATC controls the airspace using a combination of radio

103 'The Future of Air Transport', Department of Transport, (2003), para. 12.25.

104 'The Future of Air Transport', Department of Transport, (2003), para. 12.26.

instructions and radar surveillance to manage the prevailing air traffic situation.

8.28 The airspace above and abutting JLA Controlled Airspace is part of the Manchester Terminal Movement Area (TMA) Class A airspace and is operated under the control of NATS at Manchester Airport.

8.29 Manchester Airport is located approximately 37 km (23 miles) east of JLA and Chester Hawarden Airport is located approximately 19 km (12 miles) south east of JLA. Such close proximity, combined with the differing alignment of the runways creates a complex interface between the traffic patterns of the three airports. All activity at JLA has to be safely integrated with traffic for Manchester and Chester Hawarden Airports to avoid conflicts in demand for access to the same airspace. This can result in delays to some air traffic in peak periods.

8.30 Given the support in the White Paper for the growth of JLA (including a possible runway extension), it is important that adequate airspace capacity is protected so that the existing runway, including its extension, can be effectively utilised. The White Paper notes that the appropriate planning and transport bodies will need to take into account the need to provide the necessary airspace to enable the White Paper policies to be implemented.[105]

8.31 A full review of TMA and the JLA airspace is currently underway by NATS in conjunction with airport airspace users, including the airlines. The aim is to increase overall regional capacity whilst seeking to minimise noise from arriving and departing aircraft. The review will include the use of Continuous Descent Approach (CDA) and continuous climb procedures, where practical, to minimise the need for level aircraft flight around JLA. This has the benefits of maximising the efficiency of aircraft; e.g. by reducing fuel burn and by maximising the vertical distance between aircraft and the ground thereby minimising noise impact.

Airspace Routes

8.32 In order to further assess the airspace implications of this Master Plan, the Airport intends to appoint procedure design experts to design appropriate future arrival and departure flight routes; i.e. Standard Instrument Departures (SIDS) and Standard Arrival Routes (STARS) (see actual routes as shown in Figures 11.1 and 11.2 in Chaper 11). This work will be guided by the discussions and findings of the previously mentioned TMA review, which is not expected to be completed until 2011 at the earliest.

8.33 Arrival and departure routes for JLA will be designed to optimise safety, capacity and noise abatement for local communities using the procedure design requirements of the CAA's Directorate of Airspace Policy. The objective is to promote the use of CDA and continuous climb procedures. Operational procedures designed to achieve this will include the use of Precision Navigation (P-RNAV) technology. P-RNAV designed, SID and STAR procedures will be considered by the Airport to achieve optimum noise abatement and routing for the community as a whole.

8.34 The CAA's process for approving changes to airspace and routes is set out in CAA Publication CAP 725 'Airspace Change Process Guidance', which includes a public consultation stage.

Investment Plan and Phasing

8.35 The development identified in this Master Plan to 2015 represents a planned investment of over £350 million by the Airport. This would be phased in accordance with need and planned growth. Large infrastructure projects have long

105 Ibid, Executive Summary, page 15.

lead in times. They are required to go through extensive planning processes and need regulatory approval. Land may have to be acquired to allow them to proceed. Preparing construction detail and tendering will need to be programmed.

8.36 Construction on an airport is also operationally difficult and it may only be possible to carry out some work at less busy times; i.e. at night. It is envisaged, therefore, that in the case of the runway extension and the EATC, most of this period would be spent in planning and implementation with the schemes coming into use towards the end of the period.

8.37 The Airport will seek inclusion of the preferred option (SA2) for the EATC in the relevant programme of transport investment plans; e.g. the Merseyside and Halton Local Transport Plans, and in development plans including the Liverpool City and Halton and Knowsley Borough Councils' Local Development Frameworks. It will also collaborate with relevant agencies to secure public funding of the EATC in the North West Regional Funding Allocation for transport schemes. Some elements of funding will be provided by the Airport but in the commuting peak only a small part of the capacity of Speke Boulevard is used by traffic going to and from JLA.

8.38 In particular, during the period up to 2011, the proportion of JLA traffic in the highway peak hours travelling in the busier direction (the critical 'commuter' direction) is in the range 9-14% in the vicinity of the Speke Estate. In terms of the consequence of expansion of JLA over the current throughput, the expansion accounts for only 1-3% of the total flow, whilst the non-JLA committed developments' additional contribution is in the range 15-25%. Therefore, whilst the Airport is bringing forward the scheme in this Master Plan, it has much wider public benefit, plus benefits to the wider regeneration of South Liverpool by providing highway capacity for other developments to proceed. The Airport expects both the public sector and other developers to provide the greater part of the costs. The Airport could not itself afford to pay the full cost of providing the EATC.

Proposals 2016 to 2030

8.39 Passenger numbers are expected to have risen to around 12.3 mppa and cargo activity to around 220,000 tonnes pa by 2030. Further development will, therefore, be required to accommodate the anticipated growth and this is shown in the Master Plan to 2030 – see Plan 3.

8.40 Because of the timescales involved in looking this far ahead, the Master Plan to 2030 is less detailed. It assumes that all of the development shown on the 2015 Master Plan has been constructed. The main additional components of development in the period from 2016 to 2030 are expected to be as follows:

- Further expansion of the terminal building floor space to around 128,000 m^2 to provide capacity to accommodate about 12.3 mppa. This would be provided in further phased extensions at each end of the building, including additional piers/access corridors to provide access to additional aircraft stands.
- Further improvements to internal circulation roads and additions to the PTI.
- An extension of the taxiway and apron areas onto land used as surface car parking to the west of Speke Hall Avenue to facilitate an increase in the number of stands for passenger, cargo and maintenance aircraft operations to 64.
- Additional long stay car parking on land to east of the BAGA Centre (linked to the terminal building by shuttle bus services along Hale Road) to provide about 14,600 spaces in total.
- Additions to and further floors of a proposed

MSCP adjacent to the terminal building to provide for short stay spaces.

- The Oglet World Cargo Centre - airside cargo and maintenance facilities with associated warehousing and distribution facilities on land to the south of the runway. This would include construction of a parallel taxiway south of the existing runway together with apron stands for 10 aircraft. See Chapter 6 for full details.
- Additional infrastructure in the area of the radar, engine testing area and the new fire station. The current fire station is within the Old Control Tower complex. Aerodromes are categorised for rescue and fire fighting service (RFFS) requirements based upon the size (length) of aircraft in operation. Categories range from 1 to 10, with JLA currently being Category 7. As the categories increase the staffing levels and numbers of foam producing vehicles increase as shown in Table 8.1.
- The planned cargo and passenger developments in the 2030 would take JLA into Category 9. A new fire training rig is currently being installed which will meet the requirements for Category 8 and it is designed to be capable of being upgraded to Category 9. The additional appliances need to be accommodated in the fire station building. The additional space for both appliances and staff cannot be accommodated on the existing site. A new facility is, therefore, proposed to the south of the runway, which has easy emergency response capability to either end of an extended runway.
- Further expansion of the fuel farm to ensure sufficient on-site fuel capacity is available.
- A waste water treatment works in the Oglet to accommodate the additional cargo and maintenance development on the south side.
- Continued maintenance of the structural landscaping established in the first period.

Investment Plan and Phasing

8.41 The additional development between 2016 and 2030 represents an estimated investment of about £250 million by the Airport taking the total investment at JLA for the Master Plan period to in excess of £600 million. The Oglet World Cargo Centre would be a major asset for Merseyside and its development would be a longer term project extending beyond the Master Plan end date of 2030. It is unlikely the full area would be developed by 2030 – the scheme will take JLA into the second half of the 21st Century.

Table 8.1: Rescue and Fire Fighting Service Categories and Infrastructure Requirements

Category	Max. Aircraft Length (m)	Approx. Aircraft Code	Min. No. of Foam Producing Vehicles
7	49	C	2
8	61	D	3
9	76	E	3
10	90	F+	4

Table 8.2: Liverpool John Lennon Airport Phasing of Developments

Date	Project	Notes
Expansion of Passenger Facilities		
2007-2011	Expansion of existing terminal	To add 73,000m² of floor space to cater for about 8.3 mppa comprising phased extensions at either end and to the north.
2010-2012	Internal road circulation system	Including re-routing of Dunlop Road to create a link road between Hale Road and Speke Hall Avenue and roundabout access at southern end of Woodend Avenue.
2010	PTI improvement	Including bus stops and taxi services with direct access to the terminal.
2007-2008	Car parking provision	Expansion of long stay car park to NW of terminal and erection of MSCP and short term pick up/drop off provision.
2007-2008	Hotel in association with MSCP	Airport related hotel to the north of the terminal.
2008-2010	Mixed use development	Location for airport related development on former Dunlop site.
2008-2010	Street and other lighting for car parks and internal roads	To maintain appropriate safety and amenity standards.
2015-2020	Further expansion of terminal	To provide a further 21,000m² of floor space in phased extensions at either end of the building, including piers/access corridors.
2015-2030	Further improvements to internal circulation roads and addition to PTI	Includes safeguarding potential for a light rapid transport route.
2015-2030	Additional long stay parking	
2015-2030	Additional floor on MSCP for short stay parking	Together with the additional long stay parking, this would provide a total of about 14,600 parking spaces.
Improvement of Operational Infrastructure		
2010-2015	Extension of runway	Eastern extension from 2,286m to 2,600m at full width with 150m starter strips at either end (total effective length 2,750m).

Table 8.2: Continued

Date	Project	Notes
2010-2015	Provision of rapid turn-offs	To enhance runway capacity at peak times.
2008-2010	New fire station	New station to cater for higher category fire service.
2007	New radar	To the south of the runway to replace existing radar.
2008-2010	Engine testing facility	New purpose built facility south of the runway in the Oglet in vicinity of the radar.
2007-2010	Structural landscaping/acoustic bunds	Around boundaries of airport; e.g. with Speke Estate and Speke Hall.
2007-2010	Aircraft stands	To east and west of terminal and linked via covered piers.
2012-2015	Relocation/replacement of landing lights at eastern end of runway following extension	
2008-2015	Perimeter fencing and routes for airfield vehicles	
2010-2015	Laying out of RESA	Involving closure of Dungeon Lane and replacement by new road to east of extended runway.
2010-2015	Mast lighting	
2010-2015	Increase in taxi-way and apron to provide 44 stands	
2010-2015	Rescue and fire fighting service facilities	
2020-2030	Expansion of fuel farm	To meet increased demand in line with growth.
2020-2030	Waste water treatment works	To accommodate Oglet World Cargo Centre development.
2020-2030	Further structural landscaping	

Table 8.2: continued

Date	Project	Notes
	Business and General Aviation Centre	
2010-2015	Phased expansion of BAGA Centre	Extension of existing Centre to around 7ha.
	Cargo and Maintenance Facilities	
2007-2010	Expanded cargo and maintenance facility on north side	To accommodate existing and new cargo operators to handle 40,000 tonnes p.a.
2007-2010	Relocation of existing maintenance hangars	
2010-2015	New facilities for Airfield Engineering Department	To accommodate a variety of equipment; e.g. snow vehicles and washing equipment.
2010-2015	New areas of apron	
2010-2015	Structural landscaping	
2015-2040	Oglet World Cargo Centre – south of runway	
	Surface Access/Eastern Access Transport Corridor	
2011-2015	New access to JLA from Speke Boulevard (A561) via Hale Road	This would become the principal access to JLA. The road would be landscaped with facilities for cycling, walking and public transport.
	Coastal Reserve	
2010-2020	Extension of Speke Garston Coastal Reserve	The extension will coincide with the development of the Oglet World Cargo Centre and link in with the existing stretch of the Reserve to the west. The scheme will include an aircraft enthusiasts' viewing area and Visitor Centre.


Liverpool South Parkway

9. Surface Access

Southern Corridor

9.1 There is a high standard road network which provides access to JLA, with dual carriageway linkage to the strategic and trunk roads. JLA is situated within a major regeneration Corridor in the 'Speke Halewood Strategic Investment Area'. This Corridor has Speke Boulevard (A561) as its spine. This is a high capacity dual carriageway radial route for the City as well as a link with the City's outer ring road, and the M62 via the A5300 Knowsley Expressway. It also continues eastwards as the route over the River Mersey at the Runcorn Bridge and onto the M56.

9.2 JLA is one of several existing or proposed traffic attractions in the Corridor served by a common infrastructure. The passenger surface origins are set out in Figure 5.5 in Chapter 5. Within the period up to 2015, JLA is forecast to grow to 8.3 mppa. However, in the same period, an additional 578,000 m^2 (GFA) of non-JLA development is committed in the Corridor comprising predominantly employment related floor space, together with approximately 1,000 dwellings and 5 hotels.[106] Indeed, all of the non-JLA commitments, which in 2003 when consent was granted for the last terminal expansion[107] were in the form of unimplemented planning permissions, are expected to be fully developed by 2011, and this is reflected in the surface access analysis below.

9.3 For these reasons, the Airport has been working with Liverpool City Council for some time on the transport issues in the Corridor and the future is being planned jointly with the aid of the City Council's Southern Corridor Transportation Model. This will reflect all the regeneration proposals and the required infrastructure improvements to cater for them. The Airport has worked in partnership with the City Council to upgrade this model for the purpose also of evaluating the consequences of this Master Plan and any forthcoming planning applications.

9.4 The non-terminal related development proposals within this Master Plan are, to a large extent, programmed for beyond the timescale of the existing development commitments in the Corridor.

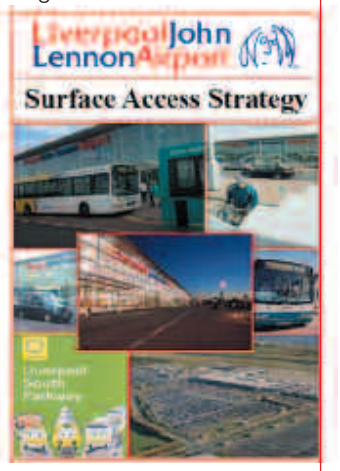
9.5 A Transport Assessment (TA), which would consider significant impacts on public transport and highways, would accompany any planning applications for major development proposals. The TA would also take account of any implications for the Wirral, Cheshire and North Wales, depending on the nature of the proposals.

Policy

9.6 The Airport has good working relationships with all the relevant local authorities and the proposed expansion of JLA is reflected, within Government guidance, in the Local Transport Plans (LTP 2's) and the draft Regional Transport Strategy (see Chapter 4). These also cross-reference within the ASAS and the ATF which monitors it (see below).

Airport Surface Access Strategy

9.7 JLA has had a comprehensive ASAS since 2000 and the Airport has recently revised its third edition, which forms part of the Master Plan. The ASAS and targets there in are subject to ongoing review by the ATF. The ATF has been in existence since 2000 and meets at least twice a year. It also has technical working sub-groups covering specific topics. Members of the ATF include:



106 Some of this non-JLA committed development was part occupied in 2003, but this figure represents floor space additional to that.

107 Planning permission ref. 01F/2860 dated 5 February 2003.

Liverpool City Council, Halton and Warrington Borough Councils, Knowsley Metropolitan Borough Council, Merseytravel, Government Office for the North West, Highways Agency, North West Regional Assembly, Transport 2000, Merseyside Environmental Trust, National Trust, Arriva North West and Network Rail.

9.8 The Airport has developed a 'Green Travel Plan' as part of its ASAS that contains a series of measures to discourage employees from commuting in single car occupancy journeys, including the 'Greener Ticket to Ride' Staff Travel Plan. Initiatives have been adopted to encourage employees to cycle to work, such as the Bike Solutions workshops that provide free

advice, maps and bike MOTs. A discount has been organised for staff who wish to purchase a bike from a local store and bike loans are available. Initiatives are also supported that promote walking including the 'Talk the Walk' programme sponsored by The Mersey Partnership. These measures will be augmented by an Airport Parking Strategy that will control the supply of parking for employees and encourage them to use the substantial increase in public transport provision that has been created. That Strategy also involves a gradual reduction in the ratio of spaces to passenger throughput as JLA grows.

9.9 The Airport has recently launched a joint car sharing scheme with other major employers in the vicinity.

Public Transport Accessibility

Liverpool South Parkway

9.10 The excellent public transport accessibility is currently bus-led, but in June 2006 the new Liverpool South Parkway rail station opened. This is a new, award winning transport interchange located just 5km (3 miles) from JLA with integrated transport links to the Airport and the city centre.

9.11 The station is served by both Northern Line and City Line Merseyrail train services. The City Line provides two trains each hour via Warrington (30 mins journey time) to Manchester (60 mins journey time) and one train each hour via Runcorn to Birmingham (98 mins journey time). The Northern Line provides an up to 15 minute frequency via Liverpool city centre, Bootle and Formby to Southport. Passengers can change at Liverpool Central station to Northern Line services to Kirkby or Ormskirk or to Wirral Line services to West Kirby, New Brighton, Chester and Ellesmere Port.

9.12 Arriva operate two of their commercial Liverpool City Centre to South Liverpool bus services via Liverpool South Parkway creating a seven bus per hour shuttle-link to JLA. Liverpool South Parkway is marketed and signed as the station for JLA.

9.13 There is a frequent, express, bus connection between JLA and Liverpool city centre, calling at hotels, Lime Street mainline rail station and the National Express coach station, which is very well patronised. The expectation is that rail-bus modal choice will grow from this already significant level.

9.14 There are currently 10 bus routes serving JLA with stands and bus lay-bys conveniently located immediately outside the terminal doors. A travel information desk and display area is conveniently located just inside. The bus services are Nos. 80A/180, 82A, 500, 86A and the N86 (the latter two representing Merseyside's first 24 hour service) to the city centre; 81A / 181 to Bootle; 89 to St. Helens; 48A to Southport; 883-Joblink to Huyton; 886 – Supertravel to Halewood / Garston; and 82A to Halton / Runcorn. These services have been developed over the last 10 years through partnership working between the Airport, Merseytravel and the local bus operators. In addition, a regular express service between central Manchester and JLA, No. 700, commenced in late 2005 and now operates via Widnes Town Centre. A coach service operated by Terravision also provides a regular link to Manchester city centre. Additional bus services are expected to be added in the short term providing greater access from other areas, including Chester.

9.15 The bus services are targeted at both air passengers and airport-related employees. The express services focus on air passenger demands, whilst the 'Job Link' minibus serves employees, penetrating local areas otherwise not served by buses, with fares heavily discounted.

9.16 The Airport continues to raise the need for improved public transport links from Cheshire, North Wales and Wirral. A study has recently been undertaken to consider the feasibility of a bus link between JLA and Runcorn Railway Station. This showed that there is currently little demand for a dedicated link, particularly as a result of the opening of Liverpool South Parkway. However the ATF will continue to look at ways to improve links to Runcorn, Widnes and Halton in general. The viability of a bus service from Chester to JLA, via Wirral, is currently being explored with a view to commencing in 2007.

9.17 The Government announced in 2006 that the Merseytram proposals will not receive the required funding. However, this Master Plan will maintain the safeguarding of a route through JLA, which would be suitable for LRT or some equivalent transit facility.

Table 9.1: Modal Split of Passenger and Employee Journeys to Liverpool John Lennon Airport

Final Mode	Percentage By Mode				
	Passengers			Employees	
	1999	2003	2005	2003	2005
Car	65	64	64	78	85
Taxi/minicab	27	20	20	2	2
Hire car	3	5	4	-	-
Bus/coach	5	10	10	12	7
Walk	-	-	-	5	3
Cycle	-	-	-	2	1
Motorbike	-	-	-	1	2
Other	-	1	2	-	-

9.18 Public transport accessibility to JLA has recently been improved as part of the MSCP/hotel scheme recently approved (see Chapter 3) this has prioritised the use of the road in front of the terminal for buses and coaches. In the future, accessibility by buses would be further enhanced by the construction of the proposed PTI: a dedicated covered interchange directly linked to the terminal. The design of the PTI would be discussed at an early stage with Merseytravel and local bus operators.

9.19 The reopening of the 'Halton Curve', which is a safeguarded proposal, would also be a major benefit. This proposal for upgrading and replacing a section of railway is being promoted through both the Halton Borough Council and Merseyside LTP2 documents, and is also supported by Cheshire County Council. It would connect the Chester/Manchester line with the Crewe/Liverpool line, improving the general accessibility to JLA from the Chester area (an estimated 200,000 people), as well as North Wales and North West Cheshire. A steering group, including the Airport and Halton Borough Council and chaired by Merseytravel has been set up to deliver this important scheme. It would improve public transport access to JLA for this area of Cheshire and from North Wales, although the modal split targets are not specifically influenced by it.

Table 9.2: Passenger Modal Splits at English Regional Airports (all figures are subject to rounding)

	Current				
Airport	Throughput	Passengers Modal Split			
		Car	Taxi	Bus	Rail
Birmingham	8.8m (2004)	67	22	1	9
Bristol	4.57m (2004)	81	12	7	
Cardiff	1.87m (2004)	77	11	4	
Durham Tees Valley	0.79m (2004)	76	22	1	
Exeter	0.61m (2004)	86	10	3	
Humberside	0.53m (2004)	80	17	3	
Leeds-Bradford	2.37m (2004)	68	29	3	
Liverpool John Lennon	4.5m (2005)	66	20	10	
Manchester	20.9m (2004)	57	30	6	7
Newcastle	4.66m (2004)	72	17	1	10
Nottingham East Midlands	4.38m (2004)	73	24	3	
Robin Hood	0.6m (2005)	82	15	6	

Table 9.3: Modal Split ASAS Targets to 2015

Year	Forecast PAX (mppa)	Passengers public transport Target (%)	Maximum employee car single occupancy Target (%)
2008	5.6	12	60
2011	6.7	14	57
2015	8.3	17	54

Modal Split

9.20 The most recent CAA passenger surveys were undertaken at JLA in 2003, (when the passenger throughput was around 3 mppa). There have also been surveys undertaken by the Airport in 2003 and 2005 for both passengers and employees. They showed the following modal splits for the 'final' element of journeys to JLA. (Table 9.1)

9.21 Of the passengers using bus, around half had also used rail. The average car occupancy of employee trips was 1.15 people, in 2003, increasing to 1.26 in 2005. This means that there is an encouraging trend towards car sharing, but not yet a significant reduction in employee cars being used for commuting. This parameter is the one which is subject to the ASAS modal shift targets. Within Liverpool postcodes, the employee car driver percentage was 55% in 2003, but increasing to 60% in 2005.

9.22 The passenger public transport percentage is high compared to other airports of comparable throughput without a direct rail station. Table 9.2 summarises the passenger modal splits at other airports outside of London, and includes the passenger throughputs.

Targets

9.23 These data confirm the effectiveness of the ASAS and pro-active involvement of the public transport providers. The public transport usage has exceeded the initial targets set by the ATF.

9.24 There has been a shift towards public transport as JLA has expanded. Consequently, the Airport has set even more challenging targets for the future. The current ASAS targets go up to 2015 and are shown in Table 9.3.

9.25 For the purposes of this Master Plan, the following targets are being assumed for the 2030 forecast throughput of 12.3mppa at JLA:

Passenger public transport:	24%
Maximum employee single car drivers:	40%

9.26 These are very challenging for an airport of this size with no direct railway station. However, given the opening of Liverpool South Parkway, future CAA passenger surveys will look more closely at including rail as a travel mode and incorporating appropriate targets into the ASAS.

Parking Strategy

9.27 The Parking Strategy that supports the modal shift targets, and which will be included within the future ASAS, will have a reducing ratio of supply to demand for air passengers, and preferential rationing for employees.

9.28 The provisional supply figures and ratios, in relation to increasing forecast throughput, are as shown in Table 9.4.

9.29 There will also be a small number of business visitor spaces. 40 spaces have been assumed, which is only twice the current level.

Table 9.4: Parking Supply and Ratios to 2030

Year	Forecast PAX (mppa)	Parking Supply		Parking Ratios	
				Spaces per mppa	
		Passengers	Employees	Passengers	Employees
2005	4.5	4850	1630	1078	362
2015	8.3	8250	2420	994	292
2030	12.3	11190	2990	910	243

9.30 These ratios are low compared to other airports of comparable size; reflecting both the current successful ASAS and the challenging future modal shift targets. The passenger parking space ratios do, however, also reflect the current relationship between passengers parking 'long stay' and those dropped off and picked up ("PU/DO") by family of friend. The surveys show that this relationship, for car-borne passengers is 30% long stay parking/70% PU/DO.

9.31 This is a high ratio of PU/DO compared to other airports, (typically in the range of 45-60%). These trips all make 'double' movements on the road network and also do not keep the car off the network whilst the air passengers are away. It is the Airport's intention to reduce the PU/DO ratio, but this will mean some consequential increase in the long stay parking provision.

9.32 Ways of achieving this will be explored in collaboration with the City Council and the ATF.

9.33 The Parking Strategy, and hence the ASAS, will only work if unauthorised car parking advertised as serving JLA is restricted. Consequently, the Airport will continue to work with the local planning authorities of the City Council and Halton, and others, to prevent this 'off-airport' parking occurring. It is often created without planning permission on unsuitable sites, including in the Green Belt and industrial sites. It is, therefore, often subject to enforcement action. Planning applications submitted retrospectively by operators to retain these uses tend to be refused and subsequent appeals have been dismissed. Local planning authorities will be encouraged to adopt Supplementary Planning Guidance and incorporate relevant policies into their Local Development Frameworks that bind car parking provision with the full thrust of the ASAS, controlled through the adopted Parking Strategy. This approach is endorsed in the Merseyside Provisional LTP (2006-2011), which states:

> "Another important issue is to ensure that efforts to promote modal shift on sustainable access to Liverpool John Lennon Airport are not prejudiced or undermined by the establishment of off site airport car parks which do not accord with the prevailing policy and the ASAS. It is crucial that local planning policy supports this approach."[108]

9.34 Halton's Provisional LTP2 takes a similar stance and states that the Council will: "Develop a planning policy to presume against the provision of off site airport car parks in the Borough"[109].

Traffic Generation

9.35 Table 9.5 provides an indication of the number of passengers travelling by each mode of

Table 9.5: Modal Split for Typical Busy Days

Year	Daily Number of Passengers: (Busy Day) Departures and Arrivals				
	Car - Parking	Car - PU/DO	Hire Car	Taxi/ minicab	Bus
2005	2470	5760	470	3050	1450
2015	4670	10890	890	5780	4550

108 Merseyside Local Transport Plan 2006-2011, (2006), para. 7.100.
109 Appendix 1 'Toolbox of Primary Transport Strategies', Section 1.6, Airport Surface Access Strategy, page 5.

transport (and parking arrangement) for typical Busy Days in the current situation and forecast for the Master Plan time horizons.

9.36 On the basis of the current ratio of parking to PU/DO, and with the modal split targets, it is possible to convert these passenger movements into forecasts of car and taxi movements generated by JLA for a typical 'busy day' within the summer schedule for years covered by the Transportation Modelling and the Master Plan time horizon to 2015. The analysis so far shows that in the busy directions on Speke Boulevard in the vicinity of JLA, in the highway peak hours' forecasts for 2011 (with all committed development included), the increases caused by expansion of JLA from its current level are around:

- AM westbound: 4%
- PM eastbound: 2.5%

(The equivalent 2 way direction peak hour percentages are 1% in the AM and 3% in the PM).

9.37 The Oglet World Cargo Centre would not come on stream until post 2015 and not be all built out by 2030. It will comprise predominantly hangars and B8[110] type distribution activity operating 24 hours per day. Consequently, there would be relatively small highway peak hour traffic generation.

Highway Network

9.38 The eastern approach to JLA, to the east of the A5300 Knowsley Expressway will connect with the proposed Mersey Gateway – a new river crossing. This is the signposted route between JLA and both the M6 (south) and M56. It is expected to be open by around 2014. The Mersey Gateway has been entered into a programme of major transport schemes by the Transport Secretary who recently approved funding of £209 million for its construction. This will allow Halton BC to take forward detailed design work and to seek statutory powers for its implementation. It is expected to be open, subject to Government approval, by around 2014. Along wth the reinstatement of the Halton Curve, it will improve opportunities for public transport access from Cheshire, North Wales and Wirral.

9.39 In the vicinity of JLA, Speke Boulevard currently has peak hour directional flows in the range 1500-2000 pcu/hr. These will increase with the committed development in the Corridor, but will be within the capacity of the dual carriageway. The junctions will be the limiting components of the route

9.40 The junctions on Speke Boulevard in the vicinity of JLA have been improved in the recent past by the Airport as part of previous expansion schemes. They have large multi-lane signal controls, but are, however, conventional cross roads and, therefore, the balance between the large volumes of through traffic and the relatively small turning movements causes some operational inefficiency in the highway peaks. Given the large amount of land that these junctions take up, the Airport is examining the potential for some modifications, within the existing highway boundaries, that would create further capacity. Improvements have been agreed with LCC for the Speke Hall Avenue and Western Avenue junctions, which will provide capacity for the 2009-2015 period.

9.41 The existing network can accommodate more activity at JLA, given that its traffic, generated by both passengers and employees, occurs predominantly outside of the commuter periods. Flight scheduling and shift patterns keep JLA traffic activity predominantly out of the highway peak periods, as can be seen in the traffic

110 Storage and distribution uses under the Class B8 of the Town and Country Planning (Use Classes) Order 1987.

forecasts. This conclusion has regard to the forecast growth timescale at JLA and the gradual development and occupation of the other major, predominantly commuter generator, sites in the Corridor which are expected to be fully occupied by around 2011. However there will come a time in the medium term, and after possible improvements in the existing junctions, when the commuter peak periods' capacity will be reached, primarily because of this non-JLA committed development and more capacity within the Corridor is expected to be needed.

9.42 Consequently, the work the Airport is undertaking with the City Council – the Corridor Study, using the Southern Corridor Transportation Model, is assessing if and when substantial additional Corridor capacity is needed within the Master Plan period. It includes the evaluation of the EATC, the alternative routes for which are discussed in Chapter 7.

9.43 The EATC would connect JLA, and other development and residential areas, directly with the eastern end of the Speke Boulevard Corridor, providing a bypass to the major regeneration sites.

As such, it would free up capacity on the existing spine route, to cater for the commuting traffic generated by the Corridor's regeneration programme.

9.44 The modelling work has been agreed with LCC and indicates the introduction of EATC is required by around 2015.

9.45 The EATC would also provide direct access to the Oglet area immediately south of the runway. This proposed Oglet World Cargo Centre would be served by a spur route taken directly off the EATC to the east of the runway.

9.46 This increase in the capacity to the eastern entry into the Speke Boulevard Corridor will also be complemented by improvements which the Highways Agency are currently undertaking at Junction 6 of the M62, the interchange with the Knowsley Expressway, and by the proposed Mersey Gateway.

9.47 The Airport will also be working with the owners of the adjacent major development sites to develop a local cycle route network to complement that which already exists in the Corridor. It would also link up to Halton Borough Council's signed cycleways in Hale and would extend these as part of the EATC scheme if, or when, this is implemented. This network would extend the area's existing cycle accessibility, which includes the western termination of the Trans-Pennine Trail, which is also a long distance footpath.

10. Economic & Social Considerations

Local and Regional Economic Context

10.1 The Merseyside sub region has enjoyed strong growth in employment numbers in recent years. Between 1998 and 2004, the number of jobs in Merseyside grew by 8.3% to 536,000. According to the Annual Business Inquiry, the rate of growth over this period exceeds employment growth in England & Wales by 1.5% (Table 10.1).

10.2 Within the sub-region the increase in total employment was greatest in percentage terms in Knowsley, where about 14,000 new jobs were created. Sefton also experienced significant employment growth (9,000 new jobs, equivalent to an increase of about 9%). Employment in Liverpool expanded by 17,000 jobs. By contrast employment in both Halton and Wirral fell by approximately 3% over the six year period.

10.3 Merseyside has become one of the fastest growing parts of the North West (and indeed England). In employment terms, Liverpool has been one of the fastest growing cities in England[111].

10.4 This growth, however, comes after decades of stagnation. As a result of economic performance throughout the 1970s, 1980s and early parts of the 1990s, the Merseyside economy still faces some fundamental challenges. In part, the challenges revolve around:

- Deeply embedded levels of economic inactivity and high levels of unemployment.
- Acute deprivation in a large number of locations across the sub region with the benefits of employment growth not felt by all communities equally.

Table10.1: Change in Employment 1998-2004, 000s

Source: Annual Business Inquiry; NOMIS Crown Copyright ©

Area	1998 (000s)	2004 (000s)	Change (000s)	Change (%)
England & Wales	22,193,000	23,694,000	1,501,000	6.8%
North West	2,789,000	3,026,000	237,000	8.5%
Merseyside	496,000	536,000	40,000	8.3%
Knowsley	41,000	55,000	14,000	32.0%
St Helens	55,000	59,000	4,000	8.2%
Sefton	94,000	103,000	9,000	9.4%
Liverpool	202,000	219,000	17,000	8.6%
Wirral	104,000	101,000	-3,000	-2.8%
Halton	55,000	53,000	-2,000	-3.3%

Note: figures may not sum due to rounding.

111 See; e.g. recent versions of the annual Liverpool Economic Bulletin produced by Liverpool City Council (2004 & 2005).

Unemployment and Economic Activity

10.5 According to the Annual Population Survey, unemployment in Merseyside remained well above the national and regional average in 2005[112]. Figure 10.1 shows the unemployment pattern across Merseyside and its neighbouring districts. The highest unemployment rate across the Merseyside sub region was recorded in Liverpool, where the rate reached 8.2%.

10.6 The Census in 2001 (which uses the same definition of unemployment as the Annual Population Survey) recorded an unemployment rate for the Speke ward of 8.2%. This was markedly higher than the average rate of unemployment across Merseyside as a whole (5%) and the North West (3.6%) for the same period.

10.7 Claimant count unemployment data[113] is also available as of March 2005 for smaller geographical areas. Claimant unemployment in the Speke ward stood at 9.1% of the workforce in 2005, considerably in excess of the sub regional average.

10.8 Figure 10.2 shows economic activity rates in 2005 across Merseyside and neighbouring districts. Economic activity levels remain low, with 73% of the working age population in Merseyside classed as economically active (compared to 78% at a national level). Between 2003 and 2005, the rate increased slightly by 0.8% representing a modest catch up on the national and regional average.

10.9 Across the sub region, economic activity rates were lowest in Liverpool (67%) and Knowsley (71%). Since 2003 the economic activity rate in Liverpool has increased by 1.2% – with much of the increase attributed to a growth in female participation rates. Over the two year period female economic activity rates increased by 5% in Liverpool (6,600 more women have become economically active).

10.10 In the Speke ward in 2001, just 46% of the working age population were classed as economically active (or 2,800 people). In the same year a much higher proportion of the Merseyside working age population (60%) were economically active.

Indicators of Deprivation

10.11 The Index of Multiple Deprivation (IMD) provides a quantified measure of various types of disadvantage across England. The IMD is based on seven indicator domains, each based on a separate basket of indicators. Figure 10.3 illustrates the acute deprivation that exists in many parts of Merseyside. The communities immediately surrounding JLA display high levels of deprivation, as do a number of other areas within the immediate vicinity of Liverpool City Centre.

10.12 In terms of the overall IMD, and despite impressive recent economic performance, Liverpool is ranked as the most deprived local authority in England. A total of 3 local authorities out of 6 in Greater Merseyside are ranked within the top 10% most deprived across England (Liverpool = 1st, Knowsley = 3rd, Halton = 21st most deprived local authority districts out of 354 districts in England as a whole).

112 The Annual Population Survey (APS) is a major new source of statistics, launched in 2004. The survey asks 65,000 households a year about their own circumstances and experiences on a range of subjects including housing, employment and education. Unemployment rates are based on the International Labour Organisation definition of unemployment, which is a relatively wide concept of unemployment based on those that are actively seeking work, but not necessarily claiming unemployment related benefits.

113 The term 'claimants' in the claimant count is used to include those who claim Jobseekers Allowance and National Insurance credits. The figures include the severely disabled unemployed, but exclude students seeking vacation work and those temporarily exiting the labour market.

Figure 10.1: Unemployment Rate 2005

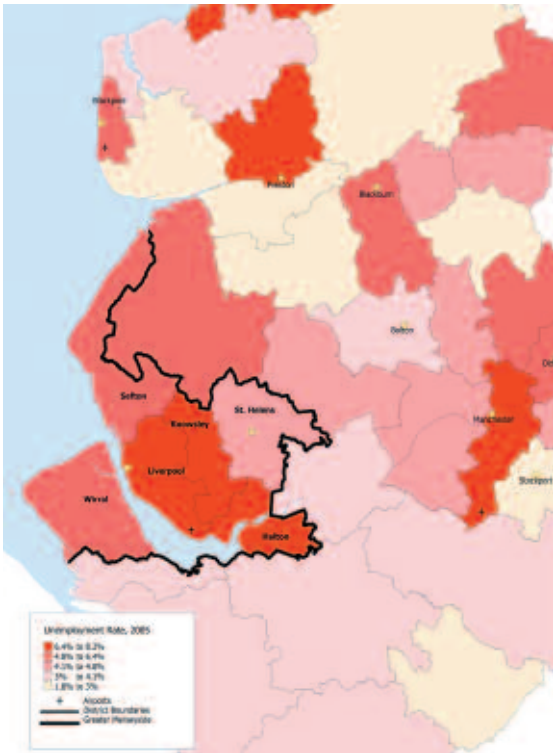


Figure 10.2: Economic Activity Rate 2005

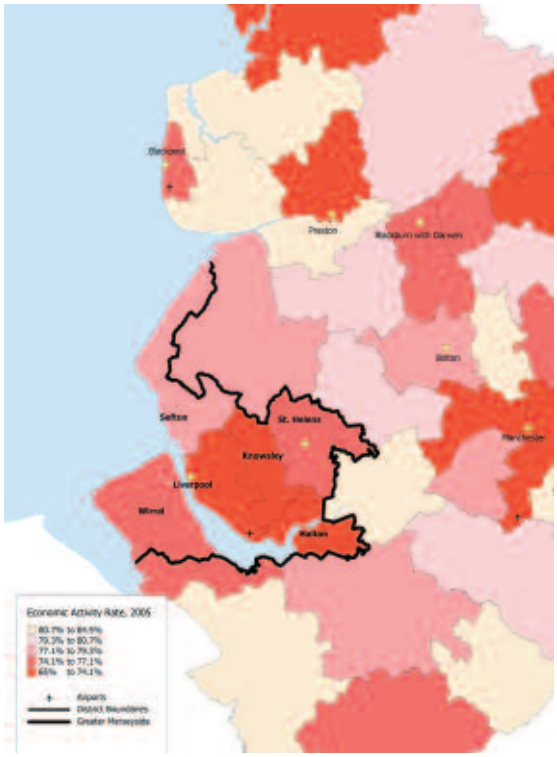
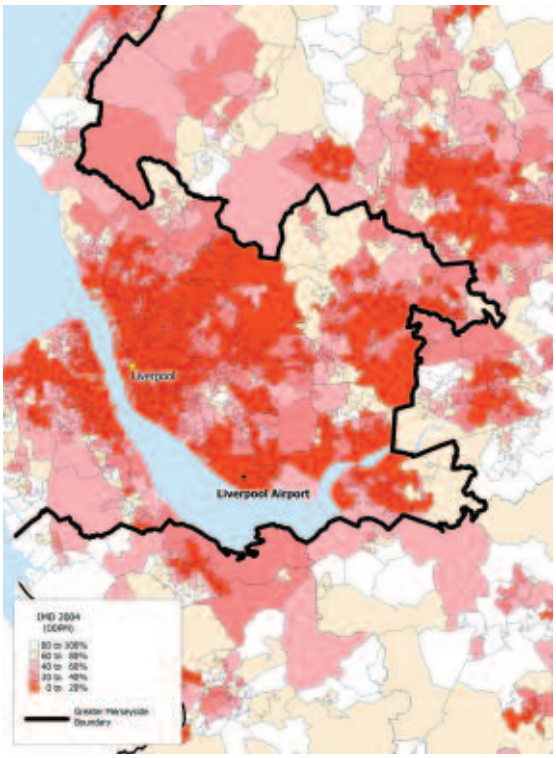


Figure 10.3: Index of Multiple Deprivation 2005



The Role of JLA in Economic Growth

10.13 Aviation is one of the strongest growing sectors of the UK economy. It has a major positive impact on the performance of UK plc and has played a key part in the economic development of regions through the United Kingdom and beyond, enhancing the connectivity and profile of locations in both business and leisure markets.

10.14 A number of reports were considered during consultation upon the 'Future of Air Transport' White Paper, including an authoritative study by Oxford Economic Forecasting (OEF).[114] The White Paper observes that airports:

> "…are an important focus for the development of local and regional economies. They attract business and generate employment and open up wider markets. They can provide an important impetus to regeneration and a focus for new commercial and industrial development. And they are increasingly important transport hubs, especially for the logistics industry.
>
> Many airports increasingly act as a focal point for 'clusters' of business development. By offering the potential for the rapid delivery of products by air freight and convenient access to international markets through the availability of flights for business travel, they can attract inward investment to a region."[115]

10.15 The OEF study was updated in October 2006 and its findings included in The Future of Air Transport Progress Report. Key findings of the study include:

- Aviation is a substantial UK industry in its own right, generating £11.4 billion to GDP in 2004 or 1.1% of the overall economy;
- Many of the growth sectors on which the future of the UK economy depends are particularly dependent on air services for competing effectively in the global economy; and
- Better air transport services encourage more businesses to locate in an area as well as affecting investment decisions by existing companies.[116]

10.16 JLA will be a significant driver in the future economic prosperity of the Liverpool City Region over the next 25 years (and beyond), both via the role it plays in essential transport connectivity and as an employment hub in its own right.

10.17 The air transport sector's most important economic contribution is through its impact on the performance of other industries and as a facilitator of their growth – the so called 'catalytic' or 'spin off' benefits. JLA, with its substantial and increasing connectivity to major European capitals, business centres and hub airports, and indeed destinations further afield, can and will play a key role in attracting investment to the City Region and boosting productivity of existing firms.

The Catalytic Role of JLA – Meeting City Region Aspirations

10.18 A series of economic growth scenarios have been commissioned to inform economic development policy at a local, sub-regional and regional level. These include forecasts produced in support of the Liverpool City Region Development Plan, the Regional Economic Strategy 2005 and Liverpool Futures, an assessment of possible future economic trends for Liverpool itself.

114 'The Contribution of the Aviation Industry to the UK Economy', (1999).
115 'The Future of Air Transport', Department for Transport, (2003), paras. 4.25 and 4.26.
116 'The Economic Contribution of the Aviation Industry in the UK', (October 2006), Executive Summary.

10.19 All three studies suggest a continuation of the recent economic performance highlighted earlier with strong employment and GVA growth. Delivery of these scenarios rests heavily on ongoing sectoral change in the Liverpool economy, requiring substantial growth in nationally recognised growth sectors and in higher value added sectors, as well as in others where there are key local strengths.

10.20 All key partners are pursuing policies intended to stimulate this vital sectoral change, both by promoting expansion of existing firms and attracting new ones.

10.21 The quality of national and international air links has been identified as an important contributory factor in the investment and expansion decisions of companies in a number of growing and/or high value added sectors[117]. These are sectors in which connectivity to other locations in Europe and beyond is particularly important as it enables firms to cost effectively move components and finished goods (particularly those of high value or which are time sensitive) and/or helps staff gain ready access to colleagues and customers in other locations.

Figure 10.4: Targeted Growth and Air Intensive Sectors[118]

10.22 Figure 10.4 shows that many of the target growth sectors identified in the Liverpool City Region Development Plan also feature in the list of UK sectors requiring quick and ready airport access. Without the essential infrastructure provided by a growing JLA, the ability of the City Region to deliver its ongoing sectoral transformation will be constrained. The expansion of JLA is explicitly mentioned in the City Region Development Programme as one of a small number of genuinely transformational projects for the area.

10.23 The introduction of long-haul services at JLA; e.g. to the US (in addition to the recently introduced New York service), China and India[119], would greatly enhance the accessibility and, importantly, the visibility of Liverpool to investors in major economies. The extension of the runway at JLA, to allow these long haul services and larger freight aircraft to operate, will be essential if the City Region is to deliver its growth aspirations.

10.24 Whether through attracting increased investment from companies in the US and/or Asia or through supporting increased airfreight with emerging economies, the expansion of JLA will help the Liverpool City Region open up new geographical markets. These new markets would provide new trading opportunities and encourage companies to become more efficient. The new markets would also act as a spur to innovation by encouraging effective networking and collaboration between companies located in different parts of the globe.

117 'The Social and Economic Impact of Airports in Europe', ACI Europe and York Consulting, (2004).

118 Sources: 'The Social and Economic Impact of Airports in Europe', ACI Europe and York Consulting (2004) and 'The Liverpool City Region: Transforming Our Economy', The Mersey Partnership (2005).

119 The 'Chindia' economic bloc – India and China – will if current growth rates persist account for approximately 50% of total global output by 2050. Air links – both freight and passenger - with these emerging economic giants will provide major future opportunities.

10.25 The effect of this improved connectivity would be experienced across the whole City Region, as new investment is secured and existing businesses experience productivity improvements. Many new investors would be particularly attracted to locations around JLA.

10.26 The recent ACI report on the economic impact of aviation[120] has plotted out the range of foreign owned firms in the vicinity of Brussels International Airport. Many of these firms were found to be engaged in ACI's 'air intensive' sectors including 3M (office equipment), Pfizer R&D (pharmaceuticals) Exel (logistics) and Komatsu (building equipment). The ACI report also comments on the emerging trend of business park development in close proximity to airports in order to capitalise on the pull of air services to businesses, particularly those in air-intensive sectors. Examples include, Cork, Hamburg, Nice and Helsinki. At Cork, the Cork Airport Business Park has successfully attracted a range of such companies, including Motorola, Pfizer, Black & Decker and Comnitel Technologies.

10.27 In Liverpool the 'pull' effect of JLA is already helping to secure investment in the Speke-Garston area and has been a significant factor in a number of location decisions. The availability of good air links to other European locations was cited as an important factor in Avarto's decision to invest £115m in a new high-tech gravure printing works at Liverpool International Business Park, Speke. JLA has also helped to attract other, less obviously air-intensive, occupiers to the area by contributing to the area's dynamism and vitality as a business location.

Liverpool City Region's Tourism Aspirations

10.28 One of air transport's most important economic benefits is the positive spin offs for the tourism market. Globally, air transport has enabled a huge expansion in the tourism industry and has played a major role in shaping the scale and diversity of tourism worldwide.

10.29 Tourism is an important sector on Merseyside and the visitor economy has been an important source of growth and employment in recent years. Liverpool, in particular, has seen significant private sector investment in its tourism infrastructure, most visibly in the development of new hotels (including budget accommodation, four star and a proposed five star hotel and a number of boutique hotel offerings).

10.30 Further growth of tourism is targeted by partners in the region, and the tourism sector is the subject of a major development initiative co-ordinated by The Mersey Partnership[121]. The growth of JLA is essential to the delivery of these aspirations. JLA already has flights to and from a wide range of European cities

120 'The Social and Economic Impact of Airports in Europe', ACI Europe and York Consulting, (2004).

121 The impact of Liverpool becoming the European Capital of Culture in 2008 is discussed in Chapter 3.

(including major international hubs such as Amsterdam Schipol). Indeed, outside of London, only Manchester and Birmingham offer flights to more international destinations. The City's visibility to the important North American market would be enhanced through the expansion plans over the next 25 years.

The Airport as an Employment Hub – Providing Regeneration Benefits

10.31 The Airport's latest survey of direct on-site employment[122] identifies some 2,150 jobs at JLA (in the Airport and the wide range of other companies based on-site), as shown in Table 10.2 below. In addition, it is estimated that there are at least a further 200 direct off-site staff whose employment is directly attributable to the operation of JLA (e.g. workers in nearby hotels and in car hire operations), giving a total of 2,350 direct on and off-site employees.

10.32 Direct on and off-site employment has increased sharply in recent years, from an estimated 1,100 in 2000 to 2,350 in 2005 (an increase of 100%). As recently as 1997, there were just over 500 employees at JLA, which represents one of the fastest growing employment hubs across the City Region.

10.33 In addition to the direct on and off site employment effects, there are wider

consequences for the Merseyside economy of activity at JLA via the creation of indirect jobs (jobs generated in supply chains from purchases made by businesses located at JLA) and induced jobs (jobs supported by the spending of those individuals employed directly or indirectly by the Airport). These two types of 'multiplier effect' are often merged into a single category, to give what is known as a combined indirect/induced multiplier. A conservative estimate on a combined multiplier for the Merseyside sub region would be 0.3 (i.e. for every 100 jobs at JLA, there are likely to be a further 30 jobs supported elsewhere in the Merseyside economy). The 2,350 direct on and off site jobs, can be expected to rise by a further 700 to account for these multiplier impacts, giving a total employment impact in Merseyside of 2,800 jobs.

Table 10.2: Direct On-Site Employment at Liverpool John Lennon Airport (2005)

Category	Number	% of Total
Airport	454	21.10
Airline/handling agents	864	40.10
Freight cargo	76	3.50
Concessions	346	16.10
Control agencies	137	6.40
Other	277	12.90
Total	2,154	100.00

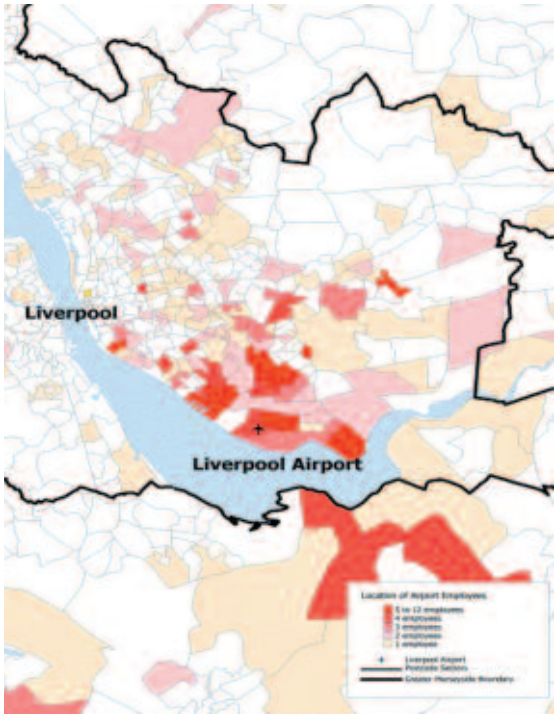
122 Airport Employment Survey 2005, Liverpool John Lennon Airport.

10.34 A high proportion of staff employed by the Airport is drawn from communities immediately adjacent to JLA. Figure 10.5 shows that JLA draws a significant proportion of its employees from some of the most deprived parts of the city. Over 40 of the Airport's staff (11% of total employment) come from the Speke community alone, whilst over 200 are drawn from the South Liverpool area[123], representing 50% of total employment. A significant proportion of staff are drawn from the neighbouring districts of Knowsley and Halton, which also suffer from high levels of worklessness. Companies based at JLA report a broadly similar distribution of staff.

Local Skills and Training Initiatives

10.35 A high proportion of employment at JLA is highly accessible, both in terms of location and skill requirements. However, in order to maximise this accessibility, the Airport and a number of its tenants work closely with partners in the local education, training and regeneration arenas, including the local South Liverpool JET centre in order to recruit staff.

Figure 10.5: Location of Airport Employees



10.36 Indeed, South Liverpool JET was the Airport's preferred partner in a major recruiting exercise in early 2005. This was a very successful two day campaign culminating in the employment of 135 mainly local people for jobs in baggage handling and supervisory positions, operations assistants and specialist drivers from over 700 prospective recruits. A number of staff are now employed by a ground handling company at JLA following contractual changes with the airlines. Similar recruitment campaigns of this kind are planned in the future.

10.37 The Airport has set up and chairs a new group: the Employer Forum, which is attended by all service partners across the JLA community. The aim is to address issues common to all employers, including recruitment and retention of staff, customer service, training and development initiatives and diversity. The first initiative, implemented in association with the Capital of Culture and Merseyside Colleges, will provide every member of staff with training in customer services during 2007. Other initiatives by the

123 Defined as the postal areas of L8, L15, L16, L17, L18, L19, L24, L25, L26 and L27.

Forum include support for JLA-wide recruitment days and work with community groups to encourage applications for employment from local people, particularly those from minority groups.

10.38 The Airport uses the local Partnership for Learning (PfL) centre based at the nearby Jaguar car plant for the provision of most of its training requirements, helping to utilise the services of local training organisations. Recent courses for staff have included management and supervisory training, fork lift truck driver training and counselling training. As one of PfL's major clients, the Airport also sits on its client forum.

10.39 To help create regeneration opportunities in the Speke, Garston areas, the Airport is a board member of the successful local community based economic development organisation, SMART, volunteering time, the use of facilities at JLA, providing advice and support to this growing organisation.

10.40 The Airport works closely with local schools to help pupils develop skills and qualifications by relating course work to what is happening in the work place. Working with the local Education Action Zone, the Airport has developed educational tours and information packs for GCSE Business Studies and also for primary school level children.

Future Growth at Liverpool John Lennon Airport – Breaking Through Into New Territory

10.41 In understanding the future economic impact of JLA, it is helpful to understand how its existing level of on site employment compares with that at other UK airports. A number of studies have attempted to define an industry 'standard' employment density at airports. The recent ACI study suggests that European airports support, on average, around 950 on-site jobs per million workload units in 2001, which would have fallen to 880 in 2005 (based on an annual productivity gain of 2.5%). This workload unit approach converts cargo to passenger throughput on the basis that 100,000 tonnes of cargo is equivalent in workload terms to 1mppa. There tends to be wide variations around this average between different airports, reflecting factors such as the structure of passenger traffic and the general role of the airport in the aviation market. JLA currently stands at 71% of the industry average, and has operated as a "medium employment density" airport for a number of years[124]. Apart from the period 1997 to 2000, employment density at JLA has fluctuated around 65% to 80% of the industry average.

10.42 In projecting forward, assumptions need to be made about the future relationship between employment at JLA and the industry average employment level. The Airport is confident that JLA will at least continue to operate as a medium density airport and enjoy employment levels at circa two thirds of the industry average employment density. More optimistically, there are grounds to expect that JLA will approach

124 'The Social and Economic Impacts of Airports in Europe', ACI, (2004), page 36 identifies a typology of airport employment based on four groups: low density, medium density, high density and very high density.

Table 10.3: Future Employment at Liverpool John Lennon Airport (upper range, 2.5% per annum productivity gains)

Employment Type	2006	2015	2030
A - Direct On Site Employment comprising:	2150	5920	6700
- Passenger related	(2060)	(5640)	(5720)
- Cargo related	(90)	(280)	(980)
B - Direct Off Site Employment	200	600	700
C - Indirect Off Site Employment	700	1750	2010
Total (A+B+C)	**3050**	**8270**	**9410**

the industry standard employment density in coming years and shift from a medium to higher density airport employment location.

10.43 Applying the forecasts for passenger and cargo growth to 2015 and 2030, and assuming that the aviation sector continues to experience productivity improvements over the next 25 years, JLA has the potential to increase direct on site employment numbers (related to passenger and freight activities) to between 4,000 and 5,900 by 2015 and to between 4,500 and 6,700 by 2030[125] (see Table 10.3).

10.44 In addition to the direct on site employment, there would also be:

- A further 600 jobs in off site employment by 2015, and 700 by 2030 (based on the higher level of direct employment, and using ACI estimates on the ratio between direct on and off site employment)
- Some 1,700 indirect and induced jobs by 2015, and 2,000 by 2030 (again based on the higher level of direct employment, and using accepted multipliers for the Liverpool City Region)

10.45 Forecast employment numbers at the airport for both 2015 and 2030 are particularly sensitive to the assumed productivity gains in the aviation sector over the next 20 years or so. The analysis assumes that the rapid productivity gains achieved in the aviation sector recently continue in the future (at a rate of 2.5% per annum). It is quite likely that the aviation sector will be unable to sustain these productivity gains in the medium to longer term, given that many of the inefficiencies evident in the sector in the last decade have already been addressed. Adjusting the assumed rate of productivity gain has a significant impact on the volume of employment at JLA in future years. Under a scenario where the assumed productivity growth was just 1.5% from 2006 onwards, the level of direct on site employment could rise to 6,700 by 2015 (14% higher than the figure under the 2.5% productivity assumption) and to 8,600 by 2030 (28% higher than the figure under the 2.5% productivity assumption).

10.46 Some 980 of the 6,700 direct on site jobs forecast to be located at JLA by 2030 would be directly related to cargo throughput at the airport. The Oglet World Cargo Centre has been described in some detail in Chapter 8. Based on standard employment densities derived for warehousing and related activities[126], it is estimated by the Airport's consultants that some 50,000 to 55,000m^2 of B8 space would be required to house these activities.

10.47 Emerging trends in the logistics industry suggest that in addition to distribution activity that is directly related to cargo throughput at JLA, it will be necessary to provide

125 The higher figure on both dates is based on the assumption that Liverpool operates at the industry average employment density.

126 'Employment Densities – Report for English Partnerships and the Regional Development Agencies', Arup Economics and Planning, 2001.

accommodation for related or supporting activity. There is growing evidence of the clustering of distribution and logistics operations at key airports, in which value added is created by the drawing together and processing of cargo transported via different modes. Examples include the major multi-modal freight operations at Nottingham East Midlands (led by DHL's express delivery Air Cargo Hub), Rome Fiumicino (where the Cargo City development facilitates the combination of air, road and rail freight) and Liege Airport (where the Liege Bierset Trilogis Park offers tri-modal access to road, rail and air logistics).

10.48 Another important trend in logistics is the growing impact of the Road Transport Directive (that part of the EU Working Time Directive that applies to the transport sector) and which evidence suggests[127] operators are beginning to focus distribution activities in locations near major urban centres. This increased pressure on an industry which already operates on very narrow margins heightens the importance of other sources of competitive advantage and value added in the logistics market.

10.49 As discussed in Chapter 6, Merseyside is a major and genuinely international trade gateway. With the Port of Liverpool and JLA now under the same ownership, there is an opportunity to strengthen and adapt this international gateway to the evolving needs of global trade (and in particular to respond to the growth of China and India as global economic engines). The combined ownership of sea and air gateways has been an important factor in the continuing success of the Rotterdam logistics cluster and the benefits of the integration of sea and air operations is being sought elsewhere, including Athens, where Athens International Airport and Piraeus Port Authority have recently proposed a new 'Sea-Air Link' Agreement which will provide quicker, simpler and internationally competitive services to customers of both partners (see Chapter 6). The growing importance of the integration of sea-air (as well as road and rail) modes is a key opportunity for Merseyside and one which is expected to generate additional demand for facilities at JLA and the Port of Liverpool.

10.50 Opportunities also exist around the logistics concepts of 'postponement' (whereby finished goods or components sourced from across the world are stored ready for despatch closer to the end-market, providing the key supply-chain benefits of increased reliability and responsiveness) and 'localisation' (in which, for example, those manufacturing goods for a wide range of international markets make increased use of local supply chain partners to tailor products for individual national markets, enabling them to provide higher levels of customer service). These trends are creating demand for additional space at international gateways, most notably at seaports but also airports.

10.51 Part of the Oglet would also be designated for cargo and maintenance buildings. The European market for Maintenance, Repair and Overhaul (MRO) is forecast to grow strongly, with analysts anticipating growth of 3-5% per annum in the next decade. This growth will be fuelled by a growth in aircraft utilisation and expanded fleets and by a peak in short-term demand caused by the first tranche of intensive maintenance checks, mandatory for aircraft purchased over the past five years.

10.52 The industry contains a wide range of players including airlines (in-house MRO), airline affiliates, independents, prime manufacturers and component OEMs (Original Equipment Manufacturers). A wide range of factors are considered in choosing sites for MRO activity, including the availability of land close to the

127 'Working Time Impact Study', Freight Transport Association, 2006

airport, the length of runway available and the availability of runway capacity. The presence of an airline based at an airport increases the likelihood that a repair operation (if not a full MRO facility) will be developed. The presence of the extended runway at JLA, and the potential availability of land on the Oglet, means that JLA is extremely well placed to capture MRO and related activity.

Housing Market Effects

10.53 The planned growth of JLA and associated opportunities for new employment led investment will have an impact on housing markets in South Liverpool. The economic growth engendered will need to be taken into account in the housing supply market assessments to be carried out by Liverpool City Council in the context of its emerging Local Development Framework, as will be the case with all employment generators. Housing assessments have been carried out with a number of airport developments, most notably in the case of Uttlesford District Council which has had to respond to the growth of Stansted Airport in a fairly rural location. This Master Plan does not, therefore, determine itself a housing requirement, but anticipates that Liverpool City Council will consider the implications of this Master Plan in its own plan making process and its phasing of housing allocations in the south of the City.

10.54 Sustainable development policies place a strong emphasis on co-locating homes and jobs so that there are opportunities to reduce the need to travel. Jobs at airports are often related to shift working and require staff to work to set timetables where delays can have significant adverse effects on their operations. It is better, therefore, that employees live near the airport and that a good and varied stock of housing is available. Not only is this convenient, but also airports themselves are transport hubs with a strong focus on PTI. The opportunity should, therefore, be taken to locate new homes related to the growth of JLA convenient to it and adjacent to public transport routes. This would also help support the viability of such services and contribute to the travel plan targets related to staff travel.

10.55 It is, therefore, important that a range of new housing is phased to reflect the planned growth of JLA within areas that have quick and convenient access to this investment hub so as to discourage longer distance commuting. The Airport will encourage Liverpool City Council to bring such sites forward.

11. Environmental Considerations

Effects on Local Communities and the Environment

11.1 This Chapter of the Master Plan addresses the likely direct and indirect effects of the planned expansion of JLA on its local communities and the environment. It is important that this is seen in the context of actions being taken on a wider scale in the UK and Europe to address the effect of air travel on climate change.

Climate Change

11.2 The White Paper recognises that the contribution to climate change of greenhouse gas emissions from aircraft is a cause for concern (see Chapter 4). It acknowledges that this is a matter that can only be tackled effectively on an international basis.

11.3 In adopting the White Paper proposals, which include the expansion of JLA as provided for in this Master Plan, the UK Government is committed to seeking to develop new solutions and stronger actions on the causes of climate change through European and International bodies. The Government undertook to use international forums to press for new international regimes that can address the issue and, in particular, to ensure that over time, aviation meets its external costs, including through a system of emissions trading.

11.4 By doing so, it is the Government's intention to pursue a balanced approach whereby it can fulfil its commitments on climate change whilst meeting increased demand for air travel. The White Paper states that:

> "Reduction in greenhouse gas emissions across the economy does not…mean that every sector is expected to follow the same path. The Government is committed to a comprehensive approach, using economic instruments to ensure that growing industries are catered for within a reducing total"[128].

11.5 The Government believes that the best way of ensuring a reduction in carbon dioxide emissions is through a well designed international emissions trading regime implemented through the International Civil Aviation Organisation[129]. In the short-term, however, the Government is seeking the inclusion of intra-EU air services in the forthcoming EU emissions trading scheme from 2008, or as soon as possible thereafter.

11.6 The Airport supports the Government's approach to climate change and is committed to playing its part in minimising the environmental impact of JLA. To this end the Peel Airports Group, which owns JLA, Robin Hood Airport Doncaster Sheffield and Durham Tees Valley Airport is a signatory of 'A Strategy Towards Sustainable Development of UK Aviation'. This document was prepared by an alliance of airport operators, aircraft manufacturers and airlines in which they commit to a long term plan for limiting aviation's contribution to climate change and addressing other environmental challenges (see box below).

A Strategy Towards Sustainable Development of UK Aviation

- A long term strategy for limiting aviation's contribution to climate change;
- Technological innovation to reduce the environmental impacts of new aircraft;
- A balanced approach to limit, and where possible, reduce the number of people affected by aircraft noise; and
- Joint industry governance to develop, strengthen and communicate the strategy.

128 'The Future of Air Transport', Department for Transport, (2003), para. 3.37.

129 Ibid, Annex B.

11.7 A variety of sources within and around an airport generate greenhouse gases. These include airside vehicles, and airborne and ground level activity, as well as vehicles travelling to and from the airport. Increases in these activities will lead to additional greenhouse gas emissions, which will be quantified in any future planning applications for significant proposals. However, the Airport will continue to take action at the local level to minimise and manage its impacts on the environment.

Local Environmental Effects

11.8 The remainder of this Chapter describes the likely main environmental effects of the development shown in the Master Plan. It is not an EIA of the proposals, as such work is beyond the scope of this Master Plan. The Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999 require that for certain types of development an EIA is to be undertaken before planning permission can be granted. An EIA would be undertaken in respect of the future planning application proposals as required by the Regulations. Such assessment will include in-depth analysis of the likely significant effects of the developments and identify appropriate measures to avoid, reduce or mitigate such effects and take account of the possible effects of climate change. Detailed mitigation strategies will be prepared in consultation with the relevant statutory authorities[130], depending upon the scale and nature of the development proposals.

11.9 A fuller assessment of sustainability of the development of JLA to 2015 and 2030 is contained in a SA of the Master Plan (see Chapter 13). This is a pre-cursor to formal strategic environmental assessment/SA of the proposals set out in other development plan documents of the Liverpool and potentially Halton Local Development frameworks. The 2007 Liverpool Local Development Scheme (LDS) schedules the production of an area action plan for an area comprising JLA, Oglet, Speke Hall and parts of Garston to commence production in December 2007. The LDS is usually reviewed on an annual basis through the Annual Monitoring Report.[131]

Noise

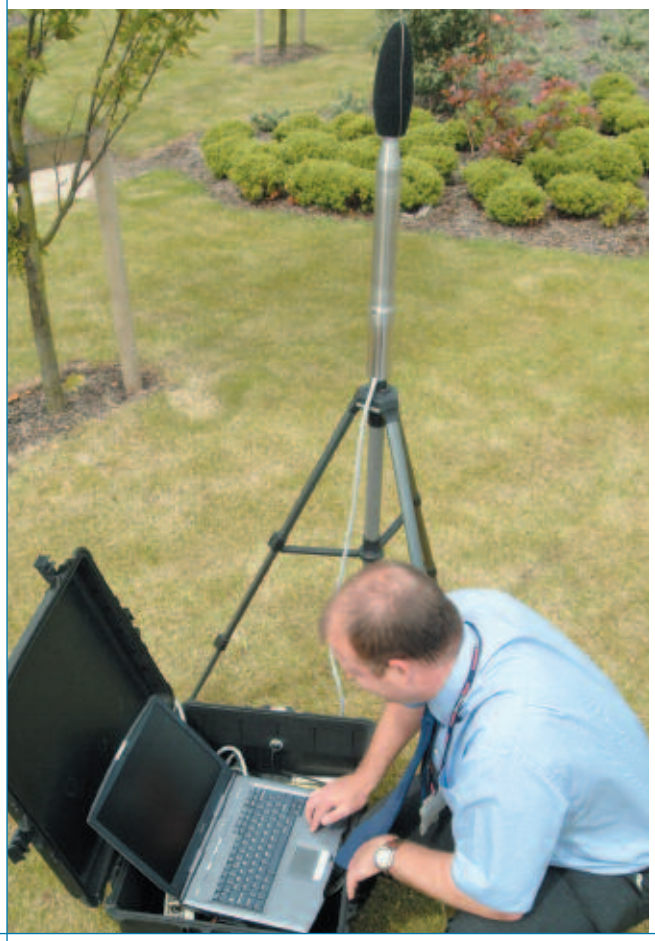
11.10 During the last few years there has been significant growth in passenger numbers at JLA, from 0.9 mppa in 1998 to 5 mppa in 2006. This has resulted in a consequential growth in flights by passenger aircraft and the development by the Airport of a range of measures to minimise and mitigate the resulting noise[132]. These range from physical measures such as the Sound Insulation Grants Scheme

(SIGS) where grants are made available for secondary and acoustic double glazing for those exposed to the highest levels of airborne aircraft noise; to operational control measures such as the regulation of arrival and departure routes (Noise Preferential Routes); limits on the noisiest aircraft types at night (Quota Count Scheme) based on restrictions developed by the Government for Heathrow, Gatwick and Stansted Airports; and minimisation of the use of reverse thrust on landing. The Airport is also due to implement its Vortex Damage

130 Including the National Trust in respect of the Speke Hall Estate.
131 See Liverpool City Council Local Development Scheme (2005).
132 See the Liverpool John Lennon Annual Noise Monitoring Report 2006, available via the website: www.liverpoolairport.com.

Rectification Scheme to enable quick, essential repairs (normally replacing displaced roof tiles) to properties damaged by aircraft vortices, although it is the operators of the aircraft concerned that are liable in law.

11.11 The Airport also operates a Noise Monitoring and Track Keeping System (NM&TKS) that records the levels of noise generated by departing and arriving aircraft as well as their departures and arrival tracks. Such information is used by the Airport's Environmental Team to minimise potential impacts and respond to complaints using accurate and objective information. Information on complaints is logged and is reported to both the Airport Consultative Committee and its Noise Monitoring Sub Committee that between them contain representatives from local authorities and other stakeholders.



11.12 This part of the Master Plan discusses the noise implications of the development proposed to 2015, with specific attention to noise from airborne aircraft, aircraft on the ground, and road traffic accessing JLA. The proposed development has the potential to increase levels of noise. The current range of measures to minimise and mitigate the noise have been reviewed by the Airport and developed where practical to do so. A more general analysis of the noise implications of the development proposed to 2030 follows later in this chapter.

Air Noise

11.13 The term air noise refers to noise from aircraft that are airborne or on a runway during take-off or after landing. The total air noise to which local communities are exposed over a given period depends on the noise emitted by individual aircraft and the total number of aircraft movements (arrivals and departures) in that period. An overall measure of air noise exposure is depicted by noise contours that show lines of equal noise exposure over a given time (usually 8, 16 or 24 hours).

11.14 For impact assessment of airborne aircraft noise in the UK, noise is assessed in absolute terms with regard to various impact criteria. This process does not compare the levels of aircraft noise to the background noise in the vicinity. This contrasts with an industrial noise impact analysis where the relative level of the new industrial noise to the background noise is considered. The impact of airborne aircraft noise is assessed using noise contours indicating the dB $L_{Aeq,T}$[133] values. The use of these values results from detailed work relating community annoyance to noise levels for aircraft noise. The dB $L_{Aeq,T}$ unit is used for other environmental noises; e.g. railway noise, road noise, construction noise and industrial noise.

133 Definitions of these terms are set out in the Glossary.

11.15 The criteria used in the analysis that follows takes into account the information in Table 11.1, relating to PPG24: 'Planning and Noise', the criteria used in other UK airport assessments e.g. Manchester, Luton and Heathrow, the DETR Appraisal Framework, and the recent national consultation on the White Paper.

11.16 Current guidance given in PPG 24, which has been in place since September 1994, deals mainly with new housing development in relation to existing noise generating development, but is also of relevance to airborne aircraft noise. A summary of this guidance regarding daytime noise is given in Table 11.1 below.

11.17 In summary, daytime airborne aircraft noise should be taken into account when it exceeds 57 dB $L_{Aeq,16h}$ as the onset of low community annoyance, 63 dB $L_{Aeq,16h}$ for moderate community annoyance (PPG 24 Category B) and 69 dB $L_{Aeq,16h}$ for high community annoyance (Category C).

11.18 The assessment method used here is on the same basis as other UK airports, applying the methodology used in the White Paper, and in the earlier detailed consultation reports; e.g. 'The Future Development of Air Transport in the United Kingdom North of England: A National Consultation' (2002) published by the DfT. Day time air noise contours were estimated in the RASCO Study by the CAA for twenty-three regional airports, including JLA. These contours were obtained by a simplified spreadsheet approach.

11.19 The daytime air noise contours produced for RASCO indicated a potential for the area of the daytime 57dB $L_{Aeq, 16h}$ contour to increase from 9.5 km^2 (3.6 miles^2) in 1999 to 11.4 km^2 (4.4 miles^2) (under the base case) in 2015 or 13.5 km^2 (5.2 miles^2) (in the high growth case) by 2015. Estimates were also made for 2030, this indicated a potential for the area of the daytime contours to increase to 16.1 km^2 (6.2 miles^2) (base case) or 19.7 km^2 (7.6 miles^2) (high growth case).

Table 11.1: PPG 24 Guidance With Regard to Airborne Aircraft Noise (Daytime)

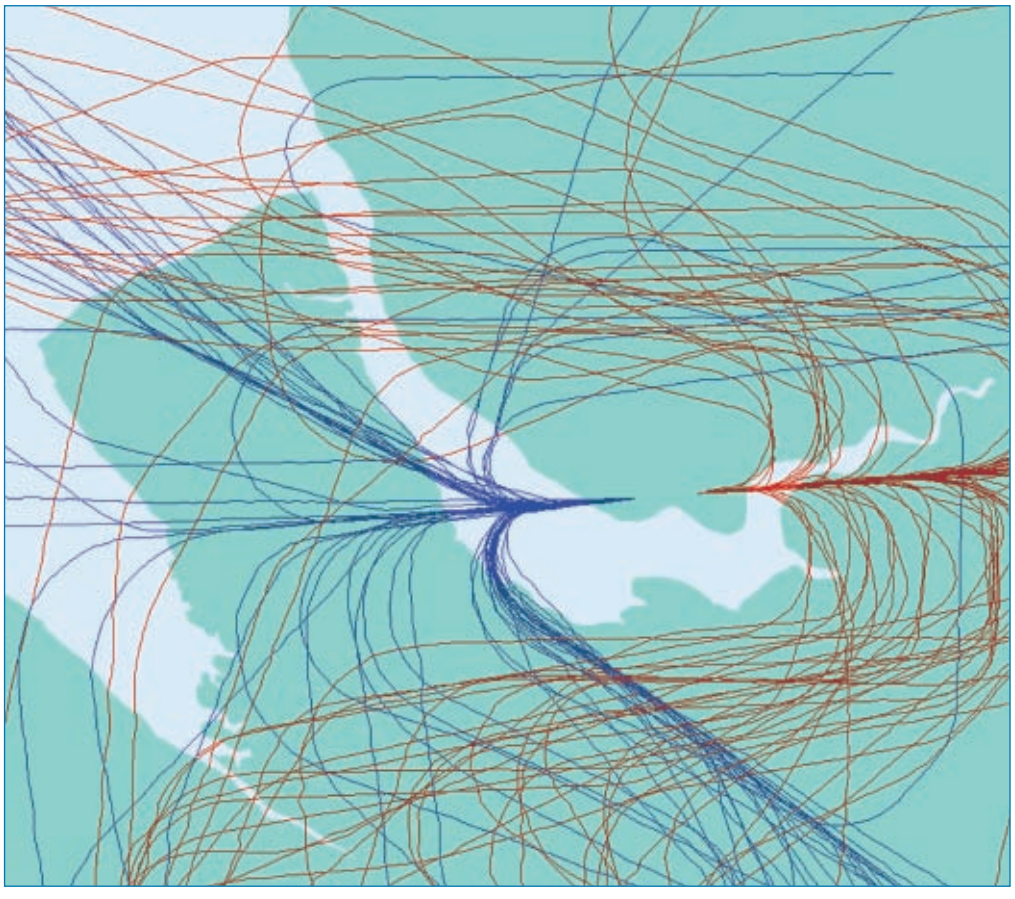
$L_{Aeq,16h}$ dB[134]	Guidance/Experience with regard to airborne aircraft noise (Daytime)
< 57	Noise need not be considered as a determining factor in granting planning permission, although the noise level at the high end of the category should not be regarded as a desirable level. PPG 24 Category A
57 – 66	Noise should be taken into account when determining planning applications and, where appropriate, conditions imposed to ensure an adequate level of protection against noise. PPG 24 Category B
66 – 72	Planning permission for housing should not normally be granted. Where it is considered that planning permission should be given; e.g. because there are no alternative quieter sites available, conditions should be imposed to ensure a commensurate level of protection against noise. PPG 24 Category C
> 72	Planning permission for housing should normally be refused. PPG 24 Category D

134 $L_{Aeq,16h}$ – Equivalent continuous sound level. This is a notional steady sound level which would cause the same A-weighted sound energy to be received as that due to the actual and possibly fluctuating sound from 07.00 to 23.00 (day-time).

11.20 Precise computer noise modelling can be obtained using either of the two computerised airport noise models commonly used in the UK, the ANCON2 (operated solely by the CAA) and the Federal Aviation Administration Integrated Noise Model (INM) which has been used extensively at many regional UK airports and at many airports across the world. Subsequent to the RASCO Study, noise contours for 2005 and 2015 have been prepared for JLA using the Federal Aviation Administration INM model by the Airport's noise consultants, Bickerdike Allen Partners . Such contouring indicates the area of the 57 dB $L_{Aeq,16h}$ contours in 2005 based on the actual movements and in 2015 based on the aviation forecast data explained in Chapter 6. This noise contour value was used in the White Paper[135] for strategic consideration of noise at other UK airports. It also considers the 63 dB $L_{Aeq,16h}$ and 69 dB $L_{Aeq,16h}$ contours.

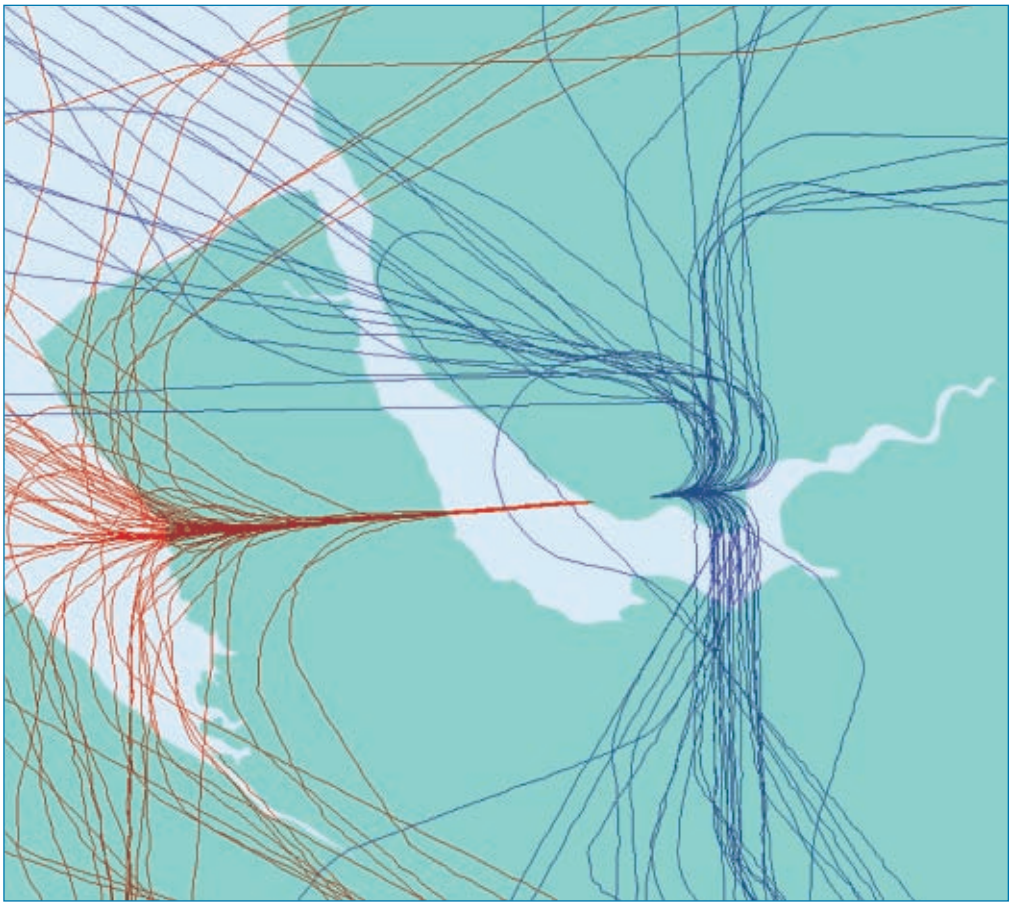
11.21 For the computer noise modelling, details of the aircraft movements, including numbers by individual aircraft types, are used. These are then assigned to routes in the model which represent those that occur in reality. On a day to day basis, the routes flown show significant variation, particularly if the runway operation is different due to the prevailing wind, as shown in Figures 11.1 and 11.2. Over a longer period of time, however, the routes used show a pattern which can be modelled, as would be expected from the use of set departure routes close to the airport.

Figure 11.1: Liverpool John Lennon Airport Aircraft Movements 3rd June 2006



135 'The Future of Air Transport', Department for Transport, (2003).

Figure 11.2: Liverpool John Lennon Airport Aircraft Movements 19th July 2006



Current Airborne Aircraft Noise

11.22 The results of the INM computerised noise contouring are shown on Figures 11.3 to 11.5. Figure 11.3 illustrates the extent of the aircraft noise in 2005. It shows the contour representing high levels of annoyance, 69 dB $L_{Aeq,16h}$, is largely contained within the boundaries of JLA.

11.23 The contour representing moderate levels of annoyance, 63 dB $L_{Aeq,16h}$, in 2005 is partly contained within the boundaries of JLA although it does extend west to contain some of the Mersey Estuary, an area known as Eastham Sands, and to the east where it reaches the south west corner of Hale. Approximately 60 properties in Hale and Hale Heath are contained within the contour.

11.24 The contour representing the onset of low community annoyance, 57 dB $L_{Aeq,16h}$, in 2005 extends from the River Mersey east of Hale to Eastham Sands to the west of JLA. In doing so, it contains approximately 1000 properties, most of which are in Hale and Hale Heath, with a smaller number in Speke.

11.25 There are areas; e.g.Heswall, Bromborough, Eastham, Runcorn and Widnes, outside of the noise contours shown that are exposed to a number of noise events from individual aircraft movements. Although noticeable, the cumulative exposure from these events is significantly below the levels recognised in Government guidance set out in PPG 24: Noise (see Table 11.1). However, this does not mean that from time to time individuals will not notice aircraft arriving or departing JLA.

Figure 11.3: Liverpool John Lennon Airport Predicted Daytime $L_{Aeq,16h}$ Noise Contours 2005

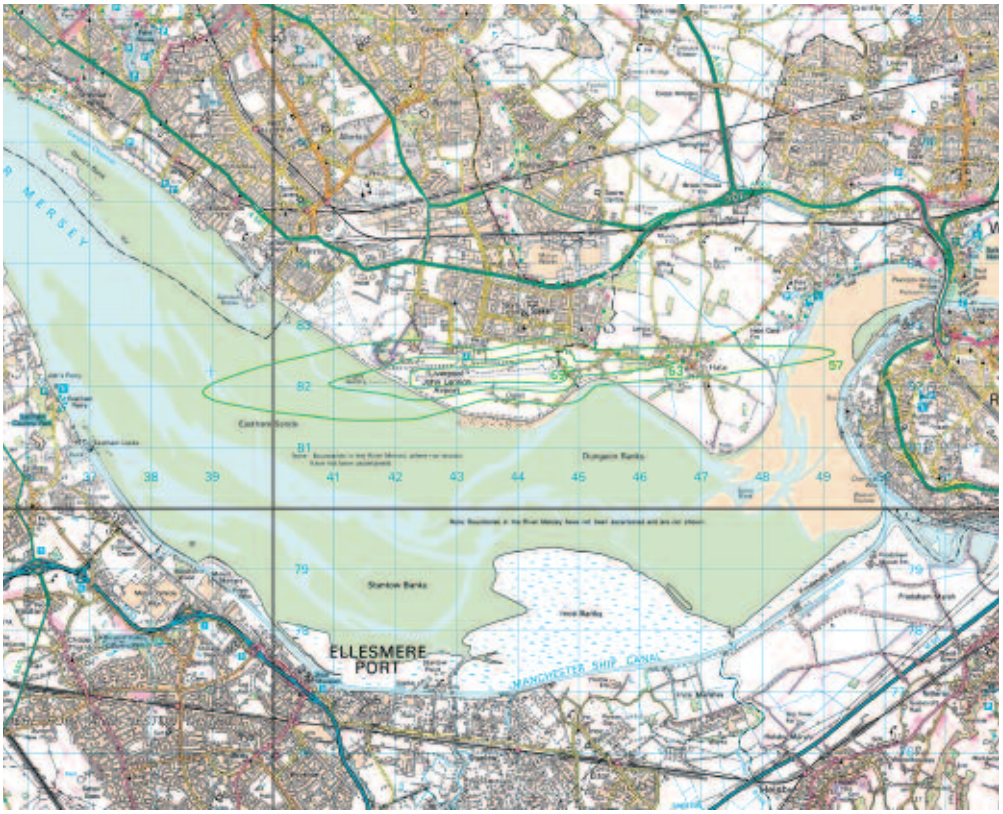


Figure 11.4: Liverpool John Lennon Airport Predicted Daytime $L_{Aeq,16h}$ Noise Contours 2015

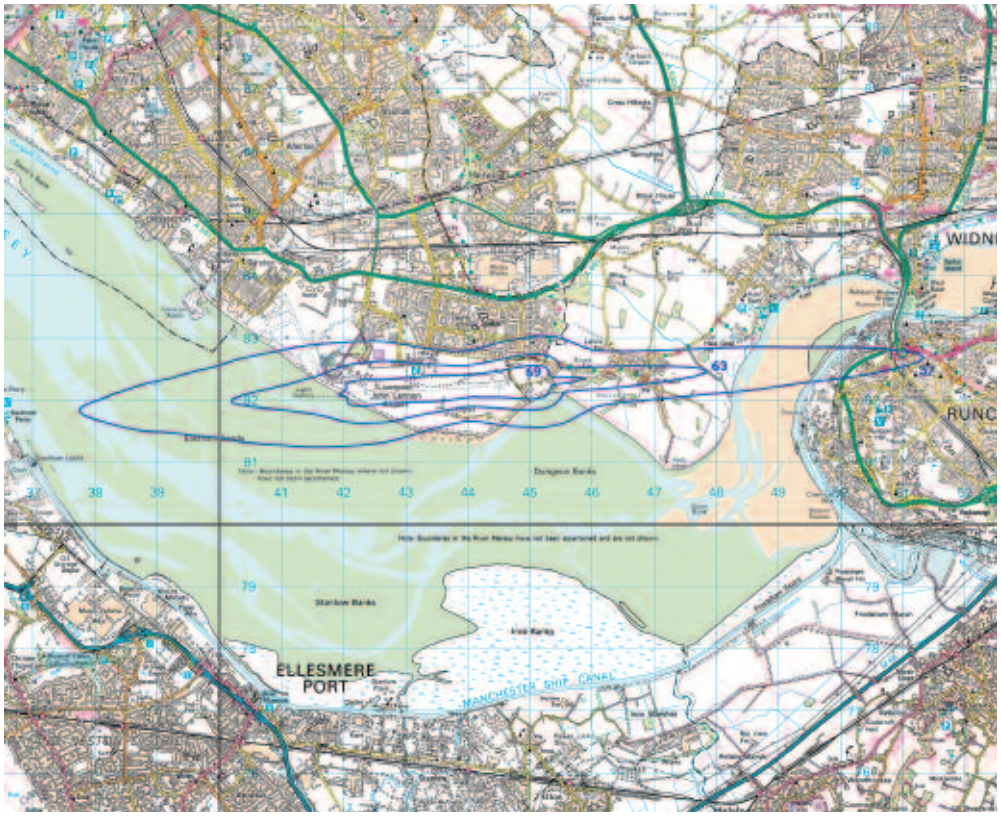
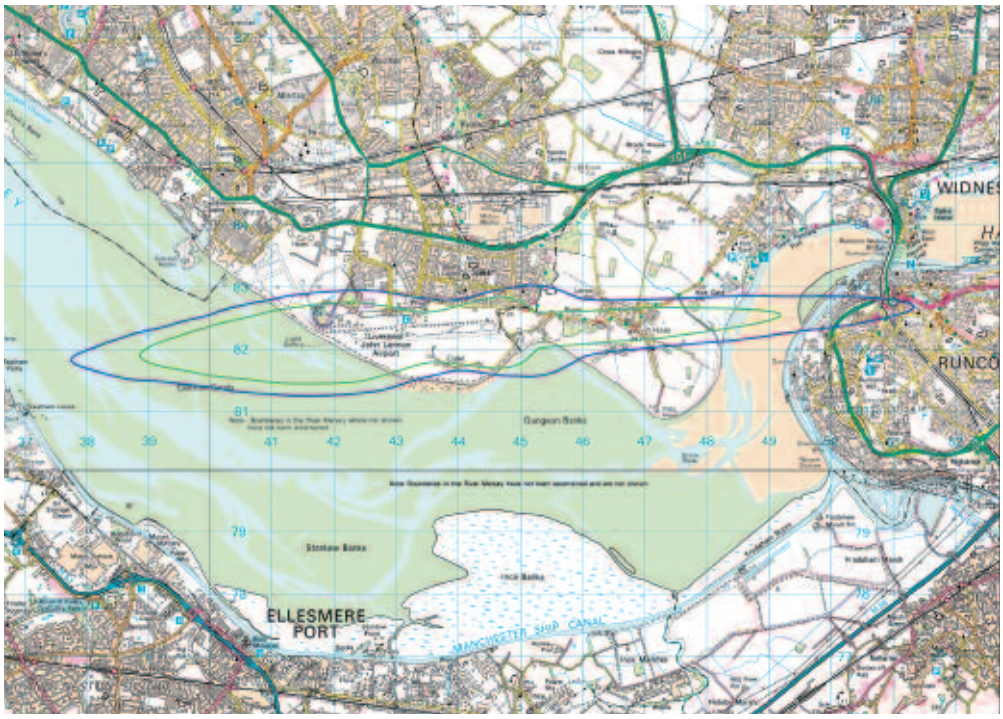


Figure 11.5: Liverpool John Lennon Airport Comparison of Daytime 57 dB $L_{Aeq,16h}$ Noise Contours in 2005 and 2015



Future Airborne Aircraft Noise (Daytime)

11.26 The forecast contours for 2015 shown in Figure 11.4 (and Plan 6 including the Wirral) are similar in shape to those for 2005, but cover a greater area. This is not unexpected as they assume an increased level of activity. The noise contour representing high levels of annoyance in 2015, 69 dB $L_{Aeq,16h}$, is almost completely contained within the proposed expanded JLA site. This expansion to the east is to allow also for the construction of the runway extension and starter strip. The only area where the contour leaves the expanded site is to the south of Hale Heath, which is discussed further below.

11.27 The contour representing moderate levels of annoyance, 63 dB $L_{Aeq,16h}$, in 2015 extends from east of Hale to Eastham Sands to the west of JLA. In doing so, it includes a number of properties, which fall within Hale, Hale Heath or Speke.

11.28 The contour representing the onset of low community annoyance, 57 dB $L_{Aeq,16h}$, in 2015 extends to parts of Runcorn to the east, but remains limited to the Mersey Estuary to the west, specifically to Eastham Sands and, therefore, does not extend as far as the Wirral peninsular. It includes approximately 1,700 properties, all of which are in Hale Heath, Hale, Speke and Runcorn.

11.29 It should be noted that while the contours for 2015 extend further than those for 2005 and contain a greater number of properties, the additional properties within the contours in 2015 are already exposed to aircraft noise, but at a level slightly below the contour values.

11.30 In terms of the perceptibility and significance of changes in airborne aircraft noise exposure around an airport, the following observations can be made:

- A change of less than 2 L_{Aeq} units would not be discernible to most people.
- Changes between 2 and 3 L_{Aeq} units might

be discernible, but would not usually be significant.

- Changes of between 6 and 9 L_{Aeq} units would be recorded by most people as significant and noticeable, and, especially at around an increase of 9, as causing a marked deterioration in their environment."

11.31 These findings are taken from the report of the Airport Inquiries: 1981-83 by the Inspector Graham Eyre QC. They were subsequently adopted at the public inquiries into the second runway at Manchester Airport, and at the recent inquiry into the conversion of RAF Finningley to become Robin Hood Airport Doncaster Sheffield. In PPG 24, Government advises that a change of 3 dB(A) is the minimum perceptible under normal conditions. Table 11.2 below simply expresses the relationship between change in noise level and subjective impression.

11.32 The 57 dB $L_{Aeq,16h}$ contours for 2005 and 2015 are compared graphically on Figure 11.5. This shows the greatest changes at the eastern extremity of the contours and also to the north and south of Hale Health close to the proposed end of the extended runway. The precise increase has been assessed for three locations, one in the south east corner of Speke, one in the centre of Hale, and one in Runcorn on the extended centre-line of the runway. The predicted potential increases at these locations by 2015 are 6.1 dB(A), 3.5 dB(A) and 3.3 dB(A) respectively. These predictions are based on a worst case scenario; i.e. on the assumption that all aircraft use the full length of the runway, when in practice a high proportion on short haul routes that comprise the vast majority of movements, will use the existing runway length.

11.33 The increases in noise at two of the locations of around 3-4 dB(A) is, therefore, likely to be perceptible and so marginal impact is expected. The increase for the south east corner of Speke of around 6 dB(A) is likely to be noticeable and so a significant impact is a possibility. In these future contour predictions no allowance has been made for any reduction in aircraft noise resulting from aircraft / engine technology improvements. In the RASCO Study it was noted that significant improvements in aircraft technology were expected. The Study stated that with improved aircraft technology there would be a significant reduction in the population exposed to noise in 2015 and 2030 relative to current levels with the smallest growth scenario considered. The increase in noise that occurs in practice may therefore actually be less than now predicted. For the location in Speke it should also be noted that the recent contours have assumed that all departures will use the full length of the existing runway which brings those departing to the west, the majority, closer to this location. In practice, many of the departures to the west are not expected to use the full extended runway. They would remain further from the south east corner of Speke and, therefore, the increase in noise is expected to be lower than this predicted level increase.

11.34 With regard to the overall area of the contours a comparison between 2005 and 2015 is given in Table 11.3, specifically for the outer contour, 57 dB $L_{Aeq,16h}$. Also included in this table are the contour areas from the RASCO Study by the

Table 11.2: Subjective Importance of Changes in Noise Level

Change in Level (dB)	Subjective Impression	Impact
0 to 2	Imperceptible change	None
3 to 5	Perceptible change	Marginal
6 to 9	Noticeable	Significant

CAA. This shows that the current contours, those for 2005, are smaller than predicted for 1999 in the RASCO Study indicating that current conditions are quieter than a few years ago. Both the RASCO Study and the recent modelling by the Airport's consultants show an increase in the contour area in 2015, with the recently modelled contour area falling at the upper end of the range in the RASCO Study. The magnitude of this increase depends on the growth assumed, but taking the most recent contouring, the increase is just under 6 km^2 (2.3 $miles^2$) (see Figure 11.5 for a comparison of the contours).

11.35 To enable further assessment, the approximate populations within each of the contours have been determined, as shown in Table 11.3. The populations have been assessed using data supplied by CACI Limited, and from information given in the CAA ERCD Technical Paper 'Present and Future Noise Exposure at UK Regional Airports' with regard to the RASCO contours.

11.36 The area of the 2015 (INM) contour is 5.6 km^2 (2.2 $miles^2$) larger than that of the 2005 (INM) contour. However, of that increase only 2.7 km^2 (1 $mile^2$), or 49% of the area, is over land with the remaining 2.9 km^2 (1.1 $mile^2$), or 51%, being over the Mersey Estuary. The population currently exposed is slightly lower than predicted for 1999 in the RASCO Study at around 2,400 people which is consistent with the smaller contour area. With the proposed development this is expected to increase by 1,600 to around 4,000 people using the latest forecasts and precise computer noise modelling. This is at the bottom end of the range in the RASCO Study despite the corresponding contour area being at the top end of the relevant range. This difference is attributed to the use of a simplified spreadsheet approach during the RACSO Study leading to a contour of a different shape than from the precise computer modelling used for this Master Plan.

11.37 As part of the national consultation on the White Paper, the DfT produced many consultation documents. In the publication for the South West, guidance was given on noise impact significance categories in terms of the increase in population affected under the 57 dB $L_{Aeq,16h}$ contour. The guidance provides a useful indication of policy approach to quantifying impacts. The guidance is summarised below in Table 11.4, taken from Table 6.11 in 'The Future Development of Air Transport in the United Kingdom: South West: A National Consultation' (2002).

11.38 This Government advice would suggest that the effect of the proposed development at JLA would create MINIMAL impact.

11.39 In the White Paper[136] the situation at JLA was discussed. The Government considers that the

Table 11.3: Comparison of Contour Areas (57 dB $L_{Aeq,16h}$)

Year	Approx. Area (km^2) of Daytime Contour	Approx. Population in Daytime Contour
1999 (RASCO)	9.5	2600
2005 (INM)	7.8	2400
2015 (RASCO)	11.4 – 13.5	4000 - 5900
2015 (INM)	13.4	4000

136 'The Future of Air Transport', Department for Transport, (2003), paras. 8.17-8.21.

capacity of JLA should continue to grow to accommodate increased demand and with this growth noise levels would rise. However, the Government considers that the number of people currently affected by noise is, and should remain, relatively low. This opinion was made on the basis of the RASCO contours. As the recent modelling has found lower populations within the contours, the same conclusion applies to the Master Plan proposals.

11.40 The most significant aspect of examining noise impact of airport operations is a consideration of the population exposed to significantly higher levels of noise than 57 dB $L_{Aeq,16h}$, as at these higher levels significant impact can occur which can warrant mitigation measures. Table 11.5 below lists the estimated populations exposed recently to levels over 63 dB and 69 dB $L_{Aeq,16h}$ at some other airports, so as to put the current impacts at JLA into clearer context.

11.41 Consideration of the population exposed to 63 dB $L_{Aeq,16h}$ is pertinent since this level of exposure is often used as the level of exposure which merits mitigation measures, such as the installation of additional sound insulation. Exposure to noise levels of 69 dB $L_{Aeq,16h}$ and above may well be considered to be beyond the margins of tolerability, and the agreed purchase of affected properties becomes a potential means of addressing the noise issue. The Government's policy on noise mitigation and compensation was recently expressed in the White Paper[137] and is referred to in Chapter 12.

11.42 With the proposed development at JLA, and no allowance for improving aircraft technology, the population exposed to the moderate annoyance level, 63 dB $L_{Aeq,16h}$, is expected to increase to around 1500, using data supplied by CACI Limited. With a small allowance made for improvements in aircraft technology the expected increase would be less.

11.43 With the proposed development at JLA, one property in Hale Heath, in addition to those already owned by the Airport, is predicted to be

Table 11.4: Population significance categories under the 57 dB $L_{Aeq,16h}$ contour

Level of Impact	Population Increase
MAJOR	10,000 or more
MODERATE	5,000-9,999
MINOR	2,500-4,999
MINIMAL	less than 2,500

Table 11.5: Populations recently exposed to Moderate or High Annoyance Levels at UK airports

Airport	Population exposed to Moderate or High Annoyance Levels (Current)	
	63 dB $L_{Aeq,16h}$ (Moderate)	69 dB $L_{Aeq,16h}$ (High)
Heathrow (2000)	82,000	13,000
Stansted (2000)	1,000	200
Gatwick (2000)	1,400	200
Luton (1999)	1,000	<100
JLA (2005)	140	0

137 'The Future of Air Transport', Department for Transport, (2003), Chapter 3.

exposed to the high annoyance level, 69 dB $L_{Aeq,16h}$. The noise situation for this property will be monitored, and once it appears that this level of noise will arise, an offer will be made to purchase the property in accordance with Government advice (see Chapter 12).

11.44 In addition to residential properties, noise can potentially have negative effects on hospitals or schools. With regard to JLA, the closest hospital is in Garston over 2 km (1.2 miles) to the north west. Due to this separation and the routes used by the aircraft it is well outside the contours produced for 2005 and 2015. The predicted level in 2015 with the Master Plan proposals is much less than 57 dB $L_{Aeq,16h}$ at this location. The White Paper states that the Government only expects airport operators to offer acoustic insulation to hospitals and schools exposed to medium to high levels of noise (63 dB $L_{Aeq,16h}$ or more). The noise levels with the Master Plan proposals are far below this level such that no significant impact is expected for hospitals.

11.45 The closest schools to JLA are in Speke to the north and Hale to the east. The schools in Speke are well outside the contours produced for 2005 and most remain so in 2015 with predicted levels with the Master Plan proposals less than 57dB $L_{Aeq,16h}$. The one exception is St Ambrose RC Primary School at the eastern end of Speke where the predicted level just reaches 57 dB $L_{Aeq,16h}$ but remains significantly below 63 dB $L_{Aeq,16h}$. No significant impact is therefore expected for the schools in Speke.

11.46 The school in Hale under the final approach to runway 27 is within the 57 dB $L_{Aeq,16h}$ contour produced for 2005, but is outside the corresponding 63 dB $L_{Aeq,16h}$ contour. The predicted level in 2015 with the Master Plan proposals is greater and the school is then within the 63 dB $L_{Aeq,16h}$ contour. One of the NMT's is permanently fixed to the school building and the Airport will continue to monitor noise levels and offer the school suitable acoustic insulation, if appropriate.

11.47 In essence, the development proposed in the Master Plan would cause noise levels comparable with those predicted by the RASCO Study. The development would cause perceptible, and in one area noticeable, increases in overall noise assuming no effect from future improving aircraft technology, and lead to a relatively small increase in the population exposed to 57 dB $L_{Aeq,16h}$. In the latter case, the increase is such that using the Government's rating on the significance of change, minimal impact would arise. No significant impact is predicted on either local schools or hospitals with the exception of the school in Hale for which mitigation measures would be developed and implemented, as found necessary.

Night Noise

11.48 The Airport operates over a 24 hour period with passenger and cargo services. Night noise regulation is a current feature of the airports' Quiet Operations Policy and this is described in the Annual Noise Report. The key features controlling night noise are the quota count system (QCS) with corresponding noise budget, and the ban on operations of the noisiest aircraft at night.

11.49 The activity at night is constrained as at a few other major UK airports by a noise budget expressed as the summation of the quota count for each aircraft movement at night. The airport is constrained by an agreed noise budget set in 2002. Since this budget was set, due to the reduction in freight activity, and in particular reduced usage of certain older cargo aircraft types, the quota count usage has been

comfortably within the limit. The expected growth in night-time activity will be carefully monitored and although it may increase it is not expected that the quota count usage will approach the agreed noise budget.

11.50 In a similar manner to daytime noise assessment, night-time aircraft noise has been evaluated using noise contours. These take into account the combined effect of several aircraft at night by determining the night-time dB $L_{Aeq,8h}$ values. The criteria used in the analysis that follows take into account the information in PPG 24: 'Planning and Noise'.

Noise Monitoring Terminal

11.51 As noted earlier the current guidance given in PPG 24 deals mainly with new housing development in relation to existing noise generating developments, but is also of relevance to airborne aircraft noise. In summary, this document states that when the noise level at night exceeds 57 dB $L_{Aeq,8h}$ the Government's advice is that planning permission for new housing should not normally be granted. The document also notes that the Government in 1990 adopted as a trigger level 57 dB $L_{Aeq,8h}$ at Stansted Airport for sound proofing eligibility at night.

11.52 The independent Inspectors at the Airport Inquiries (The Airport Inquiries 1981-1983), concluded that, for night-time, 55 dB L_{Aeq} (night-time external level) represents a level which should be regarded as the maximum for avoiding sleep disturbance for most people, assuming that windows remain open, 60 dB L_{Aeq} with single glazed windows shut. To ensure a cautious assessment a night-time criterion of 55 dB $L_{Aeq,8h}$ has therefore been used.

11.53 Noise contours for 2006 and 2015 have been prepared for JLA using the Federal Aviation Administration INM by the Airport's noise consultants. Such contouring indicates the area of the 55 dB $L_{Aeq,8h}$ contours in 2006, as presented in the Environmental Statement in support of the successful terminal expansion planning application in 2002[138], and in 2015 based on the aviation forecast data explained in Chapter 6.

Current Airborne Aircraft Noise

11.54 The results of the INM computerised noise contouring are shown on Figures 11.4 and 11.7 which are replicated in Plans 6 and 7 showing a wider geographical area. Figure 11.6 illustrates the extent of the aircraft noise in 2006. It shows the 55 dB $L_{Aeq,8h}$ contour extends from the River Mersey east of Hale to Eastham Sands to the west of LJLA. In doing so, it includes approximately 550 properties, almost all of which are in Hale.

Future Airborne Aircraft Noise

11.55 The forecast contours for 2015 shown in Figure 11.7 (and Plan 7 including the Wirral) have a somewhat different shape to those for 2006 and cover a greater area. This is not unexpected as they assume an increased level of activity from a slightly different mix of aircraft types. The 55 dB $L_{Aeq,8h}$ contour extends from the River Mersey east of Hale to Eastham Sands to the west of LJLA. In doing so, it includes approximately 1300 properties, all of which are in Hale, Hale Heath, and Speke.

138 Liverpool City Council ref. 01F/2860, dated 5 February 2003.

11.56 It should be noted that while the contours for 2015 extend further than those for 2006 and contain a greater number of properties, the additional properties within the contours in 2015 are already exposed to aircraft noise, but at a level below the contour values.

11.57 The 55 dB $L_{Aeq,8h}$ contours for 2006 and 2015 are compared graphically on Figure 11.8. This shows little change at the eastern and western extremities of the contours and greatest change to the north and south of the proposed extension to the runway. These predictions are based on a worst case scenario; i.e. on the assumption that all aircraft use the full length of the proposed runway extension, when in practice a high proportion on short haul routes (flying to or from European destinations that comprise the vast majority of movements) will use the existing runway length.

11.58 As for the daytime contours in these future contour predictions, no allowance has been made for any reduction in aircraft noise resulting from aircraft frame and engine technology improvements. In the RASCO study it was noted that significant improvements in aircraft technology were expected. The increase in noise that occurs in practice may therefore actually be less than now predicted due to expected improvements in aircraft technology.

11.59 With regard to the overall area of the contours, a comparison between 2006 and 2015 is given in Table 11.6, specifically for the inner contour, 55 dB $L_{Aeq,8h}$. This shows that the current

Figure 11.6: Liverpool John Lennon Airport Predicted Night-time 55 dB $L_{Aeq,8h}$ Noise Contours 2006

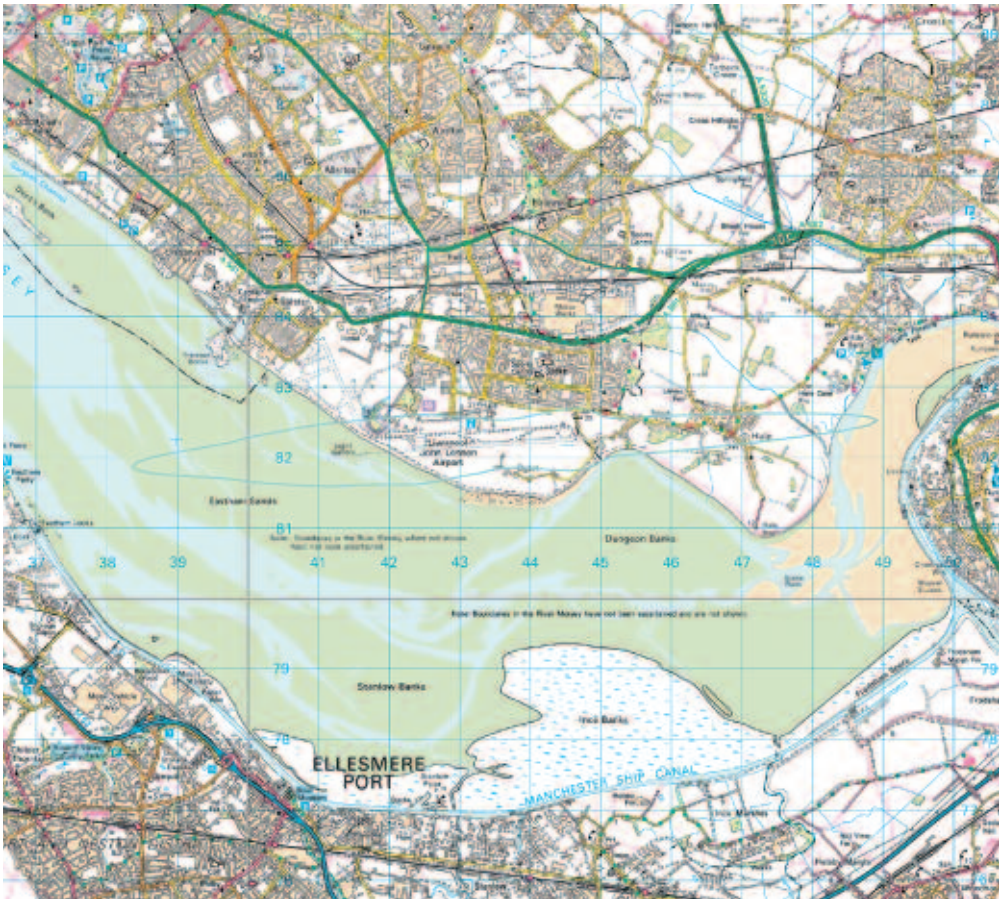


Figure 11.7: Liverpool John Lennon Airport Predicted Night-time 55 dB $L_{Aeq,8h}$ Noise Contour 2015

Figure 11.8: Liverpool John Lennon Airport Comparison of Night-time 55 dB $L_{Aeq,8h}$ Noise Contours in 2006 and 2015

contours, those for 2006, are smaller than predicted for 2015. The magnitude of this increase is just over 3 km^2, although, as for the daytime contours, much of this increase is over the Mersey Estuary (see Figure 11.8 for a comparison of the contours).

11.60 To enable further assessment, the approximate populations within each of the contours have been determined, as shown in Table 11.6. The populations have been assessed using data supplied by CACI Limited.

11.61 With the proposed development at JLA, and no allowance for improving aircraft technology, the population exposed to 55 dB $L_{Aeq,8h}$ is expected to increase to around 3000. The magnitude of this increase, around 1700, is similar to the expected increase in the population from 2005 to 2015 exposed to daytime levels of 57 dB $L_{Aeq,16h}$. As with the daytime exposure, with a small allowance made for improvements in aircraft technology, the expected increase would be less.

11.62 In comparison with other airports with regular activity at night the exposed populations to 55 dB $L_{Aeq,8h}$ are lower at JLA. In 2003 the approximate populations at Gatwick, Stansted and Heathrow, were 1400, 1650 and 63,400. In 2004 the approximate population at East Midlands Airport was 1850 and this is expected to increase to around 4150 by 2016.

11.63 Noise at night can potentially have negative effects on hospitals. With regard to JLA, the closest hospital to JLA is in Garston over 2 km to the north west. Due to this separation and the routes used by the aircraft it is well outside the contours produced for 2006 and 2015. The predicted level in 2015 with the Master Plan proposals is much less than 48 dB $L_{Aeq,8h}$ at this location. No significant impact is therefore expected for this hospital.

Sound Insulation Grant Schemes

11.64 In the White Paper mitigation measures are suggested for properties exposed to 63 dB $L_{Aeq,16h}$. As noted previously, the Airport already operated a Sound Insulation Grant Scheme (SIGS) based on a comparable 62 dB $L_{Aeq,24h}$ noise contour. That scheme has now been developed and improved in the light of comments and opinions expressed by organisations and individuals during the consultation exercise on the draft Master Plan.

11.65 In the new scheme, eligibility for a grant continues to be defined using noise exposure criteria. The previous single daily average criteria of 62 dB(A) has been replaced with a daytime parameter of 63 dB $L_{Aeq,16h}$ and a night-time criteria, initially of 59 dB $L_{Aeq,8h}$, and then gradually reducing to 55 dB $L_{Aeq,8h}$ in the future. A property exposed to either of these levels will be eligible for a grant; and introducing these parameters will increase the numbers of eligible properties. The scheme will also include a specific eligibility criterion for bedrooms only relating to noise at night. The value of the grant will be increased in line with the level of inflation in the future and continue to be reviewed every two years in the light of best practice at other airports. If the airborne aircraft noise increases this will be reflected in the extent of the geographical area covered by the noise exposure contours that determine eligibility.

Table 11.6: Comparison of Contour Areas (55 dB $L_{Aeq,8h}$)

Year	Approx. Area (km^2) of Night-time Contour	Approx. Population in Night-time Contour
2006 (INM)	6.4	1300
2015 (INM)	9.6	3000

Noise Complaints

11.66 The Airport received less than 300 noise complaints during 2005, the majority of which related to daytime aircraft movements. This compares to 208 such complaints in 2004 and 231 in 2003. Generally, individual households do not make repeat complaints. However, in 2005 28% of all complaints were made by the same three individuals, all well outside the 57 dB $L_{Aeq,16h}$ noise contour, which is regarded by the Government as the approximate onset of annoyance.

11.67 During 2005, noise complaints relating to operations on runways 09 and 27 were broadly equal despite there being a 25% to 75% split in their respective usage. The explanation appears to relate to the fact that 30% of all complaints were made by residents on the Wirral, which represents the highest proportion of complaints from a single geographical area. Most of these complaints were made while runway 09 was in operation from occupiers on the western side of the peninsular, as aircraft arrived at JLA from the west over the Wirral. It is the aircraft approaching runway 09 that trigger the highest proportion of complaints from that area.

11.68 Over the last few years, the total number of complaints has remained at a relatively low level. This is partly due to the comparatively small size of the operation, the modern fleet used by easyJet and Ryanair, and the fact that a high proportion of the area marginally affected by noise shown in Table 11.3 is over the Mersey Estuary and therefore, unpopulated.

11.69 The Airport treats all noise complaints seriously, and investigates them all using NM&TKS with the assistance of ATC. However, it is not the number of complaints that determines whether mitigation is offered to households; e.g. via SIGS, but assessments are made using the objective criteria discussed above. In appropriate cases, practical, safe and cost effective mitigation will be undertaken.

Ground Operations

11.70 Noise generated other than by aircraft in flight or taking off or landing is termed ground noise. The main sources of airport ground noise are:-

- Taxiing aircraft;
- Aircraft Auxiliary Power Units;
- Testing (ground running) of aircraft engines;
- Mobile ground equipment such as Ground Power Units; and
- Construction.

11.71 Airport ground noise is heard in the context of off-airport noise sources, termed background noise. The most dominant contributor to the noise climate in the residential areas is road traffic. Airport ground noise will be audible for locations close to the airport boundary. Taxiing is by far the most significant airport ground noise source. The rare occurrence of engine testing at high power settings after an aircraft has had significant maintenance can generate higher noise levels than taxiing, but it is of limited duration and frequency.

11.72 The Airport has developed and implemented measures to ensure that ground operations are carried out as quietly as practicable to minimise impact and these include:

- Encouraging the minimum use of reverse thrust by aircraft on landing consistent with safety constraints, particularly between 23.00 and 06.00.
- Except in emergencies engine testing shall be restricted to areas designated for that purpose.
- Except in emergencies, restrictions are imposed on the ground running of engines between 23.00 and 07.00.

11.73 The growth of activity at JLA will produce greater ground noise by 2015. The degree of

increase will be a function not only of the future aircraft mix and numbers of future aircraft, but of the degree to which future buildings situated between the taxiways/runway and local housing develop to produce a material increase in noise shielding. This is particularly the case between the parallel taxiway, to the north of the runway, and Speke in the area to the east of the terminal. This area undergoes built development under the proposals, which includes the introduction of a number of buildings, which would help screen taxiing aircraft.

11.74 The proposed development also includes an extension to the runway at the eastern end, and the introduction of starter strips (sections of pavement at the ends of runways used by departing aircraft only) at both ends. These changes necessitate extensions to the parallel taxiway at both ends to provide access to the ends of the extended runway. In addition, new aprons are proposed.

11.75 The effect of the development could lead to increased noise levels at the closest receptors to these changes. However there are few properties close to the areas where the proposed runway extension and starter strips would be located.

11.76 During the construction phase of the proposed development it is expected that any potential noise impact would be mitigated primarily by the significant separation distance between the sites and the nearest noise sensitive properties and the possible introduction of operational controls in the form of a Construction Management Plan that addresses matters such as hours of work and piling methods.

11.77 In 2006, the total equivalent throughput of JLA in million passengers was 5 mppa. By 2015, this number is projected to increase to 8.3 mppa. On the assumption that the mix of aircraft remains constant, such an increase in throughput will equate to an increase of 2.8 dB(A) in ground noise. Such an increase in noise is likely to be perceptible at those properties along the southern edge of Speke, sufficiently close to JLA and not benefiting from a material increase in noise shielding. A marginal impact is, therefore, a possibility without mitigation measures being introduced.

11.78 The Airport is, however, committed to introduce suitable amelioration in relation to ground noise by a Section 106 agreement relating to the planning permission for the terminal extension granted in 2003[139]. This requires the Airport to assess levels of ground noise. If this shows that levels at residential properties regularly exceed 55 dB $L_{Aeq, 16h}$ during the day because of aircraft ground noise operations, the Airport should provide suitable amelioration. The last such assessment was in 2004 and further assessments are due to be conducted in the near future. This regular assessment, and the introduction of suitable amelioration, should counteract the potential marginal impact related to ground operations resulting from the Master Plan proposals.

139 Liverpool City Council ref. 01F/2860, dated 5 February 2003.

11.79 In essence, although an increase can be expected in ground noise as a result of the Master Plan proposals, it should be small and suitable measures will be introduced during the development to reduce any impact.

Access Traffic Noise

11.80 The increase of scheduled passenger flights will result in additional road traffic movements to JLA. To cope with these additional movements, significant modifications will occur including the construction of a new access road, the EATC, and additional car parking facilities. The EATC has the benefit that it brings traffic to JLA from the A561 and is generally located well away from existing residential properties.

11.81 By 2015 passenger throughput is forecast to increase to 8.3 mppa from 4.4 mppa in 2005. On the assumption that the modes these passengers use to reach JLA remain unchanged, such an increase in throughput would equate to an increase of 2.2 dB(A) in access traffic noise. The overall increase in noise from the roads is likely to be less than this as the non-airport access traffic using them is not expected to increase by the same amount. Depending on the proportion of JLA-related traffic on the roads, the overall increase in noise may be perceptible at those properties sufficiently close. Therefore, a marginal impact is a possibility without mitigation measures being introduced.

Consideration of EATC Route Options

11.82 Most of the access traffic to JLA would use the new access road, the EATC, for which three route options have been considered (see Chapter 7). All three options link Hale Road, which runs along the northern boundary of JLA, and is to be improved, with the junction of the A562 and A5300. The junction of the new access road to Hale Road would be in the form of a roundabout near the south east corner of Speke Estate.

11.83 All three options follow the same initial route from the roundabout with Hale Road, heading in a north easterly direction for just over one kilometre. Option SA2 then turns to the north west where it meets the A561 at a new junction. From here traffic using the new access road can then follow the A561 and then the A562 to the junction with the A5300. After the initial common part of the route, Option SA3 turns briefly north before returning to a north east bearing to the existing junction of the A562 and A5300. At the split, Option SA4 heads in an easterly direction before a gradual turn to the north and convergence with Option SA3 at the junction of the A562 and A5300.

11.84 For much of their length, each route passes through generally unpopulated areas and there are only isolated properties in the vicinity. The exception to this is the initial part of each route from the roundabout with Hale Road where they are near the south east corner of Speke Estate. As the three options share a common route in this area they would have the same effect on Speke. Regarding the remaining properties further down the routes, a noise assessment has been undertaken. This finds that Option SA2 is preferable as it exposes the fewest properties to levels of traffic noise that would start to become significant. This finding follows from the fact that Option SA2 is by far the shortest route to the existing network and does not approach close to existing noise sensitive properties. Both Options SA3 and SA4 pass closer to properties in Hale, including some within Conservation Areas.

11.85 Although an overall increase in traffic noise is predicted due to the additional traffic, the introduction of the EATC means that for some existing roads a reduction in noise is possible. This is particularly the case for the roads to the west of Speke which are currently used by the large majority of traffic to JLA. Under this

Master Plan, much of the future traffic would not use these roads, and, therefore, although there would be more traffic, the numbers of vehicles using these roads may actually decrease.

Noise Considerations in 2030

11.86 It is envisaged that the passenger traffic at JLA will increase from 8.3 to 12.3 mppa between 2015 and 2030. The cargo traffic is expected to increase considerably due to the opening of the Oglet World Cargo Centre from around 40,000 tonnes per annum to about 220,000 tonnes per annum during the same period. Such an increase in cargo activity is comparable with that given in the 2002 national consultation by the DfT. The noise implications of the Master Plan proposals to 2030 have been considered in a general sense. Detailed predictions have not been made, as detailed input information for contouring etc. is currently not available.

11.87 With reference to air noise, typical passenger aircraft size in 2030 is expected to be broadly similar to that in 2015. The extensive EU / USA research to reduce aircraft noise by 10 dB, and the obvious pressure on aircraft manufacturers to do likewise now, is expected to lead to a reduction in noise from the typical passenger aircraft. Due to the general practice of using converted passenger aircraft to carry cargo, no reduction in their individual noise levels is expected. In practice, as the cargo fleet in the future may include some larger aircraft than at present, the noise from some individual cargo aircraft may increase noticeably.

11.88 In overall terms; i.e. expressed using the $L_{Aeq,T}$ index usually adopted for contours, and assuming no improvement occurs in the noise reduction of individual aircraft, a small overall increase of around 2 dB would be predicted during the daytime from 2015 to 2030 as a consequence purely of the growth in movement numbers, particularly by passenger aircraft. In light of the expected reduction in the noise from individual passenger aircraft this theoretical increase of 2 dB may not occur in reality.

11.89 For the night-time period a slightly greater overall increase of around 3 dB would is predicted from 2015 to 2030 in light of the growth in movement numbers, by both passenger and cargo aircraft, and assuming no improvement occurs in the noise reduction of individual aircraft. In light of the expected reduction in the noise from individual passenger aircraft a lesser increase of 1-2 dB may occur in reality.

11.90 As a consequence of the increased aircraft movements ground noise would also be affected. Ground noise associated with passenger aircraft is likely to arise from similar locations to those which are applicable in 2015, but with the increased movements, an overall increase of around 2 dB would be expected. This, however, assumes no reduction in noise from individual aircraft types which could reduce any increase. Although the creation of the Oglet World Cargo Centre to the south of the runway would create a new source of ground noise, this would be generally distant from residential properties. Therefore the combined ground noise will increase by no greater than 2 dB.

11.91 Road traffic levels would also be affected by the increases in passenger and cargo movements. Taking the passenger traffic, the overall effect on the local road network would be an increase just less than 2 dB, assuming no increase in the use of public transport (contrary to the ASAS), and no reduction in the noise from individual road vehicles. Road traffic to the Oglet World Cargo Centre would use a new road to reach the EATC and from there link to the national road network. As such, the traffic associated

with the cargo centre would be generally kept away from residential properties.

Summary of Noise Considerations

11.92 The proposals in this Master Plan would cause noise levels comparable with those predicted by the RASCO Study. The development in 2015 would cause perceptible, and, in one area, noticeable increases in overall noise assuming no effect from improving aircraft technology, and lead to a relatively small increase in the population exposed to 57 dB $L_{Aeq,16h}$. In the latter case, the increase is such that using the Government's rating on the significance of change, minimal impact would arise. No significant impact is predicted on either local schools or hospitals with the exception of the primary school in Hale for which mitigation measures would be developed and implemented, as found necessary.

11.93 An increase can be expected in ground noise from the Master Plan proposals, although it should be small and suitable measures would be introduced to reduce any impact.

11.94 An overall increase can be expected in road traffic noise, but the change should be small. For the existing access route to JLA, due to the construction of the EATC, traffic flows and the consequential levels of noise may reduce. The EATC would be generally located well away from existing residential properties. Due to their proximity to the southern end of the EATC, and the improved road along the northern boundary, sensitive receptors along the southern edge of Speke would be expected to be exposed to increased noise levels. These would be assessed prior to any future developments and mitigation measures introduced where appropriate.

11.95 In the White Paper it states in relation to JLA that "noise levels at the airport are rising because of the very large increase in operations from a low base, and will continue to do so as traffic volumes increase"[140]. The findings of the assessment conducted for this Master Plan found that up to 2015 an increase in noise is expected due to the growth in operations. From that date onwards, and in particular as 2030 approaches, it is, however, considered that improvements in aircraft noise reduction may be sufficient to reduce the theoretical small 2-3 dB increases that are implied by the increase in forecast activity from 2015-2030. The White Paper also notes in relation to noise that "the number of people affected is, and should remain, relatively low"[141] and this statement is supported by the assessment conducted for this Master Plan.

Air Quality Impacts

11.96 A variety of sources within and around an airport can affect local air quality. These include airside vehicles, and airborne and ground level aircraft activity, as well as vehicles travelling to and from the airport.

Existing Baseline Air Quality

11.97 Liverpool City Council has investigated air quality in its area as part of its local air quality management responsibilities. Two locations where the annual mean air quality objective for nitrogen dioxide are likely to be exceeded were identified and subsequently declared Air Quality Management Areas (AQMA). These are located in the City Centre and adjacent to the M62/Rocket junction. In a detailed assessment published in June 2004, an additional 6 areas where the objective is at risk of being exceeded were identified. These areas are currently being considered as additional AQMAs. Liverpool City Council has not identified any potential exceedences of the air quality objectives in the vicinity of JLA. None of the surrounding Boroughs (Wirral, Halton and Knowsley Councils) have declared AQMAs.

140 Para. 8.18.
141 Ibid

11.98 Nitrogen dioxide concentrations have been measured on a monthly basis by the Airport in partnership with Liverpool City Council, near to JLA, using diffusion tubes. Since June 2004, the diffusion tubes have been analysed by Eurofins. A bias adjustment factor for these tubes has been derived from a collocation study carried out with the Speke AURN monitor. Nitrogen dioxide is measured using an automated continuous analyser at an urban background site in Tarbock Street, Speke (Liverpool) about 1 km (0.6 miles) north of JLA, operated by the City Council as part of the Government's UK Automatic Urban and Rural Network (AURN), data from which can be accessed through the Air Quality Archive (www.airquality.co.uk).

11.99 Nitrogen dioxide diffusion tube measurements have been made at nine locations, which are shown in Figure 11.9. Sites 2 to 8 are representative of sensitive receptors in the vicinity of JLA. Diffusion tube sites 1 and 9 have been selected to measure worst-case concentrations and are not strictly representative of relevant exposure. The results from these sites, along with those for the continuous monitoring site, are presented in Table 11.7. These results can be compared to the nitrogen dioxide annual mean objective for 2005 of 40 µg/m^3. They show that nitrogen dioxide concentrations at all locations in the study area are well below the objective. The highest measured concentration at a site representative of relevant exposure is around 25 µg/m^3.

11.100 PM_{10} monitoring data are also available from the continuous monitoring site at Speke. PM_{10} concentrations are measured using a TEOM, which underestimates gravimetric concentrations by a factor of 1.3. The concentrations presented in this report have therefore been multiplied by a factor of 1.3 to estimate the gravimetric equivalent to enable direct comparison with UK Objectives and EU Limit Values.

11.101 The results of PM_{10} monitoring carried out at the AURN automatic monitoring station in Speke are presented in Table 11.8. Concentrations at receptors near to busy roads

Figure 11.9: Air Quality Monitoring Locations

are likely to be higher than those measured at this background monitoring site. However, the UK Objectives are likely to be achieved, even at worst-case receptor locations. This is consistent with the City Council's findings.

11.102 The Airport investigates and records all complaints received in relation to odour and air quality. It has received a small number of complaints from local residents since the beginning of 2003. These tend to be in relation to odours of noticeable 'fumes' from aircraft. Odours can arise from burnt and unburnt hydrocarbons associated with aviation fuel. However, there are also other potential sources of odours, such as nearby industrial processes, which are sometimes the cause of odours attributed to JLA. When complaints are received, residents are advised to keep a log of when the odour or fumes occur to determine whether they are linked with any particular aircraft or activity.

Modelled Air Quality

11.103 The Environmental Statement prepared for the terminal expansion in 2001 assessed the impact of increasing capacity from 3 mppa to 4.5 mppa. With a passenger throughput of 4.5 mppa in 2006, modelled nitrogen dioxide concentrations at worst-case locations around JLA ranged from 11 to 29 µg/m^3. These model results are consistent with the measured

Table 11.7: Summary of Measured Existing Annual Mean Nitrogen Dioxide Concentrations (µg/m^3)

Location	Type of Site	2005
Automatic Measurement		
Speke AURN, Tarbock Road	Urban Background	23.3
Diffusion Tube Data		
1 Lamp post r/about adj 1st monitor opposite mail depot	Roadside	27.5[a]
2 Opp Pegasus PH lamp 115/117 Hale Rd L24	Roadside	25.2[a]
3 Between 233/235 Hale Rd Liverpool 24	Roadside	21.8[a]
4 Yew Tree Farm Rd/Oglet Lane – ht pole	Background	21.0[a]
5 Overton House/Rear Drain Pipe/temporary	Background	12.9[a]
6 Outside 1 Gerneth Rd L24/All Saints Rd L24	Roadside	21.7[a]
7 Outside 35 Sutton Wood Rd L24 (Speke Comp)	Roadside	22.2[a]
8 Lamp post opposite 95 Hale Road L24	Roadside	24.1[a]
9 40 mph sign opp Ridley Walk on Hale Rd L24	Roadside	23.7[a]
Objective for 2005		**40**
EU Limit Value for 2010		**40**

[a] Diffusion tube results for January 2005 to November 2005. Bias adjustment actor 0.762 (derived from a collocation study at Speke AURN).

Table 11.8: Summary of Measured PM_{10} Concentrations [a]

Location	Type of Site	Annual mean (µg/m^3)	No. days > 50 µmg/m^3
		2005	**2005**
Automatic Measurement			
Speke AURN, Tarbock Road	Urban Background	20.2	4
Objective for 2004		**40**	**35**
Provisional Objective for 2010		**20**	**7**

[a] Gravimetric equivalent

concentrations at similar locations, which in 2005 ranged from 13 to 28 µg/m^3. The largest change in annual mean nitrogen dioxide concentration was predicted at a receptor on Hale Road, near to monitoring site 2, where a concentration of 24.6 µg/m^3 was predicted. The predicted impact of the terminal expansion on PM_{10} concentrations at these locations was negligible. These modelled results indicate that the air quality objectives are currently being achieved by a substantial margin.

Future Baseline Air Quality

11.104 Background nitrogen dioxide and PM_{10} concentrations are expected to reduce in future years due to improved vehicle and industrial abatement technologies. However, it is difficult to predict with any precision what impact these improvements may have on background concentrations in 2015 and 2030. Estimated future baseline concentrations in 2015 (if the Master Plan proposals do not go ahead) are estimated to be around 21 µg/m^3 alongside Hale Road. These are based on nationally predicted trends, with concentrations steadily reducing until around 2015. Estimates of concentrations in 2030 are even more uncertain, although at the present it is reasonable to assume that they are likely to be similar to 2015 levels. Future baseline levels would thus be even further below the Objectives.

Effects of the Master Plan Proposals

11.105 The 2015 proposals would involve the construction of new terminal facilities, with additional car-parking, as well as new cargo handling and aircraft maintenance facilities, along with a mixed-use development and hotel. There would also be an extension to the runway, extension of the northern parallel taxiway and additional apron areas and the EATC at the end of the period leading up to 2015. The 2030 proposals incorporate cargo development and a new parallel taxiway on the Oglet and further additional apron, terminal and car park areas. There would also be a requirement for an expanded fuel farm facility and a waste water treatment plant to serve the new cargo facilities in the Oglet.

11.106 Potential air quality impacts as a result of the Master Plan proposals are increases in nitrogen dioxide and PM_{10} concentrations and an elevated risk of odours, as a result of increases in aircraft and surface access activity. These impacts are in relation to the future baseline without the additional Master Plan development. As described in the previous section, this baseline would be below current levels.

11.107 The operational phase impacts are most likely to be greater alongside busy roads used by vehicles travelling to and from the site and near to areas where there is concentrated ground-level airside activity; e.g. aprons and the ends of the runways where aircraft may hold before take off. At locations further from the road and/or JLA, impacts would be smaller.

11.108 Previous modelling studies have shown that the impact of airborne aircraft on ground-level pollutant concentrations is very small. The modelling carried out for the 2001 Environmental Statement indicated that increases in vehicle traffic and aircraft activity as a result of a 1mppa increase in passenger throughput would lead to a 2.6 µg/m^3 increase in nitrogen oxides (NO_X) concentration (this includes both nitrogen dioxide (NO_2) and nitric oxide (NO)), at a worst-case receptor alongside Hale Road.

11.109 The Master Plan proposals for 2015 could accommodate 8.3 mppa and 40,000 tonnes cargo[142], which is equivalent to a 4.2 mppa

142 Assumed to be equivalent to 0.4 mppa based on the relationship, 100,000 tonnes cargo = 1 mppa, specified in Local Air Quality Management Technical Guidance, LAQM.TG(03), Defra 2003.

increase. Based on the previous modelling work this would be equivalent to a 10.9 µg/m^3 increase in nitrogen oxides concentration. This predicted increase due to aircraft and vehicle activity would be counteracted by the expected reduction in background concentration and thus the total estimated nitrogen dioxide concentration at the receptor at Hale Road in 2015 would be 24 µg/m^3, which is similar to current concentrations and well below the objective of 40 µg/m^3. Following the same methodology, nitrogen dioxide concentrations in 2030 are estimated to be around 27 µg/m^3.

11.110 However, as discussed above, these estimates are far more uncertain. These calculations are based on the assumption that the aircraft fleet mix will remain the same in the future. In 2015, it is expected that the aircraft fleet mix will be broadly similar to the existing situation. Nevertheless, by 2030, it is expected that new aircraft will be introduced with new technology that reduces emissions. Therefore, concentrations in 2030 may actually be lower than estimated.

11.111 The calculations set out above are very approximate and make worst-case assumptions. Detailed air quality modelling of the 2015 proposals would be carried out for any future planning application.

11.112 There would also be temporary dust impacts during the construction phase. Construction dust-soiling impacts could occur up to 100m from dust raising activities. There are around 400 properties within 100m, most of which are in the Speke Estate, that could potentially could be affected by construction dust at some point during the construction of the proposals. However, these impacts would be temporary in nature and could be mitigated through a Construction Management Plan.

Consideration of EATC Route Options

Option SA2

11.113 This Option would have no significant impact upon residential properties, as there are none within 200m of the main route. It would also require the shortest length of new carriageway, minimising the distance travelled and thus total emissions from vehicles using the EATC. The shortest route would also have the minimum construction impacts associated with the main carriageway, although some additional impacts may occur due to construction of the new junction.

Option SA3

11.114 There are a few (less than 10) properties within 200m of Option SA3 that could potentially be affected by air quality impacts. This route would be longer than Option SA2, leading to higher total emissions and greater construction impacts.

Option SA4

11.115 This Option would affect the greatest number of properties, as there are approximately 20 within 200m of the new road. It also has the longest length of new road and thus greatest total emissions and construction impacts.

11.116 All three options would lead to an increase in flow on Hale Road, which could affect air quality at properties on the edge of the Speke Estate.

However, these properties are set well back from Hale Road and thus any impacts are unlikely to be significant.

Summary of Air Quality Considerations

11.117 There are a variety of sources of emissions within and around JLA that can have an impact upon local air quality. AQMAs have been declared due to expected exceedences of the annual mean nitrogen dioxide objective alongside some roads in Liverpool. However, none of the other neighbouring authorities have declared AQMAs.

11.118 Monitoring of nitrogen dioxide and PM_{10} concentrations carried out by the Airport in partnership with Liverpool City Council at locations near to JLA has confirmed that the UK objectives and EU Limit Values are expected to be achieved near to JLA under existing conditions. The anticipated growth in air and ground traffic, as a result of the proposals in the Master Plan, may lead to an increase in concentrations of nitrogen dioxide and PM10 at locations near to these sources. An estimate has been made using the results of a previous modelling study, which indicates levels close to JLA will be similar to those currently being experienced. The increase in air and ground movements would be offset by improvements in vehicle and aircraft technologies that reduce the emissions per movement. It is unlikely that the proposals would lead to exceedences of the objectives in future years.

Ecology and Biodiversity

Baseline

11.119 At its western end JLA lies immediately adjacent to the Mersey Estuary. The approach lighting gantry at the western end of the runway extends into the Estuary. Part of the Estuary is designated as a SSSI under the Wildlife and Countryside Act 1981, SPA under the Birds Directive (79/409/EEC) and a Site of International Importance, especially for waterfowl, under the Ramsar Convention. The Estuary comprises large areas of saltmarsh and extensive intertidal sand and mud-flats, with limited areas of brackish marsh, rocky shoreline and boulder clay cliffs. The intertidal flats and saltmarshes provide feeding and roosting sites for large populations of waterbirds. During the winter, the site is of major importance for ducks and waders. The site is also important during the spring and autumn migration periods, particularly for wader populations moving along the west coast of Britain.

11.120 Also abutting JLA at the western end is the existing stretch of the Speke Garston Coastal Reserve, which comprises mainly grassland with new hedges and a damp scrape. Earlier surveys have shown that this grassland is important for ground nesting birds, such as skylark.

11.121 Inland of the Coastal Reserve, and bordering JLA to the north-west, is the Speke Hall estate. Habitats present on the estate are improved, semi-improved and rough grassland, lines of trees, broad-leaved plantation, scrub, open water and very small remnant areas of marsh

Yew Tree Farm

and perhaps heathland. Stockton's Wood has an important dead wood invertebrate fauna, and the various shallow wetlands on the site are reported to have good populations of aquatic invertebrates. The woodlands also have good numbers of typical woodland birds, and there is reported to be a long-eared bat roost in the buildings.

11.122 Habitats bounding JLA to the north are largely urban, comprising mainly the Speke Estate and-Garston, although at the western end there are areas of hard standing and a sports field. To the north-east, the proposed EATC would pass through mainly arable farmland, although immediately adjacent to the eastern end of the housing there is a school and playing field, and further north lie Mill Wood and Hopyard Wood, the former now part of a Local Nature Reserve.

11.123 Between JLA and the Estuary lies the Oglet farmland required for expansion post 2015 for the Oglet World Cargo Centre. This is, again, mainly arable, but habitat diversity is increased by the mosaic of open land under different crops, including set-aside, a number of field ponds of different sizes and depths, hedges and tree belts (the cloughs), and a number of farm buildings, cottages and gardens, some of which have tumbled down to scrub. The cliffs between the farmland and foreshore consist mainly of boulder clay and are thus subject to irregular episodes of erosion. Much of the cliff is more or less densely vegetated by rough grassland, gorse and thorn scrub and patches of reeds, but there are also open areas where recent slumping has occurred. These cliffs also extend to the west along the Coastal Reserve, and to the east beyond Hale Heath. At the foot of the cliffs at this eastern end the raised saltmarsh provides an important roost and feeding area for wading birds on the highest tides.

11.124 Potential impacts of the Master Plan proposals include: direct loss of habitats and species on green field land required for development and adjacent land required for disposal of spoil or bunding, including landscaped areas; severance of habitats, bird and animal road deaths and pollution to adjacent habitats by road run-off; disturbance to feeding, roosting and breeding birds and bats due to increased lighting, changes to the hydrology of the area. Potential indirect impacts could include sourcing and transport of construction materials and possibly disturbance to feeding waterfowl during construction, depending on its timing. Table 11.9 shows the probable residual impacts, after planned mitigation, on species and habitats for which either UK or North Merseyside Biodiversity Action Plans have been prepared.

11.125 A suite of ecological surveys has been undertaken in connection with this Master Plan on land within and adjacent to JLA and on areas required for expansion, either in the Oglet or to the east of Dungeon Lane, and on land needed for the preferred route of the EATC, Option SA2. These surveys comprised a desk study to identify existing ecological information; a walkover to identify plant communities and habitats; examination of all hedges against the Wildlife and Landscape criteria given in the Hedgerows Regulations 1997; assessment of all habitats for their suitability to hold protected species; a series of great crested newt survey visits to all waterbodies, using at least three of the standard methods on each visit, to comply with English Nature guidelines for this species; a search for signs of use by badgers and water voles; survey of buildings for use by roosting bats, and of the farmland areas for use by foraging bats; mapping surveys for breeding birds, using standard Common Bird Count (CBC) codes and activity symbols, followed by a territory analysis, in two consecutive summers; and high and low water surveys of the Mersey shore between Garston and Hale for passage

Table 11.9 Potential Impacts on Species with UK or North Merseyside Biodiversity Action Plans

Species	UK BAP	NM BAP	Current Use of Survey Area	Potential Impacts
Daubenton's bat *Myotis daubentoni*	no	Note 1	Feeding over woodland ponds near Hale	Woodland and ponds unaffected: no impact
common pipistrelle *Pipistrellus pipistrellus*	yes	Note 1	Roosting at Yew Tree Farm and feeding along Oglet road and along the cloughs	No impact on the roost site. Some short-term reduction in feeding sites during construction, replaced by new buildings and landscaping.
brown long-eared bat *Plecotus auritus*	no	Note 1	Roosting at Yew Tree Farm and feeding around large trees and along the cloughs	No impact on the roost site and most of the known feeding sites will be retained and enhanced. Some short-term disturbance to feeding during construction.
brown hare *Lepus europaeus*	yes	yes	Small numbers resident on land to the south of the airport. No animals seen in the EATC corridor (Option SA2)	Short-term disturbance during construction and landscaping; permanent loss of some habitat will be replaced by enhanced habitat along the EATC corridor.
grey partridge *Perdix perdix*	yes	yes	ca 3 breeding territories on farmland near the cliff and on the airport land.	Territories lost during clearance will be replaced by landscaping and new habitat will be created along the EATC corridor.
lapwing *Vanellus vanellus*	no	yes	Up to 6 breeding pairs on farmland south of the airport.	Up to 4 pairs will be permanently displaced by construction. These pairs will be accommodated by new habitat creation and enhancement in the EATC corridor.
skylark *Alauda arvensis*	yes	yes	25-30 breeding territories on the airport and land to the south. ca 5 breeding territories along the EATC corridor (Option SA2).	20-25 breeding territories are likely to be affected by site clearance with up to 10 breeding territories permanently lost, although new habitat creation along the EATC corridor may replace some of these.
song thrush *Turdus philomelos*	yes	yes	ca 7 breeding territories, all associated with the cliff top, cloughs, gardens at Oglet and Hale Heath and Hop Yard Wood.	Most territories unaffected; territories lost during site clearance will be replaced by landscaping.
linnet *Carduelis cannabina*	yes	no	ca 15 breeding territories on land south of the airport, mainly along the cliff; ca 4-5 breeding territories along the EATC corridor (Option SA2)	All cliff territories unaffected; 1-2 farmland territories lost during clearance will be replaced by landscaping. 2-3 territories lost during construction but a new habitat will be created along this corridor.
reed bunting *Emberiza schoeniclus*	yes	no	ca 7 breeding territories on land south of the airport, all associated with the cliff and field ponds at the western end of the site. Up to 4 breeding territories in the EATC corridor.	Territories along the cliff will be unaffected. Territories associated with the ponds will be lost to site clearance but replaced by landscaping. Any territories lost to construction will be replaced by new habitat creation and enhancement in the corridor.

Table 11.9 continued

Species	UK BAP	NM BAP	Current Use of Survey Area	Potential Impacts
corn bunting *Emberiza calandra*	yes	yes	1-2 breeding territories on land south-east of the airport.	Territories lost during landscaping will be replaced and new habitat will be created along the EATC corridor.
Habitats				
Coastal saltmarsh	no	yes	An extensive area near Hale, and smaller areas to the south of the airport.	All areas will be unaffected.
Lowland mixed broadleaf woodland	Note 2	yes	Probably ancient woodland on the National Trust estate (Stockton's wood) and adjacent to the EATC corridor (Mill Wood, Hop Yard Wood)	Stockton's Wood and Mill Wood will not be affected. The north-east corner of Hop Yard Wood may be lost to the new road junction, depending on final design, but scope exists to mitigate with new landscaping.
Ponds	no	yes	15 ponds (mainly scrubbed-over mark pits) are present on land south of the airport. 2-3 field ponds are present in the EATC corridor.	Most of these ponds will be lost during clearance, but will be replaced by wildlife ponds during landscaping and habitat enhancement of the EATC corridor.
Reedbed	yes	yes	Two of the ponds on farmland south of the airport have small areas of common reed. Similar small areas are present on the cliff face.	Stands of reed on the cliff face will not be affected. Reeds will be included in the design of wildlife ponds.
Field boundaries	Note 3	yes	Most of the fields on farmland south and east of the airport are bounded by low, gappy, hawthorn hedges.	The cloughs south of the airport will be retained. All remaining hedges will be removed during site clearance, but will be replaced by managed, species-rich hedgerows during landscaping and habitat enhancement of the EATC corridor.

Notes: 1 All species included in a group BAP for bats 2 Specified woodland types only; none present
3 'Ancient and Species-rich Hedges' only; none present

and wintering waterbirds in two consecutive winters. The desk-study was extended to the two additional route options for the EATC (Options SA3 and SA4), and a land-use survey was also carried out in this area.

Effects of the Master Plan Proposals

11.126 The ecological surveys confirm that all areas to the north of JLA likely to be affected by the Master Plan proposals have a low value for biodiversity; the species using these areas are largely typical of the surrounding urban environments.

11.127 While the proposed cargo development to the south of the runway would result in the loss of a significant part of the Oglet, investigations indicate that the ecological importance of the land is local only. It is relatively intensively farmed, has no nationally rare or scarce plant species, communities or habitats and no statutorily protected species have been identified from the farmland, although bats are known to use buildings at Yew Tree Farm. In terms of local biodiversity, however, the mosaic of open land provides an area of high value for farmland birds. This includes a number of species, such as skylark, linnet and reed bunting. These species include a number for which national and local Biodiversity Action Plans have been prepared.

11.128 Proposals within the Oglet area include a 50ha (124 acres) extension of the Speke Garston Coastal Reserve, retaining Yew Tree Farm as a potential Visitor Centre, and including creation and management of habitats to maintain and improve the Estuary's ecological and ornithological value. Measures would include habitat creation through the re-establishment of small field patterns on land alongside the EATC to re-create the mosaic of open land and to encourage bio-diversity, linking into the proposed extension of the Coastal Reserve. The possibility of enhancing farmland for biodiversity will also be explored. Where most suitable this could aim to create a pattern of smaller fields with wider and more species-rich hedges. Close to the Estuary, the possibility of providing new grassland for nesting lapwings and feeding curlew would be considered.

11.129 The densely vegetated cliff along the shore of the Estuary is of significant value, but is not expected to be significantly affected by the cargo development. However, the cliff would be managed to retain its high value within the new stretch of Coastal Reserve. The management plan for the Coastal Reserve, which proposes significant improvements to the relevant length of the Mersey Way footpath, would ensure that the remaining area enhances the value of the cliff for biodiversity. The extension to the Coastal Reserve proposed as part of the cargo development would further improve the protection of this area. The management regime would ensure that the increased numbers of visitors which this amenity will attract are properly controlled to minimise the potential for disturbance to feeding shorebirds.

11.130 Aircraft currently take off or land over the adjacent mudflats. Since these flats are used by a proportion of the passage and wintering waterfowl for which the Estuary is of international importance, there is a potential for an increase in such traffic to impact on the integrity of the SPA/Ramsar site. For the same

reason there is potential for a concomitant increase in the risk of collision between birds and aircraft. Potential disturbance effects on both feeding and roosting waterfowl under the flight path are, therefore, investigated as part of regular wintering bird studies.

11.131 The majority of waterfowl feeding on the shore at low water use the western end of the study area, in front of the existing Coastal Reserve between Garston and the western end of the runway. On most tides many of these birds remain to roost, moving up the shore in front of the tide. A relatively high level of disturbance to both feeding and roosting birds occurs here due to the use of the shore by walkers, dogs, quad bikes and four wheel drive vehicles, and at some times many of the birds are kept almost constantly on the move.

11.132 No disturbance to the feeding birds due to aircraft has been observed in any month except on abnormally high tides when roosting flocks are pushed right up to the toe of the cliff. At such times they are at their most susceptible to disturbance from all sources. During all other tide states, including more regular high tide heights, no disturbance effects from aircraft have been observed.

11.133 Most feeding birds move a relatively short distance along the shore before pitching again, but roosting birds may move directly to the cliff top and small flocks of waders have been observed feeding over the high tide period on remaining amenity grassland in the Liverpool International Business Park. Towards the end of winter 2005/06 small flocks of waders have also been observed on the new Coastal Reserve grassland areas. No birds moved either off or along the shore by disturbance from any source have been seen to pass through the flightpath of aircraft approaching or taking off from JLA.

11.134 Sporadic disturbance of roosting waterfowl by aircraft has been observed at the eastern (Hale) end of the survey area. Most waterfowl movements recorded are, again, of flocks travelling along the shoreline at all tide states, but occasional inshore movement has also been observed. This primarily consists of individuals and small flocks of curlews which feed on the farmland between Hale Heath and Rabbit Hey at all tide states, but more abundantly during the high tide periods.

11.135 Movements tend to be low and local, between the shore and adjacent land. No birds have been seen to cross the airport flightpath during any survey visit, although single birds or small flocks of curlew have occasionally been recorded feeding on the fields north of Hale Heath. Curlew is not a qualifying species for the SPA/Ramsar site, other than as part of the total assemblage, and at most, tens of birds have been recorded feeding in this area.

11.136 Since the numbers involved are very small and birds disturbed at present appear to move the shortest possible distance, it is considered that there will be no significant impact to feeding or roosting birds using the shore adjacent to JLA, and thus no adverse effect on the integrity of the protected site. The proposed runway extension to 2,750 m would not encroach on the SSSI, SPA/Ramsar site, and therefore would be acceptable in terms of the White Paper[143].

11.137 There is a specific process for assessing the impact on species and habitats known as Habitats Regulation Assessment which derives from the European Habitats Directive[144]. It applies to plans or projects affecting Natura 2000 sites which are special protection areas,

143 The Future of Air Transport, Department for Transport, (2003), para. 8.20.

144 See Article 6(3) of the EC Directive 92/43/EEC, dated 21 May 1992, transposed by the UK Government into the Conservation (Natural Habitats etc) Regulations 1994.

special areas of conservation and Ramsar sites. This directive and its associated regulations require that a Habitats Regulation Assessment (HRA) be completed for any plan or project likely to have a significant effect on these sites either individually or in combination with other plans or projects. The statutory planning process as embodied by the emerging LDF will address the JLA Master Plan proposals and ensure that these are considered in light of the requirements of the Habitats Directive. Realizing these requirements is an iterative process involving a number of stages. The beginning of the process 'Screening' sets out whether impacts on Natura 2000 sites are likely and a subsequent 'Appropriate Assessment' stage will incorporate and report on a further more detailed evaluation of impacts deemed likely to occur. The City Council has produced a Screening Statement with respect to the emerging Preferred Options of the LDF Core Strategy. Consultation responses from the statutory bodies Natural England and Countryside Council for Wales are now being considered and the findings of the next stage of this process, known as 'Appropriate Assessment' will be made available at Core Strategy submission stage.

11.138 Farmland immediately to the east of JLA, along the common southern section of the EATC,

appears to have a much lower value for biodiversity than that of the Oglet. These fields are larger and intensively farmed, with few ponds, hedges and other areas which might add diversity. On the preferred Option SA2 route, the only potential biodiversity impact identified is severance of the stream corridor between Mill Wood and the waste water treatment plant on Ramsbrook Lane, which is likely to be used by commuting/foraging bats. This corridor would also be severed by the Option SA3, and both the latter and Option SA4 are much longer, and sever many more field boundaries. In biodiversity terms, therefore, Option SA2 is preferred since it would have the least adverse impact by reason of land take and severance impacts.

11.139 Severance of agricultural land resulting from construction of the EATC provides the opportunity to use some of this land as compensation, for loss of the range of minor farmland habitats around Oglet, along part of the eastern side of the new road. This would allow for the creation of a significant wildlife refuge, creating new habitats and enhancing existing habitats as part of the proposed development in this area. These measures would ensure that the ecological and biodiversity value of the area is maintained and improved as part of the Master Plan proposals.

Landscape and Visual Environment

Baseline

11.140 JLA lies on flat low lying land on the north bank of the Mersey Estuary. To the north west, a ridge of high ground commences at Allerton and runs north west through the Liverpool conurbation. It frames the lower lying land adjacent to the Estuary, and its wooded slopes and the crest of the ridge create the backdrop to many views of the lower lying ground from viewpoints on the south bank of the Estuary.

11.141 The Estuary adjacent to JLA is some 3 km (1.9 miles) wide with extensive sandbanks that are exposed at low tide and provide feeding grounds for wading birds. There is a densely vegetated cliff along the shore of the Estuary of significant ecological value. The river channel adjacent to JLA is broken into a number of subsidiary channels. Navigable deep water terminates at Garston Dock on the north bank, and at Eastham on the south bank. At Eastham ships can enter the man-made Manchester Ship Canal to continue eastwards to the Stanlow Oil Refinery and Runcorn chemical works, and thence east to Manchester.

11.142 On the south bank of the Estuary, local outcrops of the Cheshire sandstone ridge provide high ground at Eastham, and at Helsby, Frodsham, and Runcorn in the south west. The high ground frames lower lying, formerly marshy ground at Stanlow, now the site of the extensive oil refineries. The chemical works at Runcorn are sited on gently rising ground on the lower slopes of Runcorn Hill. The chemical works are a dramatic feature in the landscape both by day and night due to the nature and scale of the structures within the site and the overall extent of the works.

11.143 The north bank of the Estuary is less industrialised than the south. Flat agricultural land on a plateau some 10 metres above low water, is found alongside the Estuary between Hale Bank in the east, to the Oglet, just south of JLA. Land around Hale Village to the east of JLA retains an attractive rural character which provides the setting for the Hale Head lighthouse on the curve of the Estuary.

11.144 The urban area of Speke signals the start of the main Liverpool conurbation which more or less encompasses JLA. The landscape close to JLA becomes a patchwork of developed and undeveloped land typical of edge of urban locations.

11.145 The Speke Estate lies adjacent to JLA to the north. The fabric of the residential area reflects a long history of high unemployment and low opportunities for the local population, but major investment projects are underway and the area is showing significant improvements. The southern side of the Estate is bordered by Dunlop Road and Hale Road that abut the northern boundary of JLA.

11.146 The Speke Boulevard forms the northern boundary of the residential area and is also the primary approach road to JLA. The road corridor has recently been upgraded with a major investment in tree planting and other landscape works. Large scale industry, (cars and pharmaceuticals), lies along the north side of Speke Boulevard.

11.147 To the west of JLA and immediately adjacent to it, lies Speke Hall, owned and managed by the National Trust. The Hall is a mediaeval timber framed and moated building immediately surrounded by gardens in a wooded enclave. Beyond the garden areas lies a small agricultural estate, and in the grounds to the east of the Hall is Home Farm which has recently been converted for use as the main Visitor Centre. A field to the east of Home Farm is laid out as the main visitor car park for the estate and is enclosed by a planted mound which screens this area from the adjacent airfield.

11.148 Three woodland areas within the Estate are important for providing a visual and physical buffer to the surrounding areas. These are ‘Stocktons Wood’ to the north east of the Hall, which forms a buffer between much of the Speke Hall Estate and JLA, ‘the Clough’ which lies to the south and west of the Hall and provides enclosure from the Estuary side; and a

tree belt which frames the north and west sides of the agricultural land to the west of the Hall (not shown on the Ordnance Survey plan). Stocktons Wood lies to the north of the Speke Hall visitor car park and is bound by a secure fence on its eastern side. A well established planted mound lies outside the fence, and provides physical and visual enclosure from JLA all along this boundary. The bunding and screening in this area would be extended as part of the Master Plan proposals.

11.149 The south side of the main Speke Hall grounds are defined by a well established semi circular screen mound, planted on the inner face and on the more gentle outer slopes. A walkway on top of the mound is popular with visitors to the Hall and provides an elevated viewing area overlooking the Estuary and JLA. To the south of the mound, and outside the limits of the National Trust estate, an airfield taxi-way links JLA on the east of Speke Hall to the former northern airfield that lies to the west of Speke Hall.

11.150 Most of the former Northern Airfield is in the process of being re-developed as the Estuary Commerce (business) Park and Liverpool International Business Park. In both areas,

works are underway to create a high quality mixed business park in a well designed landscape setting. The Speke Garston Coastal Reserve lies on a strip of the land between Estuary Commerce Park, the river, and south of Speke Hall, and is currently undergoing land reclamation works designed to increase the wildlife value and habitat on the site.

11.151 In the east, Dungeon Lane forms the boundary of JLA, and also marks the Liverpool City Council administrative boundary with Halton Borough Council. Farmland lies between here and Hale Heath on the outskirts of Hale Village that is situated in Halton Borough. Hale Village lies in the centre of the undeveloped promontory, and ribbon development extends south along Lighthouse Road towards Hale Point, and west along Hale Lane to Hale Heath. It is an attractive and prosperous established residential village, with belts of trees and well managed farmland between it and the Estuary.

11.152 The landscape to the north, south, and east of Hale Village typically consists of large open arable fields and woodlands, with relatively few hedges, generally along lanes. This typical landscape is continuous to the north, east, and south. To the east large, well maintained properties on the south side of Hale Lane stretch along the road towards Hale Heath, and are framed by the mature woodland of Old Plantation.

11.153 The Hale Heath residential area is concentrated around the junction of Hale Lane and Baileys Lane. Properties here are less well appointed than further east, and lie within an extensive area of former glasshouses and horticulture, some now cleared. Much of this land has been returned to low grade agriculture and the remainder is overgrown and fly tipped. Speke Estate dominates the area to the north west, and JLA and its approaches dominate the area to the west. Former properties along Dungeon Lane have been demolished and their site which is slightly raised above general levels in the area, is used as an informal car park by plane spotters. This area contains no landscape features of merit.

11.154 Dungeon Lane marks the existing operational extent of the airfield, the boundary of which is defined by thorn hedging reinforced with timber palisade fencing. The lane is poorly maintained and subject to fly tipping.

11.155 The Oglet, situated to the south of runway, is accessed via Dungeon Lane and Oglet Lane. A small number of properties and the ATC tower lie along Oglet Lane.

11.156 The Mersey Way footpath runs alongside the river from Garston, east to Hale. From Garston the path runs through the area which is currently undergoing reclamation as the Speke Garson Coastal Reserve, to the south of the Liverpool International Business Park. It runs on the top of the cliffs, but drops down to the foreshore in the area of the airport lighting gantry at the western end of the runway. At the approach to the gantry, the footpath descends the cliff face to pass under the gantry on the foreshore before returning to the higher level to pass through Oglet.

11.157 Through the Oglet area, the footpath at the cliff-top is at some 5 metres lower than most of the southern boundary of JLA. The path facilitates long views across the Estuary, but is un-made, and difficult to locate in places. It drops to the foreshore at each of the cloughs. To the east of Dungeon Lane the path is separated from the adjacent fields by broken down chain link fencing, and the fields beyond are poorly managed. Beyond Hale Village, however, the path is better used and maintained and provides an attractive clifftop walk. The Trans-Pennine Trail long distance footpath and cycle route passes close to the eastern end of the runway.

Effects of the Master Plan Proposals

11.158 In terms of the impact of the Master Plan proposals, views of the buildings and structures that comprise JLA are already experienced from many locations in the vicinity. The Master Plan proposals: to expand and relocate buildings to the north; to extend the runway; and, post 2015, to develop the Oglet World Cargo Centre and further airside uses to the south of the runway, would alter the existing landscape.

11.159 To the north of JLA, the existing visual quality of its interface with the Speke Estate is low. The Master Plan proposals would upgrade and improve the landscape quality whilst at the same time, mitigating any adverse views that could arise from the development. The existing mounding and fencing at the boundary would be upgraded to provide a consistent high quality treatment, and increased planting provided. The

road corridor would also be upgraded and improvements made to the existing landscape elements. The layout, massing and roofscape of buildings within JLA, the upper parts of which may be visible from the boundary, would be carefully considered in future development plans.

11.160 To the west, the Speke Hall Estate is a sensitive landscape area, which is well screened from JLA by existing mounding and planting. The potential for changes to views from within the Estate have been carefully assessed, and all potential major visual or landscape issues would be appropriately mitigated by additional structural landscaping and bunding. Careful consideration will be taken at the detailed planning stage of the potential impact of the landscaping proposals on the Estate and particularly the flora and fauna of Stockton's Wood, a site of nature conservation value.

11.161 To the east, Hale Village is a sensitive residential area and the proposed extension to the runway at its eastern end will include localised screening and structural landscaping. The EATC would also introduce a new highway into the landscape. As with noise and other environmental considerations, the preferred route Option SA2 would have the least visual impact upon the landscape, as it is the shortest route and would have the least construction impact. The EATC would be integrated into the wider landscape and any features lost would be replaced by new landscape components. Any impacts of the junction works with Speke Boulevard (A561) on the ancient woodland, Mill Wood, would be appropriately mitigated.

11.162 To the south, the character of the Oglet agricultural area would be significantly changed as a result of the Oglet World Cargo Centre development. However, the detailed design and layout of the buildings would be carefully considered to ensure that where possible important landscape features; e.g. the cloughs, are retained. No significant impacts are envisaged on the cliffs adjacent to JLA and the shore at this stage. However, predicted changes in sea levels, and the potential need to incorporate coastal defence measures, will be considered at the detailed planning stage[145]. The key residual impacts would be addressed by the proposed extension of some 50 ha (124 acres) to the existing Speke Garston Coastal Reserve.

11.163 Land within the Coastal Reserve extension would be re-graded to screen and enclose the development and returned to agricultural management. To the east of the Oglet World Cargo development a new plane spotting area would be laid out to compensate for the loss of the existing popular informal area to the east of Dungeon Lane. Throughout the Coastal Reserve, a long term habitat creation and landscape management scheme would preserve habitat and biodiversity, and incorporate management measures to ensure the long term sustainability of the landscape and ecological mitigation works. There is potential to create a Visitor Centre at Yew Tree Farm. The scheme would also safeguard and preserve the visual amenity of the Mersey Way coastal path and Trans Pennine Trail.

11.164 Opportunities will also be taken as part of the Master Plan proposals to further enhance the landscape quality of JLA itself and in particular its interfaces with surrounding areas. This will include hard and soft landscaping around public areas and upgrading of the planting treatment around JLA perimeter, particularly adjacent to the Speke Estate, Hale Village and the Coastal Reserve.

145 To reflect advice in the forthcoming Supplement to Planning Policy Statement 1, 'Planning and Climate Change', Department for Communities and Local Government, (2006).

Cultural Heritage

Baseline

11.165 The area covered by this Master Plan has several Scheduled Ancient Monuments of national importance on its periphery as well as the nationally important grade I listed building, Speke Hall.

11.166 Evidence suggests there was some prehistoric activity close to the Mersey Estuary in the Oglet area and in the vicinity of Speke Hall. Although the Romans arrived in this area in circa. 60 AD when the fort of Deva (Chester) was established, evidence indicates that there was limited Roman activity here.

11.167 Place-name evidence for the area suggests the establishment of a small settlement at Speke prior to the Domesday Survey in 1086 and at Oglet prior to 1275. Both Oglet and Speke are interpreted as 'oak portion' and 'twig' or 'brushwood' respectively. This may suggest that the area was mainly woodland in the late Saxon period, prior to the establishment of these settlements.

11.168 Surface finds to either side of Oglet Lane suggest the position of a shrunken medieval village to either side of Oglet Lane.

11.169 Addison's Map of Speke dated 1781 and the first edition Ordnance Survey map (1849) show narrow strip fields extending back from Oglet Lane between Oglet Farm and Yew Tree Farm. Nine properties are shown fronting Oglet Lane, which appear to have had small yards to the rear. Beyond the yards the strip fields extended to the Mersey, and north almost to (the former) Dam Lane, which was under the current runway area. A small stream running from Oglet Lane to the Mersey acted as the western boundary on the small strip fields. Earthworks associated with the shrunken medieval village at Oglet (house platforms and earth banks) have been removed by modern agricultural improvements and ploughing.

11.170 The fields around Oglet are predominantly arable at present, interspersed with occasional meadows. Field name evidence suggests that the area was predominantly pasture in the late 18th Century. The majority of the strip fields and the larger enclosed fields either side of Speke Hall contain what appear to be a variety of ponds and possible quarry pits.

11.171 Oglet is potentially bounded by the 'Ditch of Spek', a medieval feature which may be flanked by Dungeon Lane. Between Oglet and Hale Head, on the foreshore of the Mersey, are a number of references to the place name 'Dungeon'. This name is most likely to derive from the Old English Dunge or Denge, meaning land of, or next to, the marsh, but possibly associated with the French or Mediaeval English word 'donjon', implying a dark subterranean place or cavern, historically called 'dungeons' within the area.

11.172 The present evidence suggests the potential for medieval settlement at Oglet, within the proposed cargo development area, and a boundary ditch adjacent to Dungeon Lane. However, a series of drainage culverts running north-south from the runway to the Estuary are likely to have caused localised disturbance in the area.

11.173 Speke Hall is a Grade I listed building, with associated listed buildings and bridges and a Scheduled moated site (SAM No. 13481). It is also set within an undesignated (deregistered) historic park and garden of regional importance. The present Hall dates from the 15th and 16th Century, but documentary evidence suggests that Speke Hall had its origins in the 14th Century. The present hall and gardens lie adjacent to the western boundary of JLA and have been associated with it since the 1930s, and later surrounded by the 1960s airport expansion.

11.174 The fields in the Oglet and Speke area were enclosed by 1781, and their layout on the 1781 map, particularly in the Oglet area, suggests early enclosure. New isolated farms and houses were constructed in the area in the 18th and 19th centuries. These include Tewit's Hall, Heath Farm, Poverty Nook, Hale Road Farm, Goldfinch Farm, New Hall Farm, Dam Road Farm, Oglet Farm, Yew Tree Farm and Hunt's Tenement. Most, with the exception of Yew Tree Farm and Oglet Farm, were demolished during the construction of Speke Estate and prior to the construction of the airport in the 1960s.

11.175 On the 1st edition Ordnance Survey (OS) map dated 1849, two mill sites (probable windmills), Hale Mill and Dungeon Mill are sited within the vicinity of JLA.

11.176 On the southern boundary of the Master Plan area is the site of Dungeon Salt Works. It is known from documentary evidence that the site of the Dungeon Salt Works was being used before 1692. Sir Thomas Johnson funded the construction of the salthouses and warehouses in 1733. The Salt Works continued in use until the 1890s. The buildings were then used for a short period as the Hale Cliff Stone Works. The Tithe map for Hale (1841) reveals buildings and reservoirs below the cliffs, as well as ponds/reservoirs on the cliff top.

11.177 A World War II anti-aircraft battery was constructed to the east of Speke Hall, the site of which now lies close to the runway.

11.178 In 1961 a decision was made to construct a longer runway on the land adjacent to the original Speke Airport. Aerial photographic

evidence suggests that most of the area beneath and around the current runway has been disturbed, levelled and truncated during construction. Numerous service and drain trenches were also inserted.

11.179 Built heritage assessment has highlighted Speke Hall (listed Grade I), its associated farm buildings, lodge and bridges (listed Grade II), Yew Tree Farm (listed Grade II), listed buildings in Speke village (listed Grade II), the former control tower, hangars and terminal of the 1930s Liverpool Airport (listed Grade II), Yew Tree Farm (Grade II) and Oglet Farm (assessed as of Local significance) as being the main built heritage resources within, or close to, this part of the Master Plan area.

11.180 The Airport's consultants have divided the Master Plan area into two historic landscape character areas. The first incorporates Speke Hall, JLA, Speke Village and the Speke Estate. Only Speke Hall remains in this area, as a

reflection of former land use. The assessment has graded the historic gardens and park as of regional importance, and they are currently undesignated (and deregistered from the English Heritage Register of Historic Parks and Gardens). The rest of the character area is graded as unimportant and substantially altered by modern developments such as JLA and the Speke Estate.

11.181 The second historic landscape character area is focussed on the Oglet and Dungeon areas. This area has been heavily modernised, virtually no field boundaries surviving from the earliest maps dated 1781 and 1849. Only isolated linear features such as roads and a stream survive as well as Oglet and Yew Tree Farms. This area has been assessed, therefore, as not important in terms of its historic landscape, as it is heavily modernised and depleted in terms of its historic diversity, integrity and time depth.

11.182 Non-intrusive geophysical survey (magnetic susceptibility) has revealed several discrete areas of archaeological potential to the west and north east of Oglet hamlet. These will be further investigated by detailed magnetometer survey.

Route of the EATC

11.183 The earliest evidence for human activity in the area derives from scatters of Bronze Age flint and pottery artefacts in the vicinity of the A5300 to the northeast of Speke. A mid to late Iron Age enclosed farmstead was located north of the A561 at Brook House Farm.

11.184 The evidence suggests a degree of prehistoric activity in the vicinity of the Knowsley Interchange, where archaeological deposits dating from the Mesolithic through to the Iron Age are anticipated. In the vicinity of the preferred route Option SA2, there is at present no evidence to suggest prehistoric activity.

11.185 The current evidence suggests Roman activity in the vicinity of the Knowsley Interchange in relation to the final use of the Iron Age farmstead. A potential ancient routeway known as the 'Portway', may lie to the east, linking Walton to Childwall and Hale Head. This may have Roman origins perhaps linking a tile manufacturing site, 8 km (5 miles) to the northeast of the development area to the Mersey and Chester.

11.186 Evidence for early medieval activity derives from place-name evidence, as Hale Village has pre-1086 origins. The name is suggested to mean 'river meadow', 'nook' or 'corner land' and may suggest an area of meadow or peripheral land close to the Mersey in the late Saxon period. Hale Village is believed to have expanded in the medieval period and there is documentary evidence to suggest the presence of a Royal estate here from the late 11th to the late 12th centuries.

11.187 To the north of JLA, in the vicinity of the current Jaguar works, were two moated sites, Wright's Moat and Old Hutt Manor House on a formalised course of the Ram's Brook. To the west of JLA, in Mill Wood, is the site of a medieval watermill known as Halewood Mill.

11.188 To the southeast of Knowsley Interchange stood Lovel's Hall, surviving as an earthwork, and classed as a Scheduled Ancient Monument (SAM No. 13435). The moated manor is believed to have been the residence of Francis Lovel. In 1485 the house and lands were given over to the Earl of Derby.

11.189 To the east of Hale Village, a duck decoy pond was created possibly during the early 17th century. The decoy survives as an earthwork and is a Scheduled Ancient Monument (SAM No. 27581).

11.190 The industrialisation of the northwest brought the railways. One of the earliest railways was the Liverpool and Manchester, incorporated in 1826 and opened 1829. This was amalgamated into the Grand Junction Railway in 1845, which was in turn amalgamated with other lines to form the London and North Western Railway in 1846. The railway cuts a swathe through the 19th century landscape and passes east – west through the area proposed for the EATC route.

11.191 Three conservation areas (Hale Bank, Hale Road and Hale Village Conservation Areas), with their associated listed buildings (Grade II and II*) and a number of buildings assessed as of local significance (Lathen House, Manor Farm, Burnt Mill Farm, Terrace Cottages (Higher Road), Haughton Tower, Lennox Farm, Ram's Brook Farm and Woodside Villa) are situated east and south east of JLA.

11.192 One historic landscape character area has been identified. This is a much depleted landscape of enclosure fields, with occasional patches of historic woodland such as Mill Wood. Only isolated linear features, including tracks, streams, roads and occasional field boundaries survive in this area with occasional patches of woodland. The modernisation of this enclosure landscape has therefore depleted its historic diversity, integrity and time depth, and this character area has therefore been assessed as unimportant in historic landscape terms.

11.193 Limited evidence for archaeological activity on the route of the EATC has been revealed by non-intrusive geophysical survey (magnetic susceptibility and detailed magnetometer survey). This includes several isolated linear ditches, possible pits, linear agricultural marks, marl pits and a 19th Century track.

Effects of the Master Plan Proposals on Cultural Heritage

11.194 The grade II listed Yew Tree Farm would be indirectly impacted by the scheme, with changes to much of its setting. Its principal views would be maintained to the south across open fields towards the Mersey. Currently in use for short-term residential lettings, the farm may be converted for use as a Visitor Centre and restaurant for the Coastal Reserve. This would provide a long-term viable use for the building and ensure its future preservation. The establishment of a Visitor Centre would enable the history, archaeology and ecology of the area to be presented positively to visitors.

11.195 Oglet Farm (a building of local significance) would be demolished. It is not possible within the Master Plan proposals to give it a viable future. Built heritage mitigation would include the photographic and written recording of the building prior to demolition (English Heritage Level 1).

11.196 Other built heritage resources described above may experience low adverse impacts from the Master Plan proposals, construction activities and the operation of the expanded JLA. These include Speke Hall (with its associated listed buildings), where, due to its close relationship to the airfield, assessments will be carried out at the detailed planning stage to determine the possible effects of fixed lighting, and noise from aircraft, and the visual impact of tail fins.

11.197 Low adverse impacts may also occur at Lennox Farm, Haughton Towers, Woodside Villas, Ramsbrook Farm and Hale Village Conservation Area, and its associated listed buildings. Landscape mitigation measures would be introduced when possible and necessary.

11.198 Archaeological resources include occasional scatters and findspots of prehistoric and Roman finds, the vestiges of a medieval settlement at Oglet, the sites of post-medieval farms and houses and industrial archaeological sites at Dungeon Salt Works, Hale Mill and Dungeon Mill. None of these are nationally important or designated. Direct impacts from the construction of the developments outlined in the Master Plan are anticipated for the prehistoric finds scatters, Oglet medieval village, the sites of several post-medieval farms and houses and Hale and Dungeon Mill. A small number of isolated linear ditches, pits, linear agricultural marks, marl pits and a 19th Century track would also be directly impacted.

11.199 The historic landscape in and around JLA has already been subject to substantial modification, the park and gardens of Speke Hall and Mill Wood being the only surviving historic landscape features within the area, other than occasional linear roads, streams and field boundaries. The remaining parts of the area have been heavily modified with the removal and modernisation of enclosure fields and field boundaries in the 19th and 20th Centuries, and the construction of JLA and the Speke Estate in the mid-20th Century. These developments have created a modern urban and agricultural landscape that has little remaining historic diversity or continuity. The Master Plan proposals would preserve the park and gardens of Speke Hall and the EATC would only impact in a limited way on Mill Wood. Other linear historic landscape features would be impacted by the development including roads, streams, tracks and occasional field boundaries.

Consideration of EATC Route Options

11.200 All three routes were considered during the compilation of the baseline document and it was assessed that the proposals for Options SA3 and SA4 would have had a significantly greater impact on existing environmental conditions. These options would have the potential to disturb prehistoric remains known to exist in the vicinity of the Knowsley Interchange, and would have a negative impact upon the setting of Scheduled Ancient Monument, Lovell's Hall. Option SA4 would also have an impact upon the setting of the Hale Bank Conservation Area. In addition, both routes are significantly longer in length than Option SA2, which would increase the risk of disturbing significant buried remains. As a consequence, Option SA2 should be the preferred option.

Cultural Heritage Mitigation

11.201 Where possible, measures will be taken to preserve and protect the archaeological resource or to undertake archaeological investigations to record fully the archaeology of the sites affected by development. Community involvement can be part of this work and the results could be illustrated on displays within the potential new Visitor Centre at Yew Tree Farm. The archaeological investigations will inform a better understanding of the archaeology and history of this part of Merseyside and Cheshire and contribute to local and regional knowledge and debates.

11.202 Mitigation for historic landscape would include hedgerow planting to tie in with the existing historic field boundaries that remain and the diversion of historic tracks and routeways. The extension of the Speke Garston Coastal Reserve and the retention of Yew Tree Farm and the Mersey Coastal path would help to retain

some elements of the historic landscape at Oglet, and aid their presentation and interpretation within the possible Visitor Centre at Yew Tree Farm.

Agricultural Impacts

Baseline

11.203 Two agricultural businesses would be affected by the Master Plan proposals, though the land is all owned by Peel Airports (Liverpool) Ltd and rented to agricultural tenants. In terms of the existing farm businesses: Home Farm, Hale extends to approximately 240ha in total and is farmed under various tenancy agreements (including land rented from the Airport and other third-party landowners). An area of some 28ha of permanent grassland classified as an SSSI is sub-let to the east of Hale. Formerly used for dairy production, the land is now used for arable cropping and horse grazing and there is a range of somewhat dilapidated stables situated due east of, and approximately 400m distant from, the existing runway. These can accommodate 8 horses which are all let for do-it-yourself horse livery usage[146].

11.204 Yew Tree Farm, the other farm business, occupies farmland to the south of the runway within the Oglet and extends to just over 100ha. This is now mainly farmed with arable crops though some of the land is sub-let to local vegetable producers for carrot and potato production. The tenant owns a further 32ha beside the M57 to the north of Knowsley which is farmed mainly with arable crops but with some permanent pasture used for horse grazing alongside a range of livery stables.

Effects of the Master Plan Proposals

11.205 In terms of land loss, approximately 30 ha of land would be lost to accommodate the eastern extension of the runway and associated taxiways; 60 ha of land would be required for the development of the Oglet World Cargo Centre on the southern side of the runway; and 14.5ha to the construction of the EATC Option SA2. The land used for the extension of the Coastal Reserve, extending to some 50 ha, would not be permanently lost and would be available as managed farmland. This land is in a mixture of arable cultivation and grass and is classified as Grade 2, subgrade 3a and subgrade 3b.[147]

11.206 In terms of land quality, Table 11.10 shows the following areas of each Grade and subgrade affected.

11.207 The Master Plan proposals would result in the loss, or disposal, of a considerable quantity of topsoil (potentially in the order of 300,000m3, assuming a 300mm depth of topsoil). If this soil was handled inappropriately (e.g. handled or trafficked when wet; and by the mixing of topsoil and subsoil on stripping) there would be a loss of quality. However, provided soil recovery is carried out carefully, to avoid this potential impact, there should be no significant direct impact on the soil resource though careful consideration will be needed to its end use. The main effect of the development would be the loss of agricultural land from the farms affected.

11.208 The Home Farm holding would lose approximately 24 ha of agricultural land, the majority of which is used as permanent set-aside, or for horse grazing. The agricultural utility of the land that would be lost is, in any event, considerably reduced due a) to the proximity to the existing runway, and b) the pressures arising from trespass and other urban fringe nuisance. The loss of this land would result in the closure of the stables and livery business, but would not

146 Where a stable is let to a third party who provides care for their own horse; i.e. DIY, as opposed to full livery, where the owner of the stables looks after the third party horses.

147 'Agricultural Land Classification of England and Wales: Revised guidelines and criteria for grading the quality of agricultural land', Ministry of Agriculture, Fisheries and Food, (1988).

Table 11.10: The Distribution of the Agricultural Land Classification (ALC) Grades

ALC Grade	Area of Land required for:			
	Runway Extension	World Cargo Centre	EATC Route Option SA2	Coastal Reserve
2	0	32	0	23
3a	10	27	12.5	26
3b	14	0	1.3	0
Urban	5	1	0.7	1
Total	29.0	60.0	14.5	50.0

significantly affect the agricultural side of the business. However, the loss of the livery income would be likely to have a noticeable impact of the viability of the farm holding.

11.209 Yew Tree Farm would lose the ability to farm the land at the Oglet as intensive arable/vegetable land. The existing tenant does not presently farm with sheep or cattle and would be likely to cease farming the land. Another tenant would have to be located who could farm the land in accordance with the management requirements of the Coastal Reserve. The existing tenant would be likely to continue farming the land at Knowsley (which includes the farmer's residence) but due to the small size of the remnant holding it would be unlikely to be a viable agricultural holding. The equestrian activities undertaken are not considered sufficiently large to form an independent viable unit, though there is a possibility that this aspect could be enlarged, subject to finance and planning requirements.

Agricultural Mitigation Measures

11.210 The loss of 69 ha of higher quality agricultural land is a significant adverse impact, though one that cannot readily be mitigated. The ALC has been used to examine the detailed layout and mitigation proposals. At its simplest, mitigating the loss of agricultural land is best achieved by limiting the extent of the development to the smallest size possible, consistent with construction requirements and by retaining the maximum area of land in continuing agricultural use. Clearly, the proposed development would make maximum use of the area of agricultural land taken and no agricultural land would be left sterilised by the development.

11.211 Soils handled in connection with the areas proposed for built form would be stripped under appropriate conditions to avoid damage to the topsoil and upper sub-soil. Those soils required for landscape areas would be carefully stockpiled until required. Surplus topsoils could either be spread on the residual areas of the Coastal Reserve (consistent with ecological requirements) or could be sold off-site for beneficial re-use elsewhere. Such a use of the soil resource would comply with the concept of sustainable use of soil. This aspect will need detailed consideration at the detailed planning application stage.

Land Use and Tenure

11.212 The mitigation of impact for the farm businesses affected is difficult to achieve other than by financial compensation. In this location, where a tenant would lose land to the development proposals there are minimum statutory compensation provisions which the landowner would be required to meet; any additional compensation would be at the behest of the landowner.

11.213 Due to the urban fringe nature of the adjacent agricultural land it is not considered likely that

the Master Plan proposals would cause any increased potential for trespass and vandalism.

Consideration of EATC Route Options

11.214 Using the information gathered during a desk-based assessment of probable land quality it would appear that:

- the southern end of each of the route options is likely to be higher quality land in a mixture of Grade 2 and subgrade 3a constrained by droughtiness or wetness/workability limitations;
- the northern end of each of route options is likely to be a mixture of higher and lower quality land in subgrades 3a and 3b constrained by a wetness/workability limitation.

11.215 Land to the north of Hale and up to the A562 is of lower quality, predominantly a mixture of sub-grades 3a and 3b. The amount of land taken in this area increases from Options SA2 to SA4, with the former taking the least land:

- Option SA2 requiring approximately 12.5 ha of the best and most versatile land;
- Option SA3 - 14 ha of the best and most versatile land; and
- Option SA4 - 17.5 ha of land.

11.216 Option SA2 would also have the least impact upon land holdings, as the main long-term effect of development on the individual farming units would be the permanent loss of land from agricultural use. This analysis supports the preference of Option SA2 as the alignment for the EATC.

Flood Risk, Water Quality

The Hydrogeology of JLA and surrounding area

11.217 The hydrogeology of JLA has been established through a review of the relevant Groundwater Vulnerability 1:100 000 Map Series. The shallow deposits under the site are classified as minor aquifer, while the underlying clays are non-aquifer. The base sandstone is a major aquifer containing high quality water and is situated within a Total Source Protection Zone. Although there has been localised saline intrusion in this area, there are no licensed abstractions within 2km (1.2 miles) of the site.

Surface Water

11.218 The main surface water resource in the vicinity of JLA is the River Mersey, an internationally designated site for nature conservation. It is understood that the Inner Estuary of the Mersey is currently classified by the Environment Agency as of "poor quality" with a target for "fair" quality by 2010 (English Nature 2001). There have been programmes to clean up the Estuary and the Liverpool City Council UDP specifies that development proposals will need to include mitigation measures designated to minimise any damage to the coast. There are no other rivers within 500m of JLA, although there are several drainage ditches in and around the site. At present, surface water drainage from JLA passes through various interceptor tanks before discharging into the River Mersey. There are 5 existing discharge points.

11.219 During construction, excavations and other activities could alter natural drainage patterns. There will be changes to impermeable and permeable surface areas. This will result in an increase in surface water flows from new car parks, highways and access roads, extended runway and aprons. There will also be an

increase in roof drainage from the terminal extension and increase to the number of hangars and cargo developments. The existing drainage infrastructure will be used where appropriate, with new drainage infrastructure constructed to accommodate the increased flows from the proposed developments. Interceptors will be located upstream of all outfalls where the surface water could be contaminated.

11.220 A Sewerage Condition CCTV Survey has been undertaken of all the airside drainage and a large proportion of it has been replaced in the last few years. Whilst some local attenuation may be required, particularly for the EATC, it is envisaged that the existing large diameter outfalls direct to the River Mersey will obviate the need for significant attenuation.

Foul Water

11.221 Foul water drainage from the site passes through the Mersey Estuary Pollution Alleviation Scheme (MEPAS) interceptor and is pumped to the waste water treatment works (WwTW) on Ramsbrook Lane. Under storm condition the interceptors may overflow, resulting in the combined foul and storm water outfalling to the River Mersey. However United Utilities have confirmed that this now only occurs in very extreme events. Assuming available capacity, foul water will discharge into the existing WwTW. Further foul drainage infrastructure will be required to accommodate the additional foul flows from the new developments.

Flood Risk

11.222 The southern boundary of JLA is adjacent to the River Mersey but is several metres above the highest flood level. JLA is within Flood Zone 1. This is shown by all land outside the dark and light blue areas on the Environment Agency's Flood Map. Flood Zone 1 is the little or no flood risk zone as defined in Table 1, paragraph 30 of PPG25: Development and Flood Risk. Nevertheless, any predicted changes in sea levels and the potential requirement for flood defence measures will be considered at the detailed planning stage.

11.223 JLA falls outside the extent of an extreme flood, at the time of The Environment Agency's assessment of the likelihood of flooding. Generally this means that the chance of flooding each year from rivers or the sea is 0.1% (1 in 1000) or less.

Effects of the Master Plan Proposals on Water Quality

11.224 The surface water from the additional pavement and hard standing areas for the Master Plan proposals for 2015 and 2030 will be drained via new main carrier drains installed for the 2015 proposals. The main outfalls are to the River Mersey, which is tidal and does not present any limits on run-off flows. The drainage design proposed allows for localised flooding in certain storm conditions which will be contained within the boundary of JLA and will ensure the safe operation of the airfield is not compromised.

11.225 Potential sources of ground water contamination, particularly during the construction phase, have been considered, together with appropriate working procedures to mitigate / avoid potential impacts. Appropriate measures will be incorporated to prevent the creation of a pathway between any contaminants and sensitive hydro-geological receptors.

11.226 The potential impacts of the development and the construction methods to be utilised in relation to the sub-surface geological conditions and the presence of ground water have been assessed. Specific consideration has also been given to proposed excavations in relation to ground stability and geological conditions.

Consideration of EATC Route Options

11.227 All three route options entail a cut and fill programme to create the new highway and associated embankments and a utility corridor. They all cross low-lying agricultural areas connecting the eastern point of JLA to Speke Boulevard.

11.228 The feasibility of implementing Sustainable Urban Drainage Systems (SUDS) will be examined, taking into account the ground conditions and the level of the water table. This could take the form of an attenuation pond located adjacent to the highway at an appropriate point along its route.

11.229 The impact of the new highway is likely to increase surface water run-off because of the increase in hard standing. Surface water would discharge to the following outfall points dependent on local topography:

- Existing Adopted highway drainage located in the Speke Boulevard to the north.
- River Mersey to the south via JLA site drainage.
- River Mersey to the south, by a new pipe route.

11.230 Liaison with United Utilities will be required to agree a discharge rate into existing drainage on Speke Boulevard. It can be assumed that a combination of the above would be utilised. Any surface run-off would be required to pass though an interceptor before discharging into any watercourse to meet with the Environment Agency's Regulations on contaminated surface water. The interceptors would conform to the requirements of BS 4994. All three routes could adopt either a linear drainage system or a traditional point drainage system.

11.231 At approximately 2km (1.2 miles) in length, Option SA2 is the shortest of the 3 options. It would involve a new junction off the A561 (Speke Boulevard) via the creation of two roundabouts and associated slip roads. This option would require the least amount of drainage and associated civils work, and for these reasons is the preferred option. A carrier drain would extend along the route of the highway, connecting to the outfall chambers of the drainage via 225/300mm diameter pipes. Storm water storage may be required in the form of oversized pre-cast concrete pipes.

11.232 Option SA3, at about 3.75km (2.3 miles) in length, involves the creation of a slip road from the current A561/A562, Knowsley Interchange, and the realignment of the current southern slip road. The route arcs round to the west, crossing Higher Road and passing the western edge of the current sewage works. The route alignment turns south to meet with the proposed Option SA2 to the west of Ramsbrook Lane. Similar to Option SA2, a carrier drain will extend along the route of the highway. This would connect to existing highway drainage on Speke Boulevard and to drainage located within the JLA site boundary. 225/300mm diameter pipes would connect the outfall chambers to the carrier drain. Storm water storage would be required, possibly an attenuation pond.

11.233 At about 4 km (2.5 miles) in length, Option SA4 is the longest of the three options. It involves the creation of a slip road from the current A561/A562, Knowsley Interchange, and the realignment of the current southern slip road. The route arcs around to the south and south west, crossing Hale Bank Road and past the northern boundary of Little Bear's Wood. The route continues past the south eastern edge of the current sewage works and over Ramsbrook Lane to join the course of Option SA2. This route would require the most amount of drainage and associated civils work, and is likely to be the most expensive. A carrier drain would extend along the route of the highway,

connecting to the outfall chambers of the drainage via 225/300mm diameter pipes. If feasible, an attenuation pond located along the route could be used to store the surface water.

11.234 The development proposed up to 2015 would increase areas of pavement and hard standing that require additional main carrier drains to be installed. The surface water from the additional pavement and hard standing areas for the 2030 Master Plan proposals would then be drained via those main carrier drains already installed.

Waste Management

11.235 Waste is generated from a number of sources at JLA, but vast majority of waste generated is associated with retail facilities in the terminal building and arriving aircraft. As the number of passengers and retail facilities has increased so has the volume of waste generated. The Airport's aim is to decouple the growth in the amount of waste generated from the future growth in passenger numbers and to ensure, where practical, that waste growth rates are lower than passenger growth rates.

11.236 The Airport's strategy for waste management is detailed in the 'Liverpool John Lennon Airport Waste Minimisation and Management Strategy' which is based on the waste hierarchy (reduce, re-use, recycle or dispose) and, where practical, the proximity principal. Although the Airport takes responsibility for the disposal of the vast majority of the waste on site, the bulk of the waste is generated by JLA's tenants that provide services to passengers and the airlines.

11.237 To promote a reduction in waste going to landfill and enable improvements in levels of recycling the Airport provides facilities to segregate glass, cardboard and office paper and is investigating options to prevent plastic, timber and newspapers going to landfill. This will be aided in the future by the provision of a dedicated

central area for bulking up and storing recycled materials. The Airport is looking for long term partnerships with waste contractors to recover and recycle as much as the waste generated on JLA as possible.

11.238 The Airport has made the following ongoing commitments relating to waste management at JLA:

- to monitor and report the amount of waste generated;
- to monitor and report the amount of recycled materials;
- to strive to minimise the about of waste produced per passenger;
- to maximise the proportion of waste recycled;
- to work with the JLA community to get everybody involved; and
- to minimise waste created during construction.

11.239 Over the past three financial years (2002/3 to 2004/5) the proportion of waste recycled has increased from less than 1% to 8.4% and with the commitment and involvement of the JLA community to reduce the amount of waste going to landfill, it is envisaged that the proportion of waste recycled will be greater than 15% by 2015.

Environmental Management

11.240 Environmental management is a business priority for the Airport. It is a stakeholder in the Sustainable Aviation Strategy which seeks to ensure that the environmental impacts of air travel are minimised and mitigated. Through the Sustainable Aviation Strategy the Airport supports the integration of the aviation industry into the European Unions Emission Trading Scheme (EU ETS) in 2008. The Airport Operators Association (AoA), British Air Transport Association (BATA) and Society of British Aerospace Companies (SBAC) are all signatories to this unified approach.

11.241 As a stakeholder, the Airport seeks to ensure that environmental considerations underpin all activities on the day to day operation of JLA and related businesses. To achieve this, the Airport has developed an Environmental Management Strategy set out in Chapter 4, which remains relevant to future growth of JLA.

11.242 JLA is also the first UK airport to voluntarily instigate a passenger Carbon Sequestration Scheme: 'Last Call!'. Located in the Departure lounge, this scheme gives passengers the opportunity to make a donation that will be used to plant a tree on their behalf to mitigate their personal contribution to CO2 emissions from their flight. Passengers also have the option of making a donation on-line at www.lastcall.org.uk.

11.243 All passenger contributions to the JLA Carbon Sequestration Scheme will be matched by the Airport and will go towards planting trees to absorb carbon dioxide (CO2) emissions. The scheme is designed to allow individual passengers the opportunity to have carbon neutral flight. The Airport has developed a partnership with Mersey Forest such that money donated by passengers is used to plant trees locally in the Merseyside area.

12. Safeguarding, Risk Assessment & Compensation Issues

Safeguarding Issues

12.1 The safe operation of JLA and aircraft that use it is of overriding importance. This affects operation of JLA in a number of ways. The Airport regularly reviews safeguarding measures which seek to protect flight paths and airspace around JLA from potential hazards. It undertakes ongoing risk assessment of all operational aspects and maintains a Public Safety Zone in accordance with prevailing regulatory requirements. All of these aspects of airport safety have been carefully taken into account in formulating this Master Plan.

12.2 JLA is a safeguarded airport which means that it must be consulted on proposals that may lead to an increased chance of aircraft flying into a flock of birds (bird hazard) or involve tall structures that could affect aircraft movements. The Joint DfT/ODPM Circular 1/2003 (2003) identifies the arrangements for safeguarding aerodromes:

> "Certain civil airports, selected on the basis of their importance to the national air transport system, are therefore officially safeguarded, in order to ensure that their operation and development are not inhibited by buildings, structures, erections or works which infringe protected surfaces, obscure runway approach lights or have the potential to impair the performance of aerodrome navigation aids, radio aids or telecommunication systems; by lighting which has the potential to distract pilots, or by developments which have the potential to increase the number of birds or the bird hazard risk".[148]

12.3 The Airport works with adjacent local planning authorities to ensure that JLA is properly safeguarded. Safeguarded areas for bird hazard extend for a 13 km (8 miles) radius of an airport. A 30 km (18.6 miles) radius applies for wind turbine development.

12.4 JLA's safeguarding maps include parts of Liverpool, Wirral, Halton, Vale Royal, Knowsley and Ellesmere Port. The Circular identifies the requirement for local planning authorities to consult an airport operator for development that may affect aerodrome safeguarding. It identifies at paragraph 28 that development plans should,

> "include a policy stating that officially safeguarded areas have been established for a particular airport, that certain planning applications will be the subject of consultation with the operator of that aerodrome and that there may be restrictions on the height or detailed design of buildings or on development which might create a bird hazard."

12.5 The Circular further advises local planning authorities that the outer boundaries of the safeguarded areas should also be shown on their proposals maps.

12.6 The Airport considers wind farm development in the vicinity in line with CAP 764: CAA Policy and Guidelines on Wind Turbines, and will respond to consultations on such schemes according to the likely effect on site operations.

Risk Assessment and Public Safety Zones

12.7 Preliminary risk assessment shows that the planned expansion of JLA, as provided for in this Master Plan, can be accommodated without exceeding established measures of risk. The Airport has considered the implications for risk to third parties due to possible aircraft accidents in the vicinity of JLA arising from implementing the Master Plan proposals to 2015 using the schedules of aircraft types and movements together with historical crash rates for particular aircraft types to produce contours of individual risk, dependent on position relative to the runway.

148 Circular 1/2003: Aerodrome Safeguarding, Annex 2, para 3.

12.8 The main instrument of Government policy with respect to the control of this risk is the establishment of Public Safety Zones (PSZ) extending from each runway end. The basic policy objective is that there should be no increase in the number of people living, working or congregating in PSZs and that, over time, the number should be reduced as circumstances allow. In the White Paper Progress Report, the Government announced that it will start a review of current PSZs at all UK airports in 2007 to ensure the level of risk has not changed following the preparation of airport master plans.

12.9 In addition to the control of risk by means of PSZs, the Secretary of State wishes to see the emptying of all occupied residential properties, and of all commercial and industrial properties occupied as normal all-day workplaces, within the area in which the individual risk is greater than 1-in-10,000 per annum. No additional houses outside those the Airport has already sought to acquire are expected to fall within the revised 1-in-10,000 per annum risk contour following the runway extension.

12.10 The risk posed to hazardous installations in the vicinity of JLA due to aircraft accidents will also be fully considered with reference to detailed scheduling information, and compared to the existing level of risk and relevant Health and Safety Executive criteria.

12.11 Consideration will also be given to the occurrence of damage to property caused by wake vortex effects of aircraft using JLA through the Vortex Damage Rectification Scheme.

Land Acquisition and Compulsory Purchase

The need for land outside the Airport's current ownership

12.12 The proposals outlined in this Master Plan cannot be realised exclusively on land currently owned by the Airport, albeit much of that required is already within the ownership of the Airport, including the farmland of the Oglet and some of the land required for the EATC. A relatively small amount of land and property owned by other individuals and organisations would be needed.[149] This would primarily be to afford access between JLA and Speke Boulevard to the north and Oglet to the south of JLA, although a limited amount would be needed for other essential airport facilities.

12.13 It is the Airport's hope to purchase the necessary property by agreement with the owners, as has been the case in the past, and it has already contacted those who stand to be affected with this in mind.

12.14 Where acquisition by agreement is not practicable, or cannot be reached on acceptable terms, the Airport and the relevant Highways Authority, do have powers of compulsory acquisition. However, there are set procedures that must be followed and compulsory purchase is always subject to Ministerial confirmation.

12.15 For the property needed exclusively for airport facilities other than roads, the Airport would be responsible for the compulsory purchase procedures. However, at this stage in the development of the proposals, it has not been determined whether the Airport, or the Highways Authority, would promote a Compulsory Purchase Order for the property needed exclusively for road access. This will be discussed with the relevant authorities at a later stage.

149 Linking the existing Speke Garston Coastal Reserve with the proposed extension in the Oglet will require the agreement of the National Trust as freehold owner.

12.16 The Airport's powers of compulsory purchase, for any purpose connected with the performance of its functions, are enshrined in the Airports Act 1986 and the Civil Aviation Act 1982. The Highways Authority's powers of compulsory purchase stem from the Highways Act 1980. In either case, the Acquisition of Land Act 1981 governs the procedures by which a Compulsory Purchase Order is published and confirmed.

Compensation

12.17 In order to avoid uncertainty for these property owners affected, the Airport is prepared to consider the purchase of their interests immediately rather than waiting for the outcome of any planning application or confirmation of any Compulsory Purchase Order. This offer applies to properties notified by the Airport as likely to be affected by the works.

12.18 Property owners will not be prejudiced by selling by agreement rather than by virtue of compulsory purchase. Owners selling by agreement will be entitled to the market value of their property. For tenants of properties being sold, the Airport will offer assistance with relocation.

12.19 Property now in the Airport's ownership, or land purchased in the future, will be retained in existing use where possible until required for airport development.

12.20 Owners, lessees, tenants and those with an interest in land which would be affected need take no action at present, although it would be useful to notify the Airport of their interest if they have not already been contacted by us.

Properties Severely Affected by Noise

The Government's expectations

12.21 In its White Paper, 'The Future of Air Transport'[150], the Government sets out certain measures which it wishes to see adopted by all relevant airports to address existing aircraft noise and the impacts of future growth.

12.22 These measures address both acoustic insulation schemes and assistance with relocation or offers to purchase. The Airport already has in place an acoustic insulation scheme, which is periodically reviewed in consultation with Liverpool City Council and the Noise Monitoring Sub-Committee of the Airport Consultative Committee.

12.23 In respect of existing aircraft noise, where households already experience high levels of aircraft noise (69dBA Leq), the Government expects airport operators to offer assistance with the costs of relocating. There are currently no households around JLA subject to such high levels of aircraft noise.

The impact of future airport growth

12.24 In respect of future airport growth, the Government also expects consideration to be given towards people who suffer a large increase in noise due to major airport development.

12.25 The Government also recommends that airports offer to purchase those properties which may suffer from both a high level of noise (69dBA Leq or more) and a large increase in noise (3dBA Leq or more) and offer acoustic insulation to any property which suffers from a medium to high level of noise (63dBA Leq or more) and a large increase in noise.

12.26 The increase in noise levels was to be established by comparing base year noise contours and noise contours to be produced at five yearly levels.

150 'The Future of Air Transport', Department for Transport, (2003), Chapter 3.

12.27 The Airport's previous SIGS criteria were equivalent to the Government's recommendations. However, following the Master Plan consultation, the Airport resolved to enhance the SIGS both in terms of the number of properties eligible and the level of grant in line with best practice amongst other UK airports (see Chapter 11).

12.28 It is anticipated that two properties, in addition to those the Airport has already offered to purchase, may become subject to a high level of noise (69dB L_{Aeq} or more) as a result of the developments proposed by this Master Plan (see Chapter 11). Once it appears that this level of noise will arise, an offer will be made to purchase the properties in accordance with Government advice.

13. Sustainability Appraisal

Achievement of Environmental and Socio-Economic Objectives

13.1 Sustainability Appraisal (SA) is a systematic process undertaken during the preparation of any plan or strategy. Its role in this case is to assess the extent to which the Master Plan will help to achieve environmental, social and economic objectives. In doing so, it provides an opportunity to consider ways in which the Master Plan can contribute to improvements in environmental, social and economic conditions, as well as a means of identifying and addressing any adverse effects that the Master Plan might result in.

13.2 A SA of the Master Plan has been undertaken by independent consultants and considers environmental issues whilst also addressing the spectrum of socio-economic concerns. The Planning and Compulsory Purchase Act 2004 requires all emerging development plan documents and supplementary planning documents to be subject to SA.

13.3 While there is no statutory requirement to carry out a formal SA of the Master Plan, it provides a structured approach to addressing its impact on people and the natural environment, and to identifying proposals to minimise and mitigate impacts, as required by the White Paper[151]. The preparation of the SA has followed guidance set out in: 'Sustainability Appraisal of Regional Spatial Strategies and Local Development Documents'.[152]

13.4 The SA report accompanying the Master Plan comprises four stages of the SA process:

Stage A: Setting the context, establishing the baseline and deciding the scope of the SA;

Stage B: Developing and refining the options and assessing effects;

Stage C: Preparing the SA report; and

Stage D: Consulting on the draft SA report and appraisal of changes.

Stage A

13.5 This stage involved reviewing all policies, plans and programmes relevant in setting the content of the Master Plan; collecting social, economic and environmental baseline information; and identifying potential sustainability issues. It was decided to use the following SA objectives from the Liverpool Local Development Framework (LDF) 'Core Strategy Development Plan Documents Preliminary Sustainability Appraisal' since it was considered that they would encompass all the potential sustainability issues of the Master Plan. It was also considered important to be consistent with the SA undertaken on the LDF document by Liverpool City Council, particularly given the prospect of integrating the Master Plan with the forthcoming Area Action Plan for South Liverpool:

1 Use energy, water and mineral [land] resources prudently and efficiently, and increase energy generated from renewable sources;
2 Minimise the production of waste and increase reuse, recycling and recovery rates;
3 Protect, improve, and, where necessary, restore the quality of inland, estuarine and coastal waters;
4 Protect, and, where necessary, improve local air quality;
5 Mitigate and adapt to climate change, including flood risk;
6 Protect, manage and restore land and soil quality;
7 Preserve, enhance and manage the City's rich diversity of cultural, historic and archaeological buildings, areas, sites and features;

151 'The Future of Air Transport', Department for Transport, (2003), Chapter 3.
152 Office of the Deputy Prime Minister (November 2005).

8 Protect, enhance and manage biodiversity, the viability of endangered species, habitats and sites of geological importance;
9 Reduce the need to travel and improve choice and use of more sustainable transport modes;
10 Minimise noise disturbance;
11 Improve safety and reduce crime, disorder and fear of crime;
12 Improve health and reduce health inequalities;
13 Improve local accessibility of goods, services and amenities and reduce community severance;
14 Reduce poverty and social deprivation and secure economic inclusion;
15 Improve educational attainment, training and opportunities for lifelong learning and employability;
16 Maintain high and stable levels of employment and reduce long-term unemployment;
17 Improve the competitiveness and productivity of business, exploit the growth potential of business sectors, and increase the number of new businesses; and
18 Enhance vitality and viability of city, district and local centres.

Stage B

13.6 A comparison was made of the Master Plan and SA objectives to measure their compatibility. As part of the SA process, where potential incompatibilities, or negative effects, were identified, the Master Plan objectives have been refined, where possible, to resolve the differences. Mitigation for residual potential incompatibilities between the Master Plan Objectives and SA Objectives has included the provision of additional environmental and social Master Plan objectives. The refined Master Plan objectives are set out in Chapter 2.

13.7 Airport growth has been identified as a preferable option to one of 'do nothing' or of maintaining existing facilities. Airport growth is in accordance with existing national and regional policy (see Chapter 4) and will provide economic and social gains to one of the most economically and socially deprived areas of the North West. Failing to invest to support growth would eventually result in the decline of JLA over the longer term, as infrastructure fails to meet the demands of the airlines and passengers, such that business moves elsewhere. The most significant consequence of this would be the loss of jobs at JLA and in related businesses in the deprived Speke Garston area and elsewhere in the sub-region.

13.8 The document, 'Sustainable Aviation: A Strategy towards sustainable development of UK aviation' (2005), to which Peel Airports are a signatory, provides a coordinated industry response to the challenges (including climate change) outlined by the Government in the White Paper. The document outlines the aviation industry's long-term strategy for limiting its contribution to climate change, and commitment to technological innovation to reduce the impacts of aircraft, and for the community mitigation of noise. This strategy, together with support for the Government's policy of seeking the inclusion of aviation in the EU Emissions Trading Scheme, as outlined in Chapter 4, is seen as the most appropriate response to the challenge of climate change.

13.9 In Chapter 7, a series of development options necessary to accommodate the forecast growth of JLA were examined for each of the following Master Plan areas:

- Passenger Terminal Facilities
- Car Parking Provision
- Runway Provision
- Surface Access Strategy
- Business and General Aviation (BAGA) Centre
- Cargo Handling Facilities

- Hotel Provision
- Radar Installation
- Engine Testing
- Fuel Farm
- Office and Commercial Accommodation

Preferred Development Options

13.10 The following preferred development options were selected after comparison with the SA objectives. No options were proposed for the fuel farm as existing facilities are capable of being extended to cater for the proposed expansion.

- *Passenger Terminal* - Extension of the terminal parallel to the runway (T1) is preferred to options T2 and T3 because: it provides the most suitable layout for the operation of the airfield; makes the best use of existing surface access and terminal facilities; mitigation of potential noise impacts is possible; and it is likely to have less impact on biodiversity than Option T3 which would provide a new second terminal south of the runway.
- *Car parking* - None of the options considered would alone provide all of the car parking to meet predicted future requirements; therefore, a combination of options is preferred. Providing multi-storey parking on the north side of the terminal (CP3) is preferred because it makes the best use of existing infrastructure and surface access provisions. It is close to the terminal and is, therefore, the most suitable location for short stay parking. This option assumes that the potential visual impacts can be mitigated; e.g. through landscaping along the boundary with Hale Road. Additional parking could be provided by extending the long stay car park west of Speke Hall Avenue (CP4). This is the more suitable option for long stay parking and maximises the use of existing long stay parking facilities. Additional parking may be required in the longer term once the parking provided under options CP3 and CP4 has reached its capacity. Additional surface parking to the south of the runway (CP2) would require additional surface access. Additional off-site car parking (CP5) would be problematic to regulate, and would increase the journey time and distance between car parking and the terminal. A further option under consideration is that of providing long-stay parking to the east of the terminal building (CP1). This is the most preferable of the remaining 3 options as the parking wold be accessible to the terminal building, particularly in the longer term when the EATC is delivered, and be likely to have less impact on biodiversity.
- *Runway Extension* – The potential of the Airport to contribute to the economic and social benefits of the Speke Garston area would be constrained without the potential to capture long haul passenger and cargo services which would be facilitated by an extension to the runway. An extension of the runway to the east (R2) rather than the west is preferred, as it will not encroach on the Mersey Estuary SSSI, SPA/Ramsar site. This option involves the relocation of Dungeon Lane. The potential noise and other environmental impacts should be mitigated.
- *Improved Surface Access* – The Airport will continue to work with the PTE: Merseytravel, through the ATF, to improve bus, coach and train access to JLA. However, it is accepted that the majority of journeys to JLA will continue to be made by car. Adequate highway capacity must, therefore, be maintained, which will also facilitate the ongoing regeneration in the Speke Boulevard Corridor. To improve surface access, a combination of options is required. The most sustainable option in the short term is to optimise the existing capacity of the road network (SA1) as this maximises the use of existing resources and will mitigate existing

capacity problems in the Corridor. In the medium to long-term, it will be necessary to increase the capacity in the Corridor to accommodate the economic growth in the region. The eastern access transport corridor (EATC) linking JLA to Speke Boulevard (A561) is proposed. Three route options have been considered in the Master Plan. The shortest route (SA2) is considered to be preferred as it would require the least land-take and is likely to have the least environmental impact overall.

- *Business and General Aviation Centre* - Extension of facilities to the east of the terminal (BAGA1) is preferred as it makes the best use of existing facilities and infrastructure. However, potential noise impacts have been identified for a number of properties on the Speke Estate as a result of aircraft and road noise. Mitigation and compensation is proposed by extending the existing landscaped bund along Hale Road.
- *Cargo Facilities* - Expansion of cargo facilities within the existing boundary to the east of the terminal (C2) is preferred as this option will not constrain the expansion of other operational facilities, including the terminal, until around 2015. After 2015, a significant expansion of the cargo facilities will be required to cater for the forecast growth in cargo throughput of 220,000 tonnes per annum. The preferred option for this freight handling and distribution complex is on agricultural land in the Green Belt to the south of the runway in the Oglet. Mitigation or compensation would be required for the loss of agricultural land and to address the potential biodiversity, landscape and cultural heritage impacts.
- *Hotel Provision* - Both options: for development on land off Speke Hall Avenue (H1); and adjacent to the terminal (H2), are preferred as being capable of providing a range of hotel facilities, accessible to a range of tourists and business users. The potential visual impacts of both options would require mitigation; e.g. through considerate design and landscaping.
- *Engine Testing and Radar* – For operational reasons, the preferred options for these facilities is considered to be south of the runway. The engine testing facility would benefit from being situated away from residential properties to the north and close to the longer term cargo complex to the south of the runway. A radar scheme in this area has recently been granted permission.
- *Office and Commercial Accommodation* - The proposed scheme that would provide office and commercial accommodation on the former Dunlop site (OC1) is the preferred option. It would facilitate clustering of office and commercial facilities within one area without constraining the expansion of the terminal building; and provide training and job opportunities for residents in Speke and Garston where they are most needed.

13.11 During the option appraisal exercise, some impacts were identified as being in potential conflict with the SA objectives, such as increased environmental impacts, particularly in relation to air quality, landscape and noise impacts (see below). However, mitigation is proposed where necessary. Moreover, large scale development arising out of the Master Plan (generally, that which is not 'permitted development') is likely to go through 'screening' to ascertain whether an EIA[153] is required. This is a systematic process that identifies the need for appropriate mitigation of significant environmental impacts.

13.12 The Master Plan was assessed and evaluated against the SA objectives.

153 Town and Country Planning (Environmental Impact Assessment) (England & Wales) Regulations 1999.

Achieving Environmental Objectives

13.13 The environmental considerations arising out of the Master Plan proposals are set out in Chapter 11. The proposals will cause perceptible, and, in one area, noticeable, increases in overall noise, assuming no effect from improving aircraft technology, and will lead to some increase in the population exposed to 57 dB LAeq,16h, which is the noise contour representing the onset of low community annoyance. However, the increase in the population exposed to noise will be small and the impact is not classified as being significant.

13.14 Air quality assessments indicate that nitrogen dioxide and PM_{10} concentrations close to JLA will be similar to those currently being experienced and well below the relevant UK and EU objectives. The increase in air and ground movements will be offset by improvements in vehicle and aircraft technology that reduce the emissions per movement. The Master Plan proposals are unlikely to lead to an exceedence of any relevant objective.

13.15 As mentioned above, the potential cumulative negative effects on greenhouse gas emissions created as a result of JLA's growth are being addressed at a national level. The Airport is a stakeholder in 'Sustainable Aviation'. This is an initiative based on the document: 'A Strategy Towards Sustainable Development of UK Aviation' prepared by an alliance of airport operators, aircraft manufacturers and airlines in which they commit to a long term strategy for limiting aviation's contribution to climate change and addressing other environmental challenges.

13.16 The Master Plan is likely to have negative effects in the longer term as a result of increases in road traffic to the region by non-sustainable transport modes. Nonetheless, this is to some extent off-set because the growth of regional airports, such as JLA, reduces the need for passengers to make long-distance journeys, particularly by road, to and from southern airports. Implementation of the ASAS, including measures to continually improve public transport, will go some way to mitigate this negative effect.

13.17 The proposed runway extension would not encroach on the protected coastline. However, there are potential negative effects on species and habitats, and on cultural heritage, mainly as a result of the construction of the eastern access transport corridor (EATC) and the cargo handling and distribution facility in the Oglet. Mitigation for these effects is likely to be possible in the form of habitat enhancement schemes; e.g. the 50 ha (124 acres) extension of the coastal reserve, landscaping as part of the EATC, and considerate building design. There would also be negative effects on residents in Hale; e.g. from the reduction in height of landing aircraft.

13.18 The Master Plan has some positive environmental effects, including a reduction in the amount of derelict land or buildings, providing an opportunity for improvements to pollution control and flood risk, and the gradual increase in use of more sustainable transport modes in line with the ASAS. Furthermore, the Master Plan provides an opportunity to improve the management of water resources at JLA through positive drainage design such as Sustainable Urban Drainage Systems.

13.19 The Master Plan is likely to have some negative environmental effects. These will be minimised, however, through careful detailed design and any residual impacts will be subject to appropriate mitigation measures. The Airport seeks to ensure that environmental considerations underpin all activities related to the day to day operation of JLA and related businesses. To achieve this, the Airport has

developed its EMS that addresses and monitors issues such as noise and air quality. A practical example of the Strategy has been the introduction of the Last Call! scheme jointly developed with the Mersey Forest through which people can contribute to tree planting to offset the climate effects of their flight.

Achieving Social Objectives

13.20 The Master Plan proposals are likely to have positive effects through the increased provision of affordable and convenient aviation services to people in Liverpool and the North West and by attracting overseas tourists into the region. This will also boost access to local universities by overseas students, and bring in spectators and participants to sporting and cultural events; e.g. European Capital of Culture. The proposals will also have positive effects through reducing poverty and social deprivation, securing economic inclusion, and, through the Airport's continuing involvement in schemes such as Liverpool South JET and SMART, will improve educational attainment, training and opportunities for lifelong learning. Promoting investment in local recreation facilities and open spaces, such as the expansion of the coastal reserve, can enhance this further.

Achieving Economic Objectives

13.21 The Master Plan, through the continued growth of JLA, will have major positive effects on the local and regional economy. It will create significant levels of new employment both directly at JLA and indirectly in the supply chain. This is of major importance given the socio-economic characteristics of the Speke Garston area and the City Region as a whole. Chapter 10 includes a cautious estimate of future direct and indirect employment at JLA of around 9,400 jobs at 2030 following creation of the Oglet World Cargo Centre. (This development represents a unique opportunity to harness the economic benefits arising out of the proximity of JLA and the Port of Liverpool to enhance Liverpool's position as an international trading city and gateway to the North West). Spin-off benefits should also result in local business growth, improvements in competitiveness through increased access to international markets, and improvements in the vitality and viability of city, district and local centres. The opportunities for economic development arising out of the expansion of JLA is acknowledged and encouraged in national, regional and local policy.

The Sustainability of the Master Plan

13.22 Achieving sustainability is to achieve a balance between environmental, social and economic effects. The Master Plan proposals have negative environmental effects, although opportunities for mitigation and enhancement will reduce these. The potential negative effects on climate change created as a result of the growth of JLA are being addressed at a national level. However, the Master Plan achieves the majority of sustainability objectives as a result of the overriding social and economic benefits that the proposals will bring to one of the most deprived areas in the UK.

Monitoring

13.23 The purpose of a monitoring strategy is to ensure that unforeseen adverse effects are identified as early as possible in order for effective and appropriate remedial action to be taken. It is necessary to monitor those aspects that have potentially significant effects, or and those that will inform potential remedial action. Any proposed mitigation measures should also be monitored to ensure their efficacy. Monitoring data can be collated from existing sources such as National Statistics Census information. Monitoring, via the Environmental Management Strategy and other processes, will be carried out in the following areas:

- Noise
- Air Quality

- Ecology
- Cultural Heritage
- Water Resources Management
- Waste Management
- Landscape
- Surface Access
- Economic / Social and
- Public Participation

13.24 The results of the monitoring will be documented in an annual report on environmental and social performance, and a separate report on the economic performance of the Airport.

Stage C

13.25 The draft SA report presented the findings of Stages A and B for consultation at Stage D.

Stage D

13.26 The draft SA report and draft Master Plan were launched at a press conference on 12th July 2006 and subject to public consulation over a ten week period from this date. A number of methods, highlighted below were used to inform and consult with as many organisations and members of the public as possible.

- summary leaflet distribution;
- written invitation to key organisations to participate in the consultation;
- public consultation exhibitions in local libraries, council offices and at the Airport;
- briefings given to airport staff and associated companies with leaflet distribution;
- permanent exhibition in the terminal buildings;
- presentations given to a number of organisations and council committees;
- dedicated web pages in the Airport website;
- members of the public emailed on the Airport database;
- the draft Master Plan and SA Report available on CD-ROM; and
- postcard style questionnaire available to members of the public.

13.27 Comments on the draft SA Report were received, considered, and where appropriate, changes were incorporated into the final documents. Some of the comments received required minor amendments to the Master Plan and the SA Report, such as rewording of statements to reflect updated policies or plans, explanation or clarification of statements, and suggestions to further improve upon mitigation measures.

13.28 There were no comments received that inherently affected the direction of the Master Plan, or the outcomes of its objectives.

13.29 The Master Plan and SA Report are now published together with a Summary of Consultation Responses on the Draft Master Plan and Draft SA Report. This provides a comprehensive list of comments received and how each comment has been addressed in the final published version of the Master Plan and this SA Report.

13.30 The final stage of the SA (Stage E) will be monitoring of the SA objective, as detailed in paragraph 13.23.

14. Next Steps

The Master Plan and the accompanying documents will be submitted to the DfT, local planning authorities and other interested parties. These will be available to download from the JLA website.

Copies of the Master Plan and accompanying documents will also be available for inspection at the JLA Information Desk. Copies can also be obtained from:

Liverpool John Lennon Airport
Liverpool L24 1YD.

Tel. No. 0151 907 1622

The Master Plan will be subject to regular monitoring and a formal review every five years and further public consultation. The Master Plan Steering Group will be convened on a six monthly basis to discuss ongoing related issues

Further consultation will also be carried out for significant proposals at the detailed planning stage, prior to the submission of any planning applications for significant proposals. Details of public consultation will be publicised through the press and other media, including the website, Merseytravel Access Panels and Transport Advisory Panels.

Glossary

Aero-Club Movements

Movements operated by aero-club members for instruction or pleasure. Touch and go operations are counted as two movements.

Aircraft Movement

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

Aircraft Stand

A position on the apron at which aircraft can be located where all normal servicing activities are carried out, including the enplaning and deplaning of passengers. Stands may be remote or adjacent to the terminal building.

Airside

The restricted area of the Airport to which the public do not have general access and which includes the Customs Examination Area.

Air Gate Bridge

Pedestrian bridge over airport access road providing passenger access between terminal building and aircraft stands.

Air Quality Standards

A nationally defined set of concentrations for nine pollutants below which health effects do not occur or are minimal.

Air Quality Objectives

A nationally defined set of health-based concentrations for nine pollutants, seven of which are incorporated in Regulations, setting out the extent to which the standards should be achieved by a defined date, taking into account costs, benefits, feasibility and practicality. There are also vegetation-based objectives for sulphur dioxide and nitrogen oxides.

Air Taxi Movement

Movement by an aircraft of less than 15 tonnes MTWA operating on a non-scheduled service. These are predominantly sole-use charter operations.

Air Transport Movement

Landing or take-offs of aircraft engaged on the transport of passengers, cargo or mail on commercial terms. All scheduled movements, including those operated empty, loaded charter and air taxi movements are included.

Ambient Noise

The totally encompassing sound in a given situation at a given time usually composed of sound from many sources near and far. This is usually represented by the equivalent continuous sound level ($L_{Aeq(T)}$).

Annual Passenger Throughput

Refers to total 2-way passengers passing through the Airport in a year.

Apron

A defined area on the aerodrome provided for the stationing of aircraft for the embarkation of passengers, the loading and unloading of baggage and cargo and for parking.

"A" Weighted Decibel (dB(A))

Internationally accepted unit for most noise measurement and represents the sound pressure level weighted to correspond to the frequency response of the human ear. A difference of 3dB(A) may just be noticeable and a difference of 10dB(A) represents a doubling or halving of subjective loudness.

BI Development

Buildings to be occupied by land uses within Class BI of the 1987 Use Classes Order - defined as offices (except financial and professional services), research and development of products and processes and any industrial process being a use which can be carried out in any residential area without detriment to the amenity of that area by reason of noise, vibration, smell, fumes, smoke, soot, ash dust or grit.

B8 Development

Buildings to be occupied by land uses within Class B8 of the 1987 Use Classes Order - defined as storage and distribution including, wholesale warehouses, distribution centres and repositories.

Background Noise

The underlying sound in a given situation at a given time usually composed of sound from many distant sources. This is usually represented by the sound level exceeded for 10% the time (LA90,T).

Bund
An embankment which acts as a visual and/ or noise screen.

Busy Day Schedule
Schedule of movements of passengers and cargo traffic by hour over a 24 hour period separating out arrivals and departures during the busy summer period (mid-June to mid-September)..

Business Aviation Movements
Non-commercial movements operated on aircraft of 2730kgs MTWA or greater (with no upper weight limit) conducting business operations (e.g. aircraft owned and operated by Shell or Ford).

Carbon Sequestration Scheme
A scheme of payments to support measures such as off-site tree planting which off-set carbon emissions associated with aircraft.

Cargo Movement
Cargo Movement is a flight carrying solely freight and/or mail and associated cargo attendants.

Conservation Area
Designation given by the Local Authority in accordance with Planning Conservation and Listed Buildings Act 1990 to areas of settlements, the character or appearance of which it is considered desirable to preserve and enhance.

Decibel (dB)
Logarithmic ration used to relate a sound pressure level to a standard reference level.

Development Plan
A plan prepared by a Local Planning Authority to guide development and land use. (Previously comprising a structure plans / local plans or unitary development plans in metropolitan districts, recently replaced by a new system consisting of Regional Spatial Strategies prepared by regional assemblies and development plan documents as part of a Local Development Framework prepared by local councils).

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

Emission Trading Scheme
The EU Emission Trading Scheme is the largest multi-national, greenhouse gas emissions trading scheme in the world and is a main pillar of EU climate policy. Under the scheme, each participating country has a National Allocation Plan (NAP) specifying caps on greenhouse gas emissions for individual power plants and other large point sources. Each facility gets a maximum amount of emission "allowances" for a particular period (e.g. 2006-2008). To comply, facilities can either reduce their emissions or purchase allowances from facilities with an excess of allowances. Progressively tightening caps are foreseen for each new period, forcing overall reductions in emissions.

Environmental Impact Assessment (EIA)
A process for identifying and evaluating the likely effects of a proposed development on the environment in accordance with the Town and Country Planning (Environmental Assessment Regulations) 1999.

Environmental Statement
A statement prepared under the above EIA Regulations including a description of the project; the measures envisaged to avoid, reduce and, if possible, remedy significant adverse effects; the data required to identify and assess the main effects which the project is likely to have on the environment; an outline of the main alternatives studied and an indication of the main reason for the option taken forward (taking into account the environmental effects); and a non-technical summary of the information.

Freight
Is the weight of property carried on an aircraft including; e.g. the weight of vehicles, excess baggage and diplomatic bags, but excluding mail and passengers' and crews' permitted baggage. Freight in transit through the airport on the same aircraft is excluded.

General Aviation Movements
Commercial movements including Air-Taxis, positioning and local movements and all non-commercial movements including private aircraft operations and aero-club instructional flights.

Gross Value Added

Estimated annual financial contribution to the economy arising from the development.

Individual Risk

The possibility per annum that an unprotected person at a given location would be killed by an aircraft impact

Instrument Landing System

A precise navigation system for aircraft used under instrument flight rules.

$L_{Aeq(T)}$ - Equivalent Continuous Sound Level

$L_{Aeq,16h}$ - Equivalent Continuous Sound Level is a notional steady sound level which would cause the same A-weighted sound energy to be received as that due to the actual and possibly fluctuating sound from 07.00 to 23.00 (day-time). It can also be used to relate periods of exposure and noise level. Thus, for example, a halving or doubling of the period of exposure is equivalent in sound energy to a decrease or increase respectively of 3dB(A) in the sound level for the original period.

L_{Amax} - Maximum Sound Level

The maximum sound level measured on the A-weighted scale occurring during an (aircraft) event.

Landside

That area of the Airport to which the public have general access.

Listed Building

A building or structure included on the Statutory List of Buildings of Special Architectural or Historic Interest compiled by the Department of Culture, Media and Sport. Graded I, II* and II.

Local Movements

Commercial flights undertaken for press, survey, agricultural and fisheries flying, or public entertainment purposes, and flights performed under a Police Air Operators Certificate.

Maximum Take-off Weight Allowed (MTWA)

A specified weight limit at take-off for commercial aircraft.

Mersey Maritime

Mersey Maritime represents the Maritime cluster of more than 500 businesses, employing 6000 people in Merseyside with a turnover of £1.3 billion per annum. It exists to promote and develop excellence in all maritime related activities in Merseyside and to represent the interests of existing and new cluster members.

The Mersey Partnership

The Mersey Partnership is responsible for the regeneration and economic growth of Merseyside. It acts as a catalyst for change advocating Merseyside as a location for inward investment, tourism and as a conference destination; and co-ordinates Merseyside's economic development activity through the Action Plan for the City Region 2002-05. It represents over 400 businesses across the Liverpool City Region including manufacturing and trading companies, such as Jaguar and Littlewoods, six local authorities, government agencies, universities, media organisations, professional agencies, tourism and conference businesses.

Military Movements

Movements exclusively for military purposes using military aircraft.

Mitigation Measures

Actions proposed to reduce or avoid adverse impacts and to enhance the beneficial impacts arising from a development.

National Monuments Record

A computerised national database of archaeological remains, historic buildings and other sites of interest, held at English Heritage's National Monuments Record Centre in Swindon. Incorporates the former National Archaeological Record.

Nitrogen Dioxide

A common atmospheric pollutant covered by the Air Quality Regulations.

Objective One

Objective One is one of three programmes set up to help reduce differences in social and economic conditions within the European Union. (These three funding programmes are the biggest area of European spending after the Common Agricultural Policy). Of the three, Objective One is the highest priority designation for European aid and is targeted at areas where prosperity, measured in Gross Value Added (GVA) per head of population, is 75% or less of the European

average. The European money has to be matched, across the programme as a whole, with the same amount of UK money. This match funding will come through investment from various public bodies. Other funds will also be provided from the private sector. (Levels of investment and the amount of match funding will vary, however, for individual projects).

Official Movements

Movements for official purposes (excluding Air transport Movements) by British or foreign civil Government Departments; e.g. movements by aircraft of the Civil Aviation Authority's Flight Calibration Services, the Queen's Flight and flights performed under a Police Air Operators Certificate.

Other Non-Commercial Movements

Non-revenue earning movements by air transport operations or manufacturers for the sole purpose of moving their own personnel or stores from one place to another, for delivery, refuelling or maintenance of empty aircraft and air transport flights forced to return to base by bad weather, engine failure or other causes.

Pick Up/Drop Off

Passengers dropped-off and picked-up at an airport by family or friends.

PM_{10}

Particulate matter less than 10 micrometers aerodynamic diameter.

Positioning movements

Movements by aircraft moving into position for scheduled or charter transport flights or returning to base after such flights, including empty Air Taxi Movements.

Private Movements

Movements for purely non-commercial purposes by private owners or other private aircraft operations, excluding aero-clubs movements.

Public Safety Zone

Areas of land at the end of runways in which development is restricted in order to minimise the number of people on the ground at risk of death or injury in the event of an aircraft crash in take off or landing.

Quiet Operations Policy

The Airport's operating procedures to minimise noise generated by aircraft.

Ramsar Site

A site of special ornithological interest protected under the provisions of the Ramsar Convention.

Scheduled Ancient Monument

A monument considered to be of national importance and which is listed on a statutory schedule. Permission must be sought from English Heritage before any excavation or development work is carried out on, or around a Scheduled Ancient Monument.

Scheduled Services

Are those performed according to a published timetable, including those supplementary thereto, available for use by members of the public.

SEL - Sound Exposure Level

The Sound Exposure Level is a measure of noise from a single event which takes account of duration as well as intensity. It is the level which if maintained constant for a period of one second, would deliver the same A-weighted sound energy as a given noise event.

Sites and Monuments Record

The record of archaeological sites, features, find spots and other items of note, which is maintained by every county council as a statutory requirement.

Sites of Special Scientific Interest

An area designated under the provisions of the 1981 Wildlife and Countryside Act or National Parks and Access to the Countryside Act 1949, as being of special importance by reason of its flora and fauna, geological or physiological features which affect the sites.

Special Protection Area

A Special Protection Area or SPA is a designation under the European Union Directive on the Conservation of Wild Birds (79/409/CEE). Member States of the EU have a duty to safeguard the habitats of migratory birds and certain particularly threatened birds.

Surface Water Run-Off

Water which travels across the ground, rather than seeping into the soil.

Taxiway

A defined path on an aerodrome established for the taxiing of aircraft and intended to provide a link between one part of the aerodrome and another.

ABBREVIATIONS

ACI	Airports Council International
ALC	Agricultural Land Classification
APU	Auxiliary Power Units
AOA	Airport Operators Association
AQMA	Air Quality Management Area
ASAS	Airport Surface Access Strategy
ATAG	Air Transport Aviation Group
ATC	Air Traffic Control
ATF	Airport Transport Forum
ATM	Air Transport Movement
AURN	Automatic Urban and Rural Network
BAGA	Business and General Aviation
BAP	Biodiversity Action Plan
BATA	British Air Transport Association
BGS	British Geological Survey
ca	Circa
CAA	Civil Aviation Authority
CAGR	Compound Annual Growth Rate
CBC	Common Bird Census
CDA	Continuous Descent Approach
COMAH	Control of Major Accident Hazard
dB	Decibel
DETR	Department of Environment, Transport and the Regions[154]
DEFRA	Department of the Environment, Food and Rural Affairs
DfT	Department for Transport
EATC	Eastern Access Transport Corridor
EC	European Community
EIA	Environmental Impact Assessment
EMS	Environmental Management Strategy
EN	English Nature
ERDF	European Regional Development Fund
ES	Environmental Statement
ETS	Emissions Trading Scheme
FTE	Full-time Equivalent
GA	General Aviation
GPU	Ground Power Units
GTP	Green Transport Plan
GVA	Gross Value Added
ha	Hectares
HBC	Halton Borough Council
HGV	Heavy Goods Vehicle
HSE	Health and Safety Executive
IATA	International Air Transport Association
ICAO	International Civil Aviation Organisation
ILS	Instrument Landing System
IMD	Index of Multiple Deprivation
INM	Integrated Noise Model
IR	Individual Risk
JET	Jobs, Enterprise and Training South Liverpool
KMBC	Knowsley Metropolitan Borough Council
$L_{Aeq,T}$	Equivalent "A" weighted Continuous Sound Pressure Level over specified time T
L_{Amax}	Maximum "A" Weighted Sound Pressure Level
LCC	Liverpool City Council
LDF	Local Development Framework
LDS	Local Development Scheme
LOS	Level of Service
LPA	Local Planning Authority
LTO	Landing and Taking-off
LTP	Local Transport Plan
LRT	Light Rapid Transport
MATRA	Multi Agency Threat and Risk Assessment
ME	Mediaeval English
MEPAS	Mersey Estuary Pollution Alleviation Scheme
MPPA	Million Passengers Per Annum
MRO	Maintenance Repair and Overhaul
MSCP	Multi-Storey Car Park
MTWA	Maximum Take-off Weight Allowed
NATS	National Air Traffic Services
NETA	North European Trade Axis
NM&TKS	Noise Monitoring & Track Keeping System
NO_x	Nitrogen Oxides
nm	Nautical Mile
NO_2	Nitrogen Dioxide

154 Most of the responsibilities of this department and those of the subsequent Office of the Deputy Prime Minister are now covered by the Department for Communities and Local Government.

NPR	Noise Preferential Route
NRTF	National Road Traffic Forecasts
OEF	Oxford Economic Forecasting
OEM	Original Equipment Manufacturers
ONS	Office for National Statistics
PAHs	Polycyclic Aromatic Hydrocarbons
Pcu/hr	Passenger Car Units Per Hour
PTE	Passenger Transport Executive
PTI	Passenger Transport Interchange
PM_{10}	Particulate Matter
PPG	Planning Policy Guidance
PPS	Planning Policy Statement
P-RNAV	Precision Area Navigation
PSZ	Public Safety Zone
PU/DO	Pick Up/Drop Off
QC	Quota Count
RASCO	Regional Air Services Coordination Study
RAuxAF	Royal Auxiliary Air Force
RES	Regional Economic Strategy
RPG	Regional Planning Guidance
RSS	Regional Spatial Strategy
RTS	Regional Transport Strategy
SA	Sustainability Appraisal
SAM	Scheduled Ancient Monument
SBAC	Society of British Aerospace Companies
SBI	Site of Biological Interest
SEL	Sound Exposure Level
SIA	Strategic Investment Area
SIDS	Standard Instrument Departures
SIGS	Sound Insulation Grant Scheme
SMART	St Mary's Area Regional Trust
SMR	Sites and Monuments Record
SO_2	Sulphur Dioxide
SOA	Super Output Areas (are areas of small population (c. 1,600) smaller than ward areas)
SPA	Special Protection Area
SPD	Single Programme Document
SSSI	Site of Special Scientific Interest
STAR	Standard Arrival Routes
SWOT	Strengths Weaknesses Opportunities and Threats
TA	Transport Assessment
TEOM	Tapered Element Oscillating Microbalance
TEUS	Twenty-foot Equivalent Units
TMA	Terminal Movement Area
TOC	Total Organic Carbon
$\mu g/m^3$	Microgrammes Per Cubic Meter
WMBC	Wirral Metropolitan Borough Council
WwTW	Waste Water Treatment Works